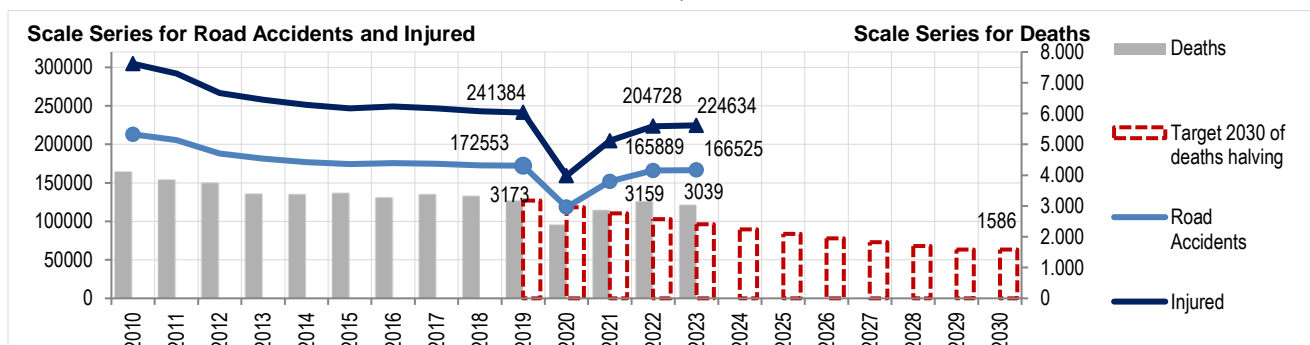


# ROAD ACCIDENTS

## Year 2023

- During 2023, a stabilization in mobility occurs, if compared to 2022, a year in which there was a clear increase in noticed movements compared to the most acute phases of the pandemic. Concerning road accidents, 2023 shows a small improvement in the number of fatalities compared to the previous year; however, there is an upward trend in accidents and injuries, although slightly.
- In 2023, we count 3,039 deaths in road accidents in Italy (-3.8% compared to the previous year), 224,634 injuries (+0.5%), and 166,525 road accidents (+0.4%). The values are slightly higher compared to 2022 for accidents and injuries, but lower for fatalities. There is still a decrease compared to 2019 for accidents, fatalities, and injuries (respectively -3.3%, -4.2%, and -6.9%).
- In 2023, fatalities increased for drivers of e-scooters, bicycles, and electric bicycles, they are stable for pedestrians, and decreased for other users. There were 1,332 fatalities among car occupants (-3.1%), 734 among motorcyclists (-6.0%), 68 among moped riders (-2.9%), 485 among pedestrians (0.0%). Among truck occupants, 112 deaths were recorded (-32.5%), while for bicycles and electric bicycles, the fatalities were 212, an increase compared to 2022 when there were 205 (+3.4%). Injuries also increased among users of electric scooters (counted since 2020): road accidents involving them rose from 2,929 in 2022 to 3,365 in 2023, injuries from 2,787 to 3,195, while deaths (within 30 days) were 21 (in 2022 there were 16).
- On urban roads, motorways and rural roads, road accidents and injuries are slightly up or stable compared to 2022, with values still all falling compared to the reference year 2019. The number of fatalities fell in comparison with 2022 in all road areas, with a substantial drop in particular on motorways (-19.0 per cent); on urban roads the drop was 0.3 per cent, on rural roads 3.9 per cent.
- In the EU27 as a whole, the number of killed fell slightly in 2023 (-1.5% compared to the previous year), after the increase in the previous year, that followed a drastic reduction in the two pandemic years (-10% compared to 2019). Overall, there are 20,385 deaths in 2023, compared to 20,685 in 2022 and 22,761 in 2019. Every million inhabitants there are 45 road deaths in the EU27 and 52 in our country, which remains in 19th place in the European ranking, tied with Poland.
- Distraction, failure to yield right of way and speeding are confirmed as the most frequent types of incorrect driving behaviour. The three groups together account for 36.5% of cases (80,057), a value that has remained stable over time.
- Driving too fast is the most sanctioned behaviour after prohibited stop and parking and accounts for 37% of all traffic offences. Sanctions for failure to use seat belts and child restraint systems fell slightly, while those for failure to wear a helmet rose sharply. The number of penalties for improper use of devices in the car remains high, and penalties for driving under the influence of alcohol are on the rise, especially the high proportion from local police forces.
- The car market shows a growth in 2023: first registrations of passenger's cars increased by 18.4 % compared to 2022. On the motorway network, the annual average vehicle journeys shows a growth of 3.8% compared to 2022 and also an increase compared to 2019, recording a maximum, in absolute terms for total journeys, which exceed 86.7 billion vehicles per km.

**CHART 1. ROAD ACCIDENTS RESULTING IN DEATH OR INJURY, DEATHS AND INJURED. Years 2010-2023. Absolute values**



## Casualties falling in 2023 but not below 3,000 deaths on Italian roads

In 2023 there were 166,525 road accidents resulting in death or injury in Italy; the number of fatalities was 3,039 and the number of injured was 224,634 (Table 1). Compared with the previous year, road deaths fell by 3.8 per cent, while the number of accidents and the number of people injured rose slightly (+0.4 per cent and +0.5 per cent). The road fatality rate drops from 53.6 to 51.5 deaths per million inhabitants between 2022 and 2023, it was 53.1 in 2019. Compared to 2019, benchmark for the decade 2021-2030, road fatalities decrease by 4.2 %.

The social cost of road accidents resulting in death or injury, recorded by motorway Police, local Police and Carabinieri, calculated using parameters updated by Istat and ACI in 2023, amounts to almost 18 billion euros in 2023 (1% of national Gross Domestic Product). Lastly, if we also consider the costs associated with claims involving only property damage (approximately EUR 4.3 billion estimated by ANIA), we count, approximately a cost of 22.3 billion of Euros.

**TABLE 1. ROAD ACCIDENTS, DEATHS AND INJURED PERSONS.** Years 2001, 2010-2023. Absolute values, deaths per million and percentage change

YEARS	Road accidents (a)	Killed	Injured	Deaths per million inhabitants (b)	Deaths yearly % change	Deaths % change vs 2001 (c)	Deaths % change vs 2010 (c)
2001	263,100	7,096	373,286	124.5	-	-	-
2010	212,997	4,114	304,720	68.8	-	-42.0	-
2011	205,638	3,860	292,019	64.3	-6.2	-45.6	-6.2
2012	188,228	3,753	266,864	62.4	-2.8	-47.1	-8.8
2013	181,660	3,401	258,093	56.4	-9.4	-52.1	-17.3
2014	177,031	3,381	251,147	56.1	-0.6	-52.4	-17.8
2015	174,539	3,428	246,920	56.9	+1.4	-51.7	-16.7
2016	175,791	3,283	249,175	54.6	-4.2	-53.7	-20.2
2017	174,933	3,378	246,750	56.3	+2.9	-52.4	-17.9
2018	172,553	3,334	242,919	55.7	-1.3	-53.0	-19.0
2019	172,183	3,173	241,384	53.1	-4.8	-55.3	-22.9
2020	118,298	2,395	159,249	40.3	-24.5	-66.2	-41.8
2021	151,875	2,875	204,728	48.6	+20.0	-59.5	-30.1
2022	165,889	3,159	223,475	53.6	+9.9	-55.5	-23.2
2023	166,525	3,039	224,634	51.5	-3.8	-57.2	-26.1

(a) Road accident resulting in deaths (within the 30th day) or injuries is defined as the event that involves at least a vehicle circulating on the national road net.

(b) Deaths out of resident population (per 1,000,000).

