

Road deaths in the Netherlands

SWOV fact sheet, September 2023

SWOV



SWOV fact sheets contain concise relevant knowledge on topics within the road safety themes and are updated regularly. Recently updated SWOV fact sheets can be found on swov.nl/fact-sheets.

Summary

After a rise in the 1950s and 1960s, the number of road deaths in the Netherlands has shown a gradual decline since 1973. In the last ten years, this decline has stagnated. In 2022, there were 745 road deaths in the Netherlands,¹ 163 more than in 2021. This implies that the number of road deaths reverted to pre-2009 levels.

In 2022, almost four out of ten road deaths were cyclists (290; 39%), and three out of ten are car occupants (221; 30%). Most road deaths occur among older road users: in 2022, 402 (54%) were aged 60 or over. By contrast, relatively few children (0-14 years) are killed in Dutch traffic; in 2022, 23 (3%) were killed.

When comparing the number of road deaths for different subgroups (e.g. age, mode of transport, road type), it should be borne in mind that, in any case, the number of crash casualties depends on the distance travelled: the more people travel, the more frequently they may be involved in crashes. The number of casualties also depends on the safety characteristics of this exposure: roads are either safe or less safe and the same goes for vehicles. In addition, traffic behaviour also affects the probability of being involved in a crash. The number of road deaths in a particular subgroup is, therefore, not just determined by how 'dangerous' road use is for that subgroup (the risk of that specific age group, gender, mode of transport or road type), but also by the distance travelled by that subgroup (by that mode of transport, on that road type, etc.).

1 How many road deaths were there in the Netherlands in 2022?

In 2022, the number of road deaths amounted to 745.² That is 163 more than the 582 road deaths in 2021.

1. These are the final figures from Statistics Netherlands. They are higher than the 737 road deaths published by Statistics Netherlands in April 2023.

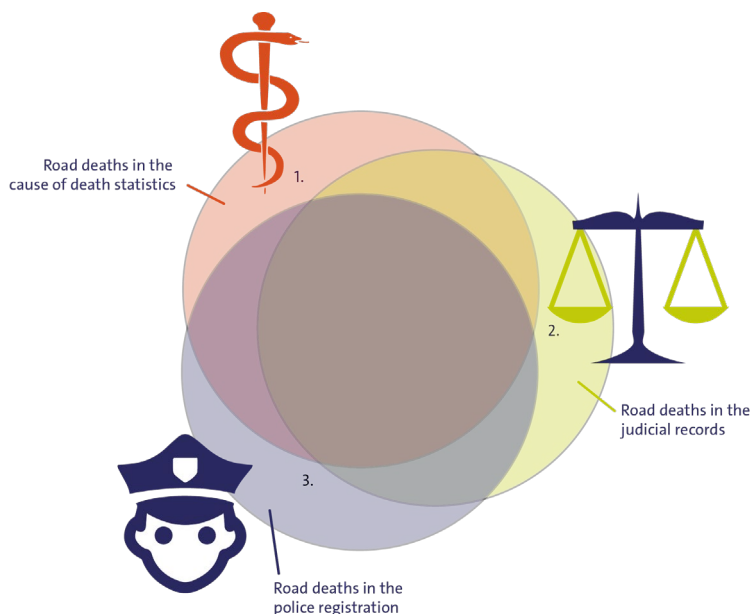
2. These are the final figures from Statistics Netherlands. They are higher than the 737 road deaths published by Statistics Netherlands in April 2023.

2 What is the official definition of a road death?

The international definition of a road death is as follows: a casualty who, in or after a crash on a public road in which at least one moving vehicle is involved, dies within thirty days from the consequences of that crash, with the exception of suicides [1]. In the Netherlands, this international definition is also adopted [2].

3 How is the number of road deaths in the Netherlands determined?

Before 1996, all road death statistics in the Netherlands were based on police reports. Since 1996, the number of road deaths has been determined by Statistics Netherlands, in close consultation with the Ministry of Infrastructure and Water Management (IenW). Statistics Netherlands analyses [data from three different data sources](#) to determine the number of road deaths in the Netherlands:



1. Data from the cause of death forms filled out by a coroner;
2. The district court files on deaths by unnatural causes;
3. The (provisional) Database of Registered Crashes in the Netherlands (in Dutch: BRON), based on crash reports compiled and made available by the police. The final version of this database is published by the Ministry of Infrastructure and Water Management (IenW).

By linking and comparing these data sources, Statistics Netherlands compiles the total number of road deaths in the Road Death Statistics. This can be seen in *Figure 1*.

Figure 1. The number of road deaths is determined using three sources. A road death can be included in one or more of these sources.

Statistics Netherlands departs from the premise that all road deaths are registered in at least one of the three data sources and, consequently, that there are no traffic deaths that are not registered in any of the data sources. This implies that the area outside the three coloured circles

in *Figure 1* contains no road deaths. Based on analysis of the data, Statistics Netherlands determines the number of road deaths. Double counts are removed, and casualties that should not be included in the road deaths in the Netherlands (such as crashes abroad, crashes off public roads, suicides, natural causes of death) are removed from the database.

4 What is the difference between the number of road deaths registered in BRON and the real number of road deaths?

Between 2013 and 2022, the registered number of road deaths in BRON was approximately 14% lower than the number determined by Statistics Netherlands in the Road Death Statistics, which is considered to be the real number. In 2022, the BRON registration rate was 88%: 90 of the 745 road deaths (according to Statistics Netherlands) were missing in the BRON database. BRON is known to particularly miss crashes not involving any other parties, or exclusively involving non-motorized traffic, or when a casualty dies at a later date, or when there is confusion about the type of crash (vehicle entering the water, crashes at railways, indisposition, suicide, intent).

Conversely, a number of road deaths are wrongly included in BRON. About 2.5% of the road deaths recorded in BRON in the period 2012-2016 turned out not to be road deaths. About half of these cases involved suicide [3]. BRON is most complete for road deaths in crashes involving vans or trucks and in car-car crashes (both about 95%).

