



ROaD EducatiOn Project n. KA220-SCH-BC3E99EA

## Background report



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ROaD EducatiOn Project n. KA220-SCH-BC3E99EA

## Table of Contents

<b>Introduction .....</b>	<b>4</b>
<b>Method for partners, teachers, and students in the partners' countries .....</b>	<b>4</b>
<b>Survey for partners .....</b>	<b>4</b>
<b>Survey for students and teachers .....</b>	<b>4</b>
<b>1. General development in road traffic accidents over time. ....</b>	<b>6</b>
<b>2. Influence of COVID-19.....</b>	<b>8</b>
<b>3. Main reasons for driving accidents with cars involved .....</b>	<b>9</b>
<b>4. Driving situation with a bike or moped, resulting in severe injury and death ..</b>	<b>11</b>
<b>5. School and teaching in traffic behavior according to age .....</b>	<b>12</b>
<b>6. Rules for driving license.....</b>	<b>13</b>
<b>7. Teaching in traffic behavior .....</b>	<b>14</b>
<b>8. Teaching material about traffic behavior .....</b>	<b>15</b>
<b>9. Other events related to traffic behavior .....</b>	<b>16</b>
<b>Conclusion.....</b>	<b>17</b>
<b>Reference .....</b>	<b>18</b>
<b>Annex 1 - Data collection on traffic safety in Denmark</b>	
<b>Annex 2 - Data collection on traffic safety in Italy</b>	
<b>Annex 3 - Data collection on traffic safety in Romania</b>	
<b>Annex 2 - Data collection on traffic safety in Turkey</b>	



ROaD EducatiOn Project n. KA220-SCH-BC3E99EA

## Introduction

The aim of the RODEO project is to develop a new way to teach traffic behavior in secondary schools.

The purpose of this report is to provide a background for the development process and identify scenarios which should be used in future traffic behavior teaching.

### Method for partners, teachers, and students in the partners' countries

The data collection for this report is based on questionnaires for both partners, teachers, and students in the partners' countries (i.e., Italy, Denmark, Romania and Turkey).

### Survey for partners

The aim of the survey for the partners is to collect country-specific data and statistics on traffic behavior. The statistical data is in most cases only provided in the national language and therefore the data was collected individually for each partner by answering the survey.

Information on the following topics was collected:

- Descriptive statistics on traffic in the country
- Descriptive statistics on traffic accidents
- Descriptive statistics on the development in traffic conditions
- Information on schools, driver's license, and traffic behavior in relation to age
- Identification of scenarios for the most common traffic accidents.

All questions with answers are found in the annex. In the Result section the following reference style is used to the annex of the questionnaire: country-figure, e.g. *TR-figure 1*. Turkey figure 1.

### Survey for students and teachers

The background report on the survey for students and teachers will follow later in the project. Two surveys are distributed to students and teachers in all partner countries. The aim of the survey to the students is to investigate the traffic



ROaD EducatiOn Project n. KA220-SCH-BC3E99EA

experience and learning preferences. The aim of the survey to the teachers is to investigate if and how they teach traffic behavior.





ROaD EducatiOn Project n. KA220-SCH-BC3E99EA

In the following section, all questions from the survey to partners are summarized on both country level and in general. Notice it is difficult/impossible to compare the number of seriously injured people between countries because of different national definitions. The same is the case for other definitions.

### 1. General development in road traffic accidents over time.

The general development of traffic accidents in **Europe** (EU) is seen in Figure 1. A decrease in average accidents is observed from 66 deaths/million inhabitants in 2011 to 44 in 2021. The number of deaths on the road was reduced by 31% from 2011 to 2021. Noticeably, the number of deaths was reduced by 16% from 2011 to 2014. In Norway, the number of road deaths was reduced by 52% since 2011. Also, Lithuania, Estonia, Belgium, Portugal, Sweden, Denmark, Switzerland, Cyprus, and Germany achieved a decrease above the EU average of 31%. The progress of road deaths was slowest in Israel with a 5% decrease and in the Netherlands and Romania with a 12% decrease. The number of serious road traffic injuries in the EU stagnated during most of the decade, and it suddenly dropped in 2020 during the Covid-19 lockdowns [1].

In **Turkey** the overall development in injured and killed people in traffic between the age group 15-20 years old, has increased from 2002 until 2021, and there was a large increase in people killed from 2014 to 2015 in the age group 15-64 years old. The same pattern is seen in other age groups, and in injured persons in the same group. See the details of this development in *TR-figure 4 and 5*. This differs from other countries e.g., Denmark, Romania, and Italy where a decrease is seen.

The number of fatalities resulting from road accidents has been dropping since the 90's although **Romania** still tops the charts with the highest mortality rate (deaths per million inhabitants) in EU. In 2021, Romania registered 4915 accidents that claimed the lives of 1779 people. That translates to 93 deaths/ million inhabitants, more than double of the average in all EU countries [1]. At the same time, the number of people



owning a driver's license has been on a steady increase over the last decade. Furthermore, in **Romania** there is a higher likelihood for young people (between 19 and 24 years old) to be involved in serious road accidents, and this decreases with age (see graph in *RO-figure 5*). The expected reason for this is the level of traffic experience. Similar trends are observed in other countries. In 2021, serious road traffic events

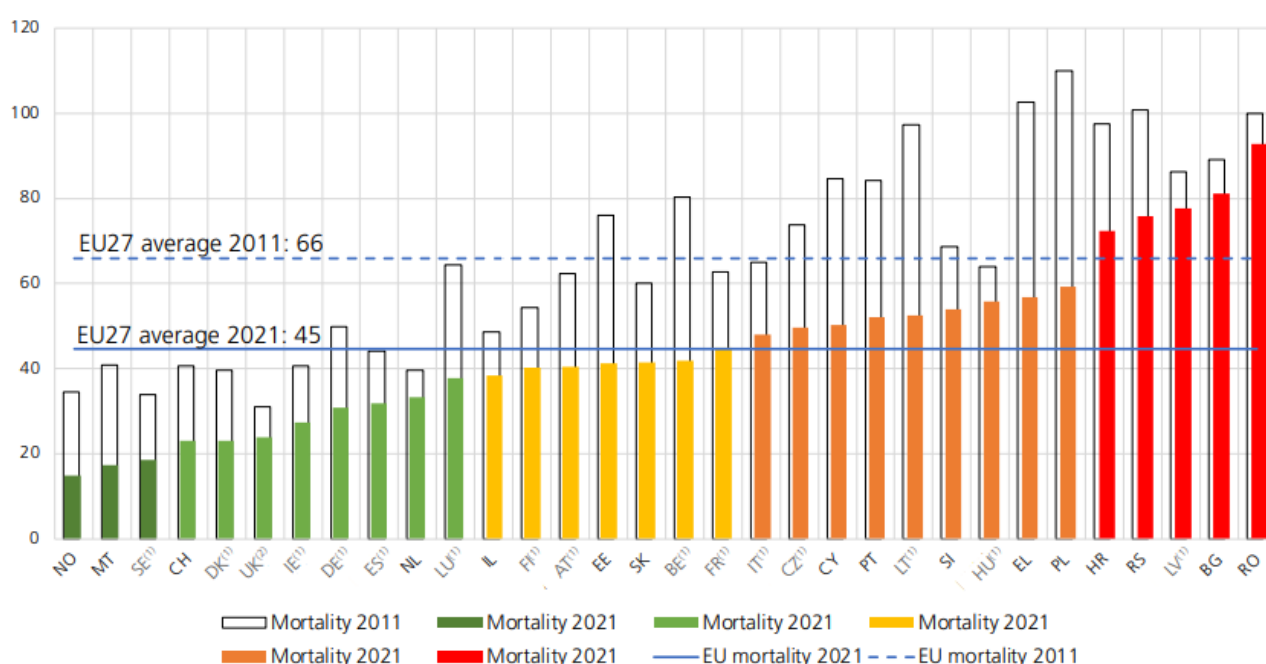


Figure 1 - EU: Mortality (road deaths per million inhabitants) in 2021 (with mortality in 2011 for comparison) [1].

(1) National provisional estimates used for 2021, as final figures for 2021 were not available at the time this report went to print. The annual number of deaths in LU and MT are particularly small and, therefore, subject to substantial annual fluctuations. (2) UK 2021 estimate is based on GB provisional total for the year 2021 and the provisional data for Northern Ireland for the calendar year 2021, population data is an estimate for the year 2021.

involved 6.6 times fewer women. However, this should be seen in conjunction with the presence of both genders on the road, with almost twice as many men as women holding a driver's license.

**Italy** compared with EU in 2011 where just under the average for EU and just above in 2021 [1]. However, like the rest of EU, it decreases over time, although it is less than see in other EU countries [2], see more details on the graph *IT- figure 1*. The number of deaths in traffic is almost evenly distributed in two age groups from 20 to 29 years and from 40 to 59. When it comes to the number of injured people, the age group from 20



ROaD EducatiOn Project n. KA220-SCH-BC3E99EA

to 24 years is the top score. the number of death and injured divided by age can be seen in *IT-figure 2 and 3*.

In **Denmark**, the number of people killed in traffic is significantly decreased (86%) over the last 50 years. In the same period, traffic and driven kilometers have more than doubled [3] (see *DK-figure 1*). It is expected to be an effect of the increase in safety in cars, roads, and information on traffic behavior. Men are overrepresented among those killed and injured. In 2021, men accounted for 7 out of 10 killed and 6 out of 10 injured [4]. *Seriously injured is most often seen in young people. "Young people are more frequently in an accident. But adults get more hurt and in worse case killed"* [5] see *DK-figure 3 and 6*.

**Denmark** is the only country in this project that is below the EU average mortality, and especially **Romania** is seen to have large mortality. Figure 1 shows a big difference in the mortality between the countries in the EU and a, inverse proportional tendency between BNP and mortality. It is unknown if this is a result of education, road safety, or other.

## 2. Influence of COVID-19

In general, it is seen that the number of accidents and injured is decreasing over time, however it increased with 5% from 2020 to 2021 during COVID-19 [1]. This tendency is seen in all countries.

In **Romania** in 2020 there were 2,369 fewer serious road accidents (-27.4%), and the number of seriously injured (fatalities or serious injuries) in such events dropped by 2,859 (-28.6%) compared to 2019. This is perhaps self-explanatory and somewhat expected with the lockdowns and all the quarantine restrictions, see *RO-figure 3*.

Road accidents in **Italy** increased by 28% compared to 2020, although, they decreased by 11.8% compared to 2019 [1]. In 2021, people who died by road accidents increased by 20 % with respect to 2020, but they decreased by 9.4% with respect to 2019 [2]. Similarly, people who were injured by road accidents increased by 28.6% compared to 2020 and decreased by 15.2% compared 2019 [2] [6] [7], see *IT-figure 1*.





ROaD EducatiOn Project n. KA220-SCH-BC3E99EA

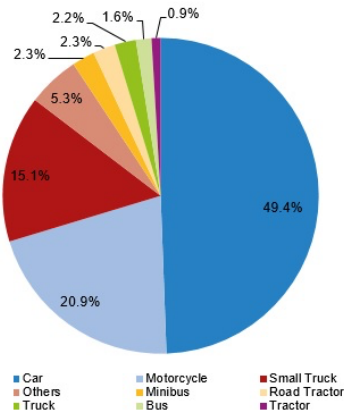


Figure 2 – Turkey: The figure shows the number of killed and injured by means of transport in 2021 [8]

In **Denmark**, there was a particularly large decrease of 24% in killed and injured 18-24-year-olds over the last 5 years. Compared to the age group from 25-54 years, the decrease was 19% [4] see *DK-figure 2, 3*.

Also, in **Turkey**, there was a decrease in both killed and injured persons in 2020, but an increased number again in 2021, see *TR-figure 3*.

According to the data reported above for all countries, both road accidents and number of people involved in road accidents strongly decreased during the pandemic and increased again afterwards, albeit with lower values, compared to pre-COVID [2] [6] [7].

### 3. Main reasons for driving accidents with cars involved

In **Turkey**, the distribution of vehicles involved in accidents with death or injury was 49.4% cars and 20.9% motorcycles, see Figure 2 [8]. Driving at excess speed, while under the influence of alcohol or drugs, while sleepy or tired, when visibility is compromised, or without protective gear for all vehicle occupants are major factors in crashes, deaths, and serious injuries. Therefore, as seen in Figure 5, the most common reason for accidents is the issue of “not adjusting the vehicle speed to the road, weather, and traffic conditions” and then it follows the issue of “Violating right of way at junctions” following by “Other driver faults”, see *TR-figure 7*.



In **Romania** the main cause of serious road accidents for young people aged 18-29 is not adapting the speed to the conditions of the road. This alone accounts for 25.7% of all accidents caused by young people. Following by failure to give way to other vehicles or pedestrians. [9] See *RO-figure 8*.

In **Italy**, distracted driving, high speed, and not respecting the traffic law are the main causes of accidents (39.7% of all accidents). They are followed by irregular maneuvers (e.g., reverse, U-turns, lane invasion, hazardous maneuvers to stop or cross the street), and not respecting safety distances [6] [7]. Recently, researchers highlighted that another important cause of road accidents is an over-confident attitude while driving, see Figure 3 and *IT-figure 4*.

