



Traffic Safety Basic Facts 2005

Motorways

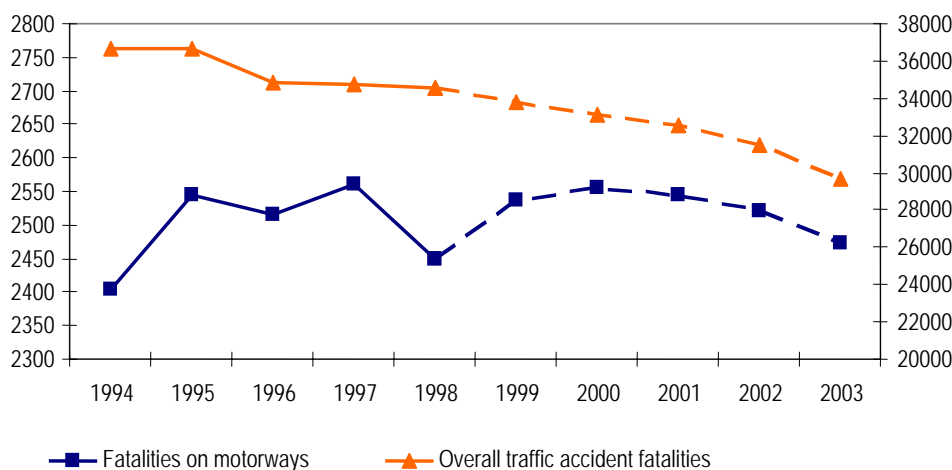
More than 25.100 persons were killed in traffic accidents on motorways, in 14 European Union countries within the decade 1994 - 2003. This number represents about 7,4% of all traffic accident fatalities in those countries.

An increase of 2,8% in traffic accident fatalities on motorways is recorded in 2003¹ compared to the 2.405 respective fatalities in 1994, whereas the total traffic accident fatalities were significantly reduced by almost 19% in the 14 European Union countries within the same decade.

The fact that the motorway fatality trend does not follow the related overall road fatality trend can be explained by the significant increase of the length of the motorway network in the 14 EU countries by almost 24% between 1994 (34.086 km of motorways) and 2003¹ (42.097 km).

Figure 1: EU-14 Fatalities evolution

Evolution 1994 - 2003



Source: CARE Database / EC
Date of query: July 2005

¹or last available year

An increase of 2,8% in traffic accident fatalities on motorways is observed during the decade 1994 - 2003¹

Motorway fatality trend does not follow the related overall road fatality trend, due to the significant increase of the motorway network length in the 14 European countries by almost 24% since 1994



Table 1 provides an overall view of the evolution of fatalities on motorways per country.

Table 1: Fatalities on motorways per country, 1994 – 2003

| | 1994 | 1995 | 1996 | 1997 | 1998 | 1999 | 2000 | 2001 | 2002 | 2003 |
|----|------|------|------|------|------|------|------|------|------|------|
| BE | 201 | 209 | 201 | 192 | 223 | 213 | 238 | 196 | - | - |
| DK | 32 | 31 | 30 | 32 | 30 | 41 | 29 | 38 | 48 | 21 |
| EL | 2 | 1 | 148 | 72 | 61 | 105 | 61 | 86 | 69 | 58 |
| ES | 377 | 356 | 314 | 313 | 353 | 327 | 354 | 376 | 324 | 372 |
| FR | 470 | 465 | 453 | 470 | 497 | 492 | 527 | 487 | 521 | 439 |
| IE | 1 | 6 | 2 | 3 | 0 | 1 | 6 | 4 | 5 | 7 |
| IT | 690 | 782 | 752 | 848 | 711 | - | - | - | - | - |
| LU | 9 | 9 | 16 | 11 | 8 | 6 | 9 | 7 | 12 | - |
| NL | 161 | 190 | 182 | 156 | 108 | 132 | 138 | 124 | 123 | 151 |
| AT | 179 | 166 | 104 | 121 | 141 | 146 | 126 | 156 | 126 | 107 |
| PT | 86 | 99 | 116 | 104 | 105 | 123 | 128 | 112 | 115 | 127 |
| FI | 5 | 16 | 8 | 3 | 10 | 9 | 13 | 11 | 16 | - |
| SE | 31 | 31 | 20 | 40 | 25 | 25 | 25 | 30 | 27 | - |
| UK | 160 | 184 | 169 | 195 | 176 | 205 | 191 | 206 | 228 | - |

Source: CARE Database / EC
Date of query: July 2005

As illustrated in Table 2 the fatality rates on motorways per 1.000.000 inhabitants in Austria and Portugal are much higher than the respective rates in the other 12 European countries, as well as the average rate of the European Union for 2003¹.