(c) The percentage changes of the number of deaths is calculated as:  $((D/D^{t-1 \text{ or } 2001 \text{ or } 2010}) - 1) * 100$

## 2023 is the year of a stabilisation of the mobility levels already recorded in 2022

The year 2023 is characterised by a stabilisation of the mobility levels already recorded in 2022, a year in which a clear recovery was noted, compared to the period of the most acute phases of the pandemic. Data from Isfort's 'Audimob' Observatory<sup>1</sup>, updated to the first half of 2023, shows a slightly reduced volume of overall movements (-2.8%) compared to the first half of 2022. This is a small decrease, but of specific significance, in the context of the recovery of the post-Covid demand curve. The last data for 2022 marked an increase in movements of +11.1% compared to 2021 and +20.5% compared to 2020, so it can be assumed that in 2023 there was a settling of demand flows at a slightly lower level than the pre-pandemic 2019 threshold. Regarding to the value of the indicator for measuring users travel (passengers per km), the change between the first six months of 2022 and 2023 was positive but limited (+1.0%), thus confirming the dynamics of a slowdown in the recovery of demand mentioned for travel. The overall mobility rate of the population rose to 80.8% in the first half of 2023, in line with the figure for the same period in 2022. It should be noted that the proximity mobility rate, i.e. the share of the population travelling only for very short walking trips during the day, rose by one point between 2022 and 2023 (first half of the year) to 7.1%, higher than the 2019 figure (6.0%). Pedestrian mobility lost weight

<sup>1</sup> The 'Audimob' observatory on the mobility styles and behaviour of Italians, carried out by Isfort, is based on an annual sample survey. The sample of interviewees is regional and by main demographic characteristics of the population. It consists of approximately in 16,000 individuals. The survey records the trips made by the respondent on the day preceding the interview, excluding walking trips of less than 5 minutes.

after the 2020 explosion and stood at 18% modal share in 2022, below the level of 2019 (20.8%) and the 2020 peak. The figure for the first half of 2023 is in line with the previous year and therefore shows no signs of recovery.

Cycling and micro-mobility earn just under a point between 2019 and 2022, but the figures for 2023 show a substantial decrease (from 4.7 per cent in the first half of 2022 to 3.8 per cent in 2023).

It should also be remembered that Italy is still a country with one of the highest motorisation rates in Europe, with 693.2 cars for every 1,000 inhabitants (ACI); the share of car use (Isfort) is 65.6% in the first half of 2023, 3.1 points higher than the value recorded in the pre-Covid period, 62.5% (the minimum of 59% was reached in 2020). Thus, the still dominant position of the car in the modal preferences of Italians is reaffirmed in 2023.

Travelling on the motorway network for all vehicles grew by 3.8% in 2023 compared to 2022. The mileage for heavy vehicles increased by 0.9 per cent, and for light vehicles by 4.7 per cent in 2023 over 2022. In absolute terms, total mileage in 2023 exceeded 86.7 billion vehicles per km, a number even higher than in 2019, which was the highest ever recorded along the entire toll motorway network until then. The Italian market for new cars closed 2023 reporting a growth of 18.4% compared to 2022.

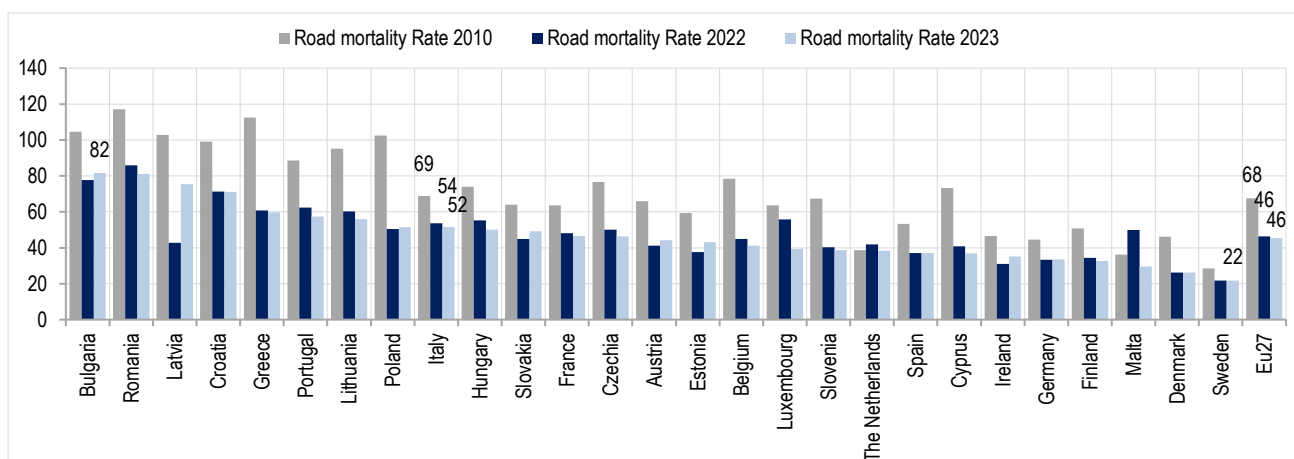
### Slight decrease in fatalities on EU27 roads in 2023

There were 20,365 fatalities on the roads of the EU27 in 2023, compared to 20,685 in 2022, 22,761 in 2019 and about 30,000 in 2010. The decrease in 2023 was very small and amounted to -1.5% on the previous year, while there was a decrease of 10.5% compared to 2019.

For the decade 2021-2030, the European objectives on road safety envisage halving the number of deaths and serious injuries by 2030 compared to the benchmark year (set at 2019) and the monitoring of specific performance indicators, Key Performance Indicators<sup>2</sup>, which Italy is preparing to provide and which concern: speed, use of protection systems (helmets, seat belts and child seats), use of alcohol and drugs, safety level of the vehicle fleet and the national road network, driving distraction and efficiency of rescue systems in the event of an accident. For the future, in addition to the targets set for the next decade, the foundations have been laid for new and ambitious goals, in particular the Stockholm Declaration of February 2020 calls for a 'zero deaths' vision for 2050.

As many as 16 EU27 countries recorded a decrease in the number of deaths compared to the previous year, with negative percentage changes ranging from -38.5% to -0.2%. The largest decreases were recorded for Malta (-38.5%), Luxembourg (-27.8%) and Belgium (-10.6%). On the other hand, increases were recorded in 11 countries, ranging from +41.6% to 0.6%. The largest were Lithuania (+33.3%), Latvia (+25.7%) and Ireland (+19.4%) (Table 2). The road death rate (deaths per million inhabitants) stands at 45.4 in the EU27 and 51.5 in Italy. Our country remains in 19th place in the European ranking, tied with Poland (Chart 2).

**CHART 2. ROAD MORTALITY RATE IN THE COUNTRIES OF THE EUROPEAN UNION (EU27) (a). Years 2010, 2022 and 2023**



(a) Road mortality rate (deaths in road accidents per million inhabitants)

Source: European Transport Safety Council, Annual PIN report. Year 2024 - [18th Annual Road Safety Performance Index \(PIN Report\) – ETSC](#)

<sup>2</sup> The European Commission is in charge of coordinating the work of the EU27 countries for the production of the key performance indicators (8 different indicators on the topics: infrastructure, vehicles, road infrastructure, post-accident care). Each country will provide between one and eight national KPIs, comparable and with the minimum methodological requirements decreed by the European Commission (TRENDLINE project).