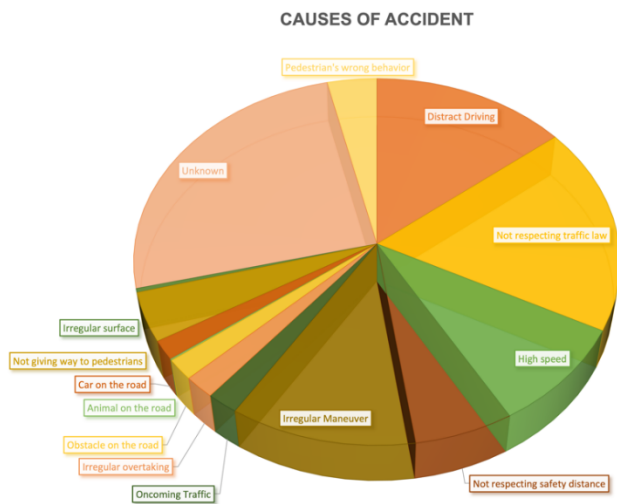


Figure 3 - Italy: Causes of accidents involving vehicles [6]

The most common vehicle type in **Danish** accidents is seen in Figure 4. Half of the 15-17-year-old boys who were killed or injured in traffic drove a moped 30 [4]. From 2017-2021, on average 47% of those who are killed and injured were light road users, i.e., pedestrians, cyclists, and moped 30 drivers [4]. The most frequent accident type divided over all vehicles

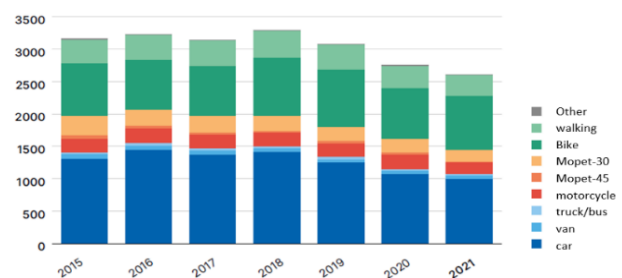


Figure 4 – Denmark: The figure shows the number of killed and injured per year divided by means of transport. [4]

are cars, and here the most common situation is a single accident. For motor vehicles, single accidents are the most frequent accident situation, see Figure 6(0). The second most frequent accident situation is straight driving in the same direction with two cars involved Figure 6(1). In annex Denmark there is a full overview of injured/killed according to age group and situations, see Figure 4, 6 and *DK-figure 2, 5, 6 and DK-table 1*.



ROaD EducatiOn Project n. KA220-SCH-BC3E99EA

<b>Total</b>	<b>224 418</b>
<b>Driver faults</b>	<b>195 382</b>
Drunk driving	2 099
Not adjusting the vehicle speed to road, weather and traffic conditions	73 104
Crashing from back	13 709
Driving overspeed	1 941
Violating direction changing (turning) rules	13 516
Passing through places with no-pass prohibition	1 331
Violating right of way at junctions	26 815
Running red lights or violating stop signs of traffic officer	4 801
Crashing to vehicles parked properly	2 894
Violating the general conditions of maneuvers	15 797
Violating the lane following and changing rules	2 955
Violating "no vehicle entry" sign	5 145
Other driver faults	31 275

Figure 5 – Turkey: Faults causing road traffic accidents involving death or injury, 2021

For all countries, road and traffic understanding is shown to be one of the most frequent reasons for traffic accidents. Also, distracted or impaired driving is shown to be a major reason for accidents.

#### 4. Driving situation with a bike or moped, resulting in severe injury and death

113 of 8201 bicycle accidents in **Turkey** resulted in death in 2010. This is approximately 2.5 times higher in bicycle accidents compared to accidents with

automobiles [8]. The problems are related to how car drivers perceive cyclists, especially in the flowing traffic, since the traffic system is designed from the perspective of the car users. On the other hand, it has been found that the most common type of accident is a right-turning car colliding with a bicycle coming from the bike path to the right.

In **Romania**, the most common driving situation involving bikes that leads to severe injury or death is a collision with a vehicle (with or without the fault of the cyclist). This is due to the lack of proper infrastructure accommodating this, and transportation by bike further increases the risk of accidents.

In **Italy**, most of the cases of death resulted from a cyclist falling after the car driver had opened the door without checking for the presence of other road users. In 2021, the number of victims of traffic accidents that involved bicycles reached 180. Similarly, the number of people severely injured was 989. Interestingly, even if the number of males and females using a bike is the same, 162 victims are male [10].

From 2017-2021 in **Denmark**, 71% of cyclists killed and injured have been involved in crossing or turning accidents, see Figure 7 and *DK-figure*











											
0	1	2	3	4							
											
5	6	7	8	9							
Situations	0	1	2	3	4	5	6	7	8	9	Total
Total	507	413	271	308	190	268	273	98	357	52	2737

Figure 6 – Denmark: Total number of fatalities and injuries broken down by means of transport and main situation in 2021 [4] [5]



ROaD EducatiOn Project n. KA220-SCH-BC3E99EA

7. Most of these involve a straight-ahead cyclist and a crossing or turning counterpart. Approx. 20% of fatal accidents involving cyclists were solo accidents and only 15% of cyclists killed and injured were involved in accidents on country roads.

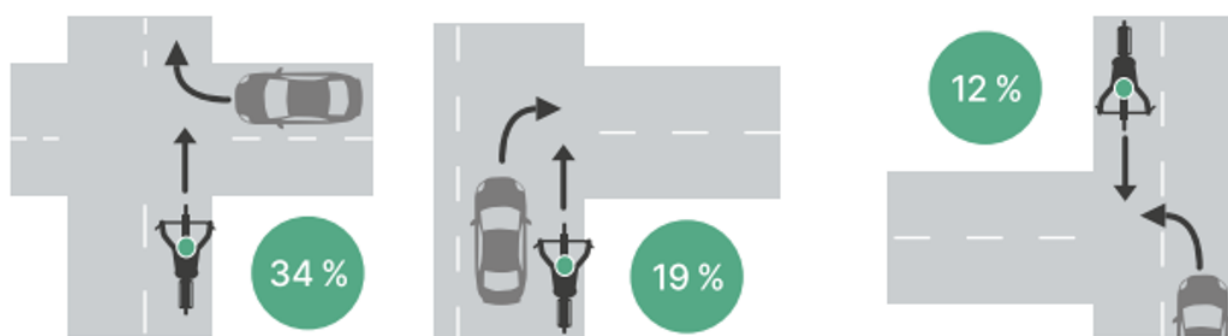


Figure 7 - Denmark: Common driving accident with bike involved. [5]

The reason for bike accidents is different between the four project partners, for **Turkey, Romania, and Italy** the main reason is infrastructure or knowledge from other road users.

## 5. School and teaching in traffic behavior according to age

The following tables have the aim to show an overview of school and traffic in relation to different age and countries.

Table 1 – **Denmark**(*DK-table 2*), **Italy**(*IT-table 1*), **Romania**(*RO-table 1*), **Turkey**(*TR-table 1*)

Age	16 years	17 years	18 years	19 years	20 years
Which school is most common?	Primary, secondary- or vocational school High-school High-school Vocational- and	Secondary- or vocational school High-school High-school Vocational- and Technical	Secondary- or vocational school High-school High-school Vocational- and Technical	Secondary- or vocational school High- school/University University University	Secondary-, vocational school or university University University University



	Technical High- or High School	High- or High School	High- or High School		
Are teaching in traffic behavior mandatory in the school? If yes how is responsible?	<b>Yes, in primary schools.</b> Yes, but has never become legally binding In the curriculum, but depends on school and teachers Optional	<b>No</b> Yes, but has never become legally binding In the curriculum, but depends on school and teachers Mandatory in vocational high school	<b>No</b> Yes, but has never become legally binding In the curriculum, but depends on school and teachers Optional	<b>No</b> Yes, but has never become legally binding N/A Optional	<b>No</b> Yes, but has never become legally binding N/A Optional
What are the most common used vehicle?	<b>No data, most common accident: moped-30</b> Microcars, scooters, and motorbikes (125 cc) Bicycle	<b>No data, most common accident: moped-30</b> Microcars, scooters, and motorbikes (125 cc) Bicycle	<b>No data, most common accident: car</b> Car and motorbikes Car	<b>No data, most common accident: car</b> Car and motorbikes Car	<b>No data, most common accident: car</b> Motorbikes and Cars Car

## 6. Rules for driving license

In **Denmark**, young people are allowed to take driver's licenses for small mopeds at 15 years old, and at 18 years old for large mopeds. The driver's license for cars is allowed from 17 years old, but for the first year, it is only allowed to drive with supervision by an experienced driver. When the person is older than 18 years old driving alone is allowed.

At 14 years old, young people in **Italy** can get a particular driver's license (Patente AM) to drive microcars or scooters that

Class	Description	Includes	Valid for	Age	Requirement
M	Moped	-	10 years	16	
A1	Motorcycles up to 125cc	M	10 years	16	
A2	Motorcycles up to 35kw	M - A1	10 years	18	
A	Motorcycles above 35kw	M - A1 - A2	10 years	24	Age 24 or 2 years of experience in A2
B1	Motorcycles (4 wheeled)	M	10 years	16	
B	Car / Pickup	M - B1 - F	10 years	18	
C1	Truck up to 7500kg	M - B - B1 - F	5 years	18	At least Class B License
C	Truck	M - B - B1 - C1 - F	5 years	21	At least Class B License
D1	Minibus	M - B - B1 - F	5 years	21	At least Class B License
D	Bus	M - B - B1 - D1 - F	5 years	24	At least Class B License
BE	Car / Pickup (with trailer)	M - B - B1 - F	10 years	18	Class B License
C1E	Truck up to 12000kg (with trailer)	M - B - BE - B1 - C - C1 - F	5 years	18	Class C1 License
CE	Truck (with trailer)	M - B - BE - B1 - C - C1E - F	5 years	21	Class C License
D1E	Minibus (with trailer)	M - B - BE - B1 - D1 - F	5 years	21	Class D1 License
DE	Bus (with trailer)	M - B - BE - B1 - D - D1 - D1E	5 years	24	Class D License
F	Tractor	M	10 years	18	
G	Work vehicle	M	10 years	18	

Figure 8 - Turkey: This chart shows that how to take driver license and its requirements. See full figure: TR-figure 9



ROaD EducatiOn Project n. KA220-SCH-BC3E99EA

cannot exceed 45 km/h by construction; however, it is not possible to give a ride to someone until the drivers turn 16. At 16 years old, people can get a driver's license called "Patente A1" which allows to drive a motorcycle with a maximum engine capacity not exceeding 125 cc. After reaching the age of 18, it is possible to obtain the A2 license, a qualification that allows driving motor vehicles with a power of up to 35 kW (approximately 47 hp) and a weight/power ratio of up to 0.2 kW/Kg, and a B license to drive cars (Figure 8).

In **Romania**, the legal age to get a driver's license for any vehicle category is 18. However, young people can get a driver's license at 16 for smaller (max. 550 kg), less powerful vehicles (max. 50 km/h).

In **Turkey**, young people must be at least 18 years old to drive a car and at least 16 to drive a motorbike. Also, to get a **Turkish** driving license, you must first take a written exam and pass the practical driving test after passing this test.

Furthermore, the driver's age and driver's license type is categorized as seen in Figure .

## 7. Teaching in traffic behavior

In **Turkey**, the teaching is focused on student awareness about traffic rules and first aid. In the 11<sup>th</sup> grade of vocational high school, 1 hour in traffic behavior is mandatory. All details about traffic lessons are given in the context of the curriculum. The lessons intensively focus on theoretical areas rather than practice. Students may see more practical lessons such as simulation and real-made car or bike simulation. Additionally in Turkey, there is a mandatory lesson which is called "Health Science and Traffic Culture" for 9<sup>th</sup> grade students (for 15 years) in high school.

In **Romania**, traffic education is mandatory in schools up to high school. The reality is, however, that this is not the case and so it becomes the schools' and the teachers' responsibility to address the topic.

For **Italy**, traffic behavior education is not mandatory but article 230 of the Italian Road Code establishes road education lessons in every kind of school but this has never become legally binding [11].





ROaD EducatiOn Project n. KA220-SCH-BC3E99EA

In **Denmark**, traffic education is only mandatory in primary school. Here learning objectives are defined by legislation. The focus is understanding and reading the traffic, especially for soft road users like when walking and riding a bike. Traffic safety is not part of the secondary school but is instead placed in the driving school, for example for car or moped licenses. [12]

### 8. Teaching material about traffic behavior

In **Turkey**, teaching material is available, but it is not sufficient for the students. The material is mainly focusing on how students should act if accidents happen, how first aid could be implemented, knowledge of traffic signs, and first aid education. The available material is usually lesson books, videos, smart boards, short videos about traffic safety, and role-playing.

In **Romania**, there are no official textbooks for Road Education but there are various materials developed by educational organizations and teachers. In fact, through an initiative part of the National Program "*Romania Safe*", the project "*Road Safety Education Class*", the publishing house Corint together with EDIT Association launched the first road safety education textbook for children, see Figure .

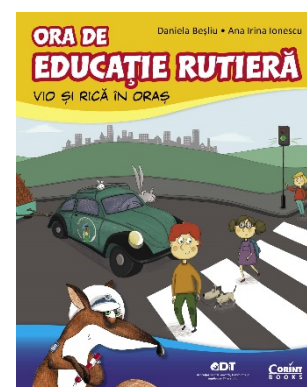


Figure 9 – Romania:  
Textbook on traffic safety,  
from the National Program  
"Romania Safe", the project  
"Road Safety Education  
Class"

It is possible to find information and materials online in **Italy**, such as videos and virtual reality simulation programs that are aimed at simulating real-life situations. In addition, there are graphics containing data or statistics, books on safety road rules, or books explaining the Road Code in a simple way [13]. The platform is an interactive space dedicated to schools, of all types and levels, to allow participation - subject to teacher registration - in the annual training offer of the main institutions responsible for road safety in Italy. It is further possible to consult the educational initiatives and competitions dedicated to schools, as well as collect information content on road safety issues and the correct behavior to adopt on the road. In the several projects you can select on this platform, they use every kind of didactics, such as: driving simulation, video lessons, and distance learning systems [13].



ROaD EducatiOn Project n. KA220-SCH-BC3E99EA

Material in **Denmark** is not available for secondary school, because traffic education is not mandatory. But they can use/get inspired by the material provided by *Rådet for sikker trafik(RST)*. Further, material for driving schools is often available and settled. The material is especially focused on affected, speed, and distracted driving [14]. The material for primary school is more defined by the legislation and more information is found here: <https://sikkertrafik.dk/undervisning/skole/>. This material is also made by RST.

### 9. Other events related to traffic behavior

In **Romania**, the Traffic Police Directorate is yearly involved in campaigns for promoting road safety education in schools. Police officers show students the traffic rules and road markings and signs they should know and respect as pedestrians to avoid becoming victims of road accidents [15].

The **Italian** Ministry of School and University opened “Edustrada”, a national project for road safety education in schools. This online platform is an operational tool that uses new methodologies to increase the involvement of students and teachers in this important subject. Even the Police State department organizes projects in schools [13].