5 How has the number of road deaths in the Netherlands developed over the past ten years?

Figure 2 shows the development of the real number of road deaths in the Road Death Statistics over the last ten years. The number of road deaths fluctuated between 570 and 678 in 2013-2021. The 570 road deaths in 2013 and 2014 was the lowest number ever in the Netherlands (see the question [How has the number of road deaths in the Netherlands developed since 1950?](#)).

The 745 road deaths in 2022 is the highest number in 14 years. Due to the mobility reduction measures in 2020 and 2021, it is unknown whether the 2022 number is unique or part of an upward trend. What we did see is that in 2020 and 2021, despite mobility reduction measures, the number of road deaths did not decrease significantly [4].

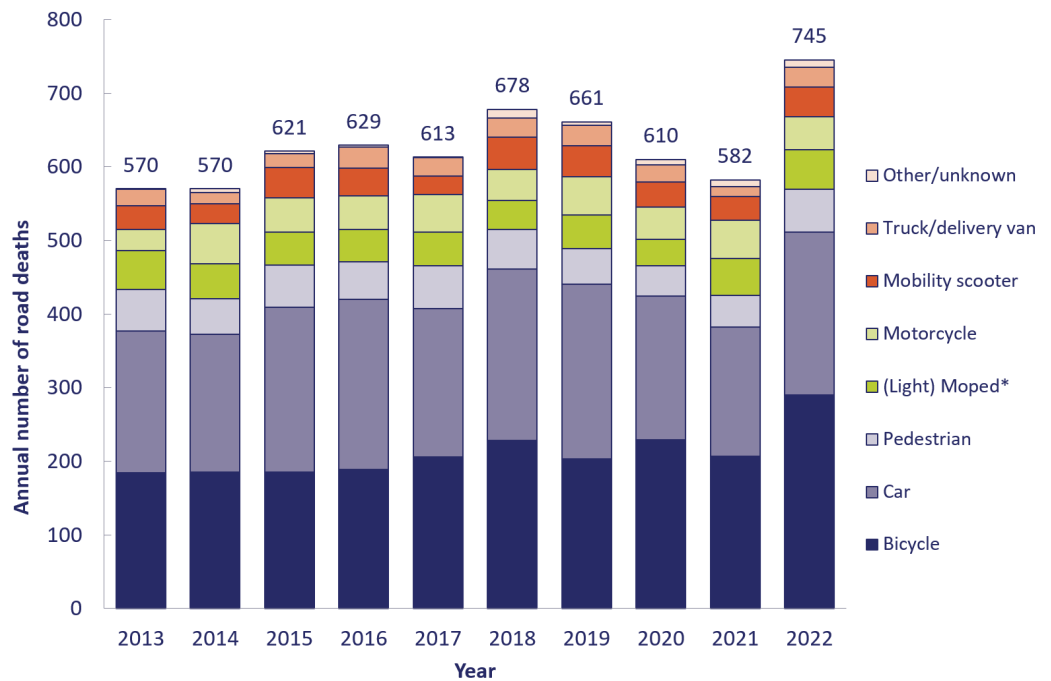


Figure 2. Number of road deaths in the Netherlands in the last ten years, according to mode of transport. The category (light-)mopeds also includes microcars and speed pedelecs. Source: [Statistics Netherlands StatLine \(Road Death Statistics\)](#).

6 How is the number of road deaths distributed across different modes of transport, age groups and gender?

Figure 3 shows the 2022 shares of road deaths by their mode of transport at the time of the crash. In 2022 most fatalities occurred among cyclists (39%, of whom at least one in three were pedelec riders) and car occupants (30%). Powered two-wheelers (a total of 13%) are the third largest group; slightly more than half of them (55%) being (light) moped riders (including microcars or speed pedelecs) and 45% being motorcyclists. In 2022, 8% of the road deaths were pedestrians, 5% riders of mobility scooters and 4% a truck or delivery van occupant. The mode of transport of 1% of the road deaths is either 'other mode of transport' or 'unknown'.

Mode of transport

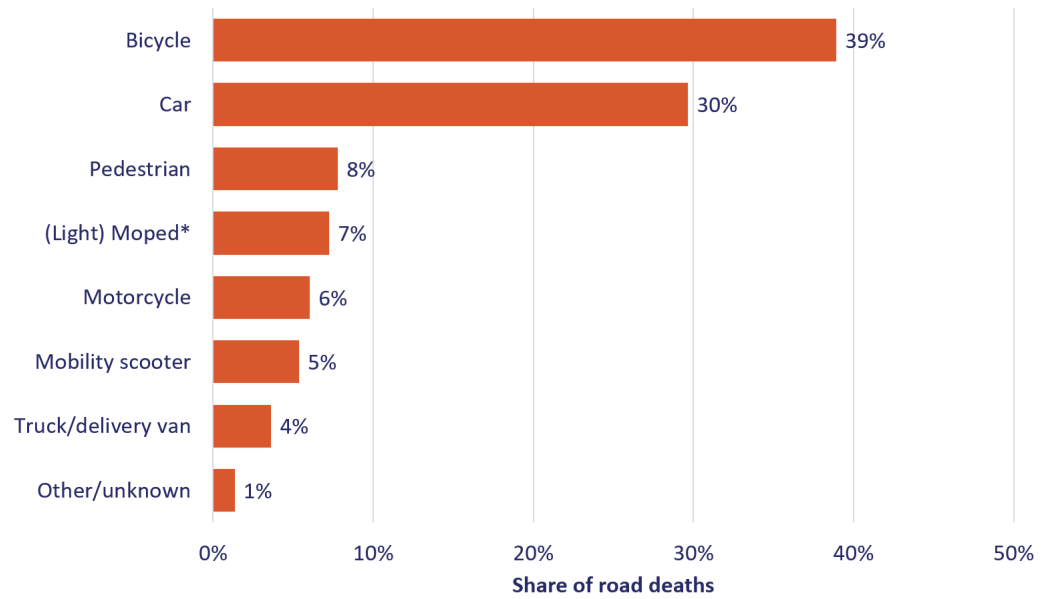


Figure 3. Road deaths in the Netherlands in 2022, by mode of transport. *The category (light) mopeds also includes microcars and speed pedelecs. Source: [Statistics Netherlands StatLine \(Road Death Statistics\)](#).

