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## **AGGRESSIVE BEHAVIOUR OF DRIVERS IN SLOVAKIA AFFECTING ROAD SAFETY**

**Summary.** Driving a car does not mean only controlling it and bringing it to the destination but it is also a social interaction of drivers towards each other, where emotions play an important role. Destructive emotions e.g. anger worsen the ability of making a decision. And it also holds for the people behind the steering wheel.

Abroad, the questionnaires used for the detection of potential aggressive drivers, or diagnostics of drivers who already have a driving license, have a form of survey. In year 2010 was realized a questionnaire about aggressive behavior of drivers in Slovak republic from which came out very interesting information. Some information is mentioned in this paper.

## **WPLYW AGRESYWNEGO ZACHOWANIA KIEROWCÓW NA SŁOWACJI NA BEZPIECZEŃSTWO W RUCHU DROGOWYM**

**Streszczenie.** Jazda samochodem obejmuje nie tylko kontrolę nad samochodem i dotarcie nim do celu, lecz także relacje społeczne kierowców wobec siebie, stanowiąc obszar, na którym emocje odgrywają ważną rolę. Destruktywne emocje, na przykład złość, upośledzają zdolność podejmowania decyzji. To dotyczy również ludzi za kierownicą samochodu.

Zagranicą prowadzi się badania ankietowe o charakterze przeglądowym w celu diagnozowania skłonności do agresji u osób posiadających już prawo jazdy. W roku 2010 przeprowadzono badania ankietowe dotyczące agresywnego zachowania kierowców na Słowacji, z których wynikają bardzo interesujące spostrzeżenia. Pewien przegląd informacji zawiera niniejszy artykuł.

### **1. INTRODUCTION**

Aggressive driving is a phenomenon, which has recently increased public fear. The media coverage on safety of driving indicates that it is more hazardous today than it was three years ago, reflecting increasing concerns about aggressive driving behaviour.

Some people even consider aggressive driving as one of the major causes of crashes. The fact that statistical evidence is not systematically collected at present, the incidence of traffic injuries and fatalities, resulting from aggressive driving, is difficult to ascertain. The purpose of this paper is to look at unsafe driving behaviour, especially behaviours associated with “aggressive driving”, its consequences in terms of crashes, injuries, and fatalities.

## 2. DEFINITION OF AGGRESSIVE BEHAVIOUR

Drivers at high risk of crash involvement exhibit a broad range of personal and social characteristics. Certain demographic features are associated with increased risk of being involved in a crash. These include age less than 25, education of less than twelve years, being a semi-skilled or unskilled worker, single marital status and low socioeconomic status [6].

Within this population of high risk drivers are a number of sub-groups which include crash-repeating drivers, people who drive under the influence of alcohol, young drivers (particularly young men) and possibly the mentally ill.

Personal factors which have been identified as associated with motor vehicle crashes include generally high levels of aggression and hostility, competitiveness, less concern for others, poor driving attitudes, driving for emotional release, impulsiveness and risk taking. A background of social disruption and deviancy appears to be more common amongst high crash and/or violation drivers.

We can see the portion of main causes of traffic fatal accidents in Slovakia (see Fig. 1). In the first place it is speeding, which is the expression of the driver's aggression, their style of driving and also breaking basic laws and rules [5].

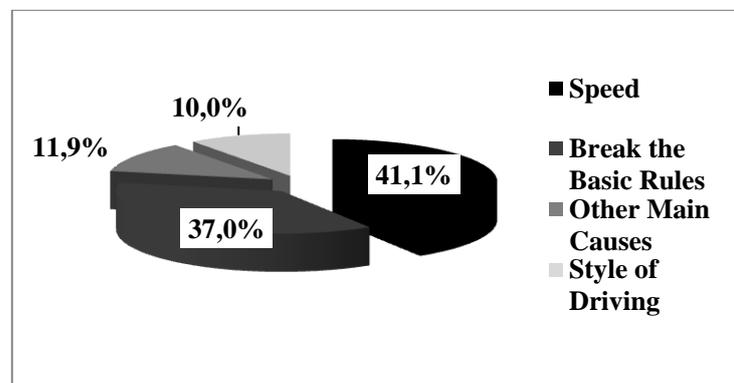


Fig. 1. The portion of main causes of fatal accidents

Rys. 1. Podział zasadniczych przyczyn śmiertelnych wypadków drogowych

If we wanted to examine whether the concept of aggressive, or reckless driving can be found in the legislation of the Slovak Republic relating to road traffic, it would be futile, as this term is often used by the police and by public, but it is not precisely defined.