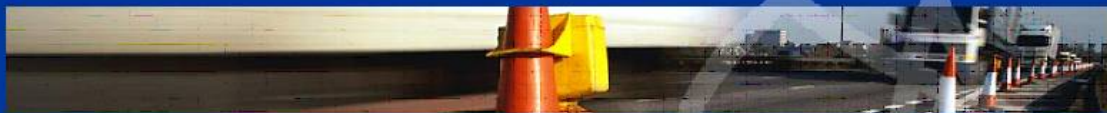
Table 2: Fatalities on motorways per 1.000.000 inhabitants, 1994 – 2003

| | 1994 | 1995 | 1996 | 1997 | 1998 | 1999 | 2000 | 2001 | 2002 | 2003 |
|----|------|------|------|------|------|------|------|------|------|------|
| BE | 19,9 | 20,6 | 19,8 | 18,9 | 21,9 | 20,9 | 23,2 | 19,1 | - | - |
| DK | 6,2 | 5,9 | 5,7 | 6,1 | 5,7 | 7,7 | 5,4 | 7,1 | 8,9 | 3,9 |
| EL | 0,2 | 0,1 | 13,9 | 6,7 | 5,6 | 9,7 | 5,6 | 7,9 | 6,3 | 5,3 |
| ES | 9,6 | 9,1 | 8,0 | 7,9 | 8,9 | 8,2 | 8,9 | 9,3 | 7,9 | 9,0 |
| FR | 8,2 | 8,1 | 7,8 | 8,1 | 8,5 | 8,4 | 9,0 | 8,2 | 8,8 | 7,4 |
| IE | 0,3 | 1,7 | 0,6 | 0,8 | 0,0 | 0,3 | 1,6 | 1,0 | 1,3 | 1,8 |
| IT | 12,1 | 13,7 | 13,1 | 14,8 | 12,4 | - | - | - | - | - |
| LU | 22,5 | 22,2 | 38,9 | 26,4 | 19,0 | 14,0 | 20,8 | 15,9 | 27,0 | - |
| NL | 10,5 | 12,3 | 11,7 | 10,0 | 6,9 | 8,4 | 8,7 | 7,8 | 7,6 | 9,3 |
| AT | 22,6 | 20,9 | 13,1 | 15,2 | 17,7 | 18,3 | 15,7 | 19,4 | 15,7 | 13,2 |
| PT | 8,6 | 9,9 | 11,6 | 10,3 | 10,4 | 12,1 | 12,6 | 10,9 | 11,1 | 12,2 |
| FI | 1,0 | 3,1 | 1,6 | 0,6 | 1,9 | 1,7 | 2,5 | 2,1 | 3,1 | - |
| SE | 3,5 | 3,5 | 2,3 | 4,5 | 2,8 | 2,8 | 2,8 | 3,4 | 3,0 | - |
| UK | 2,7 | 3,1 | 2,9 | 3,3 | 3,0 | 3,5 | 3,2 | 3,4 | 3,9 | - |

Sources: CARE Database / EC - Eurostat
Date of query: July 2005

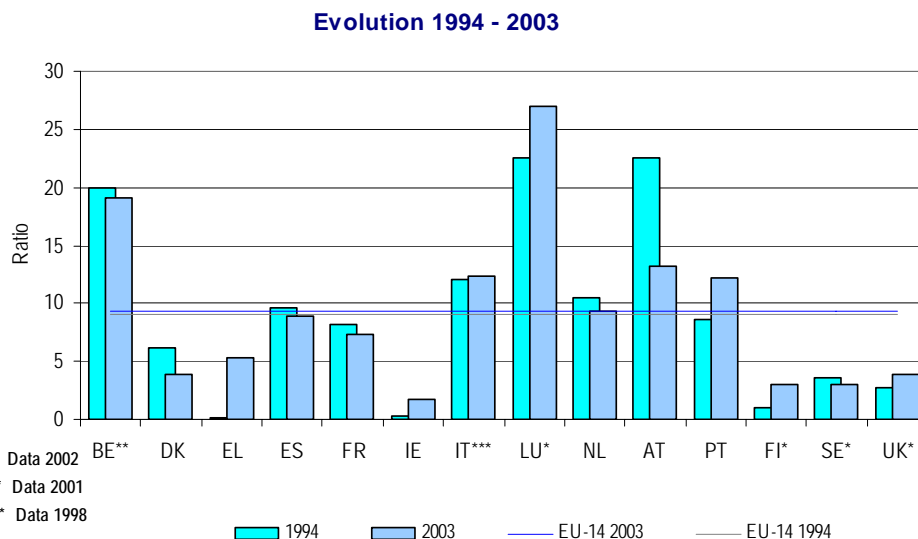
Figure 2 indicates that between 1994 and 2003 the fatality rate of people killed on motorways has not significantly changed (from 9,1 in 1994 to 9,3 in 2003), compared with a 29% decrease (from 127,8 to 90,8) in the corresponding fatality rate on the remaining

Austria is the country where the most significant improvement in the motorway fatality rates is observed (41,6% decrease)



road network. Austria is the country which shows the most significant improvement during this last decade (41,6% decrease), whereas in Portugal the fatality rate has significantly increased (41,8% increase). Luxembourg has the highest fatality rate (27 in 2002), whereas nine of the countries are lower than the average rate of all EU-14 countries.