Figure 4 shows the age distribution of the road deaths in 2022. Almost a quarter of the road deaths (178; 24%) were people aged 80 or over. Almost one in five road deaths was aged 70 or over (138; 19%). What is generally known about the risks of older road users can be found in SWOV fact sheet [Older road users](#). In addition, the number of older people in the entire population is also relevant. The number of road deaths among children and youngsters under 15 years old was lowest (23; 3%).

In 2022, 71% of the road deaths were males, 29% females.

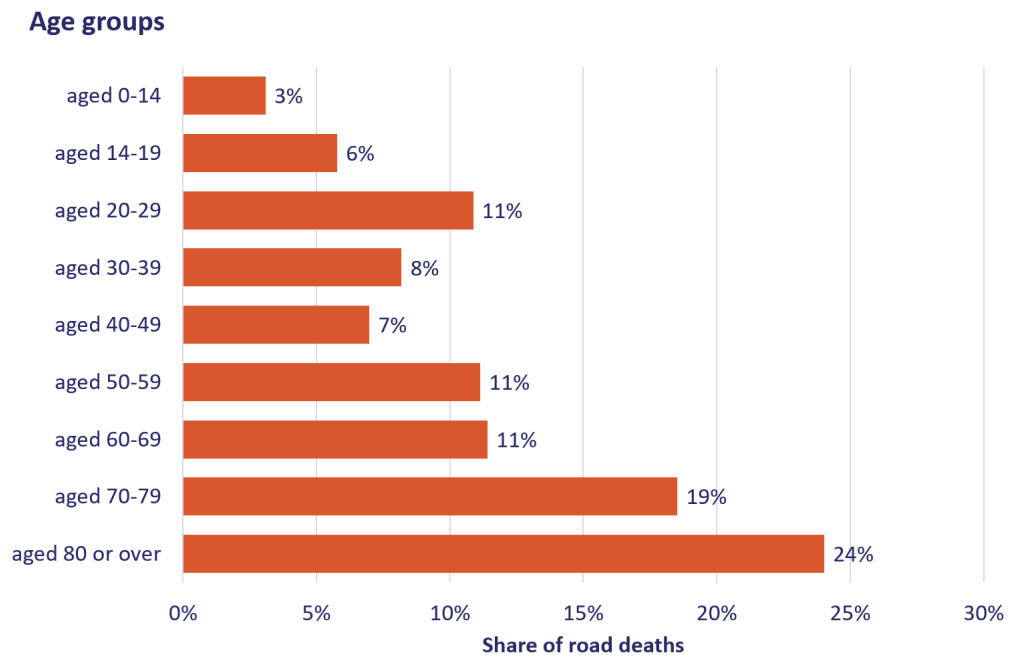


Figure 4. Road deaths in the Netherlands in 2022, by age group. Source: [CBS StatLine \(Road Death Statistics\)](#).

7 How is the number of road deaths distributed across different road types?

For the number of road deaths on different types of roads, we have to rely on BRON. See the question [What is the difference between the number of road deaths registered in BRON and the real number of road deaths?](#). In the Road Death Statistics, of the 745 road deaths in 2022, 655 were registered in BRON. This implies that for at least 12% of the crashes in 2022 – the proportion that was registered by Road Death Statistics only – we do not know where the crash occurred. In addition, for 1% of the road deaths registered in BRON we do not know either whether the related fatal crash occurred in or outside the urban area (see [Figure 5](#)) and for 2% of the road deaths we do not know which speed limit was valid on the road where the crash occurred (see [Figure 6](#)).

Of the road deaths as registered in BRON, 52% occurred outside the urban area (46% of the total number of road deaths). The remaining 47% (41% of all road deaths) occurred in the urban area. The shares are shown in [Figure 5](#).

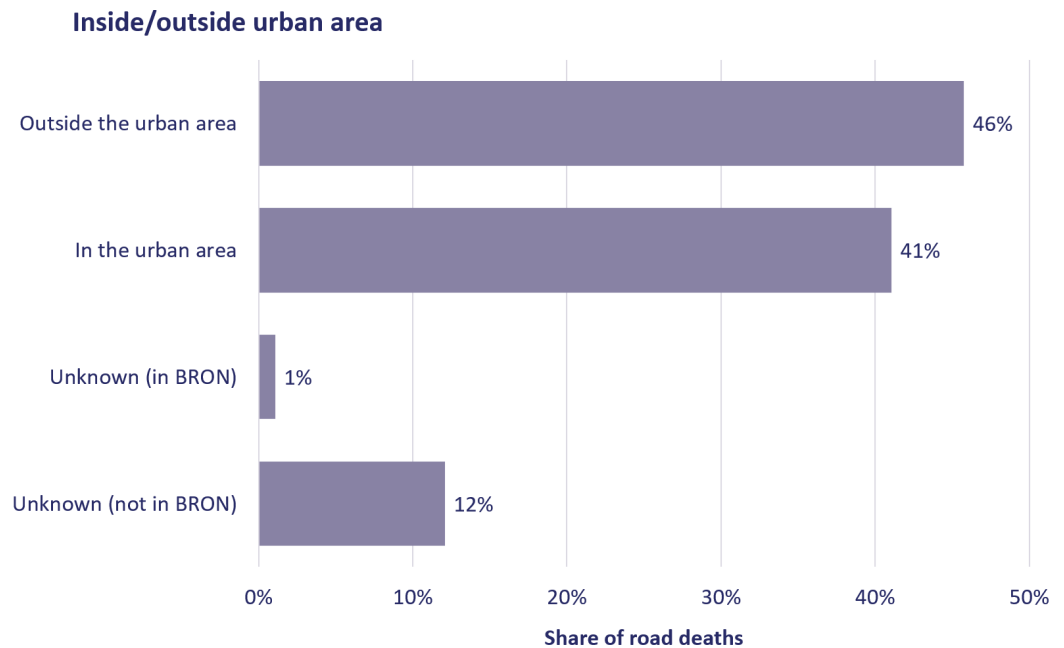


Figure 5. Deaths 2022, registered in BRON, in and outside urban areas, as shares of the total number of road deaths. Sources: IenW, (BRON), Statistics Netherlands (Road Death Statistics), adapted by SWOV.

