ROAD SAFETY. THE DRIVER'S BEHAVIOUR

Phd. ANDREI IONESCU*
Doctorand School of Law, IOSUD „Titu Maiorescu" University, Bucharest
Associate Lecturer, *Faculty of Law and Economic Sciences in Târgu Jiu*
"Titu Maiorescu" University
ionescu.andrei1202@yahoo.com

DOI: https://doi.org/10.66793/titulaw19proceeding16

Abstract

Road accidents are not merely random events but the result of a combination of interdependent factors: human, technical, environmental, and other contributing factors. The human factor is identified as the main element, both causing situations that lead to accidents and simultaneously bearing their consequences. Research in the field has identified 36 causes of road accidents, most of which are related to driver behavior, which justifies the well-known expression in legal literature that "there are no automobile accidents, only driver accidents."

Road traffic crime represents a major global problem, with devastating effects on human health and life, as well as on the economy, estimated at 2% of the European Union's GDP. According to statistical data, among all persons seriously injured in road accidents on public roads in Romania in 2023, the majority were vehicle drivers (1,623 persons), representing 46% of all seriously injured individuals.

***Keywords**:* road accident, human factor, driver, road safety, crime scene investigation

1. Preliminaries

The causes underlying road accidents have always been a topic of constant interest, both from the perspective of prevention and mitigation. According to some authors, no single dominant circumstance is present in all situations; rather, multiple factors usually contribute to the traffic incident, given that "these accidents are not entirely accidental."[1]

According to Professor Emilian Stancu, road accidents are the result of the "independent or combined action of three factors: human, technical, and road-related."[2] Other authors consider that the factors involved in the genesis of traffic injuries can be classified as follows:

[1] Gheorghe Scripcaru, Mihail Terbancea, *Forensic Pathology*, Didactic and Pedagogical Publishing House, Bucharest, 1978, p. 218.
[2] Emilian Stancu, *Treatise on Criminalistics*, 4th Edition, Universul Juridic Publishing House, Bucharest, 2007, p. 617.

the primary factor – the human; secondary factors (the vehicle and the inappropriate road/access); and facilitating factors[3] (weather conditions, level of illumination, speed, health condition, etc.).

From our perspective, although there are multiple contributing factors, the human element is the most important causal factor in the occurrence of road accidents (whether involving a driver, cyclist, or pedestrian), as it is the human who creates the situation that makes the accident inevitable; yet it is also the human who bears the negative consequences.[4]

Experts in the field have identified 36 causes of serious road accidents[5], most of which are rooted in human behavior, particularly that of the driver. These include: excessive speed relative to road conditions; failure to yield to pedestrians; failure to yield to vehicles; distractions from other activities; improper overtaking; failure to maintain safe distance between vehicles; driving under the influence of alcohol; failure to signal a change of direction; other infractions committed by drivers; driving on the wrong side of the road; driving without a license; falling asleep at the wheel; failure to ensure safety when reversing; unlawful speed; failure to ensure safe lane change; failure to observe railway crossing regulations; ignoring traffic signals; driving under the influence of drugs; failure to obey regulatory traffic signs; physical disabilities or medical conditions; unsafe cargo stability; illegal stopping or parking.

Given the predominance of the human element in generating road accidents, legal literature has vividly highlighted the individual responsibility involved through the expression: "there are no automobile accidents, only driver accidents."[6]

2. Driver Behavior at the Wheel

In the following, we will analyze driver behavior at the wheel, which is the primary circumstance that determines or facilitates the occurrence of road accidents.
It has been rightly said that driving behavior corresponds to one's behavior in society.[7] A person drives as they live and behave in everyday life.

[3] Valentin Iftenie, Dan Dermengiu, *Forensic Medicine*, 3rd Edition, C.H. Beck Publishing House, Bucharest, 2019, p. 191.
[4] Mircea N. Costin, *Criminal and Civil Liability for Violating Traffic Regulations on Public Roads*, Dacia Publishing House, Cluj-Napoca, 1978, p. 19.
[5] https://politiaromana.ro/ro/prevenire/buletinul-sigurantei-rutiere/buletinul-sigurantei-rutiere-raport-anul-2023, accessed today, 14 September 2025.
[6] Emilian Stancu, *op.cit*., p. 617.
[7] Mircea N. Costin, *op. cit.*, p. 20.