Teachers in **Turkey** generally use materials such as lesson books, videos, smart boards, short videos about traffic safety, and role-playing. The lessons are designed as daily traffic events or rules. The main focus is on students’ awareness of traffic rules.

In **Denmark**, the mission of the organization *Rådet for sikker Trafik(RST)* is to improve road safety by knowledge sharing and organizing events based on a requirement from ex. secondary school. These events could be a lecture from a person involved in an accident and living with permanent damage, ex. in a wheelchair. RST also provides material for teachers that want to use traffic safety as a case in regular teaching, material for moped-30, and a course that teachers and others can have for doing the education locally [16]. The educational didactics in these events and in the material is based on personalized storytelling and scare campaigns.





ROaD EducatiOn Project n. KA220-SCH-BC3E99EA

## Conclusion

This background report summarized some of the relevant statistics and information about traffic behavior and traffic safety education in selected EU countries. The information can form the basis for the development of scenarios and modes of teaching traffic safety in the future of the RODEO project.



ROad EducatiOn Project n. KA220-SCH-BC3E99EA

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## Annex 1 - Data collection on traffic safety in Denmark

### 1. Describe the general development in road safety over time?

The number of people killed has fallen by 86% over the last 50 years – in the same period, traffic has more than doubled (Vejdirektoratet, Trafikulykker for året 2018, 2019). In Denmark we see a large increasement in number of driven km, and fewer traffic killed persons. It is expected to be an effect of increase safety in cars and traffic. Especially from 1970 until now the number for incidents is decreased much and is the course of a wide number of activities from safety in the cars to improved teaching and campaigns on road safety. Also, the roads are developed further which have reduced accidents and the police action in speed control and drunk driving is increased.

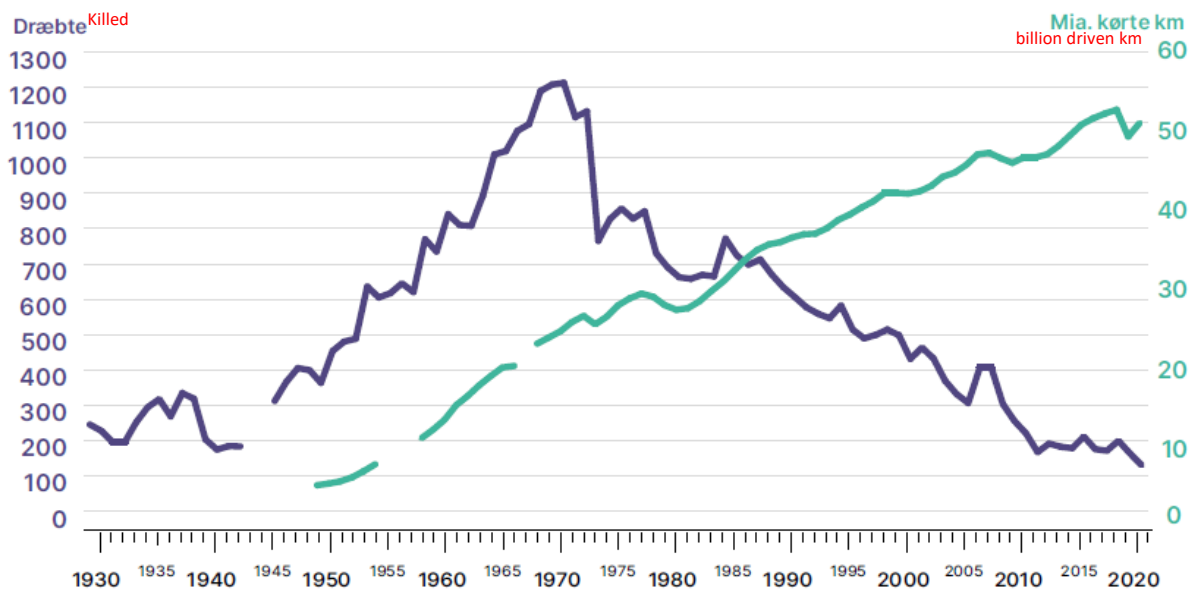


Figure 9 – The figure shows the annual number of fatalities and the annual number of kilometers driven in billions. (Vejdirektoratet, Trafikulykker for året 2018, 2019) [2]



ROaD EducatiOn Project n. KA220-SCH-BC3E99EA

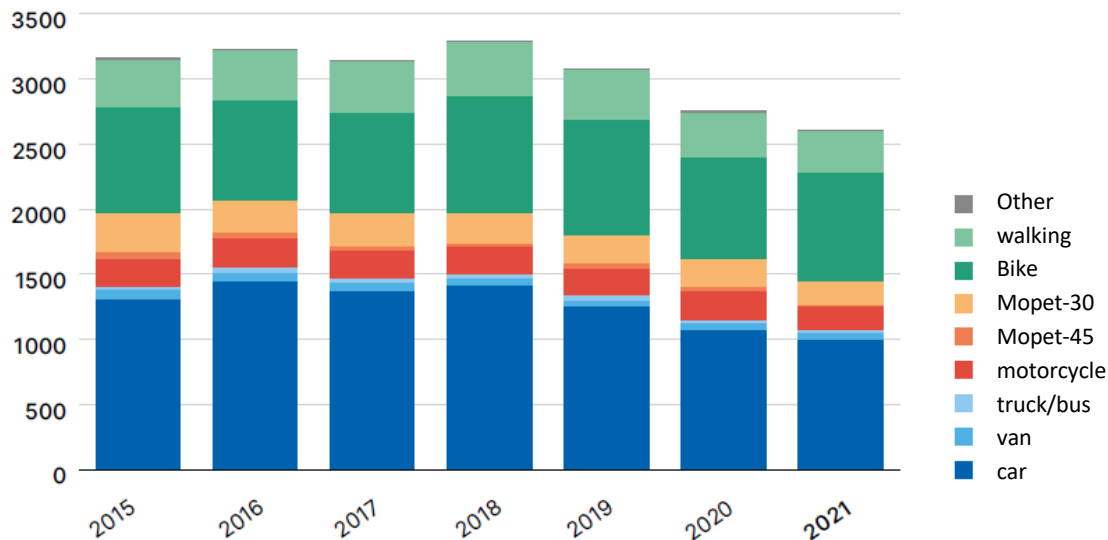


Figure 10 - The figure shows the number of killed and injured per year divided by means of transport. [2]

Men are still overrepresented among those killed and injured. In 2021, men accounted for 7 out of 10 killed and 6 out of 10 injured. [2]

## 2. Divided on age what are the tendence in serious injured and killed?

*Seriously injured is most often seen in young people. "Young people are more frequently in an accident. But adults get more hurt and in worse case killed"* (Vejdirektoratet, Trafikulykker for året 2018, 2019)

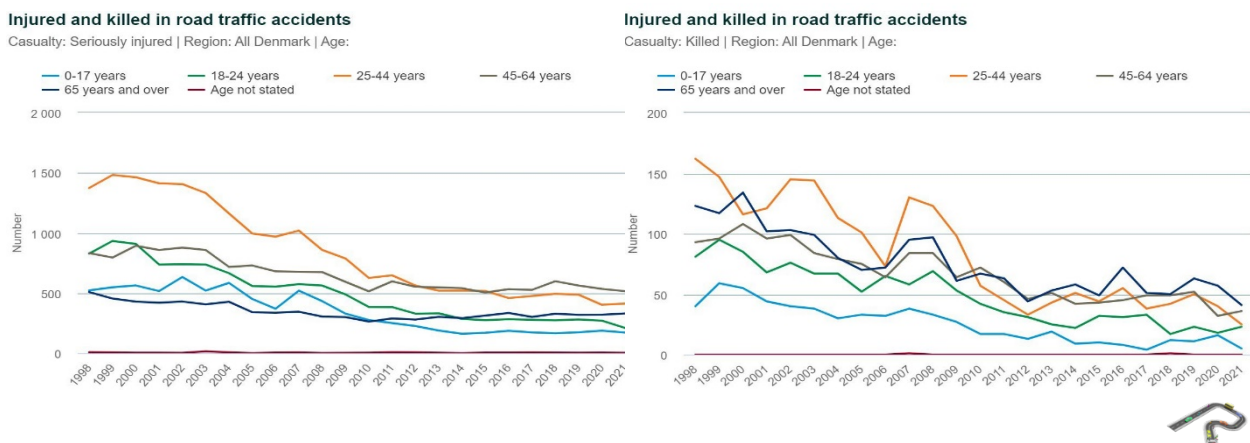


Figure 11 - Injured and killed divided on age



ROaD EducatiOn Project n. KA220-SCH-BC3E99EA

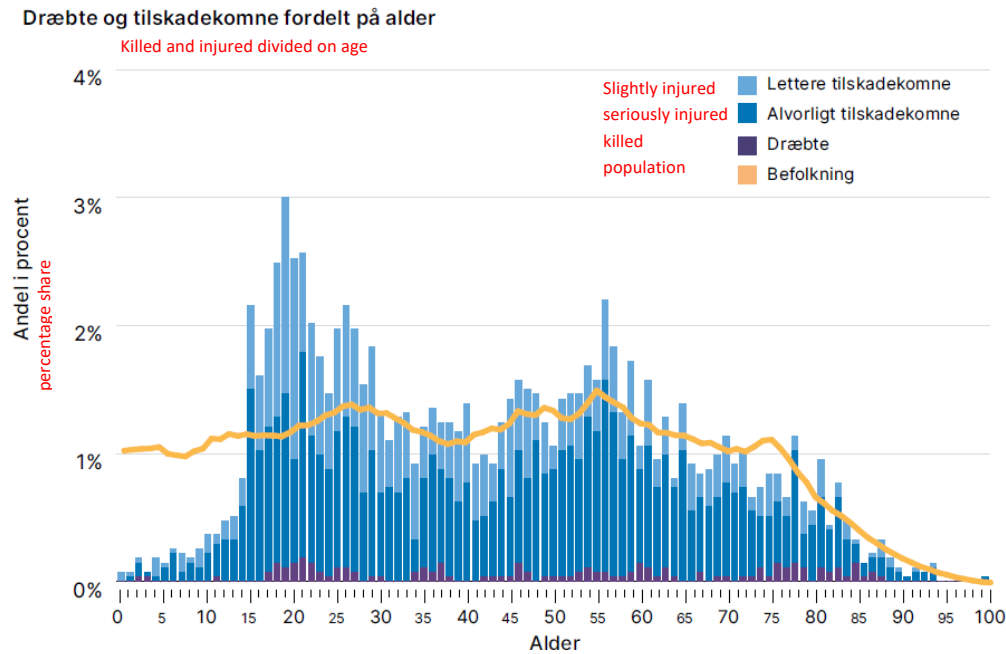


Figure 12 - The figure shows the proportion of personal injuries broken down into fatalities, seriously injured and slightly injured, as well as the population proportion for each age. [2]

### 3. What is the most common reason for severe injury and death in traffic, between 16 to 20 years?

15-17-year-old boys make up a large part of the 30-something moped drivers who are killed or injured in traffic. From 2017-2021, every 4 killed or injured moped 30-riders was a boy between 15 and 17 years old. And half of the 15-17-year-old boys who were killed or injured in traffic drove a moped on 30. [2]

From 2017-2021, 47% of those killed and injured were light road users, i.e. pedestrians, cyclists and moped 30 drivers. [2]



## ROad EducatiOn Project n. KA220-SCH-BC3E99EA

Aldersgrupper	age	0-5	6-14	15-17	18-24	25-34	35-44	45-54	55-64	65-74	75 +	I alt*
<b>Personskader personal injuries</b>												
Personbil	Car	11	24	32	232	173	127	139	114	84	110	1.047
Varebil	Van	-	-	1	10	15	9	13	7	3	1	59
Lastbil/Bus	Truck/Bus	-	1	-	6	2	4	7	5	2	-	27
MC	Motorcycle	-	-	7	26	33	33	39	30	16	2	188
Knallert 45	Mopet - 45	-	-	1	2	4	3	2	-	2	2	16
Knallert 30	Mopet-30	-	5	63	21	19	23	20	23	9	7	190
Cykel	Bike	2	35	39	93	127	90	129	158	106	72	853
Andet**	other	-	-	2	4	2	1	4	5	-	1	19
Fodgænger	Walking	7	29	12	38	46	29	38	49	37	52	338
I alt	total	20	94	157	432	421	319	391	391	259	247	2.737
<b>Dræbte Killed</b>												
Personbil	Car	1	-	-	13	7	5	4	5	3	16	54
Varebil	Van	-	-	-	1	2	1	3	1	2	-	10
Lastbil/Bus	Truck/Bus	-	-	-	-	-	-	1	1	-	-	2
MC	Motorcycle	-	-	-	3	1	3	3	2	-	-	12
Knallert 45	Mopet - 45	-	-	-	-	1	-	1	-	-	-	2
Knallert 30	Mopet-30	-	-	1	-	-	1	1	-	-	-	3
Cykel	Bike	-	1	1	3	1	1	1	6	2	9	25
Andet**	other	-	-	-	-	-	-	-	3	-	-	3
Fodgænger	Walking	1	-	-	3	-	2	2	2	2	7	19
I alt	total	2	1	2	23	12	13	16	20	9	32	130
<b>Alvorligt tilskadekomne seriously injured</b>												
Personbil	Car	4	12	14	103	76	63	70	66	50	62	520
Varebil	Van	-	-	1	3	8	6	6	5	1	1	31
Lastbil/Bus	Truck/Bus	-	-	-	3	1	1	5	4	-	-	14
MC	Motorcycle	-	-	6	17	26	26	31	25	15	2	148
Knallert 45	Mopet - 45	-	-	1	2	2	2	1	-	1	1	10
Knallert 30	Mopet-30	-	5	48	7	16	17	14	18	7	5	137
Cykel	Bike	-	26	21	56	71	55	88	115	74	46	554
Andet**	other	-	-	2	3	1	-	3	2	-	1	12
Fodgænger	Walking	5	19	7	15	23	18	29	33	27	37	213
I alt	total	9	62	100	209	224	188	247	268	175	155	1.639
<b>Lettere tilskadekomne slightly injured</b>												
Personbil	Car	6	12	18	116	90	59	65	43	31	32	473
Varebil	Van	-	-	-	6	5	2	4	1	-	-	18
Lastbil/Bus	Truck/Bus	-	1	-	3	1	3	1	-	2	-	11
MC	Motorcycle	-	-	1	6	6	4	5	3	1	-	28
Knallert 45	Mopet - 45	-	-	-	-	1	1	-	-	1	1	4
Knallert 30	Mopet-30	-	-	14	14	3	5	5	5	2	2	50
Cykel	Bike	2	8	17	34	55	34	40	37	30	17	274
Andet**	other	-	-	-	1	1	1	1	-	-	-	4
Fodgænger	Walking	1	10	5	20	23	9	7	14	8	8	106
I alt	total	9	31	55	200	185	118	128	103	75	60	968