Figure 2: Fatalities on motorways per 1.000.000 inhabitants, 1994 – 2003¹



Source: CARE Database / EC
 Date of query: July 2005

Portugal and Austria accomplished a considerable improvement on the safety level of their motorway network within the examined period

A more appropriate method to compare the safety level of motorways in different countries is by calculating the fatality rate per 1000 km length of motorways. Thus, taking this exposure indicator (road network length) into account, it can be seen from Table 3 and Figure 3 that within the examined period, Portugal and Austria accomplished a considerable improvement on the safety level of their motorway network (57,2% and 32% reduction of the rate respectively).



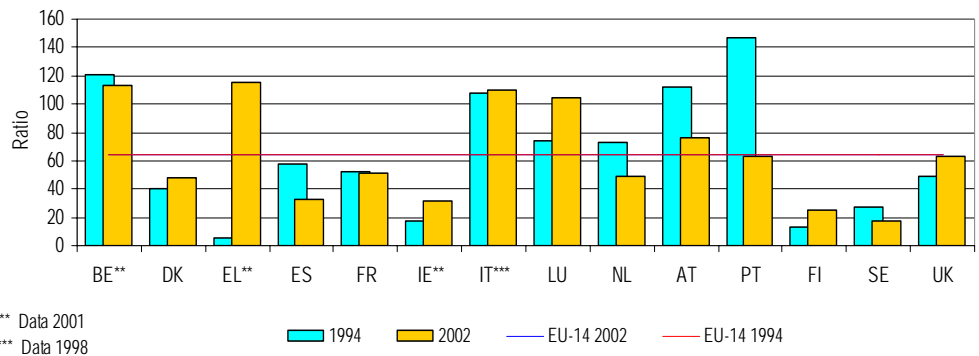
Table 3: Fatalities on motorways per 1.000 km of motorways, 1994 – 2002

| | 1994 | 1995 | 1996 | 1997 | 1998 | 1999 | 2000 | 2001 | 2002 |
|----|-------|-------|-------|-------|-------|-------|-------|-------|-------|
| BE | 120,7 | 125,5 | 120,1 | 114,4 | 132,6 | 126,0 | 139,8 | 113,5 | 113,4 |
| DK | 40,7 | 38,9 | 36,1 | 37,4 | 34,4 | 46,0 | 30,4 | 39,1 | 47,5 |
| EL | 5,3 | 2,4 | 314,9 | 206,6 | 171,1 | 236,5 | 95,9 | 115,9 | 115,9 |
| ES | 58,1 | 51,1 | 43,0 | 40,4 | 42,7 | 36,8 | 39,1 | 39,3 | 32,7 |
| FR | 52,2 | 56,2 | 52,7 | 53,0 | 53,4 | 51,1 | 54,0 | 48,4 | 51,0 |
| IE | 17,9 | 83,3 | 25,0 | 31,9 | 0,0 | 9,7 | 58,3 | 32,0 | - |
| IT | 107,8 | 121,5 | 116,3 | 131,1 | 109,8 | - | - | - | - |
| LU | 74,4 | 78,3 | 139,1 | 95,7 | 69,6 | 52,2 | 78,3 | 60,9 | 104,3 |
| NL | 73,2 | 86,1 | 82,4 | 66,8 | 48,5 | 57,6 | 60,3 | 49,6 | 48,9 |
| AT | 112,6 | 104,0 | 64,7 | 75,0 | 87,4 | 89,4 | 77,2 | 94,8 | 76,6 |
| PT | 146,5 | 144,1 | 163,4 | 130,5 | 83,9 | 85,4 | 86,4 | 67,5 | 62,7 |
| FI | 12,9 | 40,6 | 18,6 | 6,8 | 21,1 | 17,6 | 23,7 | 18,3 | 24,5 |
| SE | 27,1 | 27,2 | 15,8 | 29,6 | 17,5 | 17,4 | 16,8 | 20,0 | 17,9 |
| UK | 48,7 | 55,6 | 50,5 | 57,2 | 50,7 | 57,3 | 53,1 | 57,1 | 63,2 |

Sources: CARE Database / EC - Eurostat
Date of query: July 2005

Figure 3: Fatalities on motorways per 1.000 km of motorways, 1994 - 2002

Evolution 1994 - 2002



Source: CARE Database / EC - Eurostat
Date of query: July 2005

Greece, Belgium and Italy are the countries with the higher number of fatalities on motorways recorded in 2002, per 1.000 km of motorway network. In contrast, the motorways in Sweden and in Finland seem to be much safer than the ones in the remaining 12 EU countries, as the fatality rate for 2002 is significantly lower than the average rate for the EU-14 countries (17,9 and 24,5 respectively, compared to the average 64,3).