**TABLE 2. KILLED PERSONS IN ROAD ACCIDENTS IN THE COUNTRIES OF THE EUROPEAN UNION (EU27)**  
 Years 2010, 2019, 2022 and 2023. Absolute values, percentage change and road mortality rate per 1,000,000 inhabitants (a)

COUNTRIES EU27	Absolute values				Percentage change (b)			Road mortality rate		
	2010	2019	2022	2023	2023/2022*	2023/2019*	2023/2010 *	2010	2022	2023
Austria	552	416	370	402	8.6	-3.4	-27.2	65.9	41.2	44.2
Belgium	850	644	540	483	-10.6	-25	-43.2	78.4	44.8	41.1
Bulgaria	776	628	531	526	-0.9	-16.2	-32.2	104.6	77.6	81.6
Croatia	426	297	275	274	-0.4	-7.7	-35.7	99.0	71.2	71.2
Cyprus	60	52	37	34	-8.1	-34.6	-43.3	73.2	40.9	36.9
Czech Republic	802	617	527	502	-4.7	-18.6	-37.4	76.7	50.1	46.4
Denmark	255	199	154	155	0.6	-22.1	-39.2	46.1	26.2	26.1
Estonia	79	52	51	59	15.7	13.5	-25.3	59.3	37.5	43.2
Finland	272	211	196	181	-7.7	-14.2	-33.5	50.8	34.4	32.5
France	3,992	3,244	3,260	3,170	-2.8	-2.3	-20.6	63.6	48.1	46.5
Germany	3,651	3,059	2,776	2,830	1.9	-7.5	-22.5	44.6	33.4	33.5
Greece	1,258	688	654	621	-5	-9.7	-50.6	112.5	60.7	59.6
Hungary	740	602	537	481	-10.4	-20.1	-35	73.9	55.2	50.1
Ireland	212	140	155	185	19.4	32.1	-12.7	46.6	31	35.1
<b>Italy</b>	<b>4,114</b>	<b>3,173</b>	<b>3,159</b>	<b>3,039</b>	<b>-3.8</b>	<b>-4.2</b>	<b>-26.1</b>	<b>68.8</b>	<b>53.6</b>	<b>51.5</b>
Latvia	218	132	113	142	25.7	7.6	-34.9	102.8	60.2	75.4
Lithuania	299	186	120	160	33.3	-14.0	-46.5	95.2	42.8	56.0
Luxembourg	32	22	36	26	-27.8	18.2	-18.8	63.7	55.8	39.3
Malta	15	16	26	16	-38.5	0	6.7	36.2	49.9	29.5
Poland	3,907	2,909	1,896	1,893	-0.2	-34.9	-51.5	102.4	50.4	51.5
Portugal	937	626	591	600	1.5	-4.2	-36	88.6	62.3	57.3
Romania	2,377	1,864	1,634	1545	-5.4	-17.1	-35	117.1	85.8	81.1
Slovakia	345	245	244	267	9.4	9	-22.6	64.0	44.9	49.2
Slovenia	138	102	85	82	-3.5	-19.6	-40.6	67.4	40.3	38.7
Spain	2,478	1,755	1,746	1779	1.9	1.4	-28.2	53.3	37.1	37.0
Sweden	266	221	227	229	0.9	3.6	-13.9	28.5	21.7	21.8
The Netherlands	640	661	745	684	-8.2	3.5	6.9	38.6	41.9	38.4
<b>Eu27</b>	<b>29,691</b>	<b>22,761</b>	<b>20,685</b>	<b>20,365</b>	<b>-1.5</b>	<b>-10.5</b>	<b>-31.4</b>	<b>67.6</b>	<b>46.3</b>	<b>45.4</b>

\* Preliminary estimate 2023 Belgium, Denmark, Estonia, Finland, France, Germany, Greece, Hungary, Ireland, Latvia, Luxembourg, Portugal and Romania.

(a) Source: *European Transport Safety Council, Annual PIN report. Year 2024 - 18th Annual Road Safety Performance Index (PIN Report) – ETSC*; European Commission 8/03/2024 - [https://transport.ec.europa.eu/news-events/news/2023-figures-show-stalling-progress-reducing-road-fatalities-too-many-countries-2024-03-08\\_en](https://transport.ec.europa.eu/news-events/news/2023-figures-show-stalling-progress-reducing-road-fatalities-too-many-countries-2024-03-08_en)

(b) The percentage changes of the number of deaths is calculated as:  $((D^t/D^{t-1 \text{ or } 2019 \text{ or } 2010}) - 1) * 100$

## Road deaths decrease overall but show an increase among the elderly and children

There were 3,039 road accident deaths in 2023: 2,416 men (79.5 per cent) and 623 women (20.5 per cent). Dead drivers amounted to 2,135 (1,907 men and 228 women), passengers to 419 (195 men and 224 women) and pedestrians to 485 (314 men and 171 women).

Looking at the distribution by age, the deaths are concentrated in the 20-29 age group and the 45-59 age group for men, and in over-55 age group for women. The largest increases compared to 2022, however, are recorded overall for the over-70 age group, with the largest increase for the 75-79 age group (+23.6%), but also for children between 5 and 9 years of age (from 8 to 13 killed) and the 45-49 age group (+1.8%).

The proportion of children aged 0-14 killed in road accidents (within the 30th day) continues to be a particularly negative note: there are 41 in 2023, of whom 28 are aged 5-14, an increase over previous years. The figure, which shows no sign of decreasing, is higher even than that recorded in 2019; the number of children aged 0-14 killed was 39 in 2022, 28 in 2021, 37 in 2020 and 35 in 2019.

Concerning injuries in road accidents, the rise is detected especially among the older age groups over 75 and again, as for fatalities, among children, compared to 2022, although slightly down from 2019 (benchmark for the

2021-2030 decade) (Table 3). In order to concretely tackle the containment also of the number of injuries and not only of the number of deaths, the new National Road Safety Plan 2030 also focuses on improvements in the design of roads and vehicles, on the strengthening of laws and their enforcement, on timely and effective assistance to the injured, with an optimisation of rescue operations and a reduction of ambulance arrival times at the accident site (an indicator included among the EU Key Performance Indicators).

**TABLE 3. KILLED AND INJURED IN ROAD ACCIDENTS BY GENDER AND AGE CLASS.** Year 2023. Absolute values and % change 2023/2022 and 2023/2019 (a)

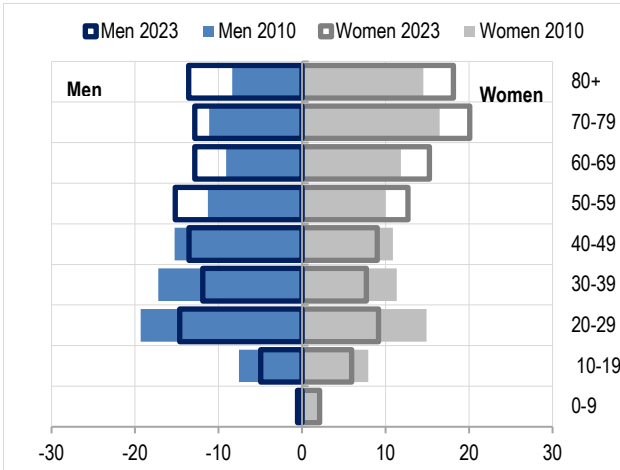
AGE CLASSES	Killed (within 30 days)			Injured			% change 2023/2022		% change 2023/2019	
	Males	Females	Total	Males	Females	Total	Killed	Injured	Killed	Injured
0 - 4	8	5	13	1,300	1,083	2,383	+8.3	+12.3	-23.5	-7.0
5 - 9	5	8	13	1,625	1,256	2,881	+62.5	+8.4	+225.0	-15.9
10 -14	9	6	15	2,716	1,809	4,525	-21.1	+0.2	+7.1	-11.3
15 -17	38	13	51	6,930	2,894	9,824	-25.0	+1.9	-23.9	12.8
18-19	73	17	90	7,226	2,963	10,189	-4.3	-1.7	-1.1	+1.1
20 -24	192	31	223	16,228	8,350	24,578	-5.5	-3.1	-10.1	-4.7
25 -29	159	24	183	13,488	7,421	20,909	-17.6	-1.5	-16.1	-9.5
30 - 34	140	25	165	11,928	6,475	18,403	-5.2	-1.0	-2.9	-6.4
35 - 39	147	21	168	10,563	5,738	16,301	-6.1	2.1	-8.2	-11.0
40 - 44	133	23	156	10,303	5,804	16,107	-17.5	-0.2	-23.2	-16.8
45 - 49	189	33	222	11,204	6,691	17,895	+1.8	-2.0	-5.5	-12.3
50 -54	169	29	198	11,495	6,915	18,410	-16.5	-0.1	-25.6	-6.2
55 -59	189	48	237	10,813	6,240	17,053	-7.1	+2.3	+7.2	+2.0
60 -64	162	44	206	8,190	4,666	12,856	-11.6	+4.5	+6.2	+6.6
65 -69	135	47	182	5,558	3,233	8,791	-7.1	+3.2	+0.6	-0.4
70 - 74	147	51	198	4,332	2,683	7,015	+8.2	-0.3	+3.7	-11.9
75 - 79	159	66	225	3,754	2,325	6,079	+23.6	+5.9	+12.5	-5.0
80 - 84	163	56	219	2,818	1,664	4,482	+12.3	+3.8	+2.8	-11.8
85+	163	54	217	2,000	1,035	3,035	+4.8	+10.0	+3.8	+4.4
Unknown	36	22	58	1,625	1,293	2,918	+11.5	+3.1	+20.8	-44.9
<b>Totale</b>	<b>2,416</b>	<b>623</b>	<b>3,039</b>	<b>144,096</b>	<b>80,538</b>	<b>224,634</b>	<b>-3.8</b>	<b>+0.5</b>	<b>-4.2</b>	<b>-6.9</b>