Aggressive driving on the roads, however, applies to any driver and is not sanctioned so strictly that drivers are cautious and respect other road users when driving.

Firstly we should define the aggressive driving, we could help with definition from Global Web Conference in Canada in year 2000 [7].

*“A driving behaviour is aggressive if it is deliberate, likely to increase the risk of collision and is motivated by impatience, annoyance, hostility and/or an attempt to save time.”*

In practice, it involves:

- the major exceeding speed limits,
- failure to safe distance, respectively accompanied by the inappropriate use of high beam,
- crossing the lane (weaving),
- overtaking from the right,
- failure to allow other drivers to move up into the lane,
- improper horn usage, etc.

### 3. THE QUESTIONNAIRE FOCUSED ON AGGRESSIVE BEHAVIOUR REALIZED IN SLOVAKIA [3]

The drivers influenced each other, it is very hard to concentrate on driving, when you are attacked from another driver and harder to keep „a cool head“. Destructive emotions e.g. anger worsen the ability of making a decision. And it also holds for the person behind the steering wheel.

Abroad, the questionnaire is used for detection of potential aggressive drivers, respectively for diagnosis of drivers who already hold a driving license, are usually inquiry's nature. However, it is known that the inquiry has many shortcomings (misunderstood of the participant by filling out the questionnaire, improperly set questions, deception by filling out, and improve the properties and others) because of that it should therefore be guided by consultative person, who would deal with problems, would know about them and usefully fill in the core questions.

Some of these were focused on anger because anger affects the whole body if it is viewed from the perspective of the energisation, anger intensifies aggression. Person in a state of anger is hard to concentrate and control, may prove risky driving behaviour, which increases the risk of accidents [2].

Because of what was written above, the questionnaire in Slovakia was focused on experienced anger from participated people in it. This anger should be at least divided (with examples from practice) into 5 groups, which should be precisely defined.

Slovak Autotourist Club (SATC) was contacted to help with the elaboration of the questionnaire. On the first page of the questionnaire there are 27 situations that commonly occur on Slovak roads. For each of the questions there is 5 degree scale with divisions of anger, which the respondent feels in that concrete traffic situation (degrees - no anger, 1<sup>st</sup> level of anger, 2<sup>nd</sup> level of anger, 3<sup>rd</sup> level of anger and the worse one – 4<sup>th</sup> level of anger). On the other side of the Questionnaire there is the classification about the duration of perceived anger and in three most annoying situations. Moreover, there are additional questions as the number of years of driving, sex, year of birth, education and district of residence. At the bottom of the page there are explanations as to 5-point scale anger.

The respondents filled it out electronically and sent to the specified email address. Respondents were approaching (by filling out manually the questionnaires) in the neighbourhood of shopping centres, gas stations, parking places in the centre of the city Žilina, as well as students at the University in Žilina. Percentage between electronically and manually filled questionnaires was about 55% and 45% respectively (see Fig. 2).

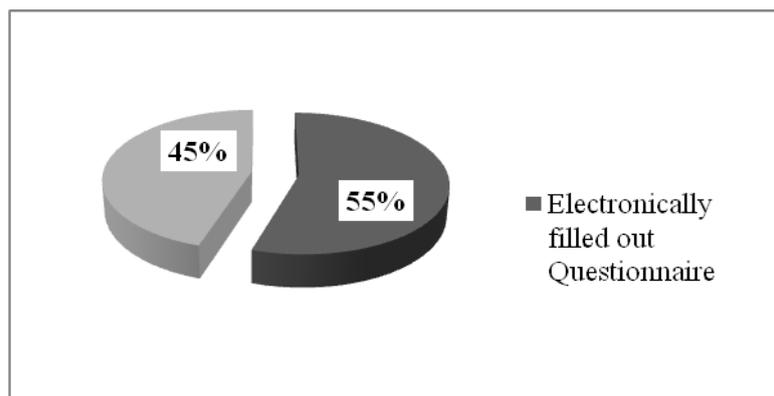


Fig. 2. Method of filling out the questionnaire  
Rys. 2. Sposób ankietowania

335 respondents (203 of whom were men and 132 women) participated in the Questionnaire. Respondents were divided into age and gender categories (see Fig. 3). The group of men was in a larger representation than the women's.