As shown by data provided by specialists, among all persons seriously injured in road accidents on public roads in Romania in 2023, the majority were vehicle drivers (1,623 individuals), representing 46% of all seriously injured persons.[8]

The main components supporting driving behavior have been identified as[9]: sensory component[10]; memory component[11]; attention[12]; intellectual component and thinking[13]; affective-emotional component[14]; motivational component[15]; volitional and self-control component[16]; evaluative component[17]; motor-executive component[18]; and personality factors.[19]

Driver behavior is influenced by a series of factors, as will be discussed in the following sections.

[8] *Road Safety Bulletin – 2023 Report*, https://politiaromana.ro/ro/prevenire/buletinul-sigurantei-rutiere/buletinul-sigurantei-rutiere-raport-anul-2023, accessed today, 15 September.
[9] Constantin D. Blaj, *Driver Behavior*, Medical Publishing House, Bucharest, 1982, pp. 53 et seq.
[10] It refers to the information received by the driver from various sources, namely: from the vehicle itself (regarding its condition and operating mode); from the route (including the system of road signs and signals, information obtained from other traffic participants, etc.); from the surrounding environment (signals derived from weather phenomena such as fog or precipitation); or from the passengers inside the vehicle, who can be passive or active sources of signals. Even the driver themselves represents a source of information for their own actions.
[11] It refers to the driver's behavior at the wheel, using informational and instrumental elements—specific, developed, and previously learned—in regulating driving behavior, with memory being an absolutely indispensable component.
[12] It is a mental function through which orientation and selective concentration of mental activity are achieved on a limited set of objects, phenomena, and defined actions, driving being considered an activity that is, par excellence, attention-dependent.
[13] They should not be neglected, as road traffic creates numerous new problematic situations for the driver, which require rapid orientation and the identification of the most appropriate solution strategy. It is evident that in such critical situations, the involvement of intelligence becomes absolutely indispensable.
[14] It is considered a permanent component in the structure of any activity and is also present during driving, with the driver experiencing various emotional states and feelings: surprise, alertness, fear, fright, or astonishment at one end, and joy, delight, or exhilaration at the other. The dynamics of emotional experiences involved in driving behavior depend not only on the objective characteristics of the stimuli but also on the person's affective typology (hypoemotional, normoemotional, or hyperemotional).
[15] It manifests as a complex of tendencies, impulses, needs, interests, and ideals, which perform the functions of initiation, orientation, and support. Every driver must be aware of the motives that exert a positive influence and those that have a disorganizing effect, in order to reinforce the former and reduce or eliminate the latter.
[16] Driving is a voluntary activity, in the performance of which the mobilization and deliberate orientation of the personality system intervene in relation to a specific set of tasks and in accordance with a particular goal.
[17] It is included in the structure of any activity, and therefore also in driving, alongside the operations and actions directly oriented toward solving specific tasks and achieving the expected performance.
[18] Without which a behavior oriented toward acting on an external object cannot be conceived, depending on the involvement of deliberation and conscious control in its execution. The motor components are divided into: involuntary or unconditioned, voluntary or intentional, and automated.
[19] In addition to the so-called directly operative components, such as cognitive, volitional, motivational, and affective ones, behavior is also supported by dynamic-energetic coordinates defined as personality factors.

2.1. Reaction Time

Among the factors playing an important role in the occurrence of road accidents is reaction time, which varies from individual to individual depending on temperament, age, and other conditions. In older adults, reaction time is slower than in younger people. However, older individuals are involved in fewer accidents than younger ones. This phenomenon can be explained by the greater caution exhibited by older drivers compared to younger ones. Prudence in driving compensates for the reduced reaction speed and generally allows potentially dangerous situations—requiring faster reactions—to be avoided.[20]

By age group, young drivers aged 18–19 are responsible for the highest number of serious road accidents, while the lowest accident rate is recorded among individuals aged 61–66.[21] A possible explanation is the experience gained in traffic over time. Younger drivers, having less experience, are more likely to be involved more frequently in serious road accidents.

