PRESENCE OF ALCOHOL IN CROATIAN ROAD TRAFFIC

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1. Introductory note

Safety activities aimed at significant reduction of the presence of alcohol in persons taking part in traffic has for a long time been a strategic activity within the National Road Traffic Safety Programme in Croatia, which includes intensified control, especially in form of well-known campaign "Weekend", and various information and publicity activities under the common motto "If you drink – don't drive!" A research has been carried out to establish the current situation of presence of alcohol in traffic on Croatian roads, and to compare it to the situation three years ago, more precisely – in the end of 1996).

The research was carried out on 29th January (Saturday), between 10 p.m. and 2 a.m. on Sunday, 30th January 2000. The choice of this period stemmed from our knowledge on time distribution of traffic accidents involving alcohol. Namely, most of these accidents occur in this time of weekends and the intention was to establish to which extent alcohol was present in road traffic. After 2 a.m. the number of traffic accidents is smaller, which does not necessarily mean that the presence of alcohol at that time is smaller. On the contrary, it is possible that after 2 a.m. the presence of alcohol in traffic is even greater, especially with young drivers, and that the smaller number of accidents is primarily the result of less intensive traffic at that time.

2. Working methods

The research was meant to establish the present situation in the whole country, therefore, it was carried out in all of 20 counties. The total number of testing points on the road network was 48, out of which 24 were in settlements, and 24 in the road network outside settlements. The following data were registered for each tested driver:

- driver's sex;
- age;
- driving experience;
- if he/she was fastened;
- presence or level of alcohol, or if the driver was under the influence of alcohol, according to law;
- catering establishment from which the driver came under the influence of alcohol.

The research was meant to cover "random samples", therefore drivers were being stopped and tested randomly, and not according to any typical behaviour patterns or signals for suspicion.

All the data gathered were statistically processed. The statistic methods used were:

- basic statistic analysis;

- tests of difference significance (T-tests); and
- linear type regression analysis.

3. Results and discussion

The research covered, in the whole country, the total number of 1750 drivers. Out of this number, 1523 were men (87%), and 227 were women (13%). Primarily, the drivers of passenger cars and vans were being stopped and tested – 1669 or 95% of all cases – so that these drivers and their possible intoxication were decisive for the results on the whole. The number of stopped and tested professional drivers – bus and truck drivers – was 81. In cases of professional drivers, of course, the relevant limit of the presence of alcohol, according to the law, was zero per thousand.

When all the data gathered from the counties are put together – which is justifiable, taking into consideration that there is no difference between the roads within and outside settlements – the following characteristics of the presence of alcohol in road traffic in our counties can be established – figures 1, 2, 3 and 4.

These pictures primarily show large differences between the counties – according to the number of intoxicated drivers, as well as the level of the concentration of alcohol average and maximum. The largest number of intoxicated drivers in one county is 10.6%. The average concentration of alcohol in these intoxicated drivers was 1.29 per thousand, and the largest concentration found was 2.29 per thousand. The ”critical level” of 1.1 per thousand in this county was found in more than 50% of intoxicated drivers. The county with the smallest number of intoxicated drivers has the intoxicated drivers share of only 1.3%. The average and at the same time the maximum concentration of alcohol found in this county was 0.64 per thousand, and therefore, none of the drivers exceeded the “critical level” of 1.1 per thousand.

The largest concentration of alcohol found in the tested drivers was 2.98 per thousand, which falls within the scope of “heavy intoxication”.

The average portion of intoxicated drivers on Croatian roads is 4.4%, and the average concentration of alcohol in such drivers is 1.13 per thousand, which is more than the “critical level”. The portion of intoxicated drivers exceeding 1.1 per thousand is 43.2%.

At this point, one should mention the results of a similar research at the end of 1996. The average portion of intoxicated drivers on Croatian roads was 7%. The average concentration of alcohol in such drivers was 1.07 per thousand on the first day of the testing, and 0.94 per thousand on the second day, or 1.01 per thousand on the whole. The portion of intoxicated drivers exceeding the “critical level” of 1.1 per thousand was 32%.

What conclusions can we draw from the comparison of the present knowledge with the results obtained three years ago?

Firstly, the portion of intoxicated drivers has been reduced during these three years for a bit more than one third, or more precisely, 37%. We can also state that the present

portion of intoxicated drivers on Croatian roads coincides with the “European” level relevant for the conditions similar to these covered by our research. (For example, the portion of intoxicated drivers in similar conditions on Dutch roads is about 4%, and the Netherlands can be taken as a European average).

Secondly, the average concentration of intoxicated drivers is 12% bigger than three years ago; from 1.01 per thousand to 1.13 per thousand.

Thirdly, the portion of intoxicated drivers exceeding the “critical level” of 1.1 per thousand is 35% bigger than three years ago.

The portions of the intoxicated drivers and their average concentrations of alcohol were not constant within the four hours period – between 10 p.m. and 2 a.m. They varied during hours. The figures are shown in the figure 5.

It is obvious that the portion of intoxicated drivers and the alcohol concentration constantly rise after 10 p.m. and reach the highest figures between midnight and 1 a.m., and then fall. It is difficult to say if the decrease trend would continue after 2 a.m. There are indications leading to the opposite trend, that is to say, the increase of the portion of intoxicated drivers as well as the increase of the average concentration of alcohol, because those, who must have drank in disco clubs, etc., start appearing on the roads more intensively.