In 2003¹, motorways in Sweden and Finland seem to be much safer than those in the remaining 12 EU countries



Table 4: Distribution of fatalities on motorways by the total number of road accident fatalities, 1994 - 2003¹

| | 1994 | 1995 | 1996 | 1997 | 1998 | 1999 | 2000 | 2001 | 2002 | 2003 |
|---------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|
| BE | 11,9% | 14,4% | 14,8% | 14,1% | 14,9% | 15,2% | 16,2% | 13,2% | - | - |
| DK | 5,9% | 5,3% | 5,8% | 6,5% | 6,0% | 8,0% | 5,8% | 8,8% | 10,4% | 4,9% |
| EL | 0,1% | 0,0% | 6,9% | 3,4% | 2,8% | 5,0% | 3,0% | 4,6% | 4,2% | 3,6% |
| ES | 6,7% | 6,2% | 5,7% | 5,6% | 5,9% | 5,7% | 6,1% | 6,8% | 6,1% | 6,9% |
| FR | 5,2% | 5,2% | 5,3% | 5,6% | 5,6% | 5,8% | 6,5% | 6,0% | 6,8% | 7,2% |
| IE | 0,2% | 1,4% | 0,4% | 0,6% | 0,0% | 0,2% | 1,4% | 1,0% | 1,3% | 2,1% |
| IT | 9,7% | 11,1% | 11,3% | 12,6% | 11,3% | - | - | - | - | - |
| LU | 13,8% | 12,9% | 22,5% | 18,3% | 14,0% | 10,3% | 11,8% | 10,0% | 19,4% | - |
| NL | 12,4% | 14,2% | 15,4% | 13,4% | 10,1% | 12,1% | 12,8% | 12,5% | 12,5% | 14,7% |
| AT | 13,4% | 13,7% | 10,1% | 11,0% | 14,6% | 13,5% | 12,9% | 16,3% | 13,2% | 11,5% |
| PT | 3,4% | 3,7% | 4,2% | 4,1% | 4,9% | 6,2% | 6,9% | 6,7% | 6,9% | 8,2% |
| FI | 1,0% | 3,6% | 2,0% | 0,7% | 2,5% | 2,1% | 3,3% | 2,5% | 3,9% | - |
| SE | 5,3% | 5,4% | 3,7% | 7,4% | 4,7% | 4,3% | 4,2% | 5,1% | 4,8% | - |
| UK | 4,2% | 4,9% | 4,5% | 5,2% | 4,9% | 5,8% | 5,3% | 5,7% | 6,4% | - |
| Average | 6,6% | 6,9% | 7,2% | 7,4% | 7,1% | 6,6% | 6,9% | 7,0% | 6,8% | - |

Sources: CARE Database / EC - Eurostat
Date of query: July 2005

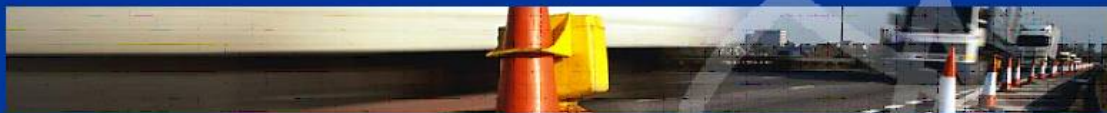
Almost 80% of the fatalities on motorways across the European countries concern car or taxi occupants

In the Netherlands, almost 15% of the overall road accident fatalities in 2003 occurred on motorways, whereas in Ireland and Greece fatalities on motorways constitute an even smaller minority of the road accident fatalities.

In general, as shown in Table 4, the ratio of fatalities on motorways in the European Commission countries has increased since 1994.

Vehicle Type

Almost 80% of the fatalities on motorways across the European countries concern car or taxi occupants, as demonstrated in Table 5.