Regarding the age of driving license holders, most are between 31 and 50 years old, followed by those aged 51–70. The proportion of license holders varies across age groups: the largest group consists of individuals aged 31–50, followed by those aged 21–30.[22]

2.2. Excessive Speed

Excessive speed plays a particularly important role in the occurrence of road accidents. Driving at excessive speed is sometimes the result of alcohol consumption, and other times a manifestation of aggressiveness and recklessness. Regardless of its cause, excessive speed remains the main factor in road accidents.

In Romania, in 2023, speed inappropriate for road conditions caused 545 accidents, resulting in 173 deaths and 375 serious injuries, with a mortality rate of 40%.[23] Similarly, in 2023, unlawful speed caused 57 serious road accidents, resulting in 37 deaths and 38 serious injuries, with a mortality rate of 64.9%.

Experts indicate that in the first seconds after sudden braking at a speed of 80 km/h, the weight of the driver's heart and that of any passenger increases from 300 g to 5 kg; the

[20] Mircea N. Costin, *op. cit.*, p. 21.
[21] *Road Safety Bulletin – 2023 Report* https://politiaromana.ro/ro/prevenire/buletinul-sigurantei-rutiere/buletinul-sigurantei-rutiere-raport-anul-2023, accessed today, 15 September.
[22] Ibidem.
[23] *Road Safety Bulletin – 2023 Report*, https://politiaromana.ro/ro/prevenire/buletinul-sigurantei-rutiere/buletinul-sigurantei-rutiere-raport-anul-2023, consulted today, 14 September 2025.

weight of the blood rises from 5 kg to 85 kg; and the weight of the brain increases from 1.5 kg to 25 kg. At higher speeds, these coefficients increase even further.[24]
In the same context, it is noted that the impact of a vehicle with a hard object[25] at the following speeds is equivalent to falling from a building of the corresponding height: 60 km/h: equivalent to a fall from a three-story building, 80 km/h: equivalent to a fall from a six-story building, 100 km/h: equivalent to a fall from a ten-story building, 120 km/h: equivalent to a fall from a fourteen-story building.

These significant physiological changes can lead to severe health consequences, such as myocardial infarction, cerebral hemorrhage, or organ rupture. In collisions, some passengers can be projected with a force 10–20 times greater than their normal body weight. Survival chances in such cases are minimal.

It should be noted that, according to the WHO, the risk of death in road accidents could be reduced, among other measures, through: using seat belts – which can reduce the risk of death for vehicle occupants by up to 50%; using child safety systems – which can reduce child fatalities by up to 71%; proper use of helmets – which can reduce the risk of death in road accidents more than sixfold and head injuries by up to 74%.

2.3. Balance of Mental Functions

Considered one of the most important factors decisively influencing a driver's behavior is the balance of their mental functions. Concentration and foresight, attention, and the driver's experience are defining elements of such a balance.[26]

The aptitude or ability to drive is assessed and determined according to the individual's psychological qualities. This aptitude requires a perfect harmonization of neuropsychological faculties. Consequently, an imbalance in these faculties proportionally diminishes the ability to operate a vehicle and creates a constant risk of accidents.

In 2023, lack of attention caused 224 serious road accidents, resulting in 90 deaths and 160 serious injuries, yielding a mortality rate of 52.0%. The most frequent cause was the use of mobile phones while driving, which increases the risk of an accident fourfold. Even when used for navigation, the route should be set before starting the journey.[27]

---

[24] Mircea N. Costin, *op. cit.*, p. 21.
[25] We Say YES to Traffic Safety, p. 6, www.cnadr.ro/sites/default/files/siguranta_circulatiei_final.pdf
[26] Ibidem.
[27] Few of us realize that what we today call a mobile phone is actually an information system that distracts our attention through the notifications we receive, which we read—or, more dangerously, respond to—while

2.4. Experience and Practice in Driving

Experience and practice in driving can significantly contribute to avoiding involvement in road accidents. It should be noted that driving experience does not necessarily equate to holding a driver's license for a long time, as a person may not have driven actively.

Practically, experience is accumulated by driving at least tens of thousands of kilometers annually. Experience and practice lead to the formation of automatisms and have positive effects on perception, reaction time, and the anticipation of other traffic participants' behavior.

