PENAL IMPLICATIONS OF ALCOHOL CONSUMPTION AMONG THE ROAD ACCIDENT VICTIMS IN THE COUNTY OF SIBIU

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***Abstract**: The study approaches the penal consequences of alcohol consumption among the road accident victims in Sibiu County, during 2002 – 2006. A number of 5567 toxicological analyse bulletins were examined at the Department of Forensic Medicine of Sibiu County.*

***Keywords**: road accidents, Sibiu County.*

***Rezumat**:* Studiul abordează consecinţele penale ale consumului de alcool la victimele accidentelor de circulaţie produse în judeţul Sibiu, în perioada 2002-2006. Au fost analizate 5567 buletine de analiză toxicologică efectuate în cadrul Serviciului de Medicină Legală a judeţului Sibiu.

***Cuvinte cheie**: accidente rutiere, alcoolemie, judeţul Sibiu*

INTRODUCTION

Alcohol represents one of the personality factors with a major impact on the driving style, which has serious consequences on all traffic participants' categories. This phenomenon does not occur as an isolated episode, because generally, ethylism represents an offence-related cause with a quite large weight.

Regarding the fatal part alcohol plays upon drivers, the statistical data show that the percentage of those driving under the influence of alcohol and make accidents is of about 50%.

Driving after alcohol use represents a major risk accident, the penal alcoholaemia being established at 0,8g/1000ml. Alcohol is injurious when driving, first of all by its psychological effects of optimism and trust in one's own performances and secondly, by lowering the reflexes depending on the level of alcoholaemia. Due to these reflexes, alcohol gives a false feeling of safety that makes it dangerous not only above the value of 0,8g/1000ml, but at any level of imbibition (45% of the accidents are produced below this value and for this reason, the total prohibition of alcohol during driving occurs as a legitimate measure of safety.

Although the value of the penal alcoholaemia during driving varies from country to country between 0,3 and 1,5 ‰, statistical data revealed that these legislative measures did not reduce the number of road accidents accordingly.

The research made during the last years proved an increase of the number of road accidents made by the traffic participants with reduced alcoholaemia, in relation with those with high values of alcoholaemia.

PURPOSE OF THE RESEARCH

This study aims at analysing the inter-correlations and interactions between the medico-social component and the penal judicial one related to alcohol consumption among the road accident victims.

MATERIAL AND METHOD

The material taken into consideration is represented by 5567 bulletins of toxicological analysis made within the Department of Forensic Medicine of the county of Sibiu between 2002 - 2006, regarding people alive, victims of road accidents. **The method** used was the observational study, based on a retrospective longitudinal survey, between 2002 and 2006. Data gathering was accomplished by reviewing the following documents: Forensic Certificates, Observation Reports, Autopsy Reports, Bulletins of Toxicological Analysis, Clinical Examination Bulletins existing in the archives of the Department of Forensic Medicine within the Clinical County Hospital of Sibiu, Observation Sheets within the archives of the Clinical County Hospital of Sibiu, medical certificates issued by the Emergency and Ambulance Units of the Clinical County Hospital of Sibiu, as well as the intervention protocols of the Mobile Emergency Service for Resuscitation and Extrication – Sibiu.

RESULTS AND DISCUSSIONS

In 1614 cases (29%), the results were positive (alcoholaemia above the value of 0g‰); this confirms the statistics made at international level. We must also take into consideration the fact that the estimations are made aleatorily or as a result of a contravention, the number of those driving under alcohol use could be larger

Regarding the values of alcoholaemia, out of 1614 positive determinations, only 468 were below 0.8g‰ – the limit which makes the difference between an offence and a contravention.

Analysing the alcholaemias, it is to be noticed that a large number of determinations had values between 1,6 – 2,4g‰, respectively 520 cases (32,2%), 468 (29%) had values between >0, but below 0,8g‰, and 443 (27,5) had values between 0,8 – 1,6g‰. These results explain the fact that regarding these values, inhibition is eliminated, the critical sense disappears, alcohol conferring a feeling of safety.