 Table 5: Fatalities on motorways by vehicle group, 2003¹

| | pedalcycle | moped | Motorcycle | car or taxi | lorry, under 3.5 tonnes | heavy goods vehicle | bus or coach | agricultural tractor | other | Total |
|-------------------|------------|-------|------------|-------------|-------------------------|---------------------|--------------|----------------------|-------|--------|
| BE** | 0 | 0 | 10 | 146 | 9 | 21 | 2 | 0 | 1 | 189 |
| DK | 0 | 0 | 1 | 20 | 0 | 0 | 0 | - | 0 | 21 |
| EL | 0 | | 11 | 35 | 2 | 3 | 0 | 0 | 0 | 51 |
| ES | 0 | 2 | 14 | 260 | 27 | 19 | 12 | 0 | 2 | 336 |
| FR | 0 | 1 | 42 | 299 | 18 | 40 | 2 | - | 1 | 403 |
| IE | - | - | 1 | 5 | 1 | 0 | | - | 0 | 7 |
| IT*** | 0 | 2 | 26 | 556 | - | 73 | 1 | 0 | 6 | 664 |
| LU* | - | - | 0 | 12 | - | 0 | | - | - | 12 |
| NL | 2 | 1 | 21 | 108 | 10 | 2 | 0 | - | 0 | 144 |
| AT | 0 | 0 | 4 | 82 | 6 | 6 | 0 | 0 | 0 | 98 |
| PT | 0 | 0 | 6 | 73 | 30 | 6 | 1 | - | 0 | 116 |
| FI* | - | 0 | 1 | 10 | 1 | 0 | 0 | - | 0 | 12 |
| SE* | 0 | 0 | 0 | 21 | 0 | 1 | 1 | 0 | 0 | 23 |
| UK* | 0 | 0 | 20 | 150 | 16 | 32 | 7 | 0 | 1 | 226 |
| EU-14 | 2 | 6 | 157 | 1.777 | 120 | 203 | 26 | 0 | 11 | 2.302 |
| % by vehicle type | 0,1% | 0,3% | 6,8% | 77,2% | 5,2% | 8,8% | 1,1% | 0,0% | 0,5% | 100,0% |

* Data 2002

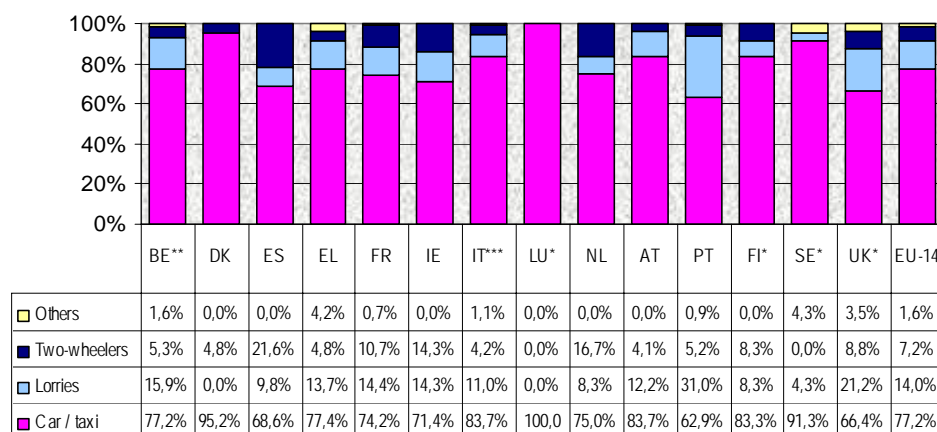
** Data 2001

*** Data 1998

Source: CARE Database / EC

Date of query: July 2005

As displayed in Figure 4, in Portugal almost one third (31%) of the overall fatalities on motorways concern lorry occupants, an increased rate compared to the other 13 countries.