(a) The age class variable also includes the "unknown or not indicated" mode. For each accident, in fact. Also the occupants of other vehicles involved over the third is counted too. For these individuals, of which we only know the number and the outcome, demographic characteristics. Including the age, are not detected

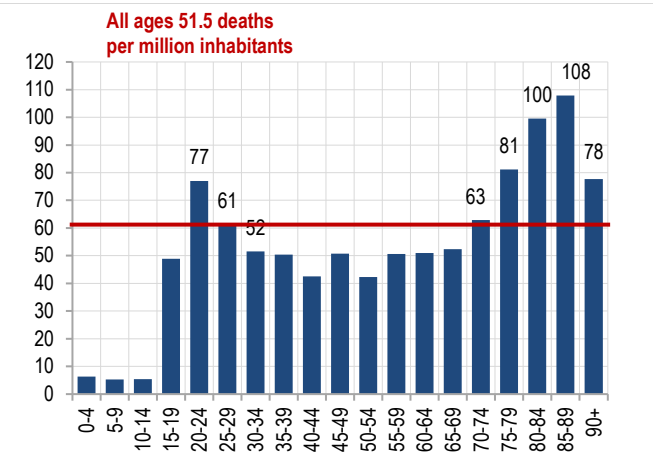
The age and gender structure of fatalities in 2023 and in 2010 (the year of comparison to detect differences in the shape of the distribution) shows how the proportions of adult and elderly fatalities, in relation to the total by gender, are increasing over time, also in connection with the ageing of the population.

The distribution of road death rates by age calculated on the resident population confirms the disadvantage of the youngest age groups (20-34 years) and of the over-70s: the highest specific death rate is in the 85–89-year-old class (108 per million inhabitants) and in the 20-24 year-old class (77 per million inhabitants) (Charts 3 and 4).

**CHART 3. KILLED IN ROAD ACCIDENTS. AGE PYRAMID BY AGE CLASS.** Year 2010-2023. Percentage values



**CHART 4. ROAD MORTALITY RATE BY AGE CLASS.** Year 2023, per million inhabitants



**Killed: increases for cyclists, electric scooter users, no progress for pedestrians**

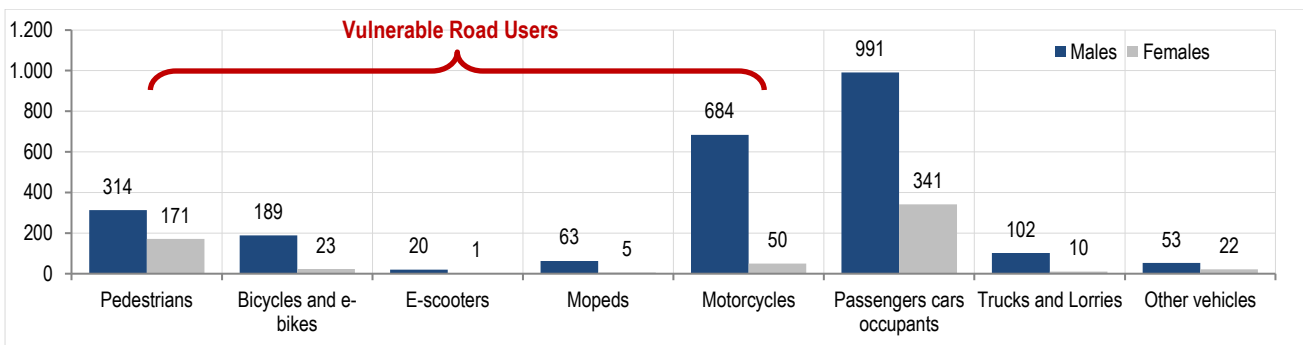
In 2023, the increasingly widespread use of zero-emission electric micro-mobility vehicles is confirmed. In order to document the accident rate of these new vehicles, since 2020, Istat has included the new vehicles 'electric scooter' and 'electric bicycle' among the survey variables.

There were 3,365 road accidents with injuries to persons involving at least one electric scooter in 2023, 2,929 in 2022, 2,101 in 2021 and 564 in 2020 (recorded as of May of the same year); there were 21 fatalities; in 2022 there were 16 and in 2021 nine, plus one pedestrian hit and killed, one in 2020. There were 3,195 injured drivers and passengers on scooters (3,056 drivers and 139 passengers), while there were 300 uninjured drivers; 182 injured pedestrians were run over.

Electric bicycles were involved in 1,391 accidents (1,113 in 2022, 691 in 2021 and 240 in 2020), with 12 fatalities among drivers and vehicle passengers and 2 pedestrians killed (21 fatalities in 2022, 13 in 2021 and 6 in 2020), 1,367 injured and 53 pedestrians injured. Non-electric bicycles were involved in 15,118 accidents (15,981 in 2022, 15,771 in 2021 and 13,240 in 2020) with 200 fatalities and 4 pedestrians killed (185 in 2022, 211 in 2021 and 169 in 2020), 14,665 injured and 371 pedestrians injured. In 2023 in total, there were more than 16,000 accidents involving at least 1 bicycle (electric and non-electric) and 3,365 accidents involving at least 1 scooter, resulting in a total of 233 fatalities and 6 pedestrians killed and 19,833 injured, with 606 pedestrians run over and injured.

Fatalities increase in 2023 for scooter and e-bike riders, remain stable among pedestrians and decrease for other users. There were 1,332 fatalities among car occupants (-3.1%), 734 among motorcyclists (-6.0%), 68 among moped riders (-2.9%), 485 among pedestrians (0.0%). Among truck occupants there were 112 fatalities (-32.5%), while for bicycles and e-bikes there were 212 fatalities, up from 205 in 2022 (+3.4%). Injuries also increased among users of electric scooters; there were 3,195 injuries and 21 deaths within 30 days of the event (in 2022 there were 2,787 and 16, respectively).

**CHART 5. KILLED IN ROAD ACCIDENTS BY GENDER AND ROAD USER TYPE.** Year 2023. Absolute values. Mortality and harmfulness index (a)



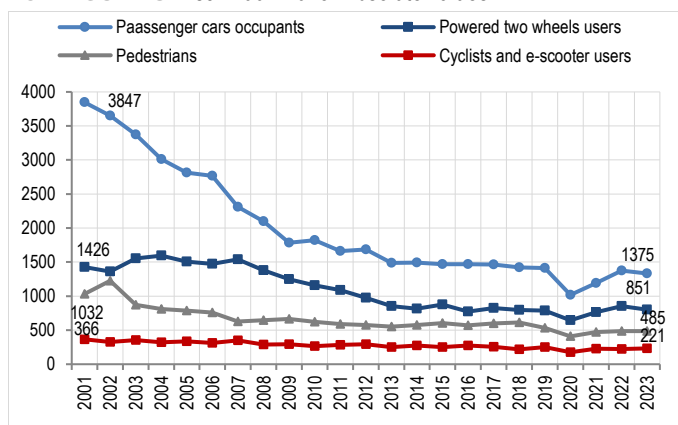
(a) Trucks and Lorries units category includes: Trucks, Trucks with trailers, Lorries, Special vehicles, Road tractors or tractor units. Other road users category includes: Buses or trolleybuses in urban service or extra urban service, Passengers cars, Rural vehicles, Motorcycles and motor vans, Animal-drawn or arm-drawn vehicles, Hit and Run Vehicles, Minicar