Figure 6 shows the number of road deaths by speed limit. The largest number of road deaths occurs on 50km/h and 80km/h roads (27% and 19%, respectively, of the real number of road deaths; this is 31% and 22%, respectively, of the road deaths registered in BRON). On 60km/h roads, the number of road deaths is also substantial, that is: 15% of the road deaths (17% of the road deaths in BRON). On 30km/h roads the share is 12% of the total number of road deaths (13% in BRON). Finally, on roads with a speed limit of 100, 120 or 130 km/h, the share amounts to 10% of the number of road deaths (12% in BRON).

In 2022, 53% of the real number of road deaths occurred on road sections and 35% at intersections (see Figure 7; 60% and 40%, respectively, of the road deaths in BRON).

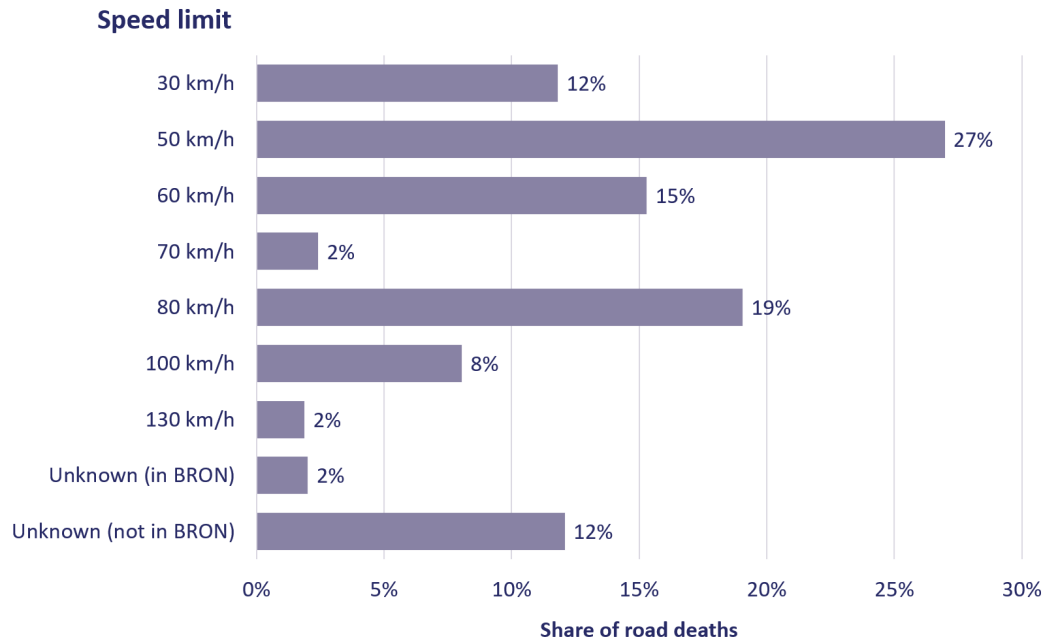


Figure 6. Deaths in 2022, registered in BRON, by speed limit, as shares of the total number of road deaths. Only the limits accounting for more than two road deaths are shown. Sources: IenW, (BRON), Statistics Netherland (Road Death Statistics), adapted by SWOV.

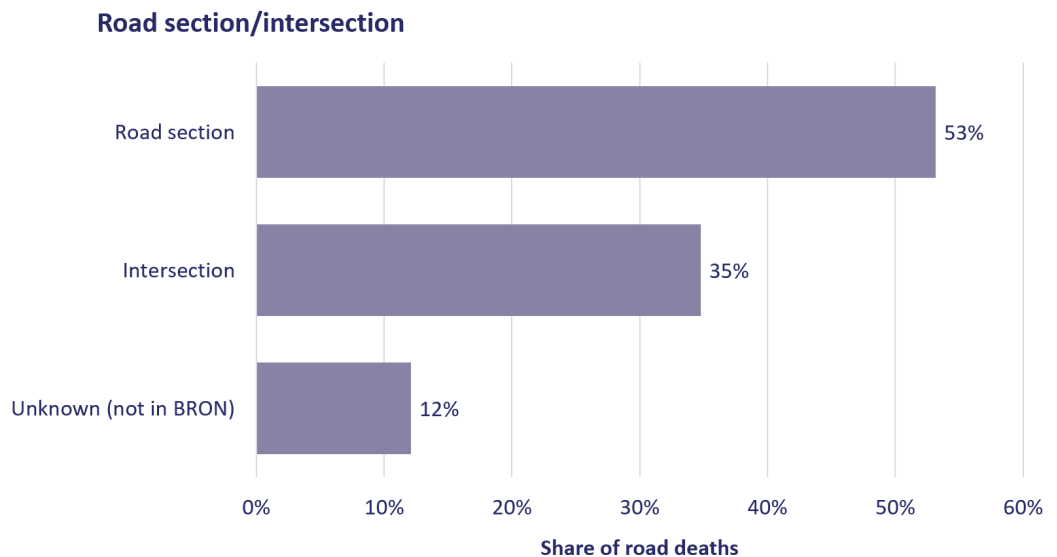


Figure 7. Deaths in 2022, registered in BRON, by road section and intersection, as shares of the total number of road deaths. Sources: IenW, (BRON), Statistics Netherlands (Road Death Statistics), adapted by SWOV.