According to statistical data, by the end of 2023, the number of driving license holders in Romania was 8,669,974, representing 45.5% of the total population and 56.6% of the adult population.[28]

Observing the distribution of drivers culpably involved in serious road accidents in 2023 according to license tenure, it was found that the majority of such accidents were caused by drivers with 1 to 5 years of experience. They represent 25% of the total involved in these incidents. The second-largest group comprises drivers with less than one year of license experience (20.1%). In line with numerous analyses, these data indicate that driving experience is a significant factor influencing the likelihood of road accidents.
However, a portion of road accidents is due to unlicensed driving. In 2023, this caused 105 serious road accidents, resulting in 39 deaths and 350 serious injuries, yielding a mortality rate of 61.3%.

Lack of experience or attention may manifest through failures such as not ensuring safe lane[29] changes, insecure cargo stability[30], improper reversing[31], and other risky maneuvers.

2.5. Fatigue

driving. Unnoticed, this system becomes indispensable and tends to subordinate us, transforming us from an active subject into a superfluous element, an extension of the car.

[28] In reality, given the number of people who actually reside in the country (much lower than the official figure), the percentage of individuals holding a driver's license is considerably higher.
[29] In 2023, it caused 23 serious road accidents resulting in the death of one person and the serious injury of 23 others, yielding a mortality rate of 4.3%.
[30] In 2023, it caused 2 serious road accidents resulting in the death of one person and the serious injury of 2 others, yielding a mortality rate of 50%.
[31] In 2023, it caused 88 serious road accidents resulting in the death of 14 people and the serious injury of 74 others, yielding a mortality rate of 15.9%.

Maintaining mental faculties, sensory acuity, and an adequate reaction speed—sine qua non conditions for proper vehicle operation—requires avoiding fatigue. The onset of fatigue in a driver often leads to a sudden micro-sleep lasting only a few seconds, without any warning signs. However, a few seconds at a speed of 60–80 km/h means covering tens or even hundreds of meters—a distance sufficient for an accident to occur. Accumulated fatigue while driving significantly increases the likelihood of traffic incidents, with the risk of an accident doubling after driving approximately 500 km.

Contrary to the belief of many drivers, driving is not a means of relaxation but rather a form of physical and mental overexertion. Therefore, assessing fatigue must take into account prior work, driving duration, and other factors that may exacerbate it, such as traffic intensity, road terrain, and cabin conditions.[32]

The first signs of fatigue include increased irritability, frequent opening and closing of windows, adjusting one's hair by hand, smoking more intensively, a tendency for the head to tilt toward the steering wheel, and repositioning the seat. Practically, after the first four hours of driving, a significant reduction in attention, slower reactions, fixed gaze on the road, and heightened nervous tension can be observed.

With excessive fatigue, after more than eight hours of driving, micro-naps of 0.5 seconds, perception changes, blurred object contours, narrowed visibility, a tendency for nocturnal hallucinations, increased reaction time, weakened motor coordination and dexterity, and heaviness in eyelids and limbs with a tendency to close the eyes may occur.

It should be noted that the negative effects of fatigue are more pronounced in older drivers; for example, reaction time after eight hours of driving increases by 40% in drivers under 45 years old and by 60% in those over 45.

Statistical data also show that in 2023, drivers who fell asleep at the wheel caused 93 accidents, resulting in 57 deaths and 84 serious injuries, yielding a mortality rate of 61.3%.[33]

2.6. Personality and Social Adaptability

Personality and social adaptability of traffic participants are also important factors in determining or facilitating the occurrence of traffic accidents.

[32] Aurel Stătescu, *The Human Factor in Road Traffic*, in *Autoturism*, no. 8/1972, p. 10, cited in Mircea N. Costin, p. 20.

[33] Bulletin of Road Safety – 2023 Report, Poliția Română, accessed today, 14 September 2025, https://politiaromana.ro/ro/prevenire/buletinul-sigurantei-rutiere/buletinul-sigurantei-rutiere-raport-anul-2023.

Observing the postmodern individual and their approach to road traffic, several behavioral traits and sociological/psychological explanations emerge.