The survey which has been concentrating mainly on the age group 25-29 years and 30-39 years, because of police resources, which shows that these drivers cause most accidents.

The gap is in the age group 60 and older because of the fact that they drive only a little on the roads and the questionnaire was filled by them mostly in manually form and many times there was great problem to address them.

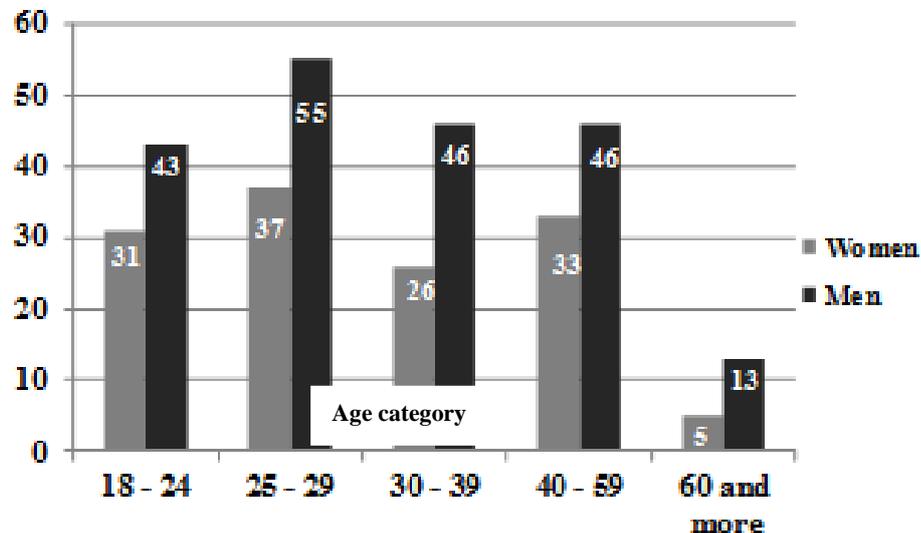


Fig. 3. Number of respondents by age and sex

Rys. 3. Liczba respondentów w zależności od wieku i płci

### 3.1. Result of the Questionnaire

The Questionnaire has been dealt with from different points of view, but the most important is to determine which of the traffic situations is the most annoying for respondents. From the respondents' answers about various traffic situations was made the average, which determined the respondents' level of anger. These averages were divided according to their values and it was determined which of these situations are the most anger provoking or least moderate. To the most annoying situations belong:

- 1) Someone is reversing in front of you without looking back (with average value 3,27).
- 2) Someone increases the vehicle speed when you try to overtake him (with average value 3,10).
- 3) Someone is pushing in front of your car after overtaking (average value 3,04).
- 4) Someone is pushing in the back of your car (e.g. wants to force the release of the lane with average value 3,00).

The situation of careless reversing made most respondents angry, and its averaged value was 3,27 and it is categorized between "2<sup>nd</sup> level of anger", which is already inclined to "3<sup>rd</sup> level of anger" according to the scale. This situation is classified as a passive aggressor on the road, or as negligence. In the second place there was the situation of the increased speed while being overtaken. This situation belongs, however, to the typical aggressive driver's behaviour, which may contribute to serious accidents. The third and fourth places belong to situations which restrict the driver in question. Such behaviour may cause the fear and nervousness, which may later result in aggression, but against other participants in road traffic.

To assess significant differences between "women vs. men" (Table 1) with a point of view of traffic situations is added the said table. For completeness, I want to show with using concrete situations, what is the difference among the anger of "men vs. women" (Table 2) and on that basis there can be precisely seen that from women's point of view the most annoying traffic situations are different than the men's.