Figure 8 shows the 2022 shares of road deaths by road authority. The largest number of road deaths in the Netherlands occurs on municipal roads (55% of the total number of road deaths, 63% of the number of road deaths registered in BRON), followed by regional roads (18% of the

total number and 21% in BRON) and national roads (11% of the total number and 12% registered in BRON). The smallest number of road deaths occurs on roads managed by the remaining road authorities, such as water authorities (4% of the actual number, 4% registered in BRON). These shares not only reflect the degree of hazard on these roads, but also and particularly the number of roads and the amount of traffic on these roads.

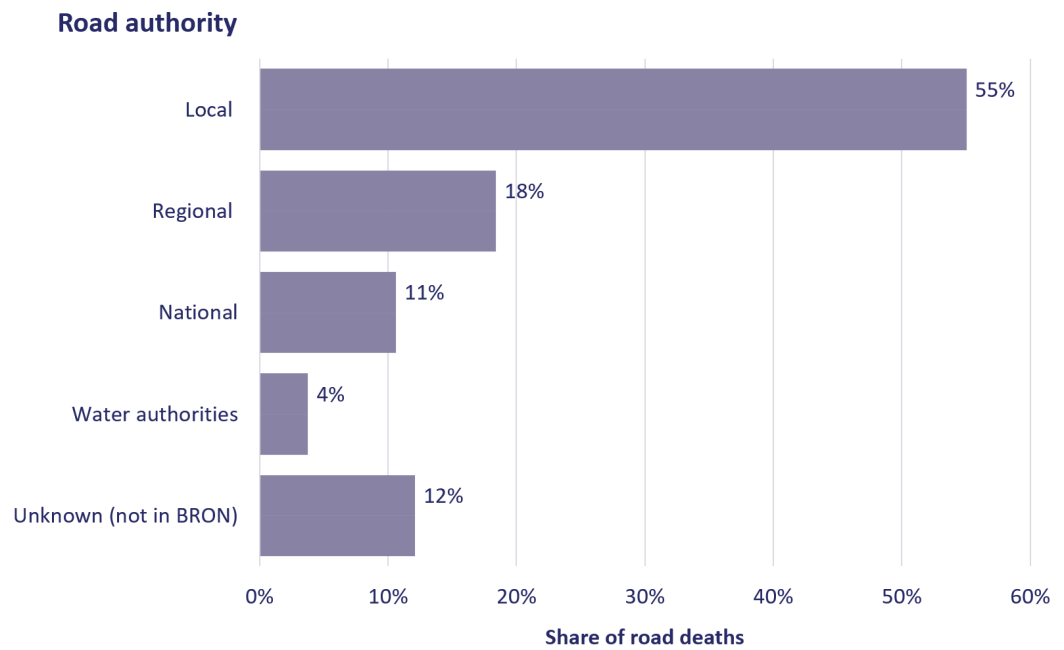


Figure 8. Deaths 2022, registered in BRON, by road authority, as shares of the total number of road deaths. Sources: IenW (BRON), Statistics Netherlands (Road Death Statistics), adapted by SWOV.

8 What is the risk of a fatal crash in Dutch traffic for different modes of transport?

The fatality *risk* can be expressed as the number of road deaths per km travelled. In the Netherlands, fatality risk is highest for powered two-wheelers: (light) moped riders and motorcyclists, about thirty times higher than the risk for car occupants (Figure 9). For cyclists and pedestrians, the risk is eight and six times higher than the death risk for car occupants, respectively, over the 2012-2021 period.

The figure shows two-year averages known for 2012-2021,³ since the annually calculated risks are to some extent coincidental due to uncertainties in exposure data and numbers of crashes. Most strikingly, the fatality risk for car occupants remained more or less the same over that

3. Because of a change in methodology between 2017 and 2018 and the mobility reduction COVID-19 measures in the years 2020-2021, we use these two-year averages. Once the 2023 road deaths are known, we will add the years 2022 and 2023.

period, but increased for two-wheelers certainly in the more recent years, and decreased for pedestrians.

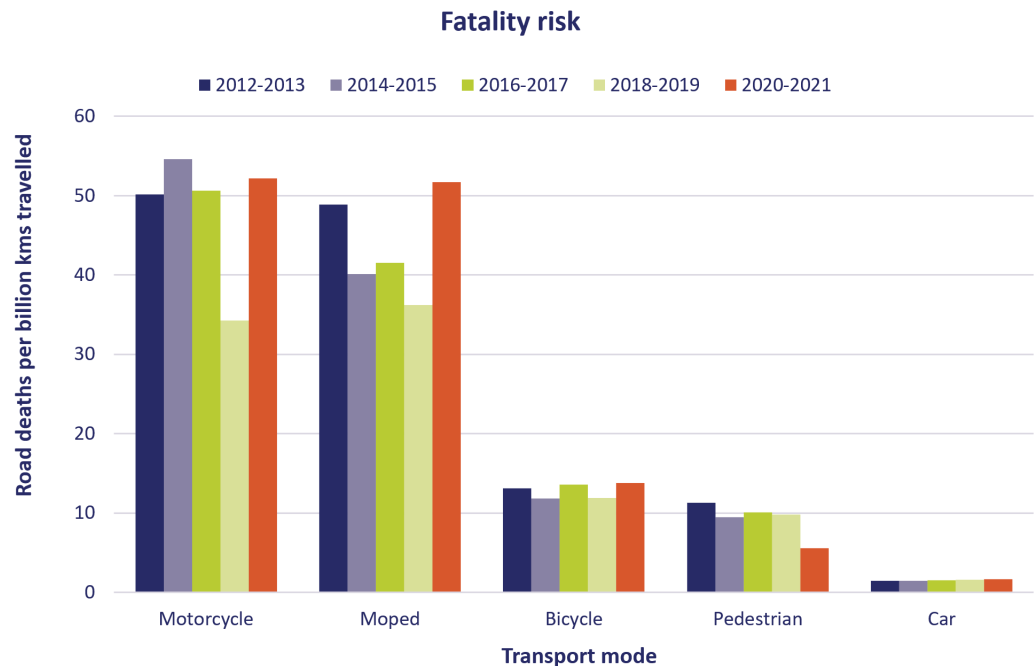


Figure 9. The fatality risk (number of road deaths per kilometre travelled) in the Netherlands, for various modes of transport, averaged over two-year periods. Sources: Statistics Netherlands (Road Death Statistics), Dutch Travel Survey (OviN), On the Road in the Netherlands (OdiN), Rijkswaterstaat (Dutch Mobility Survey (MON), adapted by SWOV.