Figure 13 - accidents divided on age group and type




ROad EducatiOn Project n. KA220-SCH-BC3E99EA

Dræbte og tilskadekomne samt modparter 2017-2021

Killed and injured and counterparties 2017-2021

Modpart

Car

 Personbil

2.829

296

386

18

0

8

14


7

88

1.059

1.748

Van

 Varebil

97

26

53

0

0

0

1


1

10

46

74

Truck/Bus

 Lastbil/bus

52

5

32

0

1

1

1


4

0

27

55

MC

 MC

517

26

24

38

0

6

12


6

23

72

389

Moped 45

 Knallert 45

80

7

4

0

0

5

4


2

5

3

36

Moped 30

 Knallert 30

588

55

28

5

4

38

19


18

10

38

347

Bike

 Cykel

2.957

216

203

15

5

87

255


66

70

168

243

Walking

 Fodgænger

1.357

101

124

6

5

56

124


0

46

177

0

Other

 Andet

15

2

3

0

0

0

0

5

6

2

40

Total i alt

8.492

734

857

82

15

201

430

109

258

1.592

2.932

Figure 14 - The figure shows the number of people killed and injured in 2017-2021 divided by means of transport and the other party's means of transport. [2]

#### 4. What is the most common driving situation with bike involved, which lead to severe injury and death?

From 2017-2021, 71% of cyclists killed and injured have been involved in crossing or turning accidents. Most of these involve a straight-ahead cyclist and a crossing or turning counterpart.





ROaD EducatiOn Project n. KA220-SCH-BC3E99EA

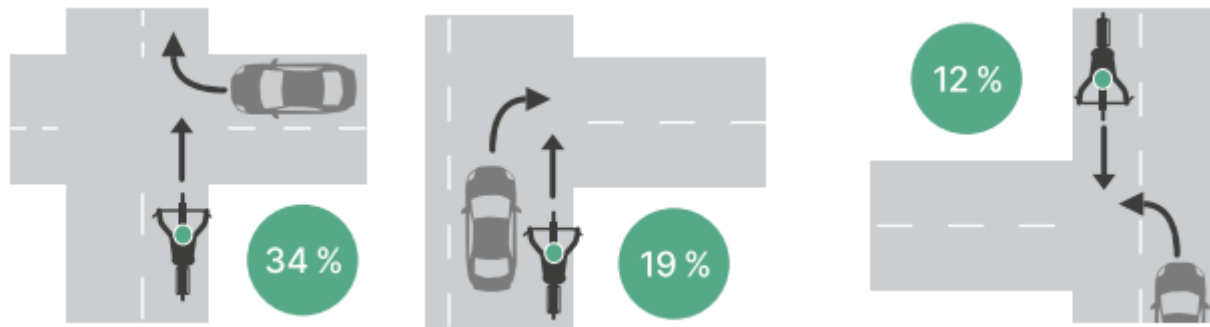


Figure 15 - most common bike accidents

Approx. every fifth fatal accident involving cyclists was a solo accident. Overall, only 15% of cyclists killed and injured were involved in accidents on country roads, but for cyclists killed alone it was one in three.

##### 5. What is the most common driving situation with car involved, which lead to severe injury and death?

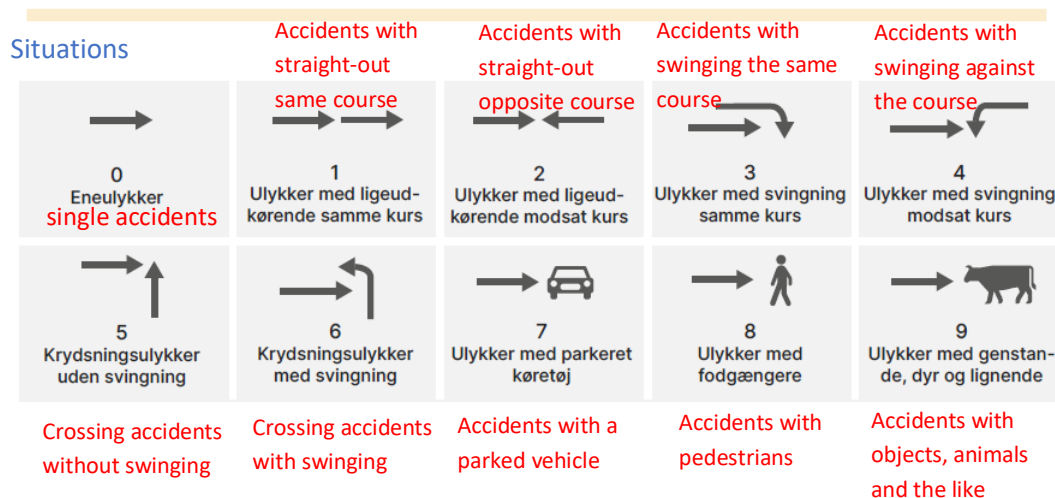
Altogether, just over a quarter of accidents with personal injury are either a single accident or a head-on collision. Looking at fatal accidents alone, however, solo accidents and head-on collisions account for approx. half. The proportion has been increasing in recent years. [2] (Vejdirektoratet, Trafikulykker for året 2018, 2019) 30% of these are categorized as drunk accident.



## ROaD EducatiOn Project n. KA220-SCH-BC3E99EA

Table 2- Number of fatalities and injuries broken down by means of transport and main situation in 2021. [2] (Vejdirektoratet, Trafikulykker for året 2018, 2019)

Hovedsituation		0	1	2	3	4	5	6	7	8	9	I alt
Personbil	Car	284	226	184	51	48	107	86	35	3	23	1.047
Varebil	Van	13	18	18	1	-	2	4	2	-	1	59
Lastbil/bus	Truck/bus	12	7	3	-	-	-	2	2	1	-	27
MC	MC	68	40	14	13	21	5	15	3	1	8	188
Knallert 45	Mopet-45	8	5	1	-	-	-	1	1	-	-	16
Knallert 30	Mopet-30	66	15	10	41	15	18	12	6	4	3	190
Cykel	Bike	45	98	40	202	106	135	151	46	13	17	853
Fodgænger	Walking	-	-	-	-	-	1	-	3	334	-	338
Andet*	Other	11	4	1	-	-	-	2	-	1	-	19
I alt	Total	507	413	271	308	190	268	273	98	357	52	2.737



### 6. Did COVID-19 influence the statistic of traffic accident? Describe the difference between 2019, 2020 and 2021.

During the spring, the corona restrictions were lifted, and traffic returned to normal over the summer. Therefore, overall traffic in 2021 did not decrease as much compared to 2019 as it did in 2020. Despite that, the number of fatalities and injuries was historically low in 2021 and even lower than in 2020, which also had fewer fatalities and injuries than in previous years.

There was a particularly large decrease in killed and injured 18-24-year-olds. This is a drop in 24% compared to in the age group from 25-54 years is decrease with 19% [2]



ROad EducatiOn Project n. KA220-SCH-BC3E99EA

130 people lost their lives in traffic in 2021. This is the lowest number since statistics on traffic fatalities began to be kept in the 1930s. [2]

These effects are because many worked from home.

Table 3 - information divided on age

Age	16 years	17 years	18 years	19 years	20 years
Which school is most common?	Primary, secondary- or vocational school	Secondary- or vocational school	Secondary- or vocational school	Secondary- or vocational school	Secondary-, vocational school or university
Are teaching in traffic behavior mandatory in the school? If yes how is responsible?	Yes, in primary schools. "class"-teachers in the primary schools.	No. Only included in secondary-, vocational school or university if the teacher chooses it as a topic. Eventually include other events/activities using cases and stories to show the severity.			
What are the most common used vehicle? Most common vehicle for accidents.	No data identified. Most common in accidents: mopet-30.		No data identified. Most common in accidents: car		

7. At which age are you allowed to get a driving license? Alternative rules.

You can get a driver's license and be allowed to ride a small moped when you are 15 years old, but you must already start going to classes to get your small moped driver's license when you are 14 years and 6 months old. [3]



ROaD EducatiOn Project n. KA220-SCH-BC3E99EA

Driving for Mopets-45 is allowed for over 18 years with normal driving license or take a license for moped after 18 years.

From an age of 16 years and 9 months you can start the driving license for car(<3500kg), and the exam from an age of 17 years. This demanded by declaration of consent from parents and only driving with an experienced driver as a companion until you turn 18. After this driving alone is allowed.

8. If teaching in schools on traffic safety is mandatory, which learning objective are required?

Teaching is only mandatory in primary schools with learning objectives based on class. The focus is understanding and read the traffic, especially as soft road user ex. Walking and bike.

Traffic safety is not part of the secondary school but are instead placed in the driving license. [4]

9. Is teaching material on traffic safety available?  
How is the teaching designed? What are the main educational didactics?

No, the material used in secondary schools are not available. But they can use/get inspired by the material provided by *Rådet for sikker trafik(RST)*. Further is material for driving schools often available and settled. The material is especially focus on affected, speed and distracted driving [5]

The material for primary school is more defined by the legislation and more information is found here: <https://sikkertrafik.dk/undervisning/skole/> this material is also made of RST.

10. Are other events and teaching activities used, for improving the traffic education?  
How is the event designed? What are the educational didactics?



ROaD EducatiOn Project n. KA220-SCH-BC3E99EA

In DK we have an Organisation called *Rådet for sikker Trafik(RST)*, their mission is to improve road safety by knowledge sharing and organize events based on a requires from ex. Secondary school. These events could be a talk from a person involved in an accident and live with permanent damage, ex. in a wheelchair.

RST also provide material for teachers that want to use traffic safety as a case in the normal teaching, material for mopet-30 and a course which teachers and other can have for doing the education local. [6]

The educational didactics in these events and in the material is based on personalize storytelling and scare campaign.

## Sources

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## Annex 2 - Data collection on traffic safety in Italy

### 1. Describe the general development in road traffic accidents over time?

Road accidents increased by 28% compared to 2020, although, they decreased by 11.8% compared to 2019 [1]. In 2021, people who died by road accidents increased by 20 % with respect to 2020, but they decreased by 9.4% with respect to 2019 [2]. Similarly, people who were injured by road accidents increased by 28.6% compared to 2020 and decreased by 15.2% compared 2019 [1]-[4].

Road accidents most frequently happen on urban roads, but according to statistics, the road accidents that cause more casualties take place in extra urban roads [2]. Although, in comparison with 2020, the road accidents with more victims happen the most on highways. Altogether, the number of accidents, injured and deaths generally decreased compared with the pre-pandemic period (Fig. 1).

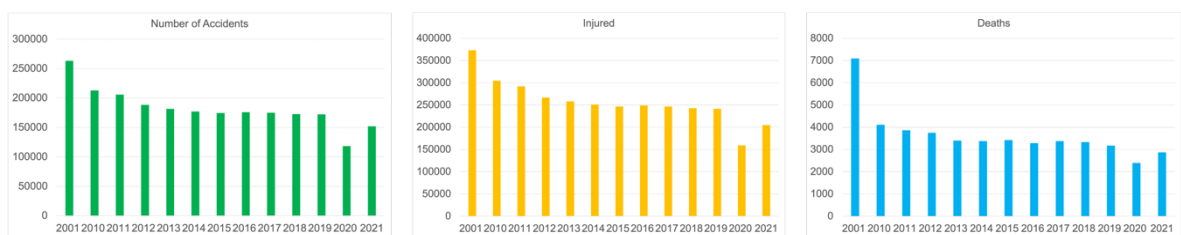


Figure 16 Left: Number of accidents; Middle: number of Injured; Right: Number of yearly deaths (data from [1])

### 2. Divided on age what are the tendence in serious injured and killed?

Figures 2 and 3 summarize the number of killed and injured for different age ranges. Concerning the age we are focusing on, in the range 15-19 years the number of killed by traffic road accidents increased by 41.7% [1], and injured were in total 18,141, data that increased by 48,4 with respect to 2020 [1]. However, if compared with the data of 2019, the ratios decrease by 7.6% and 3.4%, respectively [1], [3], [4]. Above all, it is important to underline that most of the young people that get injured in traffic accidents are between 15 and 29 years old (Fig. 2; [4]). The serious injury rate in the 0-



ROaD EducatiOn Project n. KA220-SCH-BC3E99EA

19 group of age is 12.8% of the total number of injured, with 1351 injured Conversely, the serious injury rate in the 20-29 group of age: 23.2% [4].