Figure no. 1. Frequency of the positive alcoholaemias (0g‰) among the participants to the road traffic

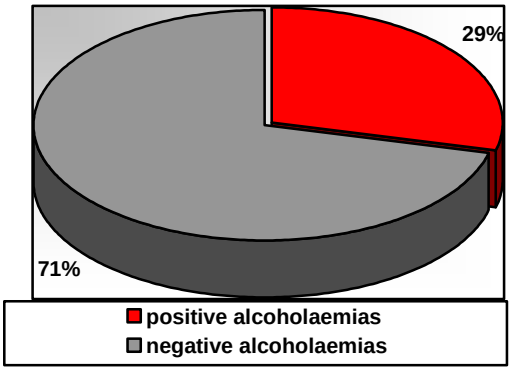
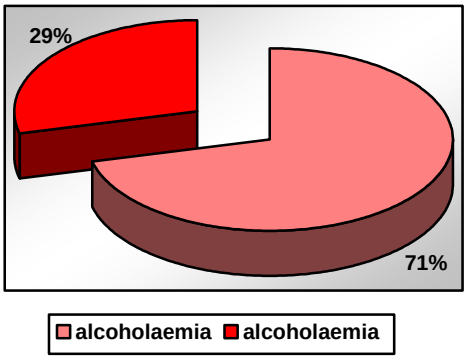


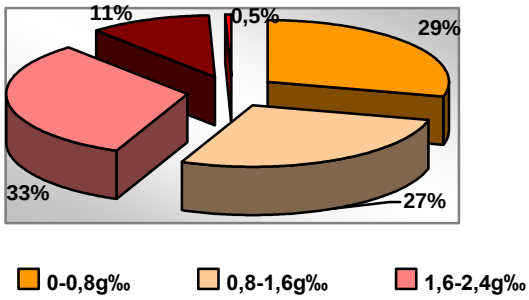
Figure no. 2. Distribution of alcoholemias according to the value of 0,8g‰ (limit between offence / contravention)



Only 175 determinations (10,8%) had values between 2,4 – 3,2 g‰, 8 (0,5%) drivers having values of alcoholaemia above 3,2g‰; at this value, the person under alcohol consumption presents anaesthesia, narcosis, hypothermia, coma and abolition of reflexes, which bring about the impossibility of driving the car. Death or respiratory collapse may also occur.

The majority of the traffic participants involved in road accidents have reduced values of alcoholaemia; the results of the study emphasize that a large number of positive determinations had values between 0 and 2,4g‰ – the values above the legal limit of 0,8g‰ were predominant.

Figure no. 3. Distribution of the number of alcoholaemia determinations according to alcoholaemia value.



Taking into consideration the alcoholaemia values in relation with gender, it may be noticed that 36 traffic participants whose blood samples have been taken, were men, that is 95,85%. Out of the total of the positive determinations, 1590 people (98,55%) who registered values of alcoholaemia above 0g‰ were men. The difference between the two genders may be explained by the more reduced preference for alcohol among women in general and especially when driving, by the more reduced presence of the women in traffic and by the subjective attitude of the Supervisory Bodies who tends to sort out, by using the alcoholmeter among men, preferably.

Table no.1. Distribution of the positive determinations of alcoholaemia according to gender.

No.	*Gender*	*Positive determinations*	
		No	*%*
1	Men	1590	99
2	Women	24	1
3	Total	1614	100

Out of the total persons whose alcoholaemias were taken, only 57 were between 0-19 years old, 157 were between 20-29 years old, 1033 between 30-39 years old, 672 between 40-49 years old, 336 between 60-69 years old. The largest number of alcoholaemias was established to an age group of 30-39 years old, respectively 1643 alcoholaemias, and regarding the opposite pole, there was the group of people above the age of 70, which registered a number of 262 determinations. The decade between 30 and 39 years old is represented by the active people who are the most frequently involved in traffic.

Reporting the positive determinations of alcoholaemia at each age category, it may be observed that out of those 57 persons aged between 0-19 years old, whose alcoholaemia was established, 11 persons registered positive values. This result should draw the attention on the fact that these minors made a double infraction, that of driving without a licence and that of driving under alcohol consumption. The study emphasizes the tendency of the young to offence commitment, in general. A reduced number of old people registered positive values of alcoholaemia, which can be explained by their reduced presence in traffic and by the increase of the responsibility level in traffic. The age group with the largest number of persons driving under alcohol use remains that between 30-

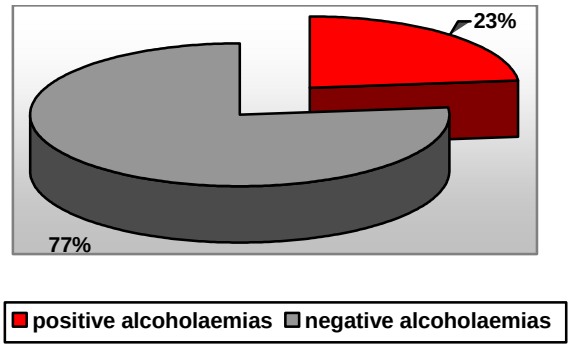
39 years old (448 cases), value which also confirms the data of the specialized literature, according to which alcoholism when driving has a maximum incidence between 26 and 30 years old.