9 How has the number of road deaths in the Netherlands developed since 1950?

In 1950, there were approximately 1,000 road deaths. Their number steadily increased to over 3,000 in 1972. From 1973 onwards, the annual number of road deaths has decreased gradually. Figures 10 and 12 show the numbers of road deaths registered by the police between 1950 and 1995, and the numbers of road deaths determined by Statistics Netherlands from 1996 onwards.

In Figure 10, the road deaths are stratified by mode of transport, also showing the overall trend in road deaths over time, and Figure 11 shows the number of road deaths by age group, depicted as shares of the total number of road deaths.

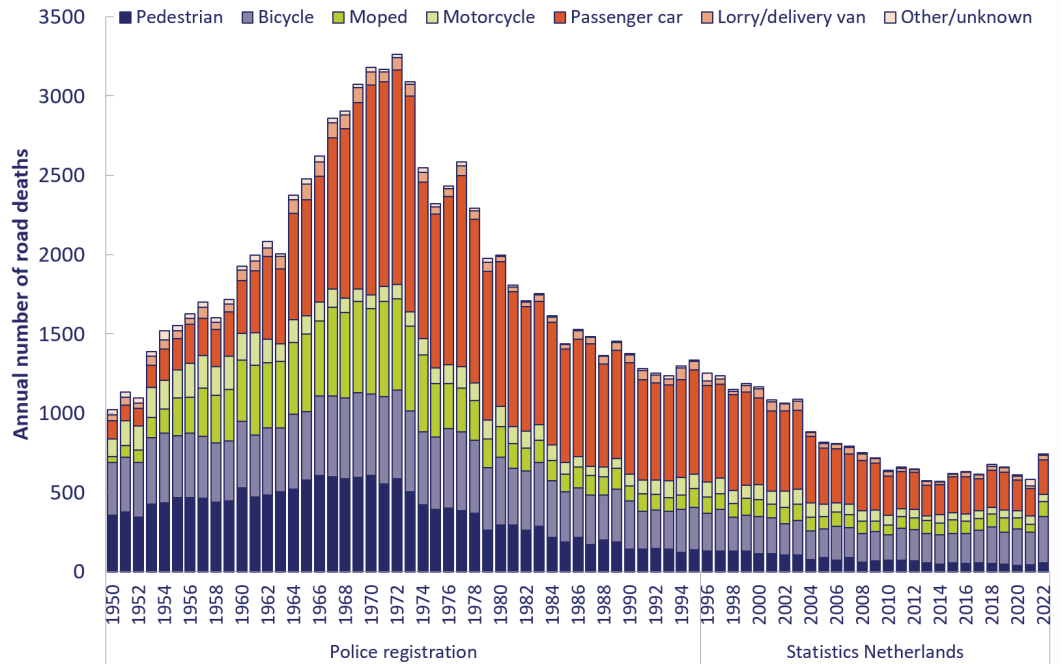


Figure 10. Road deaths in the Netherlands since 1950, by mode of transport. The (light) moped category also includes microcars, mobility scooters and disability vehicles. Sources: Statistics Netherlands (police registration up to and including 1975; Road Death Statistics from 1996 onwards), IenW (VOR, police registration between 1976 and 1995)

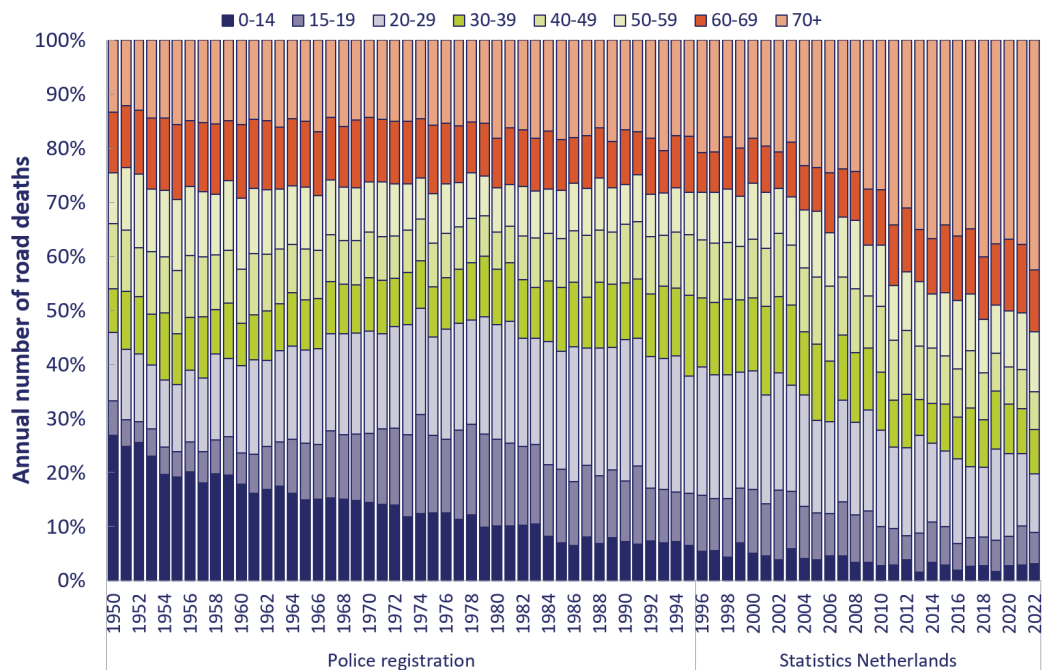


Figure 11. Road deaths in the Netherlands since 1950, by age group (as shares of the annual total). Sources: Statistics Netherlands (police registration up to and including 1975; Road Death Statistics from 1996 onwards), IenW (VOR, police registration between 1976 and 1995)