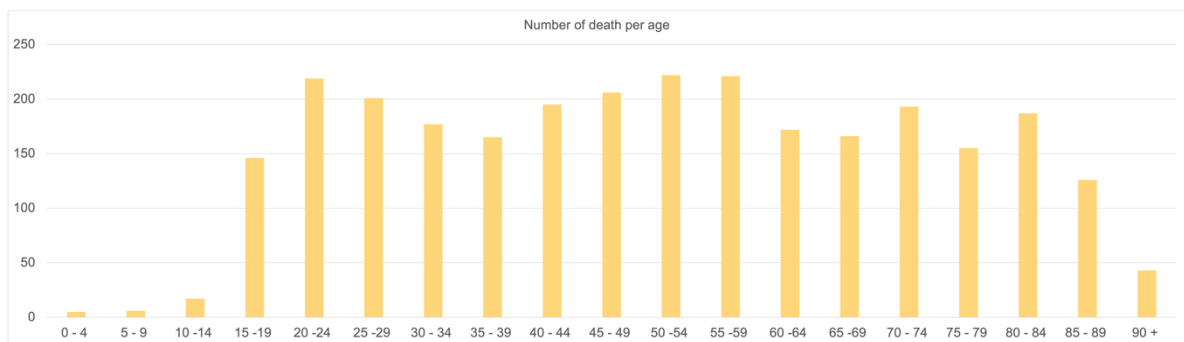


Figure 17 Number of deaths divided by age (data from [1])

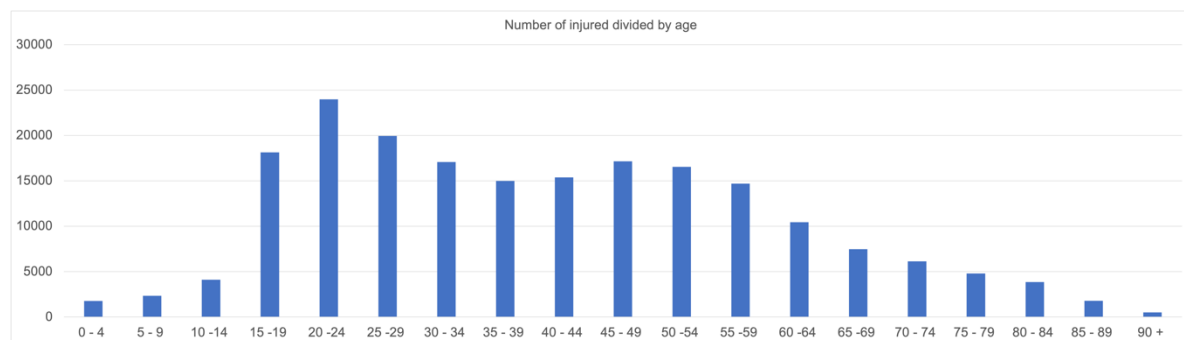


Figure 18 Number of injured people divided by age (data from [1])

3. What is the most common reason for severe injury and death in traffic, between 16 to 20 years?

Distracted driving, high Speed and disrespect of priority rules represent the main causes of accidents (39.7% of all the accidents). They are followed by irregular maneuvers (e.g., reverse, U-turns, lane invasion, hazardous maneuvers to stop or cross the street), and not respecting safety distances [1],[2].

4. What is the most common driving situation with bike involved, which lead to severe injury and death?



ROaD EducatiOn Project n. KA220-SCH-BC3E99EA

In 2021, the number of victims of traffic accidents that involved bicycles has reached 180 [5]. Similarly, the people severely injured were 989 [5]. Interestingly, even if the number of male and female using a bike is the same, 162 victims are male [5].

In most of the cases, death resulted from a cyclist falling after the car driver had opened the door without checking for the presence of other road users [5].

5. What is the most common driving situation with car involved, which lead to severe injury and death?

Figure 4 reports all the causes of accidents involving vehicles. These include high speed, not respecting traffic laws and distract driving [1]. Recently, researchers underlined that another important cause of road accidents is an over-confident attitude while driving.

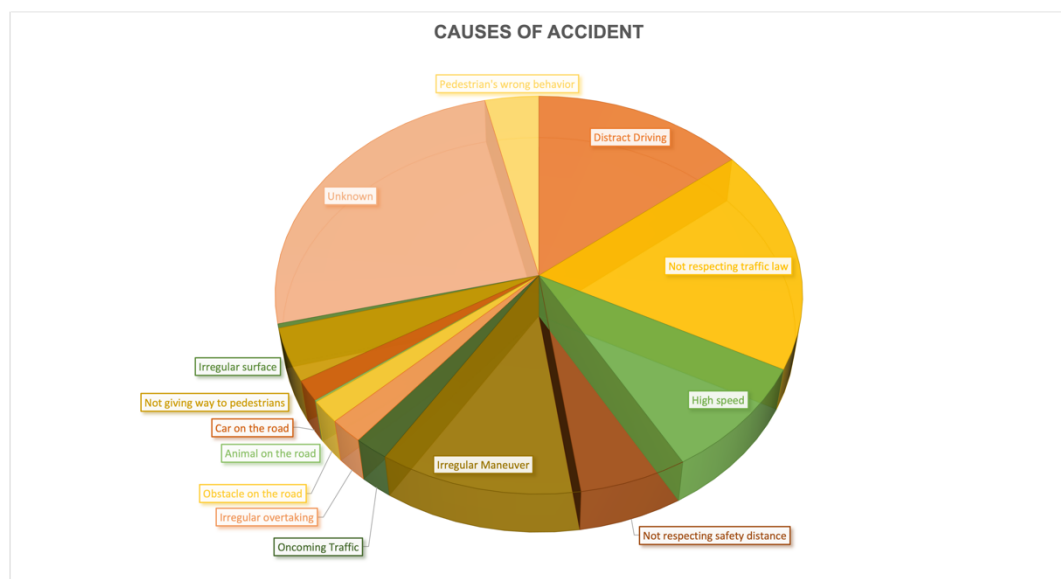


Figure 19 Causes of accidents involving vehicles (adapted by [1])

6. Did COVID-19 influence the statistic of traffic accident?

COVID-19 strongly affected the number of accidents, deaths and injured [1]-[4]. Indeed, the entire country was shut down for at least three months, with differences among





ROaD EducatiOn Project n. KA220-SCH-BC3E99EA

regions. According to the data reported above, both road accidents and number of people involved in road accidents strongly decreased during the pandemic and increased again afterward, albeit with lower values, compared to pre-COVID [1]-[4].

Table 4 - information divided on age

Age	16 years	17 years	18 years	19 years	20 years
Which school is most common?	High School	High school	High School	High School/ University	University
Are teaching in traffic behavior mandatory in the school? If yes how is responsible?	The article 230 of Italian Road Code establishes Road education lessons in every kind of school but this has never become legally binding				
What are the most common used vehicle?	Microcars, scooters, and motorbikes (125 cc)	Microcars, scooters, and motorbikes (125 cc)	Cars, motorbikes	Cars, motorbikes	Motorcycle Cars

#### 7. At which age are you allowed to get a driving license? Alternative rules.

At 14 years old, young people get a particular driving license (Patente AM) to drive microcars or scooters that cannot exceed 45 km/h by construction; however, it is not possible to give a ride to someone until the drivers turns 16. At 16 years old, people get a driving license called "Patente A1" which allows to drive a motorcycle with a maximum engine capacity not exceeding 125 cc. After reaching the age of 18, it is possible to obtain the A2 license, a qualification that allows to drive motor vehicles with a power of up to 35 kW (approximately 47 hp) and a weight/power ratio of up to 0.2 kW/Kg, and a B license to drive cars (Fig. 5).



ROaD EducatiOn Project n. KA220-SCH-BC3E99EA



Figure 20 Type of vehicles that can be driven at different ages

8. If teaching in schools on traffic safety is mandatory, which learning objective are required?

It is not mandatory. As reported above, the article 230 of Italian Road Code establishes Road education lessons in every kind of school but this has never become legally binding [6].

9. Is teaching material on traffic safety available? How is the teaching designed? What are the main educational didactics?

It is possible to find information and materials online, such as video, virtual reality simulation programs that are aimed at simulating real-life situations. In addition, there are graphics containing data or statistics, books on safety road rules, or that explain our Road Code, in a simple way [7].

10. Are other events and teaching activities used, for improving the traffic education?

The Italian Ministry of School and University opened “Edustrada” a national project for road safety education in schools. This platform online is an operational tool that uses new methodologies to increase the involvement of students and teachers in this important subject. <https://www.educazionedigitale.it/edustrada/>. Even the Police State department organize projects in schools [7].



ROaD EducatiOn Project n. KA220-SCH-BC3E99EA

## 11. How is the event designed? What are the educational didactics?

The Edustrada platform is an interactive space dedicated to schools, of all types and levels, to allow participation - subject to teacher registration - in the annual training offer of the main institutions responsible for road safety in Italy [7].

On the platform it is possible to consult the educational initiatives and competitions dedicated to schools, as well as collect information content on road safety issues and the correct behavior to adopt on the road. In the several projects you can select on this platform, they use every kind of didactics, such as: driving simulation, video lessons, distance learning systems [7].

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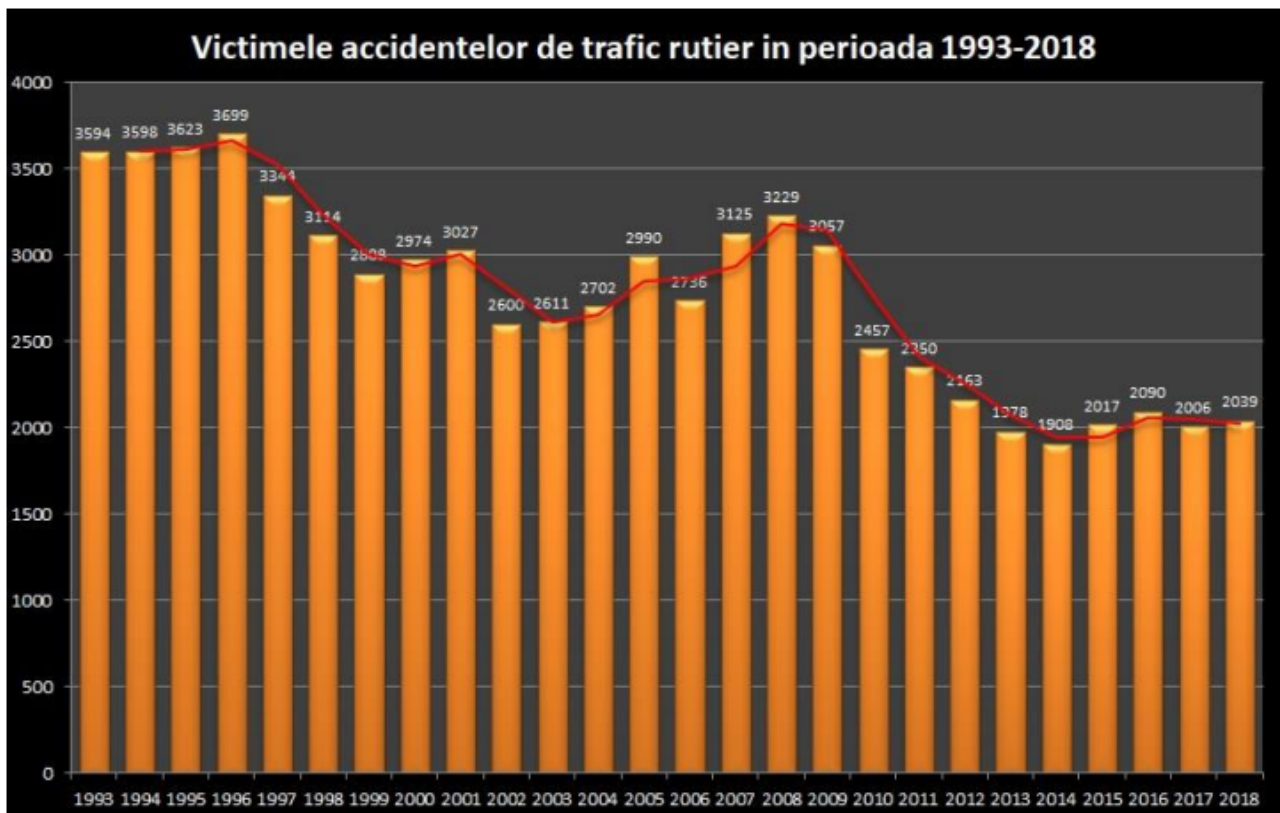


## Annex 3 - Data collection on traffic safety in Romania

### 1. Describe the general development in road traffic accidents over time?

The number of fatalities resulting from road accidents has been dropping since the 90s although Romania still tops the charts with the highest mortality rate (deaths per million inhabitants) in Europe. In 2021, Romania registered 4915 accidents that claimed the lives of 1779 people. That translates to 93 deaths/ million inhabitants, more than double the EU average. Compared to 2020, statistics show a slight increase of the road fatality rate in 2021, both at the European level (from 42 deaths per 1 million inhabitants to 44 deaths per 1 million inhabitants) and at the national level (from 85 to 93 deaths per million inhabitants).

At the same time, the number of people owning a driver's license has been on a steady increase over the last decade.





## ROad EducatiOn Project n. KA220-SCH-BC3E99EA

Figure 1. Deaths resulting from road accidents between 1993 and 2018 Source: "Raport Asupra Activității Rețelei de Medicină Legală în Anul 2018"

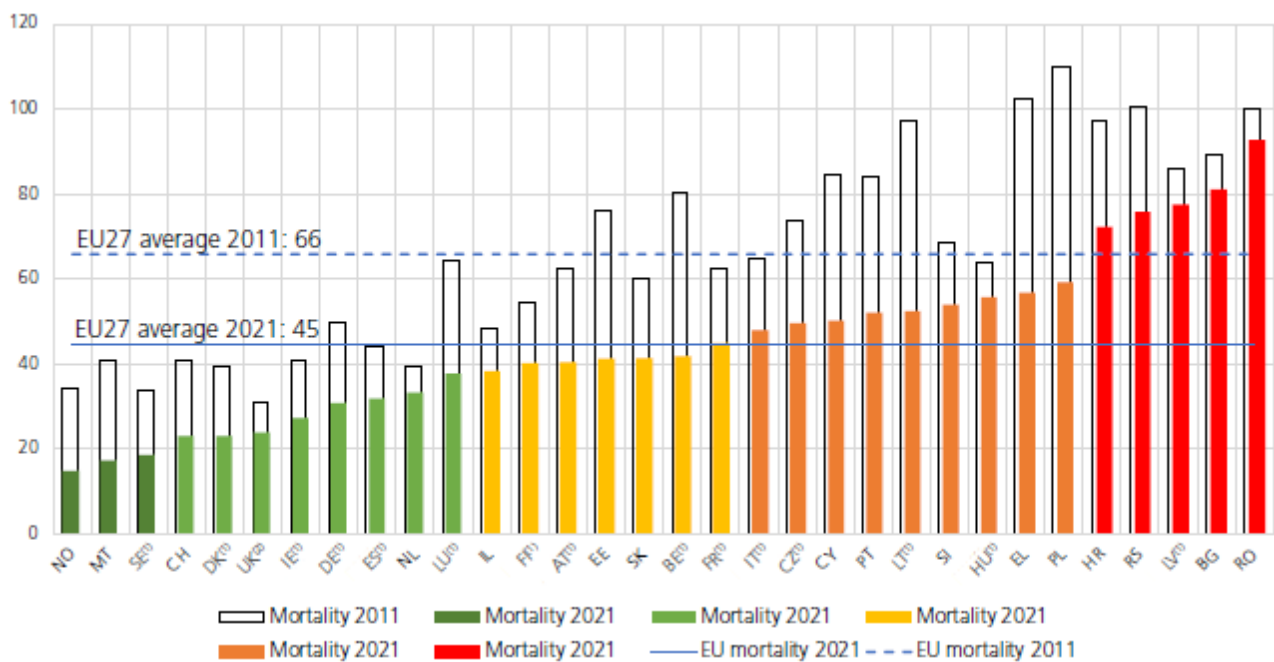


Figure 2. Mortality (road deaths per million inhabitants) in 2021 (with mortality in 2011 for comparison) Source: "RANKING EU PROGRESS ON ROAD SAFETY. 16th Road Safety Performance Index Report"