 Figure 4: Distribution of fatalities on motorways by vehicle group, 2003¹


* Data 2002

** Data 2001

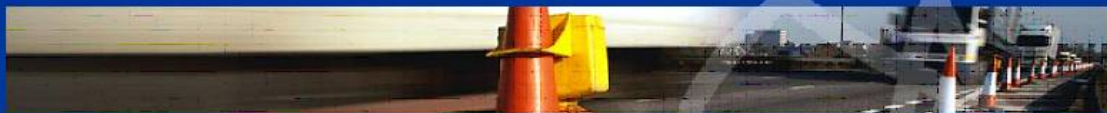
*** Data 1998

Source: CARE Database / EC

Date of query: July 2005

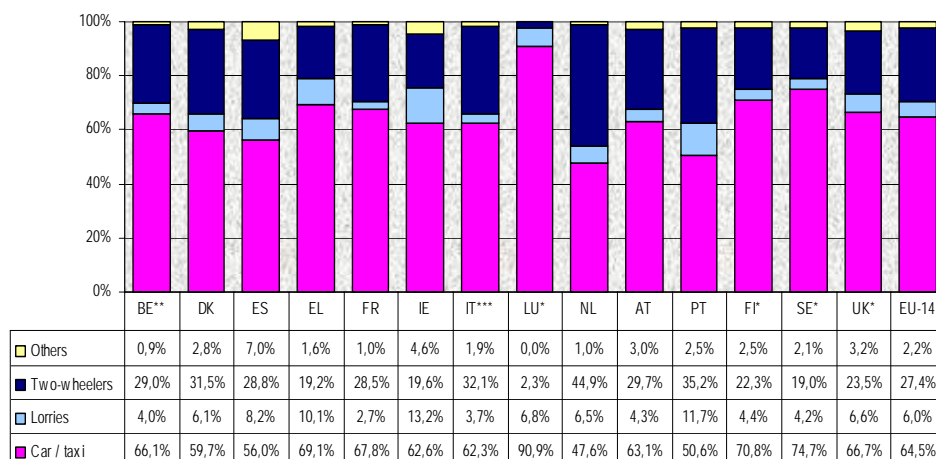
Another interesting outcome deriving from Figures 4 and 5 is that on average, only 7,2% of the fatalities occurring on motorways in the 14 countries are related to two-wheelers (motorcycles - mopeds

In Portugal almost one third (31%) of the overall fatalities on motorways concern lorry occupants, an increased rate compared to other 13 countries



- pedalcycles), with the exception of Spain which presents a relatively high percentage (21,6%), even though the absolute number is small (11 fatalities), thus conclusions might be misleading. On the other hand, the two-wheeler fatalities on the remaining road network constitute 27,4% of the respective overall fatalities, with Netherlands and Portugal presenting the higher rates (44,9% and 35,2%).

Figure 5: Distribution of fatalities on non-motorway road network by vehicle group, 2003¹



* Data 2002
 ** Data 2001
 *** Data 1998

Source: CARE Database / EC
 Date of query: July 2005

Only 7,2% of the fatalities occurring on motorways in the 14 countries concern two-wheeler drivers and passengers, whereas on the remaining road network two-wheelers occupants constitute 27,4% of the respective overall fatalities

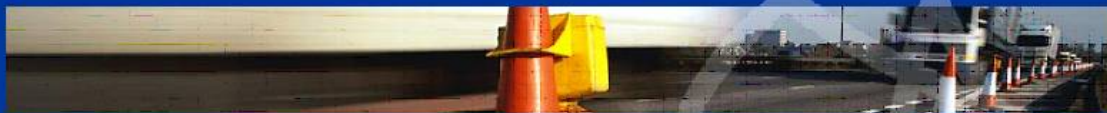
Collision Type

Table 6: Fatalities on motorways by collision type, 2003¹

| | Animal | Chain/rear | Frontal | Lateral | Other | Parked vehicle | Single vehicle accident | Not defined | Total |
|---------------------|--------|------------|---------|---------|-------|----------------|-------------------------|-------------|--------|
| BE** | - | 55 | 6 | 16 | 3 | - | 116 | - | 196 |
| DK | - | - | - | - | - | - | - | 21 | 21 |
| EL | - | 10 | 2 | 9 | 5 | 1 | 31 | - | 58 |
| ES | 3 | 47 | 15 | 30 | 42 | 8 | 228 | - | 373 |
| FR | - | 74 | 19 | 45 | 87 | - | 214 | - | 439 |
| IE | - | 0 | 1 | 1 | 2 | - | 3 | - | 7 |
| IT*** | - | 179 | 51 | 88 | 317 | 2 | 74 | - | 711 |
| LU* | - | - | - | - | 8 | 0 | 4 | - | 12 |
| NL | 1 | 28 | 20 | 25 | 6 | 4 | 67 | - | 151 |
| AT | 0 | 25 | 11 | 0 | 19 | 1 | 51 | - | 107 |
| PT | 0 | 24 | 14 | 3 | 11 | - | 74 | - | 126 |
| FI* | - | - | - | - | - | - | - | 16 | 16 |
| SE* | 0 | 7 | 1 | 4 | 5 | - | 10 | - | 27 |
| UK* | - | - | - | - | - | - | - | 228 | 228 |
| EU-14 | 4 | 449 | 140 | 221 | 505 | 16 | 872 | 265 | 2.472 |
| % by collision type | 0,2% | 18,2% | 5,7% | 8,9% | 20,4% | 0,6% | 35,3% | 10,7% | 100,0% |

* Data 2002
 ** Data 2001
 *** Data 1998

Source: CARE Database / EC
 Date of query: July 2005



From Table 6, it is obvious that the single biggest category of fatalities occurring on motorways in all 14 countries (35,3%) concern single vehicle accidents, whereas the percentage for the same collision type on the other roads is smaller (27,3%), as shown in Table 7.

Moreover, as indicated in Table 7, a significant number of fatal accidents occurring on the non-motorway road network are related to frontal collisions (15,8% of the fatalities), comparing to only 5,7% of the respective fatalities occurring on motorways. This can be explained by the existence of medians, separating opposite traffic flows on motorways. However, fatalities due to chain/rear collision accidents on motorways (18,2%) constitute a higher percentage than those on the remaining road network (4,8%).