Among the road deaths in 1950, cyclists and pedestrians were especially numerous. Then, the number of moped riders and, above all, car occupants started to rise, which made these modes of transports more and more significant for the overall picture. Since 1973, the number of road deaths has decreased for virtually all modes of transport; an exception is the slightly deviating development for motorcycles and freight and delivery vehicles; among the road deaths in recent years, cyclists have been the largest group.

Nowadays, road deaths among children (0-14) are relatively scarce: in 2022 there were 23 road deaths in this age group. Between 1950 and 1980, youngsters and, above all, children accounted for a large proportion of the number of road deaths. Presently, older road users are the ones who are increasingly killed in traffic.

10 What are the costs of road crashes for society?

Approximately 15% of the overall costs of road crashes (4 billion out of a total of about 27 billion euros [5]) is attributable to road deaths (see *Figure 12*). More than half of the total societal costs of road crashes (about 52%) can be attributed to serious road injuries (situation 2020, based on the then current definition; see SWOV fact sheet [Serious road injuries in the Netherlands](#)). Casualties with slight injuries (treated in a hospital emergency room) have a share of about 17% and other injuries a share of about 3% in societal costs. About 13% of the costs is attributable to crashes with property damage only (PDO).

The overall social costs of road crashes were estimated to be 27 billion euros in 2020 (€15 to €36 billion) [5]. This is more than 3% of the gross domestic product. The costs per road death are about €6.2 million. For more information, see SWOV fact sheet [Road crash costs](#).

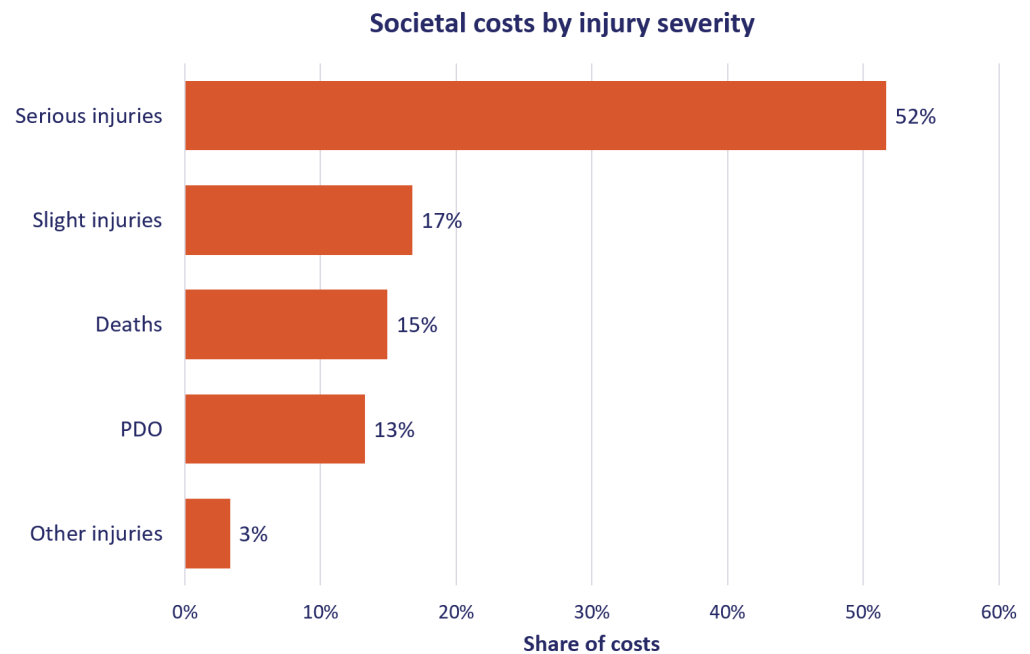


Figure 12. Share of social costs of road crashes with road deaths, serious/slight/other injuries and property damage only (PDO) in 2020 [5].

11 What is the target for the number of road casualties?

Currently, no target has been set for the Netherlands (yet). However, the minister does aim for 0 road casualties in 2050 [6].

The United Nations and the European Union did set targets for the maximum number of road deaths in the near future. Both organisations extended the earlier 50% reduction target dating from 2010, which set the goal of halving the number of road deaths by 2030 compared to the previous 10 years (2019⁴ for the EU [7]; 2021 for the UN [8]). Applying these targets to the Netherlands would mean a maximum number of around 300-350 road deaths in 2030⁵. In mid-2021, a motion by Member of Parliament Geurts was passed to adopt the international target in the Netherlands and aim for a 50% reduction of the number of road casualties by 2030 [9]. An exploratory study [10] concludes that this reduction, even with additional measures, is out of reach. The number of road casualties, especially serious road injuries, is instead expected to rise sharply by 2030 [10].

4. In early 2022, the EC decided to take 2019 as the base year instead of 2020; this is because of the effect of COVID-19 measures on road deaths in several countries.

5. Note: The European Union uses the police-reported figures provided by the EU countries themselves. The Dutch government uses the Road Death Statistics from Statistics Netherlands (real numbers).