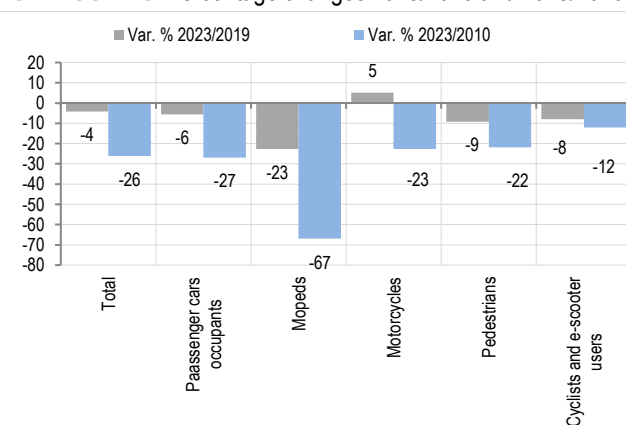
Overall, the gender distribution of deaths shows a distinctly male disadvantage also in 2023, particularly for drivers, for whom the proportion of men reaches 89%, while for passengers the proportions are 47% male and 53% female. Finally, for pedestrians, the proportions are 65% male and 35% female. Overall, the most vulnerable users account for 50% of road deaths (49.3% in 2022, 50.9% in 2021 and 51.4% in 2020) (Chart 5).

With reference to the European target of halving the number of fatalities and serious injuries, compared to 2010 and 2019, the categories that recorded the smallest decreases over time, in terms of fatalities, or in some cases even increases, were motorcyclists (-22.7% from 2010 and +5.2 from 2019), cyclists (-12.1% from 2010, -7.9% from 2019) and pedestrians (-21.9% from 2010, -9.2% from 2019). The decreases from 2010 to 2023, although with a decrease, they don't reach the numbers obtained for car occupants. Moped and passenger cars, on the other hand, reached the highest earnings, in terms of reducing fatalities, over the past 20 years due to different factors, including raising awareness of the proper use of helmets and safety devices, and considerable advances in vehicle safety technology. To underline, anyway, that the number of mopeds circulating on the roads has fallen sharply over time (Charts 6 and 7).

**CHART 6. ROAD FATALITIES BY MAIN ROAD USER CATEGORIES.** Year 2001-2023. Absolute values



**CHART 7. ROAD FATALITIES BY MAIN ROAD USER CATEGORIES.** Percentage changes 2023/2019 and 2023/2010



### Slight increase in accidents and injuries, but fatalities are falling sharply on motorways

In 2023 there is a slight increase in road accidents and injuries or stability on all road areas, compared to 2022, still all decreasing values compared to the reference year 2019. For accidents on motorways the increase is 5.5 per cent and 6.6 per cent for injuries. Values on urban and suburban roads are almost stable. Casualties; decreasing on all types of roads, particularly on motorways (-19.0 per cent). On rural roads the number of fatalities fell by 3.9 per cent and on urban roads by 0.3 per cent.

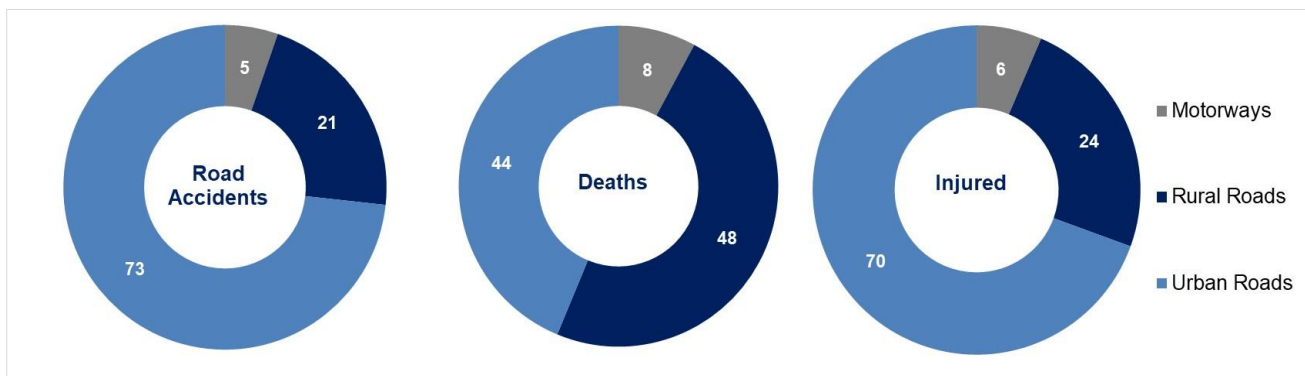
In comparison with 2019 the figures are still all down, overall, -3.3 per cent for accidents and -4.2 per cent for fatalities, but there is a strong decrease of -22.9 per cent in road fatalities on motorways. The percentage distribution shows that road accidents occur most frequently on urban roads (73.3 per cent), while the highest number of fatalities is concentrated on rural roads (48.4 per cent). Motorways, on the other hand, account for 5.3 per cent of accidents and 7.9 per cent of fatalities (Table 4 and Chart 8).

**TABLE 4. ROAD ACCIDENTS RESULTING IN DEATH OR INJURY. KILLED AND INJURED BY ROAD TYPE.** Years 2023, 2022 and 2019. Absolute values and percentage changes 2023/2022 and 2023/2019

ROAD TYPE (a)	Road accidents 2023	Road accidents 2022	Road accidents 2019	Killed 2023	Killed 2022	Killed 2019	Injured 2023	Injured 2022	Injured 2019	% change accidents 2023/2022	% change killed 2023/2022	% change accidents 2023/2019	% change killed 2023/2019
Built up roads	122,011	121,818	127,000	1,329	1,333	1,331	155,980	155,934	168,794	+0.2	-0.3	-3.9	-0.2
Motorways	8,835	8,375	9,076	239	295	310	14,469	13,579	15,009	+5.5	-19.0	-2.7	-22.9
Non built up roads	35,679	35,696	36,107	1,471	1,531	1,532	54,185	53,962	57,581	0.0	-3.9	-1.2	-4.0
<b>Total</b>	<b>166,525</b>	<b>165,889</b>	<b>172,183</b>	<b>3,039</b>	<b>3,159</b>	<b>3,173</b>	<b>224,634</b>	<b>223,475</b>	<b>241,384</b>	<b>+0.4</b>	<b>-3.8</b>	<b>-3.3</b>	<b>-4.2</b>

(a) Included rural or not built-up roads called: Statali, Regionali and Provinciali, Comunalì out of urban area.

**CHART 8. ROAD ACCIDENTS RESULTING IN DEATH OR INJURY. KILLED AND INJURED BY ROAD TYPE (a). Year 2023**  
percentage values



(a) Included rural or not built up roads called: Statali. Regionali and Provinciali. Comunalì out of urban area.

### Driving distraction is always the first cause of road accidents

Amongst driving errors (excluding the residual group of causes of an unspecified nature), distraction, failure to yield the right of way and speeding are confirmed as the most frequent. The three groups together account for 36.5% of cases (80,057). It should be noted that the survey carried out by ISTAT only includes the causes ascertained or presumed for the drivers of the first two vehicles involved in the accident (accidents involving three or more vehicles account for 9.1% of the total in 2023).

Of the other most significant causes, irregular manoeuvring (16,828), lack of safe distance (15,172), lack of right of way for pedestrians (7,454) and pedestrian misconduct (6,241) accounted for 7.7 per cent, 6.9 per cent, 3.4 per cent and 2.8 per cent of accident causes respectively.

With reference to the road category, the leading cause of accidents on urban roads is failure to observe the rules of right of way or traffic lights (15.4%), followed by distracted driving (12.5%); on rural roads it is distracted driving or indecisive behaviour (22.0%), followed by speeding (11.1%)

### Road user fatality profiles: the new collision matrices

Road accidents represent a multifactorial subject. Often, for an exhaustive interpretation of data, the use of new indicators and innovative measures, compared to traditional analyses, is recommended. In order to study the different features of all road users and their interactions, it is very important to relate the specific risk elements of the connections between users and vehicles on the road. The presented analysis helps to outline elements for road safety performance, measured with the support of the Key Performance Indicators, provided by the 2030 Agenda, for the European Union Countries. The new method offers a multidimensional approach to the subject, with roads, vehicles and the human behaviours as key elements.