ROad EducatiOn Project n. KA220-SCH-BC3E99EA

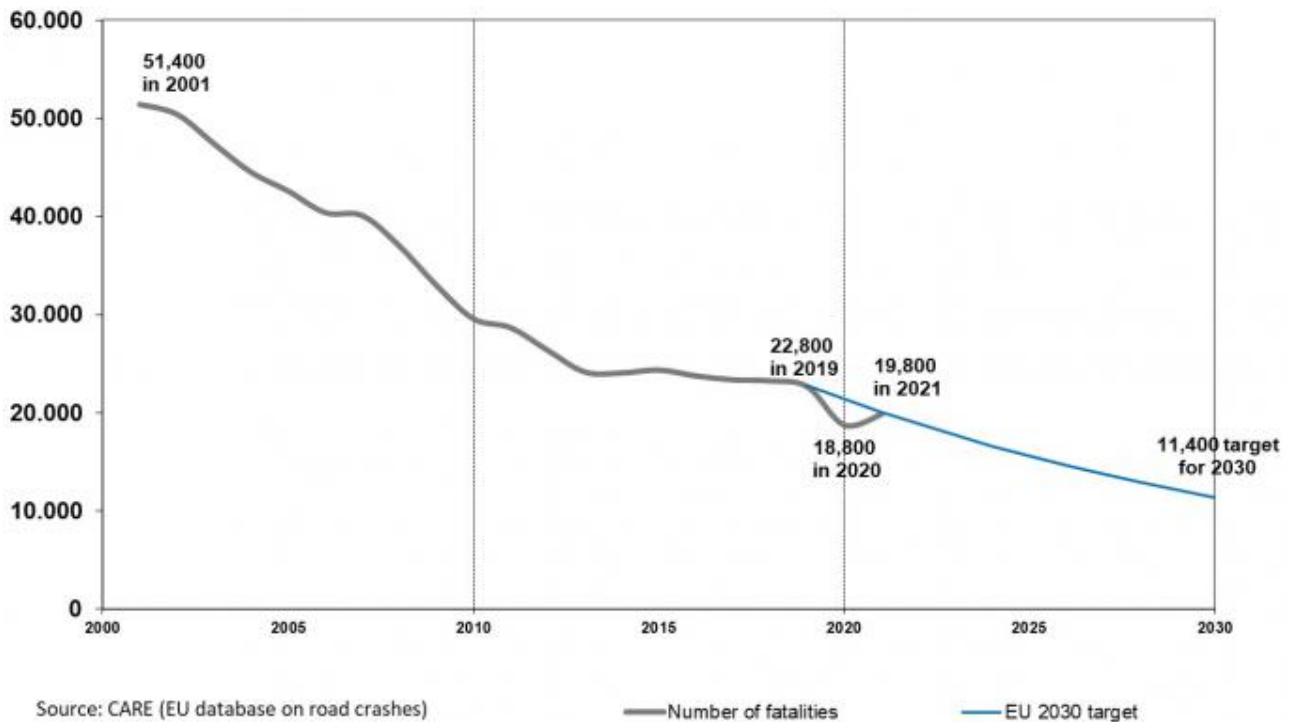


Figure 3. Downward trend in the number of road traffic fatalities in the EU

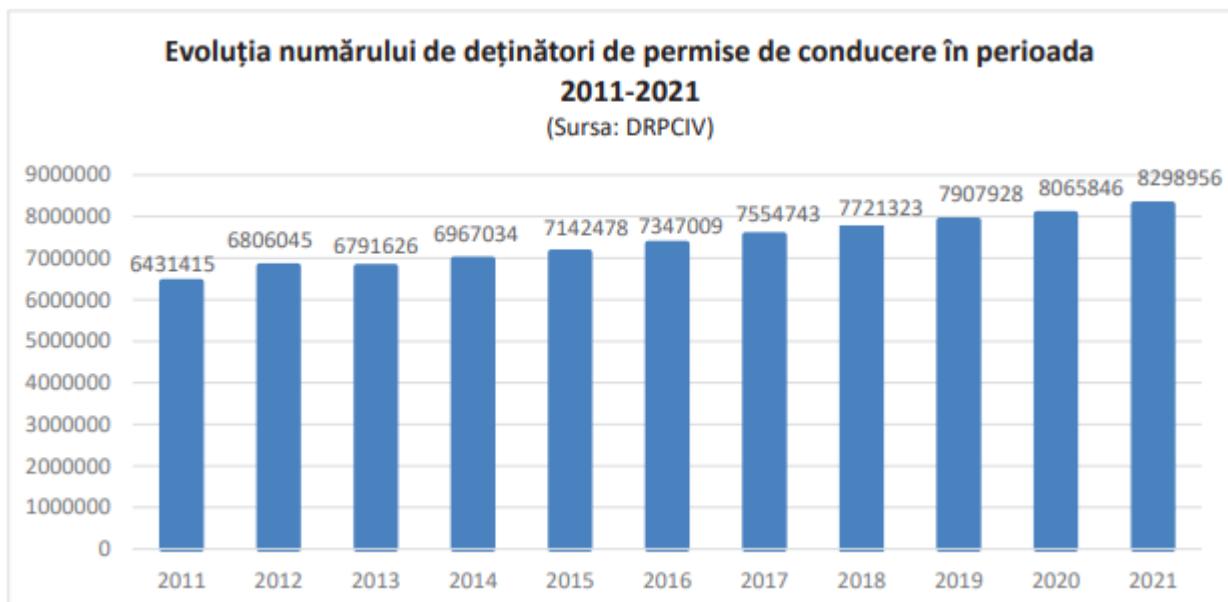


Figure 4. Upward trend in number of people owning a driver's license from 2011 to 2021 Source: "Buletinul siguranței rutiere. Raport Anual 2021"



## 2. Divided on age what are the tendencies in serious injured and killed?

As the graph below shows the likelihood of being involved in serious road accidents decreases with age. One possible explanation could be the experience gained with the passing of time. Thus, younger, less experienced drivers are more likely to be involved in serious road accidents. Another factor influencing the age distribution is traffic presence. The higher frequency of young people present in traffic determines the ratios between the different age ranges of drivers involved in serious road accidents.

**Accidentele rutiere grave, în funcție de vârsta conducătorilor auto implicați cu vinovăție**

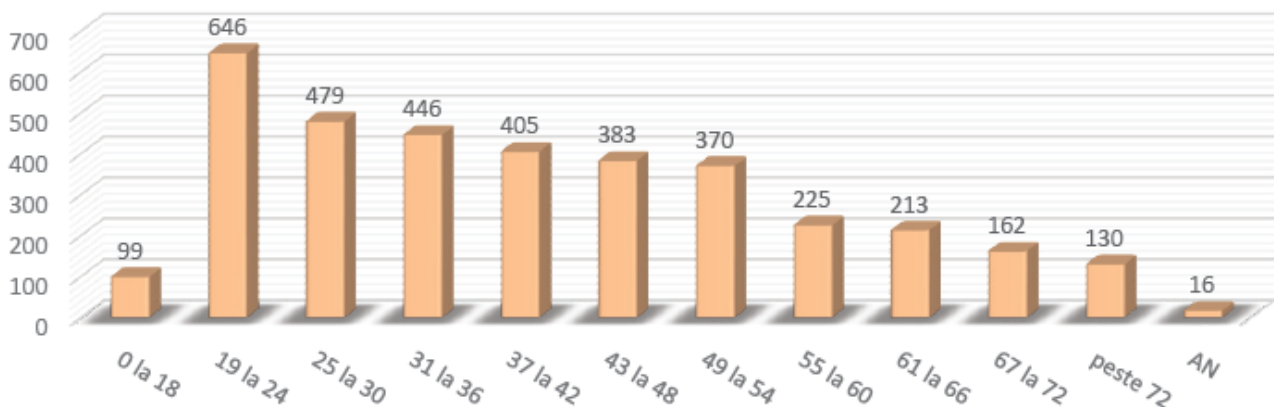


Figure 5. Age ranges of drivers involved in serious road accidents Source: "Buletinul siguranței rutiere. Raport Anual 2021"

Gender is an important variable in assessing the risk of a serious road accident. The graph below shows a significant difference between men and women involved in serious road accidents. In 2021, serious road traffic events involved 6.6 times fewer women (with or without fault). However, this should be seen in conjunction with the presence of both genders on the road, with almost twice as many men as women holding a driver's license.





ROaD EducatiOn Project n. KA220-SCH-BC3E99EA

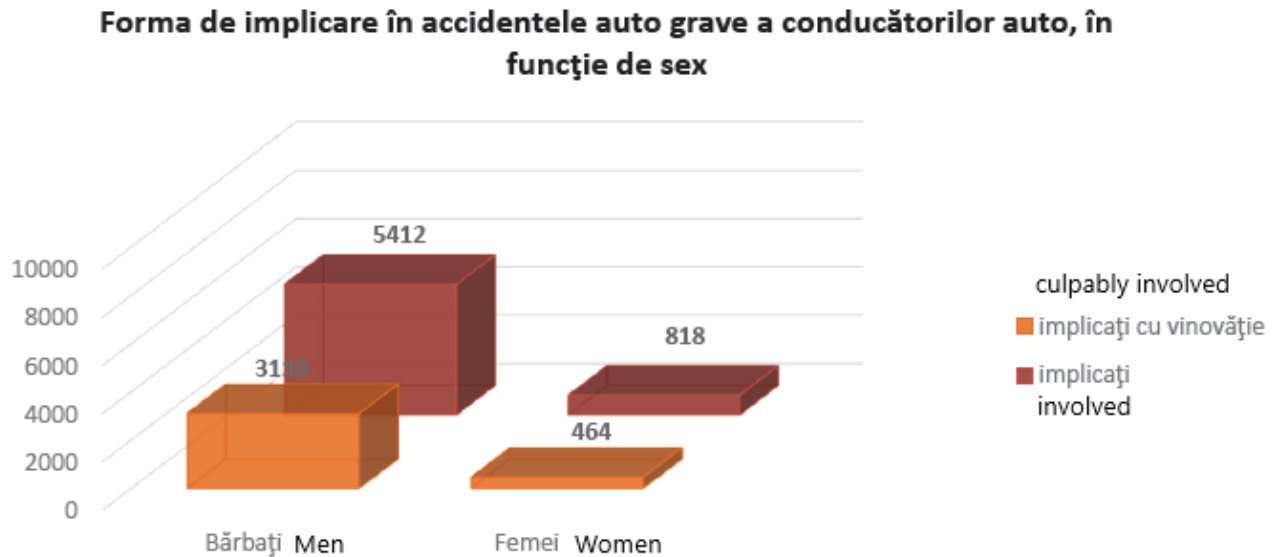


Figure 6. People involved in serious road accidents, divided by gender Source: "Buletinul siguranței rutiere. Raport Anual 2021"

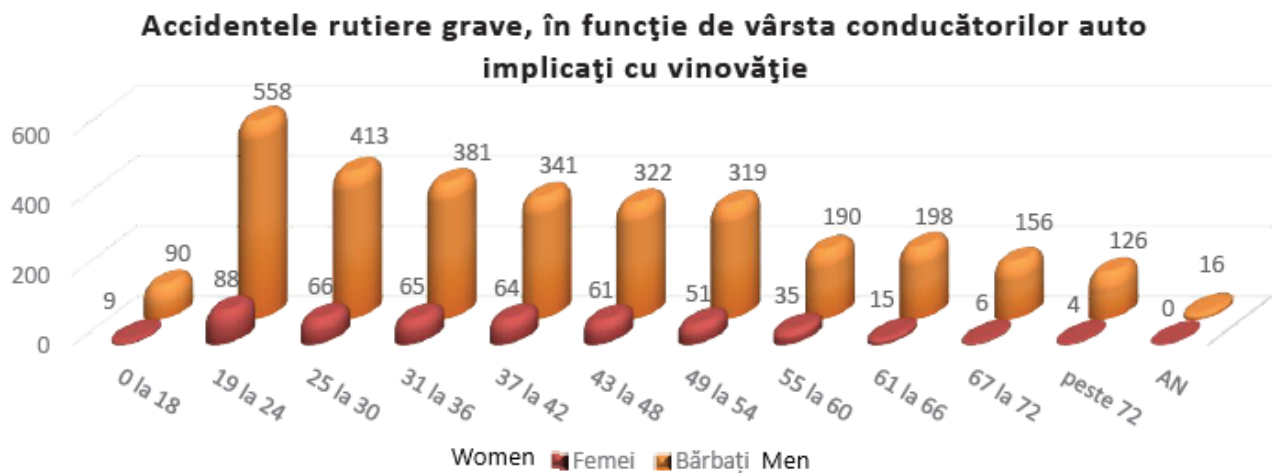


Figure 7. People involved in serious road accidents, divided by age and gender Source: "Buletinul siguranței rutiere. Raport Anual 2021"

- What is the most common reason for severe injury and death in traffic, between 16 to 20 years?

The main cause of serious road accidents for young people aged 18-29 is not adapting the speed to the conditions of the road. This alone accounts for 25.7% of all accidents caused by young





ROaD EducatiOn Project n. KA220-SCH-BC3E99EA

people aged 18-29. The graph below shows the main causes behind road accidents involving young people.