Table 7: Fatalities on non-motorway road network by collision type, 2003¹

| | Animal | Chain/rear | Frontal | Lateral | Other | Parked vehicle | Single vehicle accident | Not defined | Total |
|---------------------|--------|------------|---------|---------|-------|----------------|-------------------------|-------------|--------|
| BE** | - | 98 | 219 | 304 | 146 | - | 521 | 2 | 1.290 |
| DK | - | - | - | - | - | - | - | 411 | 411 |
| EL | 0 | 82 | 232 | 385 | 268 | 39 | 541 | - | 1.547 |
| ES | 19 | 356 | 880 | 1.101 | 852 | 43 | 1.776 | - | 5.027 |
| FR | - | 234 | 1.070 | 931 | 632 | - | 2.752 | - | 5.619 |
| IE | - | 8 | 113 | 17 | 84 | - | 104 | - | 326 |
| IT*** | - | 402 | 981 | 1.752 | 1.955 | 29 | 483 | - | 5.602 |
| LU* | 0 | - | - | - | 22 | 1 | 27 | - | 50 |
| NL | 2 | 44 | 102 | 332 | 90 | 13 | 294 | - | 877 |
| AT | 2 | 21 | 205 | 46 | 278 | 2 | 270 | - | 824 |
| PT | 0 | 63 | 371 | 231 | 264 | - | 487 | - | 1.416 |
| FI* | - | - | - | - | - | - | - | 399 | 399 |
| SE* | 8 | 14 | 146 | 110 | 74 | 0 | 181 | - | 533 |
| UK* | - | - | - | - | - | - | - | 3.353 | 3.353 |
| EU-14 | 31 | 1.322 | 4.319 | 5.209 | 4.665 | 127 | 7.436 | 4.165 | 27.274 |
| % by collision type | 0,1% | 4,8% | 15,8% | 19,1% | 17,1% | 0,5% | 27,3% | 15,3% | 100,0% |

* Data 2002

** Data 2001

*** Data 1998

Source: CARE Database / EC

Date of query: July 2005

Age and Person class

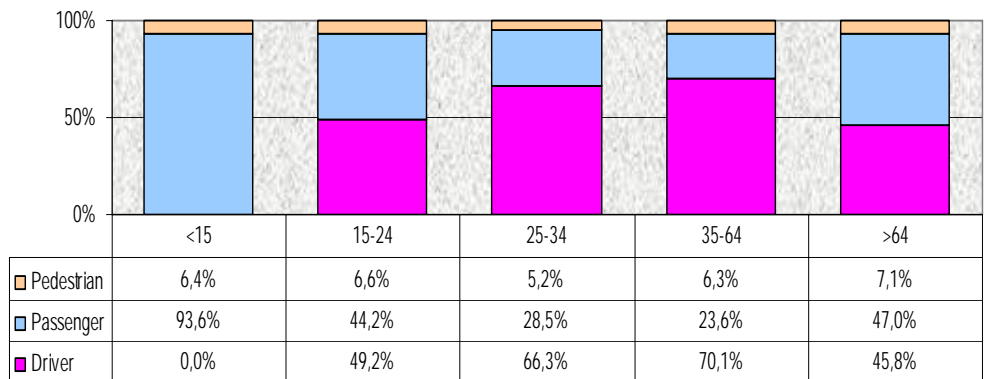
Figure 6 indicates that pedestrians constitute only a very small percentage of the overall fatalities occurring on motorways, at all ages (5,2% - 7,1%).

On the other hand, as shown in Figure 7, children (younger than 15 years old) and elderly people (older than 64 years old) seem to be extremely vulnerable pedestrians on the remaining road network, as 30,9% and 35% of the children and elderly people respectively, are pedestrians.

The single biggest category of fatalities occurring on motorways in all 14 countries (35,3%) concern single vehicle accidents



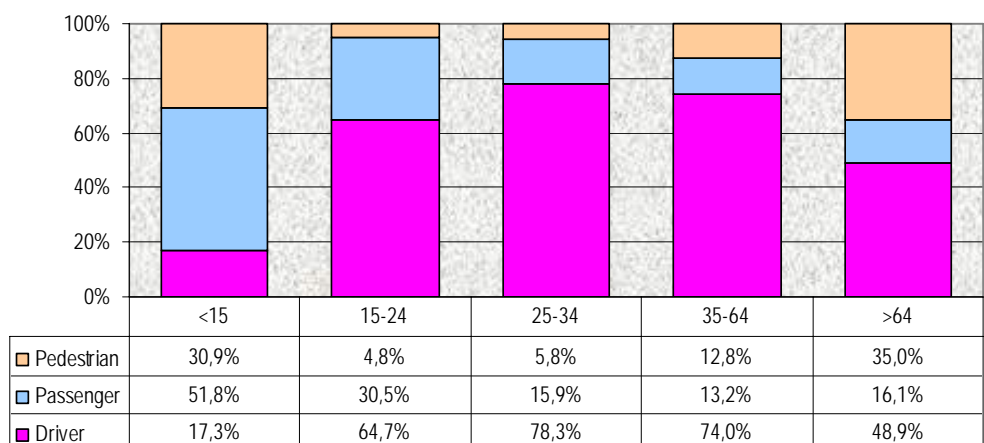
Figure 6: Fatalities on motorways by age and person class, 2003¹