In addition, to more traditional mortality and injury rates, such as the ratio between killed or injured in road accidents and the resident population, the vehicles fleet or with respect to the length of the roads, recently, Istat calculated new matrices, including the connection between specific user's characteristics. The innovative element of the project, in fact, is the presentation of "collision matrices", calculated by road type and other crucial features. The collision matrices structure is based on an accurate technique, aimed to put in connections killed (within 30 days) or injured in road accidents, drivers and passengers, or pedestrian and the vehicle type, responsible of the collision during the crash.

The values within the cells of the matrix are calculated as a partition of total cases (killed or injured), developing an algorithm combining all vehicles involved in the accidents and all the crashing interaction between vehicles and other vehicles or pedestrians.

The road accident indicators based on collision matrices make it possible to outline risk profiles for road users and to highlight differences by type of road, urban and rural, by geographical zone of accident event and by gender and age of users involved.

The processing of the collision matrices is based on the national implementation of an indicator produced by the European Commission and also included a refinement of the European calculation methodology and the addition of new breakdowns for vehicles, in particular electric scooters.

As far as the main results are concerned, the matrix calculated for fatalities shows a high mortality risk exposure of drivers of electric bicycles and scooters involved in accidents with passenger cars or solo vehicles. Power two-wheelers have a high number of accidents in collisions with passenger cars, light commercial vehicles and single vehicles. Pedestrians present a higher risk than other users when they collide with passenger cars and heavy good vehicles (Table 5).

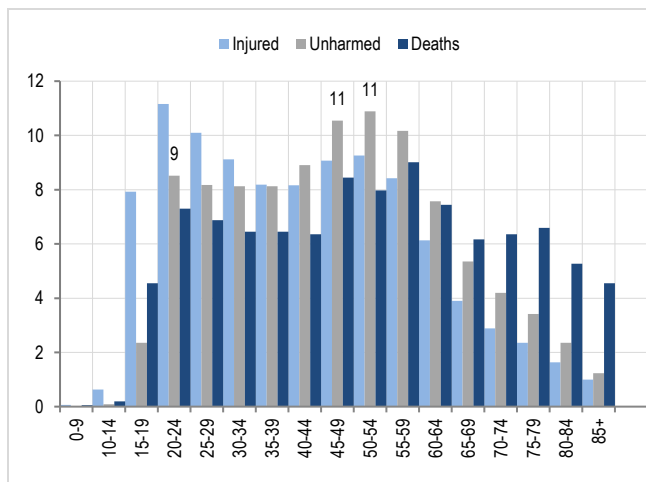
**TABLE 5. COLLISION MATRIX FOR ROAD ACCIDENTS FATALITIES BY ROAD USER AND OTHER VEHICLES INVOLVED.** Year 2023, absolute and percentage values (row %) (a)

DEATHS BY USER TYPE	IN COLLISION WITH											Total
	Bicycles	E-bikes	E-scooters	Mopeds	Motor-bikes	Passengers cars	Lorries (< 3,5 t)	Heavy Good Vehicles (> 3,5 t)	Buses or Coach	Other vehicles	No other vehicles	
<b>Pedestrians</b>	4 (0.8%)	2 (0.4%)	-	4 (0.8%)	<b>33</b> (6.8%)	<b>353</b> (72.8%)	<b>37</b> (7.6%)	<b>28</b> (5.8%)	14 (2.9%)	10 (2.1%)	-	<b>485</b>
<b>Bicycles</b>	6 (3.0%)	-	-	-	9 (4.5%)	<b>116</b> (58.0%)	<b>18</b> (9.0%)	14 (7.0%)	4 (2.0%)	7 (3.5%)	<b>26</b> (13.0%)	<b>200</b>
<b>E-bikes</b>	-	-	-	1 (8.3%)	1 (8.3%)	7 (58.4%)	1 (8.3%)	-	-	-	2 (16.7%)	<b>12</b>
<b>E-scooters</b>	-	-	-	-	2 (9.5%)	<b>6</b> (28.6%)	-	1 (4.8%)	-	-	<b>12</b> (57.1%)	<b>21</b>
<b>Mopeds</b>	-	-	-	3 (4.4%)	2 (2.9%)	<b>29</b> (42.6%)	4 (5.9%)	1 (1.5%)	-	4 (5.9%)	<b>25</b> (36.8%)	<b>68</b>
<b>Motor-bikes</b>	2 (0.3%)	-	1 (0.1%)	-	33 (4.5%)	<b>375</b> (51.2%)	<b>50</b> (6.8%)	23 (3.1%)	6 (0.8%)	4 (0.5%)	<b>240</b> (32.7%)	<b>734</b>
<b>Passengers cars</b>	1 (0.1%)	-	-	4 (0.3%)	4 (0.3%)	<b>532</b> (39.9%)	<b>68</b> (5.1%)	<b>123</b> (9.3%)	15 (1.1%)	21 (1.6%)	<b>564</b> (42.3%)	<b>1.332</b>
<b>Lorries (&lt; 3,5 t)</b>	-	-	-	-	-	<b>9</b> (21.4%)	<b>5</b> (11.9%)	<b>8</b> (19.0%)	2 (4.8%)	-	<b>18</b> (42.9%)	<b>42</b>
<b>Heavy Good Vehicles (&gt; 3,5 t)</b>	-	-	-	-	-	<b>11</b> (15.7%)	2 (2.9%)	<b>27</b> (38.6%)	5 (7.1%)	-	<b>25</b> (35.7%)	<b>70</b>
<b>Buses or Coach</b>	-	-	-	-	-	-	-	5 (17.9%)	-	-	<b>23</b> (82.1%)	<b>28</b>
<b>Other vehicles</b>	-	-	-	-	1 (2.1%)	<b>20</b> (42.6%)	3 (6.4%)	9 (19.1%)	-	-	<b>14</b> (29.8%)	<b>47</b>
<b>Totale</b>	<b>13</b>	<b>2</b>	<b>1</b>	<b>12</b>	<b>85</b>	<b>1,458</b>	<b>188</b>	<b>239</b>	<b>46</b>	<b>46</b>	<b>949</b>	<b>3,039</b>

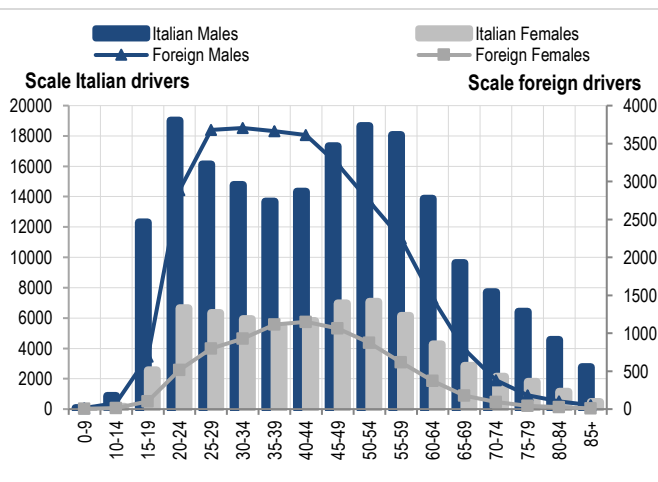
(a) The values within the matrix cells are calculated with a partition of the total cases, such that the sum per column and per row produces marginal distributions whose sum coincides with the total number of cases (fatalities in the table 5). Underlined in red, the highest frequencies recorded in the matrix cells.