It is indisputable that contemporary reality reduces the infinite variety of human connections, fragments values, and the postmodern individual lives in a world without firm landmarks, with negotiable and often contested rules. This societal value relativism is reflected in traffic: traffic rules are perceived as "flexible," and adherence depends on personal interest.

The acceleration of life's pace, time pressure, multitasking, and speed culture lead drivers to rush, downplay the importance of rules, or seek shortcuts. Each traffic participant tends to prioritize their own interest (reaching faster, not losing priority, avoiding waiting) over the collective interest.

In this context, key personality traits include: aggressiveness – manifested through gestures, honking, sudden maneuvers, risky overtaking, and ignoring safe distances; competitiveness – the road becomes a "competition space" where the individual asserts status, power, or releases daily frustrations; impulsiveness and impatience – drivers struggle with waiting at traffic lights[34], traffic jams, or adhering to speed limits; social anonymity – inside the car, the individual feels "hidden," which allows less controlled behaviors (similar to dynamics in social media); externalization of frustrations – traffic becomes a field to release tensions accumulated at work, at home, or in daily interactions.

These factors, individually or collectively, can lead to situations where accidents become likely. Consequently, they are incompatible with traffic safety. Even as a non-specialist, but as a traffic participant—pedestrian, cyclist, or driver—I consider that these behaviors can be explained by: frustration–aggressiveness: jams, delays, perceived injustice (that "others don't follow rules") trigger aggressive responses; herd effect: aggressive behaviors can spread (if one forces entry into an intersection, others follow); culture of narcissism (described by sociologists such as Lasch): the postmodern individual has a fragile ego and reacts disproportionately to minor provocations ("they cut me off, so they disrespect me"); deindividuation theory: a person feels less responsible when in a crowd (in traffic, within a high flow of cars).

[34] As a daily participant in road traffic, in the role of a pedestrian, I have observed that, even when the traffic light is orange, drivers "run the light," even though 50 meters ahead there is another traffic light showing red. In practice, the driver gains nothing from this behavior, only endangering the safety of pedestrians and other road users.

Potential consequences include: illegal overtaking[35], not respecting safe distance[36], driving in the opposite lane[37], ignoring railway crossing rules[38], and disobeying traffic lights[39]. All these increase the number of conflicts and accidents, create a tense and unsafe climate, and erode social trust: each driver perceives others as "adversaries" rather than co-participants in a shared space.

This situation in Romania is confirmed by the fact that, between 2022–2025, the police issued over 10,000 fines for aggressive driving. In the first three months of 2025, nearly 1,300 fines were issued for aggressive driving, compared to around 1,000 in the same period of the previous year[40].

2.6. Balance of Psycho-Motor Faculties

The balance of psycho-motor faculties of a vehicle driver can be significantly disturbed as a result of the ingestion of alcohol, drugs, or medications.

A) Alcohol Consumption

Alcohol consumption is one of the causes that can generate traffic incidents, as even a small amount can negatively affect driving behavior, particularly visual capacity and reaction time.

Depending on blood alcohol concentration (BAC), the following effects[41] have been observed:

1. BAC 0.2–0.3‰ – Errors in responding to visual and auditory stimuli increase, unjustified courage appears which can lead to imprudence, and in about 30% of subjects, reaction time increases by 10–20%.

[35] In 2023, it caused 200 serious road accidents resulting in the death of 104 people and the serious injury of 164 others, yielding a mortality rate of 40.2%.
[36] In 2023, it caused 156 serious road accidents resulting in the death of 45 people and the serious injury of 160 others, yielding a mortality rate of 52%.
[37] In 2023, it caused 117 serious road accidents resulting in the death of 61 people and the serious injury of 94 others, yielding a mortality rate of 52.1%.
[38] In 2023, it caused 16 serious road accidents resulting in the death of 18 people and the serious injury of 6 others, yielding a mortality rate of 112.5%.
[39]In 2023, it caused 12 serious road accidents resulting in the serious injury of 12 people.

[40] As shown in the study *"Social Attitudes Regarding Traffic Risk 2022"* (Romanian Police / Cult Market Research).
[41] Radu Gaiginschi, *Reconstruction and Expert Analysis of Road Accidents*, Tehnică Publishing House, Bucharest, 2009, p. 392.