Source: CARE Database / EC
Date of query: July 2005

Furthermore, more drivers aged between 35 - 64 years are killed on motorways (70,1%), than drivers aged 25 - 34 years (66,3%), whereas the opposite is observed on the fatalities occurring on the remaining road network. Finally, it is shown that younger drivers (up to 24 years old) are mainly killed on the remaining road network and not on motorways, where the respective percentages are significantly lower. This can be explained by the small number of fatalities in this age group on motorways (187 people killed, compared to 4.242 people killed on the remaining road network), possibly indicating that more young people are driving on the non-motorway network.

Figure 7: Fatalities on non-motorway road network by age and person class, 2003¹



Source: CARE Database / EC
Date of query: July 2005

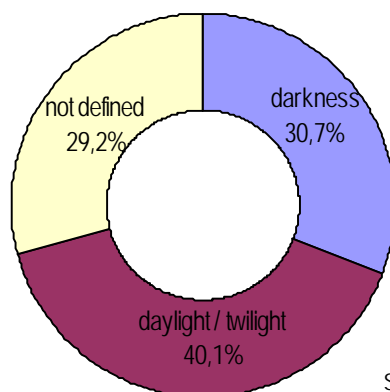
More drivers aged between 35 - 64 years are killed on motorways than drivers aged 25 - 34 years, whereas the opposite is observed on the fatalities occurring on the remaining road network



Lighting Conditions

As demonstrated in Figure 8, in 2003¹, 30,7% (759 people) of the fatalities on motorways in the 14 European countries occurred in accidents during the hours of darkness. The respective percentage for the remaining road network is similar (30,9%, corresponding to 8.430 people), as indicated in Figure 9.

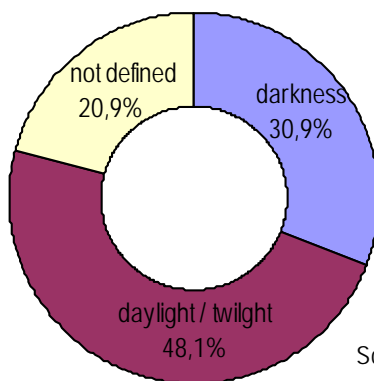
Figure 8: Fatalities on motorways by lighting conditions, 2003¹



Source: CARE Database / EC
Date of query: August 2005

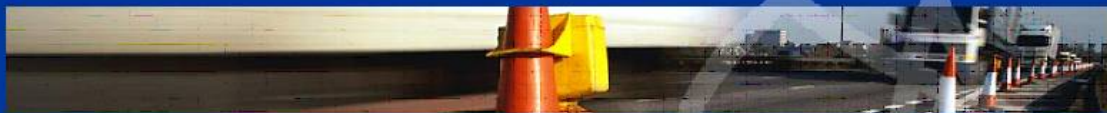
13.117 (48,1%) people, almost half of the respective fatalities, are killed on non-motorway road network when there is daylight or twilight, whereas on motorways the respective percentage is smaller (40,1%).

Figure 9: Fatalities on non-motorway road network by lighting conditions, 2003¹



Source: CARE Database / EC
Date of query: August 2005

Almost one third of the fatalities on motorways occurred during the hours of darkness



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For more information:

Further statistical information on traffic fatalities occurring on motorways is available from the CARE database at the Directorate General for Energy and Transport of the European Commission, 28 Rue de Mot, B -1040 Brussels.

Traffic Safety Basic Fact Sheets available from the European Commission concern:

- Children (Aged <16)
- Young People (Aged 16-24)
- Elderly persons
- Pedestrians
- Motorcycles and Mopeds
- Car-Occupants
- Motorways

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

For more information about the project "SafetyNet", which is co-financed by the European Commission, Directorate-General Energy and Transport, please contact <http://safetynet.swov.nl/>.

Authors:

| | |
|------------------------------------|-----------------------|
| George Yannis and Petros Evgenikos | NTUA, Greece |
| Niels Bos | SWOV, The Netherlands |
| Stefan Hoeglinger | KfV, Austria |
| Jeremy Broughton and Brian Lawton | TRL, United Kingdom |