### Tables and charts collection:

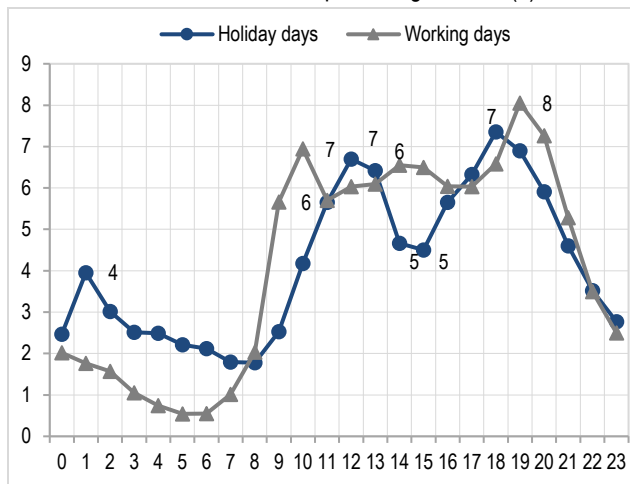
**CHART 9. DRIVERS INVOLVED IN ACCIDENTS BY OUTCOME.** Year 2023, Percentage values



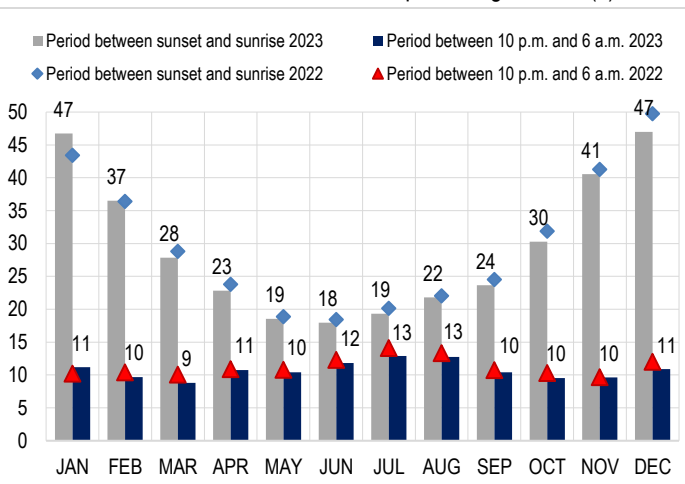
**CHART 10. DRIVERS INVOLVED IN ACCIDENTS BY GENDER AND CITIZENSHIP.** Year 2023, Absolute values



**CHART 11. ROAD ACCIDENTS BY DAY HOURS AND DAY TYPE.** Years 2022 and 2023, percentage values (a)



**CHART 12. ROAD ACCIDENTS BY MONTH AND PERIOD IN THE DAY AND NIGHT.** Years 2022 and 2023, percentage values (b)



(a) Rounded hour. (b) Conventional night period between 10,01 p.m and 6,00 a.m..

**TABLE 5. ROAD ACCIDENTS RESULTING IN DEATH OR INJURY AND KILLED BY REGIONS.** Years 2023, 2022 and 2019 (a). Absolute values. Road mortality rate per 100.000 inhabitants, percentage change 2022/2021, 2022/2019

REGIONS	Killed (absolute values)			% change 2023/2022 (a)	% change 2023/2019 (a)	Road Mortality 2023 (b)	Road Mortality 2022 (b)
	2023	2022	2019				
Piemonte	178	241	232	-26.1	-23.3	4.2	5.7
Valle d'Aosta/Vallée d'Aoste	5	10	4	-50.0	+25.0	4.1	8.1
Lombardia	377	402	438	-6.2	-13.9	3.8	4.0
Bolzano/Bozen	36	33	46	+9.1	-21.7	6.7	6.2
Trento	35	33	25	+6.1	+40.0	6.4	6.1
Veneto	309	321	336	-3.7	-8.0	6.4	6.6
Friuli-Venezia Giulia	56	74	72	-24.3	-22.2	4.7	6.2
Liguria	55	57	64	-3.5	-14.1	3.6	3.8
Emilia-Romagna	279	311	352	-10.3	-20.7	6.3	7.0
Toscana	202	225	209	-10.2	-3.3	5.5	6.2
Umbria	45	49	51	-8.2	-11.8	5.3	5.7
Marche	89	91	99	-2.2	-10.1	6.0	6.1
Lazio	346	339	295	+2.1	+17.3	6.0	5.9
Abruzzo	72	59	78	+22.0	-7.7	5.7	4.6
Molise	16	14	28	+14.3	-42.9	5.5	4.8
Campania	220	228	223	-3.5	-1.3	3.9	4.1
Puglia	232	226	207	+2.7	+12.1	6.0	5.8
Basilicata	27	46	29	-41.3	-6.9	5.0	8.5
Calabria	109	74	104	+47.3	+4.8	5.9	4.0
Sicilia	241	226	210	+6.6	+14.8	5.0	4.7
Sardegna	110	100	71	+10.0	+54.9	7.0	6.3
<b>Italia</b>	<b>3,039</b>	<b>3,159</b>	<b>3,173</b>	<b>-3.8</b>	<b>-4.2</b>	<b>5.2</b>	<b>5.4</b>

(a) Percentage change formula:  $(D^{2023}/D^{2022 \text{ or } 2019} - 1) * 100$ . (b) ; Mortality Rate for 100,000 inhabitants.

**TABLE 6. ROAD ACCIDENTS RESULTING IN DEATH OR INJURY AND KILLED BY ROAD CATEGORY IN LARGE MUNICIPALITIES IN ITALY** (population >=250.000 inhabitants). Years 2023 and 2022 (a). Absolute values. Road mortality rate per 100.000 inhabitants.

MAIN MUNICIPALITIES	Urban roads				Rural roads and Motorways(a)				Road mortality rate 2023	Road mortality rate 2022
	Road accidents 2023	Road accidents 2022	Killed 2023	Killed 2022	Road accidents 2023	Road accidents 2022	Killed 2023	Killed 2022		
Torino	2,875	2,891	23	29	44	44	0	2	2.7	3.7
Milano	7,479	7,527	42	38	338	259	5	6	3.4	4.6
Verona	1,058	1,133	14	14	110	118	1	3	5.9	2.1
Venezia (b)	507	532	4	6	155	168	26	2	12.0	3.2
Trieste	721	786	3	4	69	83	2	1	2.5	2.2
Genova	3,412	3,686	12	15	256	224	1	1	2.3	4.2
Bologna	1,942	1,914	17	18	216	206	4	5	5.4	5.9
Firenze	2,530	2,476	16	9	50	151	1	1	4.7	2.8
Roma	11,320	11,798	121	124	1,495	1,384	33	26	5.6	5.5
Napoli	2,195	2,138	34	20	183	198	3	3	4.0	2.5
Bari	1,386	1,330	10	9	176	174	2	2	3.8	3.5
Palermo	1,843	1,763	23	18	44	34	4	1	4.3	3.0
Messina	612	573	7	10	111	123	4	5	5.0	6.8
Catania	1,291	1,299	13	17	78	79	4	1	5.7	6.0
<b>Total</b>	<b>39,171</b>	<b>39,846</b>	<b>339</b>	<b>331</b>	<b>3,325</b>	<b>3,245</b>	<b>90</b>	<b>59</b>	<b>4.6</b>	<b>4.2</b>

(a) Included for rural roads called: Statali, Regionali and Provinciali, Comunali out of urban area.

(b) In October 2023 occurred a road accident in Venice-Marghera, involving a bus with 21 deaths and 14 injured.