Table no. 2. Distribution by age groups of the positive alcoholemias. (>0g‰)

No.	*Age groups (years old)*	*Positive determinations*	
		No	*%*
1	0 – 19	13	0,8
2	20 – 29	296	18,34
3	30 – 39	447	27,69
4	40 – 49	351	21,74
5	50 - 59	340	21,06
6	60 - 69	132	8,17
7	> 70	35	2,16
8	**Total**	**1614**	**100**

A number of 11 positive determinations among people under the age of 18 was registered. This denotes the double tendency to offence committing: driving the vehicle without a licence and under alcohol consumption.

Figure no .4. Frequency of the positive alcoholaemias (>0g‰) among the people under the age of 18.



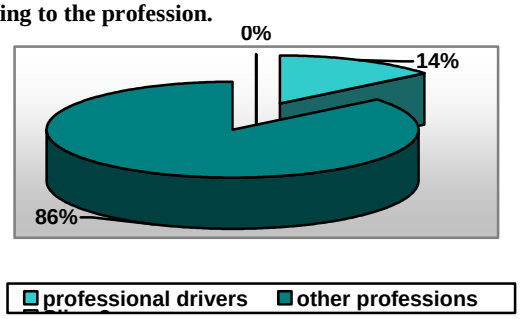
Regarding the origin environment of the people under testing, it seems that the majority of these, that is a number of 3845 persons, came from the urban environment and 1722 from the rural environment. Out of these, 1020 people coming from the urban environment had positive values of alcoholaemia and 594 of those coming from the rural environment were under the influence of alcohol. Regarding the distribution of the number of persons, whose alcoholaemia value was above 0 g‰, 594 came from the rural environment, respectively 36,80% of the total number of positive alcoholaemias.

Table no. 3. Distribution of positive alcoholaemias (>0g‰) according to the origin environment.

No.	*Gender*	*Positive determinations*	
		Nr	*%*
1	Urban	1020	69
2	Rural	594	31
3	**Total**	**1614**	**100**

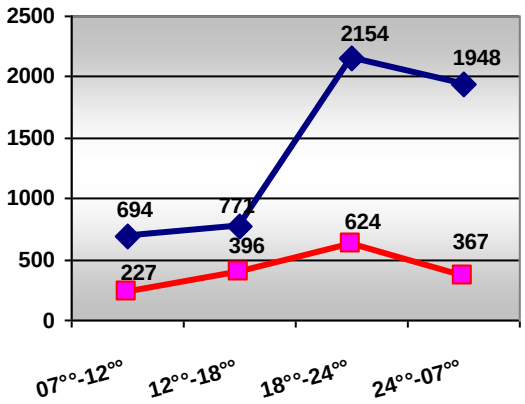
Having in view the profession of the tested persons, it was noticed that 22,56% of these were professional drivers (1256 cases), representing an important group of traffic participants. 14% (227 cases) of the people whose determinations were positive, were drivers and the rest of 86% (1387 cases) were represented as having other professions.

Figure no. 5. Distribution of positive alcoholaemias (>0g‰) according to the profession.



Out of the determinations made, 694 persons were investigated between 7°° – 12°° a.m., 771 persons between 12°°a.m. – 18°° p.m., 2154 between 18°° – 24°° p.m., the rest of 1948 during the night, between 24°° – 7°° a.m. It is to be noticed that the largest number of the positive determinations, respectively 624 cases, were made between 18°° – 24°° p.m., and the lowest number of persons under the influence of alcohol consumption was registered in the morning, between 7°° – 12°° a.m.