2. BAC 0.3–0.5‰ – Depth perception is impaired, speeds of other vehicles are misjudged, visual perception disorders occur, and reaction time increases by approximately 25%.
3. BAC 0.4–0.8‰ – The visual field is reduced by 120° without the driver noticing, delaying the perception of lateral hazards and increasing reaction time. Distances to vehicles in front or behind are misjudged, and balance disturbances may occur, impairing perception of accelerations in curves.
4. BAC 1‰ – Adaptation to darkness is slower, decisions are delayed, motor reactions become confused, and driving becomes unsafe.

Individual reactions to alcohol depend on stature, weight, type of beverage, concomitant food intake, association with medications (which can potentiate alcohol's effect), pathological states, fatigue, and sex (women generally reach higher BAC faster than men of the same weight).

Alcohol metabolism occurs in three phases: absorption (15 minutes to 2 hours depending on stomach contents), equilibrium, and elimination. The liver synthesizes alcohol dehydrogenase to metabolize 90% of alcohol, with the remainder eliminated via breath, sweat, and urine. The metabolism rate is 0.15‰ per hour and is not influenced by coffee, cigarettes, or physical exercise.

According to 2023 statistics, drivers under the influence of alcohol caused 151 accidents, 65 deaths, and 119 serious injuries, resulting in a mortality rate of 43%[42].

B) Drug Consumption

Drug consumption affects driving capacity depending on the type and amount consumed, absorption, and elimination.

Most research has focused on cannabis-derived drugs. The primary psychoactive agent is Δ^9-THC, which rapidly metabolizes into 11-OH-Δ^9-THC (short-lived psychoactive metabolite) and then into Δ^9-THC-COOH (main non-psychoactive metabolite detectable in blood and urine).

The methods for detecting and measuring drugs in blood and urine are: F.P.I.-A (Fluorescent Polarization Immunoassay) and GC/MS (Gas Chromatography/Mass Spectrometry).

[42] Road Safety Bulletin – 2023 Report, Poliția Română, accessed today, 14 September 2025.

The consequences of drug use are: decreased coordination of movements, imprecise movements, body imbalance, increased reaction time, delayed perception of hazards in traffic, loss of direction (observed even with inhalation of small doses, with effects lasting up to 8 hours), and delayed decision-making when reacting to dangers, as a result of late risk assessment.

Devastating consequences on driving behavior have been observed in the case of combined alcohol and drug use, with the following notable aspects[43]:

1. If a blood alcohol concentration of 0.4‰ is combined with 100–200 µg/kg body weight THC, driving becomes unstable and reaction time increases considerably;
2. The combination of 0.4‰ alcohol with 100 µg/kg body weight THC produces behavior similar to a 0.9‰ blood alcohol concentration;
3. The combination of 0.4‰ alcohol with 200 µg/kg body weight THC generates behavior equivalent to a 1.4‰ blood alcohol concentration.

In 2023, drivers under the influence of drugs caused 8 accidents, 3 deaths, and 37 serious injuries, resulting in a mortality rate of 37.5%[44].

C) Medication Consumption

The use of medication can influence driving. This is why the package leaflet, which contains information for users, generally includes a section titled "Driving vehicles and using machinery," in which the manufacturer indicates whether or not the respective medication affects this ability.

The following categories of medications influence driving: hypnotics – bromoval, cyclobarbital, extraveral, phenobarbital; tranquilizers or sedatives – rudotel, rusedal; anxiolytics – diazepam, meprobamate, napoton; antihistamines – Benadryl, pheniramine, Romergan; antispasmodics; analgesics. Natural psychotropic substances – morphine, cocaine, heroin – or synthetic ones – amphetamines – generate dependence, and research has concluded that habitual drug users exhibit less dangerous driving behavior than those who occasionally experience toxic effects.

[43] Marie-Berthe Biecheler, *Cannabis, Driving and Road Safety: An Analysis of the Scientific Literature*, Observatoire National Interministériel de Sécurité Routière, February 2003, p. 17.
[44] Road Safety Bulletin – 2023 Report, https://politiaromana.ro/ro/prevenire/buletinul-sigurantei-rutiere/buletinul-sigurantei-rutiere-raport-anul-2023, accessed today, 14 September 2025.