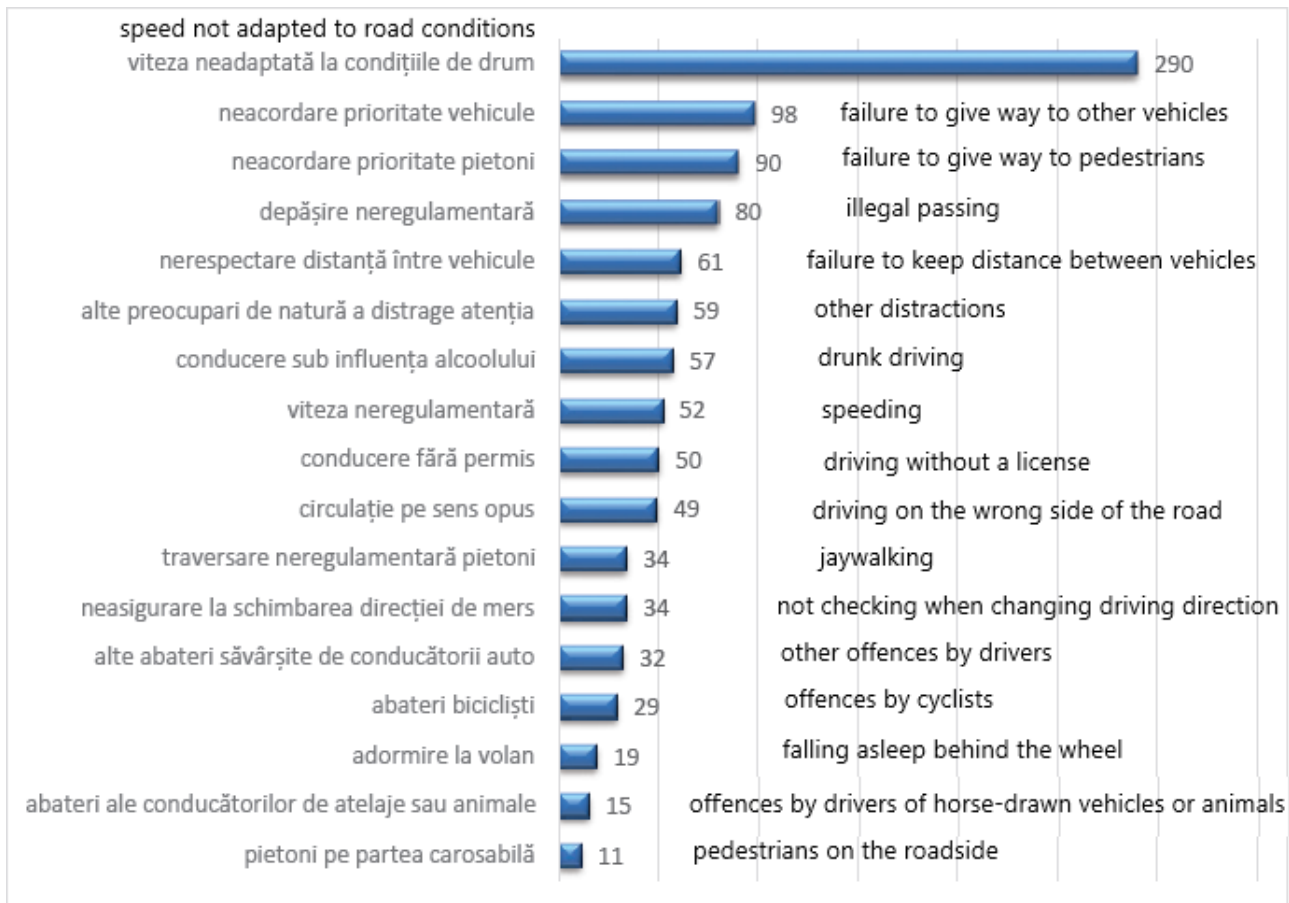


Figure 8. Main causes of serious road accidents caused by young people Source: "Buletinul siguranței rutiere. Raport Anual 2021"

- What is the most common driving situation with bike involved, which lead to severe injury and death?

The most common driving situation involving bikes that leads to severe injury and death is collision with a vehicle (with or without the fault of the cyclist). The lack of proper infrastructure accommodating this means of transportation further increases the risk of accident.

- What is the most common driving situation with car involved, which lead to severe injury and death?



As it can be seen in Figure 8, the main cause for serious road accidents leading to severe injury and death involving cars is not adapting the speed to the conditions of the road.

6. Did COVID-19 influence the statistic of traffic accident? Describe the difference between 2019, 2020 and 2021.

Compared to 2019, in 2020 there were 2,369 fewer serious road accidents (-27.4%) while the number of those seriously injured (fatalities or serious injuries) in such events dropped by 2,859 (-28.6%). This is perhaps self-explanatory and somewhat expected with the lockdowns and all the quarantine restrictions. 2021 registered even fewer serious accidents by 1,356 (-21,6%), while the number of those who lost their lives in such accidents is greater (+133, +8,1%).

Table 5 - information divided on age

Age	16 years	17 years	18 years	19 years	20 years
Which school is most common?	High-school	High-school	High-school	University	University
Are teaching in traffic behavior mandatory in the school? If yes how is responsible?	The law says that road education is part of the curriculum but the reality is that it depends on schools and teachers whether this topic is addressed through classes and activities.			N/A	
What are the most common used vehicle?	Bicycle	Bicycle	Car	Car	Car



ROaD EducatiOn Project n. KA220-SCH-BC3E99EA

7. At which age are you allowed to get a driving license? Alternative rules.

The legal age to get a driving license for any vehicle category is 18. However, you can get a driver's license at 16 for smaller (max. 550 kg), less powerful vehicles (max. 50 km/h).

8. If teaching in schools on traffic safety is mandatory, which learning objective are required?

The law says that Road Education is mandatory in schools up to high school. The reality is however, that this is not the case and so it becomes the schools' and the teachers' responsibility to address the topic. The police also carry out campaigns every year for

9. Is teaching material on traffic safety available?

How is the teaching designed? What are the main educational didactics?

There is no official textbook for Road Education but there are various materials developed by educational organizations and teachers. In fact, through an initiative part of the National Program „Romania Safe", the project „Road Safety Education Class", the publishing house Corint together with EDIT Association launched the first road safety education textbook for children.



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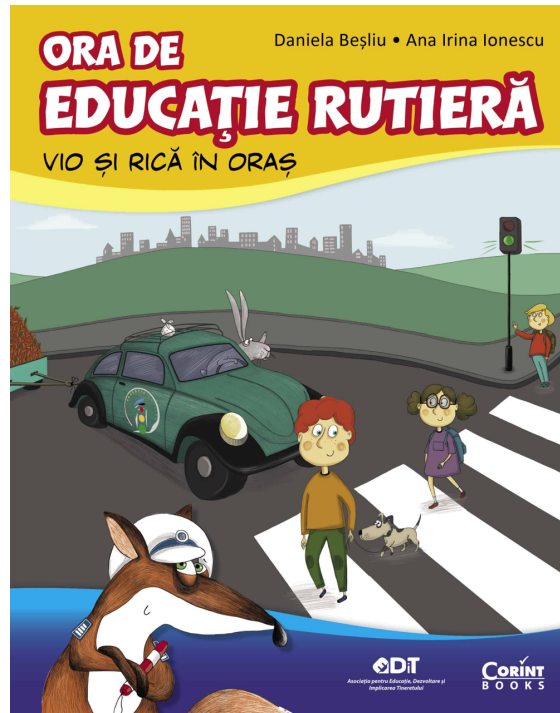


Figure 9- Road Safety Education Class

10. Are other events and teaching activities used, for improving the traffic education?

How is the event designed? What are the educational didactics?

The Traffic Police Directorate is involved in yearly campaigns for promoting road safety education in schools. Police officers show students the traffic rules and road markings and signs they should know and respect as pedestrians to avoid becoming victims of road accidents.



ROaD EducatiOn Project n. KA220-SCH-BC3E99EA



Figure 210 - Traffic Police Directorate Source: <https://www.editie.ro/index.php/actualitate/82-educatie/14074-educatie-rutiera-in-scoli>

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## Annex 4 - Data collection on traffic safety in Turkey

### 1. Describe the general development in road traffic accidents over time?

Over the observed period, the number of fatal road traffic injuries has been subject to fluctuation since from 2006 to 2020. (*Vejdirektoratet, Trafikulykker for året 2018, 2019*) In total, the number of fatal road traffic injuries declined to 4,866 traffic fatalities in 2020.

This excludes suicides and differentiates itself from road injuries, which include both people killed and injured during a road accident. These road accidents include any accident involving at least one road vehicle in use on a public or publicly-accessible private roadway.

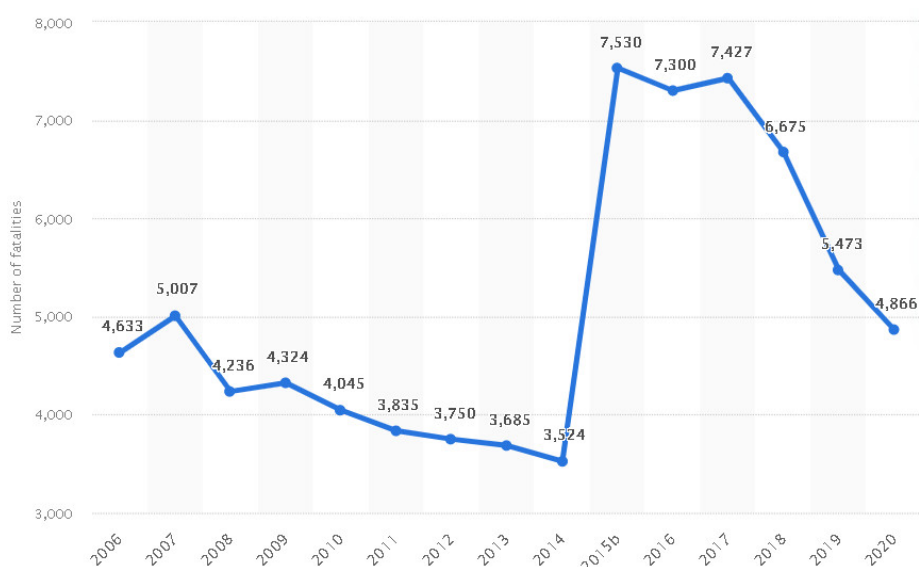


Figure 22 – The figure shows the annual number of fatalities between 2006 and 2020. (*Vejdirektoratet, Trafikulykker for året 2018, 2019*)





ROaD EducatiOn Project n. KA220-SCH-BC3E99EA

In the road network of Turkey, 1 million 186 thousand 353 traffic accidents occurred in total during year 2021. Among all those accidents, 998 thousand 390 accidents were with material loss and 187 thousand 963 were with death or injury. For the accidents involving death or injury, 78.6% of them occurred at inhabited area and 21.4% occurred at uninhabited area. [2]

Year	Total number of accidents	Number of accidents involving death or injury	Number of accidents involving material loss only	Number of persons killed		Accident follow-up <sup>(1)</sup>	Number of persons injured
				Total	At accident scene		
2010	1 106 201	116 804	989 397	4 045	4 045	-	211 496
2011	1 228 928	131 845	1 097 083	3 835	3 835	-	238 074
2012	1 296 634	153 552	1 143 082	3 750	3 750	-	268 079
2013	1 207 354	161 306	1 046 048	3 685	3 685	-	274 829
2014	1 199 010	168 512	1 030 498	3 524	3 524	-	285 059
2015	1 313 359	183 011	1 130 348	7 530	3 831	3 699	304 421
2016	1 182 491	185 128	997 363	7 300	3 493	3 807	303 812
2017	1 202 716	182 669	1 020 047	7 427	3 534	3 893	300 383
2018	1 229 364	186 532	1 042 832	6 675	3 368	3 307	307 071
2019	1 168 144	174 896	993 248	5 473	2 524	2 949	283 234
2020	983 808	150 275	833 533	4 866	2 197	2 669	226 266
2021	1 186 353	187 963	998 390	5 362	2 421	2 941	274 615

Figure 2 – Road traffic accident statistics, between 2010-2021 in Turkey [2]

In Turkey, the distribution of 308 thousand 442 road motor vehicles involved in accidents with death or injury was cars 49.4%, motorcycles 20.9%, small trucks 15.1%, road tractors 2.3%, minibuses 2.3%, trucks 2.2%, buses 1.6%, tractors 0.9% and the other vehicles 5.3% during year 2021. [2]



ROaD EducatiOn Project n. KA220-SCH-BC3E99EA

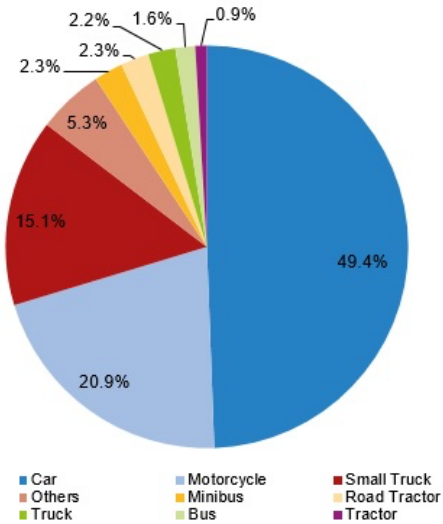


Figure 3 - The figure shows the number of killed and injured by means of transport in 2021. [2]

## 2. Divided on age what are the tendence in serious injured and killed?

According to age group, the number of people who killed or injured are dramatically increased between in 18-20 years old and 21-24 years old. It is intensively viewed that young age group are main issue in the traffic accident.