12 How does the number of road deaths in the Netherlands relate to the numbers in other countries?

Compared to the official numbers of road deaths reported by other European countries, the real number of road deaths in the Netherlands in 2022 ranked fifteenth in Europe [11].⁶ Correction was made for the size of each country, not by comparing the number of casualties, but by comparing traffic mortality (road deaths per inhabitant). In relation to road safety *improvement* measured in terms of the decrease in the number of road deaths per country in 2022 as contrasted to 2012, the Netherlands rank 30th, - the third-to-last - with an increase of 13%. In comparison, the best performing countries such as Lithuania, Poland and Estonia achieved a 43% or higher reduction in road deaths during the same period.

In its database CARE, the EU collects the information from road crash registrations of the 27 EU member states, as well as some other countries such as Norway and Switzerland. In CARE, no correction is made for the underregistration of road deaths in the road crash registrations of the member states (BRON for the Netherlands). For traffic mortality based on CARE, the Netherlands ranks fifth within the EU based on 2021 data [12] and ninth if other European countries such as Liechtenstein, Norway, Switzerland and Iceland are included in the comparison [13]. These comparisons provide a distorted picture, as they do not include the 13% road deaths that were missing from BRON but were identified by Statistics Netherlands. In 2018, ETSC investigated whether other countries also use more than one source when determining the number of road deaths [14]. About half (17 of the 32) countries surveyed use hospital data, cause-of-death statements, or non-natural death data. The completeness of road crash records across countries is currently unknown.

SWOV fact sheet [Dutch road safety in an international perspective](#) compares Dutch road safety performance to that of other countries in a broader sense.

Publications and sources

Below you will find the list of references that are used in this fact sheet; all sources can be consulted or retrieved. Via [Publications](#) you can find more literature on the subject of road safety.

[1]. European Commission (2016). [CARE database CaDaS](#). Directorate General for Mobility and Transport. European Commission, Brussel.

⁶. Based on preliminary figures from Statistics Netherlands.

- [2]. CBS (2019). *Begrippen. Lijst met begrippen die CBS hanteert in zijn statistieken*. CBS. Accessed on 25-10-2020 at <https://www.cbs.nl/nl-nl/onze-diensten/methoden/begrippen/verkeersdode>.
- [3]. Bos, N.M., Temürhan, M., Stipdonk, H.L. & Aarts, L.T. (2023). *Registraties van verkeersdoden in Nederland. Hoe verhouden verschillende bronbestanden zich tot elkaar? [Road death registration in the Netherlands. Comparing the different source files]* R-2023-3 [Summary in English]. SWOV, Den Haag.
- [4]. Aarts, L.T., Broek, L.J. van den, Oude Mulders, J., Decae, R.J., et al. (2022). *De Staat van de Verkeersveiligheid 2022. Trend in aantal verkeersdoden en -gewonden daalt niet*. R-2022-10. SWOV, Den Haag.
- [5]. Wijnen, W. (2022). *Maatschappelijke kosten van verkeersongevallen in Nederland. Actualisatie 2020*. In opdracht van het Kennisinstituut voor Mobiliteitsbeleid KiM. W2Economics, Utrecht.
- [6]. Ministerie van VenW (2008). *Strategisch Plan Verkeersveiligheid 2008-2020; Van, voor en door iedereen*. Ministerie van Verkeer en Waterstaat, Den Haag.
- [7]. Council of the European Union (2017). *Council conclusions on road safety: endorsing the Valletta Declaration of March 2017. Outcome of Proceedings from the General Secretariat of the Council*. 9994/17 / TRANS 252 / 8666/1/17 REV 1 TRANS 158. Council of the European Union, Brussels.
- [8]. United Nations (2020). *Improving global road safety*. A/74/L.86. United Nations, New York.
- [9]. Tweede Kamer (2021). *Motie van het lid Geurts over een halvering van het aantal verkeersslachtoffers in 2030*. Maatregelen verkeersveiligheid 29 398, nr. 946. Tweede Kamer der Staten-Generaal. Accessed on 17-02-2023 at <https://www.tweedekamer.nl/kamerstukken/moties/detail?id=2021Z13389&did=2021D28533>.
- [10]. Craen, S. de, Bijleveld, F.D., Bos, N.M., Broek, B. van den, et al. (2022). *Kiezen of delen. Welke maatregelen kunnen zorgen voor halvering verkeersslachtoffers in 2030?* R-2022-8. SWOV, Den Haag.
- [11]. Carson, J., Jost, G. & Meinero, M. (2023). *Ranking EU progress on road safety. 17th Road Safety Performance Index Report*. European Transport Safety Council ETSC, Brussels.
- [12]. EC (2023). *Road safety statistics 2022 in more detail*. European Commission, Directorate-General for Mobility and Transport. Accessed on 24-09-2023 at https://transport.ec.europa.eu/background/road-safety-statistics-2022-more-detail_en
- [13]. EC (2023). *Data table – number of road deaths and rate per million population, EU and EFTA countries, 2010-2021 (updated April 2023)*. European Commission, Directorate-General for Mobility and Transport. Accessed on 24-09-2023 at https://road-safety.transport.ec.europa.eu/statistics-and-analysis/data-and-analysis_en.
- [14]. Adninaite, D., Jost, G., Stipdonk, H.L. & Ward, H. (2018). *An overview of road death data collection in the EU*. PIN Flash report 35. European Transport Safety Council ETSC, Brussels.

Colophon

Reproduction is allowed with due acknowledgement:

SWOV (2023). *Road deaths in the Netherlands*. SWOV fact sheet, September 2023. SWOV, The Hague.

URL Source:

<https://swov.nl/en/fact-sheet/road-deaths-netherlands>

Topics:

Road safety in numbers; Policy

Figures:

[Road deaths according to gender, age and mode of transport](#)

Prevent crashes
Reduce injuries
Save lives

SWOV

SWOV Institute for Road Safety Research

Henri Faasdreef 312

2492 JP The Hague

+31 70 317 33 33

info@swov.nl

www.swov.nl

 [@swov](#) / [@swov_nl](#)

 [linkedin.com/company/swov](https://www.linkedin.com/company/swov)