The method for determining whether a traffic accident occurred due to the ingestion of medications contraindicated for driving is a medico-legal examination, which will conclude, depending on the drug, the duration, and the type of behavioral reaction.

The negative consequences of taking certain types of contraindicated medications include: increased reaction time to hazards, decreased visual acuity, reduced attention and concentration, and drowsiness[45].

At the opposite end are amphetamines, which, by increasing mental performance, initially produce an exaggerated sense of self-confidence that leads to reckless driving, with the final reaction resulting in physical and mental exhaustion, which may be even more dangerous.

Other physical reactions that may be observed include: slowed physical and mental reactions for more than 2 hours after taking sedatives; reduced attention and coordination after taking barbiturates; decreased attention and control, hyperexcitability after taking antidepressants.

The annex to Order No. 87/2003, for the approval of the list of medical conditions incompatible with the status of motor vehicle or tram driver and the list of psychoactive substances contraindicated for drivers (narcotic products or substances, or medications with similar effects)[46], establishes the psychoactive substances prohibited for drivers. Order No. 1,162/2010[47] establishes the list of medical conditions incompatible with the status of motor vehicle or tram driver, also approving the list of psychoactive substances contraindicated for drivers (narcotic products or substances, or medications with similar effects).

In 2023, those who drove with medical conditions caused 4 accidents, resulting in 2 deaths and 2 serious injuries, yielding a mortality rate of 50%[48].

Recently, especially among young people, combinations of the three types of substances causing traffic accidents have appeared in different forms and doses.

2.7. Driver Health

[45] Constantin Scripcaru, Mihai Covalciuc, *Road Accidents*, Panfilius Publishing, Iași, 2004, p. 38.
[46] Published in the Official Gazette of Romania, no. 597, August 22, 2003.
[47] Published in the Official Gazette of Romania, no. 807, October 4, 2003.

[48] Road Safety Bulletin – 2023 Report, https://politiaromana.ro/ro/prevenire/buletinul-sigurantei-rutiere/buletinul-sigurantei-rutiere-raport-anul-2023, accessed today, 14 September 2025.

According to statistics, the driver's health accounts for 4% to 6% of road accidents. Health problems can lead to: sudden death at the wheel, loss of consciousness due to chronic conditions, temporary loss of vision or other senses, etc.

Two categories of illnesses affecting road safety have been identified: diseases incompatible with holding a driving license and conditions that influence the driver's behavior at the wheel.

In 2023, those who drove with disabilities or medical conditions caused 4 accidents, resulting in 2 deaths and 2 seriously injured, yielding a mortality rate of 50%[49].

2.8. Driver Gender

Although less analyzed, gender is an important variable in assessing the risk of causing a serious road accident. Deriving from differences in certain psychological characteristics that influence attitudes and driving behaviors, drivers' gender describes the different involvement of women and men in serious road incidents. Women's involvement in causing serious road incidents is much lower than that of men.

In 2023, serious road incidents involved a number of women (whether at fault or not) six times lower than men. Likewise, 5.7 times fewer women were found at fault in serious road accidents (these aspects should, however, be correlated with the presence of the two gender categories in traffic, as the number of men holding a driving license is almost twice that of women).

As shown by the distribution of at-fault drivers in serious road accidents by gender and age, both men and women aged between 19 and 24 are responsible for a higher number of such incidents compared to other age groups[50] (18.2% of men and 17.4% of women who caused serious accidents were in this age range).

2.9. Driver Stress

Finally, to conclude the enumeration of factors that determine or favor the occurrence of traffic accidents—which we do not present as exhaustive, but merely as illustrative—it should be noted that, according to the assessment of some earlier specialists of high scientific

[49] Ibidem.
[50] Road Safety Bulletin – Report for the year 2023, https://politiaromana.ro/ro/prevenire/buletinul-sigurantei-rutiere/buletinul-sigurantei-rutiere-raport-anul-2023, accessed today, 14 September 2025.

authority in the field of medicine[51], among these factors the driver's state of stress must also be mentioned. This stress is generated by the aggressive factors for the body that abound in road traffic.