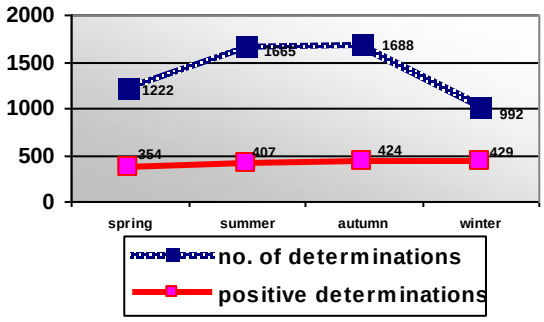
Figure no. 6. Weight of the positive alcoholaemias (>0g‰) according to the timetable of the determinations made in traffic.



Reporting the number of alcoholaemias to season, it may be noticed that the largest number of tests were made in summer and autumn, 1665 were made during summer, respectively 1688 determinations were made during autumn and a reduced number of determinations were made during spring (1222) and in winter (992). In opposition with the reduced number of the total determinations made during winter, the number of the positive determinations made in the cold season was of 429 cases, representing the largest value of the year. This is probably because during this season, the most important celebrations take place,

Christmas and the New Year. 424 positive determinations were made during summer, a season when traffic increases as a result of holydays; this implicitly increases the alcohol consumption.

Figure no. 7. Distribution by seasons of the positive alcoholaemias. (>0g‰)



Out of those 338 alcoholaemia determinations made between 2002 and 2006, regarding the victims deceased in road accidents, 236 (70%) were negative, and 102 persons (30%) were under the influence of alcohol.

Table no. 4. Frequency of positive alcoholaemias (>0g‰) among the victims deceased in road accidents.

No.	*Type of alcoholaemia*	*No. of determinations*	*Percentage (%)*
1	Positive	102	30
2	Negative	236	70
3	**Total**	**338**	**100**

Taking into account the positive alcoholaemias made within the studied period, we noticed the fact that the largest number was registered in 2004, followed by 2005 with 24 positive tests. The year 2003 was the year with the lowest number of positive alcoholaemias, respectively 14, followed at a small distance by the years 2006 and 2002, with 15, respectively 16 positive determinations.

Table no. 5. Dynamics of the positive alcoholaemias among the victims deceased in road accidents between 2002 and2006.

No.	*Year*	*Positive determinations*		*Total determinations*
		Nr	*%*	*Nr*
1	2002	16	25	64
2	2003	14	21,21	66
3	2004	33	35,48	93
4	2005	24	36,92	65
5	2006	15	30	50
6	**Total**	**102**	**30,17**	**338**

The number of the dead passengers, including the drivers of the vehicles, under alcohol influence, involved in the accident was of 40, as against the number of pedestrians, respectively of 62 of the traffic participants. Certain studies of the specialized literature mention a percentage of 70% of passengers deceased as a result of road accidents, percentage which contravenes the results obtained in this research.

Table no. 6. Distribution of positive alcoholaemias (>0g‰) according to the category of the traffic participants.

No.	*Category*	*No. of determinations*	*Percentage (%)*
1	Passenger	102	30
2	Pedestrian	236	70
3	**Total**	**338**	**100**

CONCLUSIONS

✓ Within the studied period, 5567 alcoholaemia determinations were made among drivers, out of which 1614 were positive (alcoholaemia > 0 g‰). The majority of the positive values (32,2%) were between 1,6 – 2,4g‰, and the fewest (0,5%) were over 3,2 g‰. In 71% cases, alcoholaemia exceeded the value of 0,8g‰; over this limit, the deed is considered an offence. In 95% cases, the determinations were made on biological samples taken on men, a third of them presenting positive alcoholaemias.

✓ Two third of the positive alcoholaemias were registered among the young aged between 20-40 years old, especially from the urban environment (almost 70%). The identification of the positive values of alcoholaemias among people under the age of 18, even if the percentage did not exceed the value of 1%, is alarming due to the double infraction: driving without a licence and under the influence of alcohol.

✓ Out of the total positive alcoholaemias, almost a quarter of them (22,56%) were identified among the professional drivers, who thus committed a double illegality – driving under alcohol consumption and exercising their profession under such conditions.

✓ The majority of the positive alcoholaemias were identified between 18°°-24°° p.m. (almost 40%).

✓ Alcohol consumption influences all categories of traffic participants, being identified in 60% of pedestrians and 40% of the passengers deceased as a result of road accidents.

✓ The year 2004 registered the largest percentage of positive alcoholaemias (50%) among the people deceased within the studied period, correlating the large number of violent deaths, generally due to road accidents registered in the same year.

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