Figure 5 also shows the average level of the use of safety belts by all drivers tested to alcohol – regardless of their possible intoxication.

During the whole four hour period, the level of the use of safety belts by drivers was rather high – 77%. Moreover, one can conclude that the level of the use of belts is increasing during night.

Is the use of belts in any way related to the level of intoxication of drivers?

Previous findings, in 1996, indicate a significantly reduced level of the use of belts by intoxicated drivers, in the sense of a common tendency of “the increased risk” with such drivers.

The level of the use of belts by intoxicated and sober drivers, in individual counties, in the present situation, are shown in table 1.

Table 1 - The level of the use of safety belt by the drivers tested (%)

County (Centre)	Sober	Intoxicated	All
ZAGREB	59.2	57	59
SPLIT	56.5	0	54.4
RIJEKA	81.7	75	80.9
OSIJEK	91.7	83.3	91.4
KRAPINA	60	0	57.1
PULA	97.8	75	96
VARA□DIN	64.7	22.2	60.6
BJELOVAR	80	0	76.9
SL. BROD	86.8	66.6	84.8
DUBROVNIK	76.4	0	75
ZADAR	83	25	79.7
□AKOVEC	89.1	60	87.5
KARLOVAC	71.4	33.3	69.4
SISAK	78.2	0	73.4
GOSPI□	75	100	76.1
PO□EGA	94.7	100	94.8
KOPRIVNICA	86.7	66.6	83.9
ŠIBENIK	37.8	0	36.8
VIROVITICA	97	66.6	96.1
VUKOVAR	97.1	100	97.2
Total (average)	78.2	46.5	76.5

As expected, the level of the use of belts by intoxicated drivers is lower than by sober drivers. While safety belt is used by almost four fifths of sober drivers, less than a half of intoxicated drivers use them. In some counties, as shown in the table, the level of the use of safety belts by intoxicated drivers is zero. Although the figure is disturbing, these results should be seen as the consequence of a small total number of such cases rather than as the definite orientation on the situation.

Is the intoxication of drivers in any connection with their age or driving experience?

The orientation on this issue is given through the results shown in figure 6, showing the average age and driving experience of the drivers tested, in the hours covered.

During the whole testing period – between 10 p.m. and 2 a.m. – the age of intoxicated drivers is higher than of the sober ones, which leads to the conclusion that the alcohol problem is more frequent with “older drivers”. Of course, this qualification should be taken with certain reservation, in the sense of the age of those drivers, who participate in road traffic at this hour of the day. The data on driving experience coincides with the findings on the age of the intoxicated and sober drivers. Namely, the average driving experience of intoxicated drivers is longer than of sober ones.

The difference in the age and the driving experience of intoxicated and sober drivers becomes lesser during night, and it seems, according to some randomly gathered data for the period after 2 a.m., that the situation (maybe) changes after 2 a.m. Namely, it is quite possible that after 2 a.m. the alcohol problem is more present with the

youngest and the least experienced drivers. Nevertheless, this should be understood as mere speculation as, at the moment, we do not have enough indicators for this.

The time of the night in a specific way indicates also the structure of the facilities of intoxication, as shown in figure 7.

The most frequent facilities of intoxication are coffee bars – 38.6% for the whole period of time. Until 1 a.m. the portion of these facilities increases, and after this hour, starts falling, which is obviously the consequence of the working hours of coffee bars. Similar to this is the portion of restaurants, whose working hours is shorter than of coffee bars. On the other hand, the portion of disco clubs increases during night, in it is most probable that this tendency is even more intensive after 2 a.m.

4. Conclusions

The research has established that the average portion of intoxicated drivers on Croatian roads is 4.4%, and that the average concentration of alcohol in such drivers is 1.13 per thousand, which is higher than the "critical level" of intoxication – 1.1 per thousand. The portion of intoxicated drivers exceeding the critical concentration is 43.2%.

When compared to the situation three years ago, the following should be established for the current situation:

The portion of intoxicated has decreased in these three years for one third, or more precisely for 37%;

The average concentration of alcohol in intoxicated drivers is bigger when compared with the situation three years ago for 12%; (from 1.01 per thousand to 1.13 per thousand);

The portion of intoxicated drivers exceeding the "critical level" of 1.1 per thousand has increased, when compared to the situation three years ago, for 35%.
The last aim of the decrease of the alcohol presence in road traffic is, of course, the decrease of the number of traffic accidents and their consequences, through the decrease of the number of those accidents and consequences, which are in any way in connection with alcohol. How can we know that to which extent the aim has been reached?

Primarily, in a way that we establish, through monitoring and comparing the number of traffic accidents and their consequences, that there has been a significant decrease in the portion of intoxicated (active) persons involved in traffic accidents.
This research on the presence of alcohol in traffic on Croatian roads and its results imply that this aim is to be reached through the activities taken during the last three years. Nevertheless, for a comprehensive and definite picture of this, a comprehensive analysis of traffic accidents in the mentioned period and immediately before it should be carried out. Doing this, one should especially analyse the extent to which alcohol is involved in traffic accidents resulting in various consequences.