Research conducted using this method has shown that, in drivers, the most pronounced neuro-vegetative reactions occur with decreasing intensity in situations such as: overtaking on winding roads with limited visibility; starting from a stop; high-speed overtaking; ascending winding roads during periods of heavy traffic; race starts; moments of inattention when the driver is forced to respond to various questions, etc[52]. Stress gradually reduces and ultimately eliminates the vegetative and psychological condition necessary for driving.

Medical research highlights that the effort of driving causes an increase in urinary catecholamines, along with a rise in corticosteroid hormones. These effects of hormones secreted under stress negatively influence the driver's psychology and behavior. They are reflected in the mistakes made by the driver, in moments of euphoria that sometimes characterize them, and in the aggressiveness they may display in certain circumstances.

However, the stress experienced by a driver during driving can be reduced to reasonable levels through training in vehicle operation under a wide variety of conditions, and by abstaining from substances that amplify such a state (alcohol and other nervous system stimulants). A driver enters a state of stress only under completely exceptional circumstances.

3. Conclusions

The scourge of road accidents at the global level will lead to the death of 13 million people and the injury of 500 million over the next decade.

In 2023, in Europe, approximately 20,418 people lost their lives, while in Romania, 4,527 serious road accidents occurred, events which caused the death of 1,545 people, the serious injury of 3,537 people, and the minor injury of another 2,172 people.

It should also be mentioned, not least, the significant material damages generated by these events, consisting of partial or total degradation of the vehicle involved in the accident, as well as the costs associated with treating the injuries suffered by the victims of road accidents, which can result in different degrees of disability or a major deterioration in

[51] Ștefan Milcu, *Driving – a Stress Factor*, in *Autoturism*, no. 10, 1972, p. 12, cited in Mircea N. Costin, p. 24.
[52] Ibidem.

quality of life. The annual cost of these injuries is estimated at 2% of EU GDP, as mentioned in the Report on the EU Road Safety Policy Framework 2021–2030 – Recommendations on the Next Steps toward "Vision Zero."

In the present study, we have tried to offer as complete a perspective as possible on the phenomenon addressed, combining legal, statistical, psychological, and social aspects.

Bibliography

[1] Valentin Iftenie, Dan Dermengiu, *Forensic Medicine*, 3rd Edition, C.H. Beck Publishing House, Bucharest, 2019.;
[2] Gheorghe Scripcaru, Mihail Terbancea, *Forensic Pathology*, Didactic and Pedagogical Publishing House, Bucharest, 1978;
[3] Emilian Stancu, *Treatise on Criminalistics*, 4th Edition, Universul Juridic Publishing House, Bucharest, 2007;
[4] Mircea N. Costin, *Criminal and Civil Liability for Violating Traffic Rules on Public Roads*, Dacia Publishing House, Cluj-Napoca, 1978;
[5] Constantin D. Blaj, *Behavior Behind the Wheel*, Medical Publishing House, Bucharest, 1982;
[6] Radu Gaiginschi, *Reconstruction and Expertise of Traffic Accidents*, Technical Publishing House, Bucharest, 2009;
[7] Marie-Berthe Biecheler, *Cannabis, Driving, and Road Safety: An Analysis of the Scientific Literature*, Interministerial National Road Safety Observatory, February 2003;
[8] Constantin Scripcaru, Mihai Covalciuc, *Traffic Accidents*, Panfilius Publishing House, Iaşi, 2004;
[9] Ştefan Milcu, *Driving – a Stress Factor*, in *Autoturism*, no. 10, 1972;
[10] Aurel Stătescu, *The Human Factor in Road Traffic*, in *Autoturism*, no. 8/1972;

Websites

- Road Safety Bulletin – 2023 Report, https://politiaromana.ro/ro/prevenire/buletinul-sigurantei-rutiere/buletinul-sigurantei-rutiere-raport-anul-2023, accessed today, September 15, 2025.

- https://politiaromana.ro/ro/prevenire/buletinul-sigurantei-rutiere/buletinul-sigurantei-rutiere-raport-anul-2023, accessed September 14, 2025.

- We Say YES to Road Safety, p. 6, www.cnadr.ro/sites/default/files/siguranta_circulatiei_final.pd