

DANGEROUS DRIVER'S BEHAVIOR

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ABSTRACT. Different types of dangerous driver's behavior are discussed in this paper. Case study analysis of young drivers' hazardous behavior is also provided from authors' practices. The practical research is collaborated with the statistical data that aggressive driving induces the number of fatalities on the roads in the Czech Republic by 25%. The improvement to driver's training and other countermeasures is then suggested.

KEYWORDS: dangerous driving behavior, driver training, road safety.

Year	Number of accidents	Number of fatalities	Number of severe injuries	Number of light injuries
2010	75522	753	2823	21610
2011	75137	707	3092	22519
2012	81404	681	2986	22590
2013	84398	583	2782	22577
2014	85859	571	2409	18074
2015	93067	660	2540	24426

TABLE 1. Evolution of basic indicators of accidents in 2010-2015.

1. INTRODUCTION

Road transport occupies a significant segment in transportation in general and due to its high accident rates and hence economical losses, considering the affecting factors is rather crucial for safety improvement. Road traffic safety may be characterized by direct and indirect safety indicators. Direct indicators are the number of road accidents, their consequences and economical losses. Indirect indicators are phenomena or circumstances that project safety assessment into experimental plane of relations between human behavior and transportation safety (following the speed limits, application of safety systems, maintaining safe distances between vehicles, estimation and anticipation of errors in real traffic).

High traffic intensity on roads is a reason of high workload for car drivers. This overload is related to the number of accidents in the Czech Republic, which, despite various measures for its reduction in comparison with other European countries, is still very high. Traffic accidents are a major social issue.

The table tracks a noticeable increase of fatalities in traffic accidents. Number of light and heavy injuries increases as well.

One may notice a constant increase in total number of accidents. In 2015 total of 93,067 accidents was

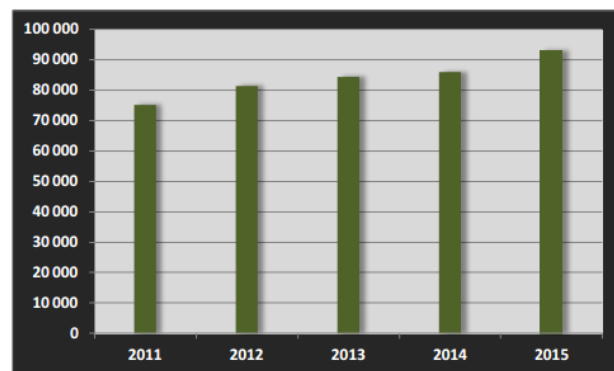


FIGURE 1. Total number of recorded accidents in the Czech Republic from 2011-2015.

reported and investigated. For example, compared to 2014, there were about 7,208 more accidents in 2015. Every day the Czech Police has conduct around 255 accident investigations on average. This is equal to approximately 14.901.712,00 CZK of property losses every day[1].

2. DANGEROUS DRIVER'S BEHAVIOR

Among other factors, aggressive driving contributes to traffic accidents to a high extent. Per ÚAMK, 91% of drivers have been exposed to aggressive driving to a certain extent. Under the term of dangerous driver's behavior, we may assume the one that is in contradiction to official and so-called unofficial or non-written rules, an unexpected, aggressive or unusual and non-customary behavior on the road[2].

Human behavior is diverse. Driver's behavior differs from every person. It is possible to categorize dangerous behavior from different perspectives. Inattentive driving can be related to dangerous behavior as it is, besides speeding, the most common cause of traffic accidents. Another category is driving while being involved in some secondary activities that are not related to vehicle control. These are smoking, talking