## ROad EducatiOn Project n. KA220-SCH-BC3E99EA

Persons killed or injured in road traffic accidents by age groups in years

Yil Year	Age groups							
	0 - 9		10 - 14		15 - 17		18 - 20	
	Killed persons <sup>(1)</sup>	Injured persons	Killed persons <sup>(1)</sup>	Injured persons	Killed persons <sup>(1)</sup>	Injured persons	Killed persons <sup>(1)</sup>	Injured persons
2002	322	8 788	84	4 524	68	4 572	129	7 143
2003	178	7 149	68	3 992	67	4 533	120	6 880
2004	225	8 148	80	4 642	66	5 152	122	7 984
2005	179	9 077	108	5 988	58	6 095	140	8 990
2006	178	9 237	89	6 133	74	6 673	149	9 782
2007	179	10 333	89	6 790	95	7 337	144	11 197
2008	151	9 486	80	6 689	65	6 930	121	11 138
2009	167	11 160	84	7 173	78	7 965	169	12 535
2010	131	11 371	77	7 873	59	8 846	142	13 468
2011	114	12 537	69	8 797	85	10 511	129	15 769
2012	120	15 465	59	10 647	64	12 328	125	18 124
2013	202	19 303	95	13 405	116	15 599	187	23 540
2014	181	20 920	97	14 083	113	16 847	195	25 253
2015	387	22 738	186	14 585	291	17 875	436	27 191
2016	339	22 530	159	14 320	262	17 709	424	26 615
2017	331	22 342	175	14 634	281	16 894	388	25 247
2018	309	23 765	156	15 524	200	16 322	369	25 995
2019	259	22 780	151	14 393	164	14 477	288	23 233
2020	198	14 391	108	9 538	124	10 840	285	19 784
2021	228	17 631	150	13 150	179	15 757	275	26 070

Figure 4 - This graphic shows that persons who killed or Injured in Road Traffic Accidents by age groups (0-20 ages)

Yil Year	21 - 24		25 - 64		65 +		Unknown	
	Killed persons <sup>(1)</sup>	Injured persons	Killed persons <sup>(1)</sup>	Injured persons	Killed persons <sup>(1)</sup>	Injured persons	Killed persons <sup>(1)</sup>	Injured persons
2002	187	9 790	1 825	54 455	257	4 415	28	538
2003	191	10 628	1 813	55 575	280	4 605	94	2 245
2004	221	12 111	1 940	64 245	311	5 315	116	2 292
2005	222	13 103	2 043	72 853	372	6 061	73	1 810
2006	208	13 780	2 173	81 720	339	6 423	155	2 006
2007	224	15 888	2 251	89 201	380	7 331	100	1 737
2008	179	15 416	1 949	86 686	311	7 176	92	1 642
2009	181	17 068	1 939	96 273	318	8 047	57	1 498
2010	165	18 017	1 848	101 214	256	8 775	60	1 911
2011	170	21 443	1 674	113 732	274	9 273	67	2 087
2012	162	23 880	1 669	126 517	292	10 982	64	3 165
2013	224	29 031	2 354	157 301	488	15 060	19	1 590
2014	274	31 193	2 189	159 177	452	16 585	23	1 001
2015	522	34 059	4 205	169 498	1 474	17 656	29	819
2016	492	33 081	4 212	170 300	1 365	18 411	47	846
2017	533	32 264	4 266	169 375	1 272	17 898	181	1 729
2018	490	32 515	3 771	172 077	1 349	20 031	31	842
2019	357	29 616	3 061	157 739	1 163	20 183	30	813
2020	362	27 547	2 877	130 292	912	13 874	-	-
2021	401	34 356	3 067	150 107	1 049	17 308	13	236

Figure 5 - This graphic shows that persons who Killed or Injured in Road Traffic Accidents by Age Groups (21-65+ ages and unknown)

3. What is the most common reason for severe injury and death in traffic, between 16 to 20 years?



The main reason primarily is driving at excess speeds, while under the influence of alcohol or drugs, while sleepy or tired, when visibility is compromised, or without protective gear for all vehicle occupants are major factors in crashes, deaths, and serious injury.

Persons killed or injured in road traffic accidents by age groups in years				
Year	15 - 17		18 - 20	
	Killed persons <sup>(1)</sup>	Injured persons	Killed persons <sup>(1)</sup>	Injured persons
2002	68	4 572	129	7 143
2003	67	4 533	120	6 880
2004	66	5 152	122	7 984
2005	58	6 095	140	8 990
2006	74	6 673	149	9 782
2007	95	7 337	144	11 197
2008	65	6 930	121	11 138
2009	78	7 965	169	12 535
2010	59	8 846	142	13 468
2011	85	10 511	129	15 769
2012	64	12 328	125	18 124
2013	116	15 599	187	23 540
2014	113	16 847	195	25 253
2015	291	17 875	436	27 191
2016	262	17 709	424	26 615
2017	281	16 894	388	25 247
2018	200	16 322	369	25 995
2019	164	14 477	288	23 233
2020	124	10 840	285	19 784
2021	179	15 757	275	26 070

Figure 6 - This graphic shows that persons who killed or Injured in Road Traffic Accidents by 15-20 ages

4. What is the most common driving situation with bike involved, which lead to severe injury and death?

Although 918 of 148,938 automobile accidents and 113 of 8,201 bicycle accidents that took place in Turkey in 2019 resulted in death, the death rate as a result of traffic accidents is approximately 2.5 times higher in bicycle accidents than



ROaD EducatiOn Project n. KA220-SCH-BC3E99EA

automobile accidents. (*Karayolları Genel Müdürlüğü, 2020*) [2]

Problems related to the perception of cyclists, especially in the flowing traffic where cyclists faced, the traffic system is designed from the perspective of the car users. On the other hand, It has been found that the most common type of accident is a right-turning car colliding with a bicycle coming from the bike path to the right.

5. What is the most common driving situation with car involved, which lead to severe injury and death?

As it could be seen the major reason is the issue of “not adjusting the vehicle speed to road, weather and traffic conditions” and than it follows the issue of “Violating right of way at junctions” and also takes place in the following “ Other driver faults “:



ROaD EducatiOn Project n. KA220-SCH-BC3E99EA

<b>Total</b>	<b>224 418</b>
<b>Driver faults</b>	<b>195 382</b>
<i>Drunk driving</i>	2 099
<i>Not adjusting the vehicle speed to road, weather and traffic conditions</i>	73 104
<i>Crashing from back</i>	13 709
<i>Driving overspeed</i>	1 941
<i>Violating direction changing (turning) rules</i>	13 516
<i>Passing through places with no-pass prohibition</i>	1 331
<i>Violating right of way at junctions</i>	26 815
<i>Running red lights or violating stop signs of traffic officer</i>	4 801
<i>Crashing to vehicles parked properly</i>	2 894
<i>Violating the general conditions of maneuvers</i>	15 797
<i>Violating the lane following and changing rules</i>	2 955
<i>Violating "no vehicle entry" sign</i>	5 145
<i>Other driver faults</i>	31 275

Figure 7 - Faults causing road traffic accidents involving death or injury, 2021

## 6. Did COVID-19 influence the statistic of traffic accident? Describe the difference between 2019, 2020 and 2021.

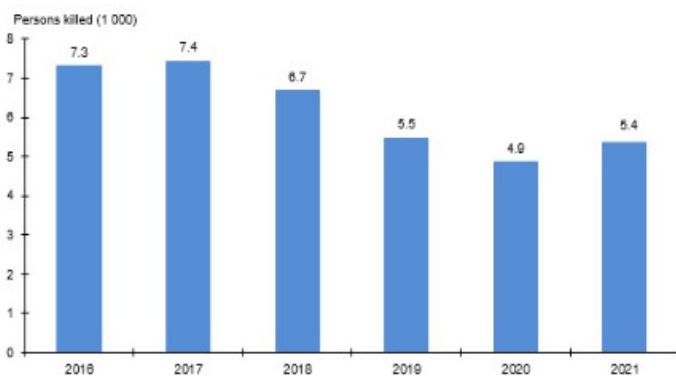
By year 2021 compared to 2020 the year passed under the impact of Covid-19 pandemic, there were increases for total road motor vehicles in traffic by 4.6%, total accidents by 20.6%, accidents involving death or injury by 25.1%, accidents



ROad EducatiOn Project n. KA220-SCH-BC3E99EA

with material loss by 19.8%, total number of persons killed by 10.2% and injuries by 21.4% in Turkey. By year 2019 compared to 2020, there were decreases for total road motor vehicles in traffic.

Number of persons killed at traffic accidents, 2016-2021



Number of persons injured at traffic accidents, 2016-2021

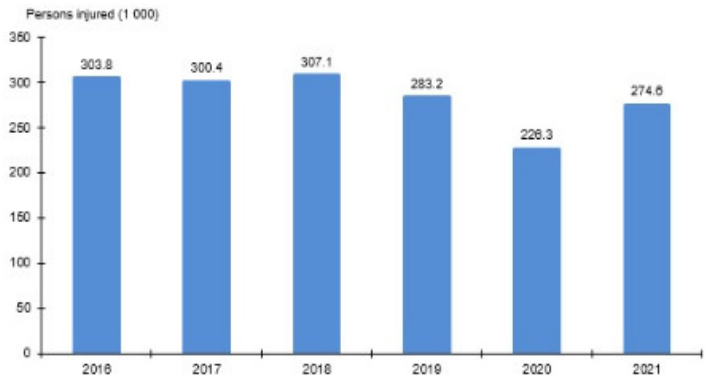


Figure 8 - COVID-19 influence

Table 6 - information divided on age

Age	16 years	17 years	18 years	19 years	20 years
Which school is most common?	Vocational and Technical High school or High School	Vocational and Technical High school or High School	Vocational and Technical High school or High School	University	University
Are teaching in traffic behavior mandatory in the school? If yes how is responsible?	Optional	In vocational high school is mandatory. It is given 1 hour in a week in the curriculum	Optional		



ROaD EducatiOn Project n. KA220-SCH-BC3E99EA

		as "Health Science and Traffic Culture".			
What are the most common used vehicle?	No data	No data	No data	No data	No data

•

Additionally in Turkey, it is mandatory lesson which is called "Health Science and Traffic Culture" for 9 grade student( for 15 years) for high school.

#### 7. At which age are you allowed to get a driving license? Alternative rules

In Turkey, one must be at least eighteen years old in order to drive a car and at least sixteen to drive a motorbike. The driving test comprises a theoretical exam and then a practice exam, which has been recently made tougher in order to meet European Union regulations. Driving courses in Turkey will also take documents from you to register you for a Turkish driver's license, which they will send to the traffic police office when you pass the driving test. Also, to get a Turkish driving license, you must first written exam and pass the practical driving test after passing this test. Furthermore, it is categorized the driver's age and driver licence as in the given chart.



ROad EducatiOn Project n. KA220-SCH-BC3E99EA

Figure 9 - This chart shows that how to take driver licence and its requirements in *Turkey*.

Class	Description	Includes	Valid for	Age	Requirement
<b>M</b>	Moped	-	10 years	16	
<b>A1</b>	Motorcycles up to 125cc	<b>M</b>	10 years	16	
<b>A2</b>	Motorcycles up to 35kw	<b>M - A1</b>	10 years	18	
<b>A</b>	Motorcycles above 35kw	<b>M - A1 - A2</b>	10 years	24	Age 24 or 2 years of experience in A2
<b>B1</b>	Motorcycles (4 wheeled)	<b>M</b>	10 years	16	
<b>B</b>	Car / Pickup	<b>M - B1 - F</b>	10 years	18	
<b>C1</b>	Truck up to 7500kg	<b>M - B - B1 - F</b>	5 years	18	At least Class B License
<b>C</b>	Truck	<b>M - B - B1 - C1 - F</b>	5 years	21	At least Class B License
<b>D1</b>	Minibus	<b>M - B - B1 - F</b>	5 years	21	At least Class B License
<b>D</b>	Bus	<b>M - B - B1 - D1 - F</b>	5 years	24	At least Class B License
<b>BE</b>	Car / Pickup (with trailer)	<b>M - B - B1 - F</b>	10 years	18	Class B License
<b>C1E</b>	Truck up to 12000kg (with trailer)	<b>M - B - BE - B1 - C1 - F</b>	5 years	18	Class C1 License
<b>CE</b>	Truck (with trailer)	<b>M - B - BE - B1 - C - C1 - C1E - F</b>	5 years	21	Class C License
<b>D1E</b>	Minibus (with trailer)	<b>M - B - BE - B1 - D1 - F</b>	5 years	21	Class D1 License
<b>DE</b>	Bus (with trailer)	<b>M - B - BE - B1 - D - D1 - D1E</b>	5 years	24	Class D License
<b>F</b>	Tractor	<b>M</b>	10 years	18	
<b>G</b>	Work vehicle	<b>M</b>	10 years	18	

8. If teaching in schools on traffic safety is mandatory, which learning objective are required?

In 11th Grades; It is planned as a mandatory lesson for 1 hour per week in vocational high school. Moreover, in all our high schools, first aid is planned as a unit in the "Health Science" course.

Learning objectives are based on creation of awareness about "traffic and first aid". Focusing on what's students need while on the traffic and how they act if



ROaD EducatiOn Project n. KA220-SCH-BC3E99EA

accident happens, how first aid could be implemented, knowledge of traffic sign and first aid education. All details about Traffic lesson is given in the context of curriculum. The lessons intensively focus on theoretical area rather than practical one. Students may see more practical lesson such as simulation and real- made car or bike simulation.

#### 9. Is teaching material on traffic safety available?

How is the teaching designed? What are the main educational didactics?

Teaching material is available but not sufficient for students. It is generally used the traffic lesson by the via of curriculum. Focusing on what's students need while on the traffic and how they act if accident happens, how first aid could be implemented, knowledge of traffic sign and first aid education.

#### 10. Are other events and teaching activities used, for improving the traffic education?

How is the event designed? What are the educational didactics?

Teachers are generally use as a material such as lesson books, video, smart board, short videos about safety traffic, role-playing. The lesson is designed as daily traffic events or rules. The main object is that focusing on students awareness about the traffic rules.

### Sources

(Vejdirektoratet, Trafikulykker for året 2018, 2019)





ROaD EducatiOn Project n. KA220-SCH-BC3E99EA

<https://www.statista.com/statistics/438016/number-of-road-deaths-in-turkey/>

[2]TGDH, TURKISH GENERAL DIRECTORATE OF HIGHWAYS,2020-2021

Karayolları üzerindeki seyir ve taşımalar.

[3]<http://www.kgm.gov.tr/SiteCollectionDocuments/KGMdocuments/Istatistikler/SeyirveTasimalar/SeyirVeTasimalar.pdf>

[4]<https://dergipark.org.tr/tr/download/article-file/1214784>