Table 1

Differences between the levels of anger women vs. men

Traffic situations	WOMEN value	MEN value	Difference
Someone is pushing in the back of your car (e.g. he/she wants to force the release of the lane)	3,31	2,80	<b>0,51</b>
You are driving behind a big truck and don't see the situation in front of the car	2,17	1,67	<b>0,50</b>
Someone made on you inappropriate gestures because of your style of driving	2,89	2,42	<b>0,47</b>
Someone is overtaking or turning without signalization with indicator	3,04	2,58	<b>0,46</b>
Someone is overtaking in the wrong lane on the highway	2,64	2,21	<b>0,43</b>
Someone was hooting at you because of your driving style	2,72	2,38	<b>0,34</b>

Table 2

Differences between the levels of anger men vs. women

Traffic situations	MEN value	WOMEN value	Difference
You go through radar speed trap	2,46	2,14	<b>0,32</b>
Someone in the opposite direction doesn't dim his/her lights	2,83	2,55	<b>0,28</b>
Someone drives very hesitantly and slowly	2,18	1,98	<b>0,20</b>
Someone starts moving late, when the traffic light signalize green	2,01	1,88	<b>0,13</b>
Someone is parking his vehicle slowly and delaying traffic	2,12	2,08	<b>0,04</b>
Someone crosses through the crossway on the red light and threaten you	2,28	2,26	<b>0,02</b>

On the basis of these result we can see that women behind steering wheel are afraid of either they will be threaten from other driver or will be downgraded. On the other hand, men firstly can't bear that they will be delayed because of slow reaction of other drivers (beginning of aggression) and secondly they will be threatened.

It is seen that the differences between the Table 1 and Table 2 are distinct. In the Table 1 are significantly greater than in Table 2.

So the argument that men are more aggressive than women is true, for instance, even from this realized questionnaire.

#### 4. THE MAIN CONCLUSIONS OF THE QUESTIONNAIRE IN SLOVAKIA

The traffic situations which mainly provoke drivers' anger are those which are the results of social aggressiveness of other drivers or are a result of irresponsibility and inconsideration and sometimes even foolishness of the other road users.

The questionnaire revealed that:

- i. In the Slovak Republic aggression clearly increases among drivers on the road and this phenomenon will certainly continue in the future.
- ii. Among the four most annoying situation we can see the negligence of the drivers, passive aggressiveness and typical aggressive driver's behaviour.
- iii. There are great differences by comparison between men vs. women and women vs. men. The traffic situations are at variance with groups "women vs. men" and "men vs. women". Women are afraid more from threatening and from downgrade by other drivers too and men because of they will be late (and from that arise the aggressiveness) and a little from threatening.

## 5. CONCLUSION

The issue of the road transport safety has become a priority based on European Commission initiative. This initiative resulted from unfavourable development of road traffic accident rate and its consequences and it set the target to reduce the number of road deaths. This target has become an impulse for governments of particular countries to start to deal with this issue in greater extent. The analysis of accidents indicates that 95% of transport/traffic accidents are caused by human factor failure (wrong evaluation of the situation, participant's skills/abilities etc.) One of the most frequent errors of drivers is a wrong decision in a critical situation. The decision process is very complicated since the driver has to evaluate the arisen situation correctly within fractions of a second. [1]

The questionnaire showed a lot of important data that nervousness and aggressiveness on the roads have evidently rising character. Drivers should be aware that their own aggression creates problems to themselves, for example currently in Slovakia there are different penalties for improper gestures, for speeding and begins to concern the safe distance from other vehicles. However, many times the fines are a negligible sum not only for foreign drivers. The essential idea is the awareness of drivers that they do not drive on the roads alone and should also be considerate to other road users.

Slovakia needs a system based on qualified and specialized institutions. We need the solutions that will help to decrease aggressiveness gradually or to fully eliminate it. "Legislation should include such sanctions that when breaking certain rules the drivers should take lessons of defensive drive or therapy where they will try to learn how to control their bursts of aggressiveness." [2]

Survey indicates that most drivers report engaging in aggressive driving behaviours, but there is some evidence that survey responses reflect a tendency to provide socially desirable responses. It is unclear if the lower incidence of certain behaviours associated with higher collision risks such as tailgating is due to this tendency rather than to an actual low incidence of such behaviour.

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