**TABLE 7. SANCTIONS APPLIED BY MOTORWAY POLICE, CARABINIERI AND LOCAL POLICE OF THE MAIN MUNICIPALITIES WITHIN THE PROVINCES. VIOLATIONS OF THE ROAD CODE: TITLE V - RULES OF CONDUCT.**

Year 2023, absolute values

ITALIAN ROAD CODE (ARTICLES) <sup>3</sup>	Violation description Title V - Rules of conduct	Number of violations/sanctions (Absolute values)		
		Motorway Police (a)	Carabinieri (b)	Local Police (c)
Art.141	Speeding	41,911	23,831	37,146
Art.142	Exceeding the speed limits	591,383	369	2,527,495
Art.143-144	Position of vehicles on the roadway, use of lanes, driving in parallel lines	11,017	10,787	12,511
Art.145	Obligations of precedence	4,662	9,393	20,745
Art.146	Failure to comply with road markings and traffic lights	26,759	8,439	721,632
Art.148	Regulation of overtaking vehicles	13,049	16,962	5,100
Art.149	Respect for the safety distance	5,851	3,220	4,425
Art.152-153	Use of visual signaling and lighting devices	7,664	1,517	1,703
Art.154	Rules for changing direction and lane	6,319	2,899	21,887
Art.155	Limitation of noise from silencers and radio equipment	493	969	602
Art.157-158	Discipline of arrest, stop and parking outside and inside inhabited centers	16,032	22,822	3,117,364
Art.161-162-165	Encumbrance of the roadway, signaling and towing of vehicles in breakdown	2,502	388	4,098
Art.164	Regulations on the arrangement of cargo on vehicles	6,597	718	1,129
Art.167	Carrying goods and exceeding vehicle weight limits	34,484	118	1,496
Art.168	Rules on the transport of dangerous goods	4,138	13	138
Art.169	Transportation of people, animals and objects on motor vehicles	5,239	1,812	3,433
Art.170	Transport of people and objects on two-wheeled motor vehicles	482	1,179	651
Art.171	Use of helmet	3,439	7,976	52,466
Art.172	Use of seat belts and child restraint systems	77,306	51,520	31,513
Art.173	Failure to use contact lenses or use of radiotelephones or headphones	48,070	21,744	55,810
Art.174-178	Respect for driving times and rest periods for drivers of heavy vehicles	38,304	63	2,068
Art.175-176	Circulation and behavior on motorways and main extra-urban roads.	174,766	259	85
Art.179	Installation, alteration, tampering with the Chrono tachograph	7,800	73	973
Art.180-181	Possession of traffic documents	92,695	61,265	127,859
Art.182	Rules of behavior for cyclists	121	262	1,706
Art.186	Driving under the influence of alcohol	15,893	15,589	7,564
Art.187	Driving under the influence of drugs	1,639	1,891	779
Art.189	Behavior of drivers in the event of an accident	2,007	2,648	6,393
Art.190	Pedestrian behavior	210	294	2,482
Art.191	Behavior of drivers towards pedestrians	638	1,180	7,038
Art.193	Insurance obligation	38,778	50,505	53,119
<b>Total</b>	<b>Violations of the Road Code: Title V - Rules of conduct</b>	<b>1,280,248</b>	<b>320,705</b>	<b>6,831,410</b>

(a) Source: Ministry of Interior - Motorway Police Service; (b) Source: Carabinieri - Chronological register of disputed violations; (c) Source: ACI survey on the local police headquarters of the main municipalities in the province (ref. 1/1/2023).

<sup>3</sup> Road Code - Legislative Decree n. 285 dated 30/04/1992 and Law 29 July 2010, n. 120 Road safety provisions

## Glossary:

**Bus:** passenger-carrying vehicle, most commonly used for public transport, having more than 16 seats for passengers.

**Deaths:** the number of people involved in road accidents, who die immediately or within 30 days after the event occurred. This definition was adopted on 01st January 1999, while in the past (up until 31st December 1998) deaths were considered to include only deaths within seven days of the accident.

**Goods vehicle:** Motor vehicle used only for the transport of goods.

**Injured:** the road user was seriously or slightly injured (but not killed within 30 days) in the road accident.

**Moped:** two or three wheeled vehicle equipped with internal combustion engine, with size less than 50 cc and maximum speed that does not exceed 45 km/h (28mph).

**Motorcycle:** two or three wheeled motor vehicle, with engine size up to 125 cc. or maximum speed exceeding 45km/h (28 mph) or with engine size more than 125 cc.

**Passenger car:** motor vehicle with 3 or 4 wheels, mainly used to transport people, seating for no more than 8 occupants. Motor vehicles with these characteristics used as taxis as well as motor caravans are also included.

**Pedal cycle:** vehicle with at least 2 wheels, without engine. In some cases it can also use electric power.

**Electric scooter:** equivalent to pedal cycle, vehicle with maximum power 500 W and with speed limits 6 km / h or 30 km/h as the areas where they circulate vary (paragraph 75 of the Budget Law 2020 DL 160/2019).

**Pedestrian:** person on foot; person pushing or holding bicycle. Person who uses a wheel chair, a pram or a pushchair, leading or herding an animal, riding a toy cycle on the footway, person on roller skates, skateboard or skis. Does not include persons in the act of boarding or alighting from a vehicle.

**Percentage change:** the percentage change between  $X_t$  and  $X_{t-k}$  respectively at **t** and **t-k** time is calculated as  $(X_t / X_{t-k} - 1) * 100$ .

**Public motor vehicle registry (PRA):** the registry holding all public deeds relating to the transfer of property and rights of ownership, in addition to the records of loans and mortgages on all motor vehicles registered in Italy.

**Road accident:** the 1968 Vienna Convention defines a road accident as an event occurring on the roads or squares open to traffic involving standing or moving vehicles and which results in injury to people. For this reason, if the accident only involves damage to objects, it is excluded from the statistics. This definition therefore reserves attention exclusively for reported accidents involving injury to people.

**Road accidents harmfulness index:** the ratio of the number of injuries caused by road accidents and the number of collisions, per 100 accidents.

**Road accidents mortality index:** the ratio of the number of fatalities caused by road accidents and the number of collisions, per 100 accidents.

**Road accidents seriousness index:** the ratio of the number of fatalities caused by road accidents and the total number of deaths and injuries as a result of accidents, per 100 accidents.

**Road tractor** road motor vehicle designed, exclusively or primarily, to haul other road vehicles which are not power-driven (mainly semi-trailers).

**Rural or non-built up roads:** outside urban area, no motorway

**Serious injuries:** the serious injuries are identified by MAIS classification (Maximum Abbreviated Injury Scale). The severity level is measured by a 6-level scale. Serious injuries have a score of 3 or higher (MAIS3+).

**Two wheel motor vehicle:** motor vehicle moving on two wheels. Includes mopeds and motorcycles but not bicycles.

**Urban or built up roads:** inside urban area, no motorway.

## Methodological note

### Data flow and definitions

The survey on road accidents resulting in death (within 30 day) or injury carried out by the Italian National Institute of Statistics (Istat), with the cooperation of ACI (Automobile Club of Italy) and other local organisations, is an exhaustive and monthly based data collection (National Statistical Programme - PSN – 00142 code).

The survey collects all road accidents involving at least a vehicle circulating on the national road net, resulting in death or injury and documented by a Police authority.

The detection unit is the single road accident resulting in death or injury; all information is referred to the period when the accident occurred.

As regards the data flow, a flexible model was adopted by Istat, through the subscription of a Memorandum of understanding or special agreements signed with regions (NUTS2 level) and provinces (NUTS3 level). in order to facilitate the local authority information needs and to improve the timeliness and quality of data collected.

### Main information collected:

- Date, time and location of the accident
- Type of road
- Road surface
- Signals
- Weather conditions
- Type of accident (collision, investment, etc.)
- Type of vehicles involved
- Consequences of the accident to people
- Causes of the accident

### Timeliness and dissemination

The figures for every year  $t-1$  are disseminated in July of the year  $t$ , approximately five months after the collection deadline.

### European Union law of reference:

Reference: COUNCIL DECISION of 30 November 1993 on the creation of a Community database on the road accidents [Decision n. 704 of 1993](#)

### Link to database and websites:

- Noi Italia: <http://noi-italia.istat.it/>
- DWH I.stat: <http://dati.istat.it/> (Health Statistics/Road Accidents)
- IstatData [https://esploradati.istat.it/databrowser/#/en/dw/categories/IT1,Z0810HEA,1.0/HEA\\_ROAD](https://esploradati.istat.it/databrowser/#/en/dw/categories/IT1,Z0810HEA,1.0/HEA_ROAD)
- Time series: <http://seriestoriche.istat.it/>
- CARE - Community database on road accidents resulting in death or injury – DG-MOVE European Commission [http://ec.europa.eu/transport/road\\_safety/specialist/statistics/index\\_en.htm](http://ec.europa.eu/transport/road_safety/specialist/statistics/index_en.htm)

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