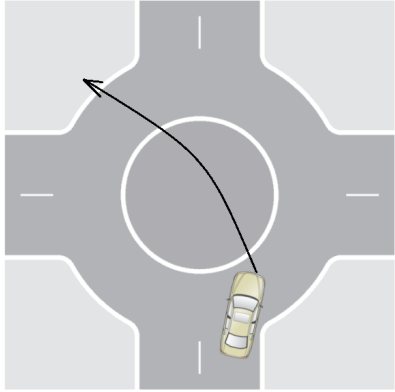
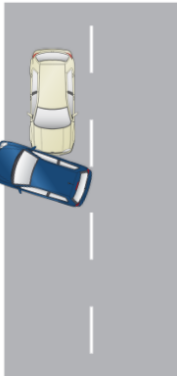
Accident #1		Accident #2	
Time of accident:	5:15 am	Time of accident:	6:54
Road class:	II	Road class:	II
Road section type:	Roundabout 	Road section type:	Two-way road 
Weather conditions	8°C, clear	Weather conditions	12°C, clear
Driver's age:	25 y.o.	Driver's age:	28 y.o.
Vehicle		Vehicle	
Car make:	Audi A6	Car make:	Suzuki Swift
Year of issue:	2001	Year of issue:	2004
Outcomes		Outcomes	
# of fatalities:	3 – immediate (including driver), 1 – in hospital	# of fatalities:	3 – immediate (including driver)
# of severely injured:	2	# of severely injured:	3
<i>Description:</i> Driver approached and entered the roundabout without any or with low speed reduction and thus couldn't manage the turning but ran across the safety island in the middle of roundabout and broke through the roundabout fence ended up on a roof in retention tank. Accident sketch can be seen in the image bellow.		<i>Description:</i> Driver exit the lane and with right vehicle side hit front of vehicle in an opposing traffic. Accident sketch can be seen in the image bellow.	
			

TABLE 2.



FIGURE 2. Damaged vehicles from accident 1 (left) and accident 2 (right).

on the phone while driving, eating, drinking, involving into conversations with other passengers and so on. A driver's personality, psychological and medical condition, lack of knowledge of traffic rules can be the risk itself[3]. These and many features of driver's behavior that can be gathered under one term of aggressive driving. Committing traffic violations can occur both because of negligence, and unintentionally[4]. Driver's age is also one of the factors that influences road safety. Lack of experience of novice drivers can cause a potential danger in traffic situations as well as deteriorating physical state of senior drivers[5]. Hence, we can categorize dangerous behavior by age or driving experience.

Young drivers (age group under 24 years old) are said to be the highest risk group of drivers in age-wise[6]. They lack the capacity to adequately evaluate dangerous situations, they tend to overestimate their own abilities, have little driving experience and, therefore, fewer skills in vehicle control. Beginner drivers are often subject to influence of opinions of other car occupants, they often drive vehicles in poor technical condition and tend to drive high-speed powerful vehicles and thus are exposed to a false feeling of safety.

Statistical research confirms that young drivers are referred as the most dangerous group. They, more often than others, exceed the speed limit, overtake in sections with low visibility road sections or when not allowed and tend to hit the red traffic light signal. In this group there are also individuals who tend to drive more often under the influence of alcohol and other drugs. Young male drivers tend to take more risky maneuvers, rather than young women who tend to avoid dangerous situations, by extent and frequency. Young males are also less attentive than females of the same age category. It is, of course, worth noticing that percentage of female drivers in general is still lower than that of male, women drive less in general (kilometers-wise)[7, 8].

Driving school instructors in many European countries believe that nowadays, young drivers behave more hazardously on the road, not realizing the potential threat of accidents and their consequences. Speeding is associated with masculinity. Nowadays, young drivers' attention, compared to the one in the past, is affected by many disturbing factors such as advertising and bill-boards, loud car acoustic systems, mobile phones etc. Driving instructors believe that it may be necessary to reconsider approach to young driver training in terms of study program duration and extension of training programs on driving simulators[9].

3. TRAFFIC ACCIDENTS WITH PARTICIPATION OF YOUNG DRIVERS – CASE STUDY

Information for the following study is based on authors' personal practice of forensic expertise. The

expert evaluation of vehicles has been performed, the technical information is given in Table 2.

The two accidents have some typical features in common. Both drivers were from the dangerous group – young drivers. In each case, the accident took place at early morning hours, which makes experts relate to so called "after party" accidents. Both were older cars, which may have affected the severity of consequences. The number of passengers at the time of the accident was higher than allowed (6 car occupants in both cases).

4. CONCLUSION

Dangerous behavior of younger drivers is a reason of many fatal accidents on the roads. One of the important reasons is lack of training for new drivers, which should include both psychological preparation of novice drivers and extensive practical training. Also lack of experience is one of the reasons younger drivers overestimate their ability to handle vehicle at high speeds or while turning, neglect the car technical state (old cars) or its power (new cars). This aspect shall be addressed along with other valid methods of accidents rate reduction[10].

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