

Alcohol-Related Road Traffic Accidents Before and After the Passing of the Road Traffic Safety Act in Croatia

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ABSTRACT

The aim of this study was to gather enough data in order to formulate theory- and research-based recommendations to policy makers with the intention of decreasing the number of alcohol-related accidents and victims on Croatian roads. The data on the injured traffic participants and the share of participants under the influence of alcohol were collected from the police reports of the Traffic Police Department, Ministry of the Interior, written at the scene of the respective accidents. This documentation was then processed by descriptive epidemiology and analysed through a four-year period, before and after the passing of the New Road Traffic Safety Act in the Republic of Croatia, on 20 August 2004. In the first six months of 2005, after the passing of the Act, there were 3,275 accidents caused by the motorists under the influence of alcohol (12.5% of all the accidents), with 64 persons killed. Only 5 fatalities (8%) were caused by the drivers with measured blood alcohol concentration of up to 0.5‰. As much as 27 fatalities (42%) were caused by the drivers with measured more than 1.5‰, while half of the fatalities, 32 (50%), were caused by drivers with 0.5 – 1.5‰. In this period, more than 451,000 violations were recorded, whereas in the same period of the previous year, the number of violations was about 519,000. A reduction of the total number of accidents is the result of the new regulation provision, according to which the incidents without human victims do not have to be reported to the police. The number of traffic accidents caused by drivers under the influence of alcohol had increased by some dozen per cents, namely: 2005 – 6,219 persons, 2006 – 6,590 persons, noting that in 2006 one less person was killed (123) compared to 2005. In 2005, drivers with alcohol concentration of 0–0.5‰ caused 1,096 accidents, with 14 fatalities, whereas in 2006 there were 1,164 accidents with 9 fatalities. A total of 2,314 accidents were caused by drivers with more than 0.5‰ and up to 1.5‰ in 2005 (in 2006 – 2,582), along with 53 fatalities (1 fewer than in 2006). Drivers with more than 1.5‰ participated in 2,809 accidents (2006 – 2,844), with the number of killed drivers amounting to 57, three fewer than in 2006. In light of these facts, alcohol use still remains a significant factor in road traffic accidents and is an important area for injury prevention efforts.

Key words: alcohol use, drunk driving, driving under the influence, DUI, road traffic accidents, law, mortality, road traffic safety act, epidemiology

Introduction

Alcohol has long been cited as one of the most significant risk factors for vehicle crashes in the United States and other developed countries, as well as being increasingly recognized as a factor in developing countries¹. The price mankind pays for widespread use of vehicles includes untimely death, injuries, and property damage due to road traffic crashes². Thus, the higher the mobility, the higher the price: road traffic crashes remain a fre-

quent cause of death, polytrauma, and disability in people in the prime of their lives^{3,4}. Therefore, a global need arises in order to increase preventive measures by analyzing risk factors for traffic injuries among children, adults and elderly people, not only in motorized vehicle drivers/passengers, but also in cyclists as minimally- or unprotected road users, especially in congested traffic conditions during tourist seasons^{5–8}. Furthermore, drin-

king and driving has long been recognized as a public health problem. Attempts to resolve this issue through the implementation of laws date back to as early as the New York law on drinking and driving from 1910. Since such laws were introduced in the Scandinavian countries in 1930s, spots for checking sobriety gradually have become a popular tool for the application of the law on security in traffic around the world⁹.

In the United States, the first time alcohol involvement was measured on a national level was in 1982, when 57% of motor vehicle fatalities were found to be alcohol-related¹⁰. The proportion of fatalities in alcohol-related crashes has steadily decreased to 40.9% in 1996¹⁰. However, the youth remains particularly endangered, seeing as excessive alcohol consumption can lead to risky behaviour, while drinking and driving is commonly related to mortality due to road traffic accidents, which is the leading cause of death in younger populations, aged between 15 and 24, despite the fact that in the last two decades there was a significant reduction in mortality among young adults in comparison with older persons in traffic accidents caused by alcohol^{11–14}.

In Australia in the early 1980s, road crashes were the single largest cause of death for Australians up to 35 years of age, with as many as 41.5% involving alcohol^{15,16}. Even though most developed countries have experienced a decrease in alcohol-involving crashes in the 1980s and early 1990s, alcohol remains one of the most consistent causes of roadway fatalities and injuries¹.

Between 1990 and 1999 road deaths dropped by 33.9% in the United Kingdom, compared to 6.5% in the United States¹⁷. In the 1990s, the decrease in deaths in the United Kingdom was attributable mostly to a 29.6% drop in the case fatality rates (CFR). But increases in driving under the influence of alcohol (DUI) in the United States after 1997 may have contributed to increases in speed-related crashes. Had the United States implemented United Kingdom-type speed control policies and not raised speed limits, there would have been an estimated 6,500 to 10,000 (approximately 16% to 25%) fewer road deaths *per* year during the period following speed-limit increases (1996 to 1999), including many DUI-related deaths. Reductions of up to 50% are now achievable based on newer population-wide strategies for speed control.

Each year in the UK some 3,400 people are killed on the roads, of which 218 are children^{18,19}. Further 37,000 are seriously injured and 272,500 slightly injured. The average person in a developed country has one in a hundred lifetime risk of being killed in a road traffic accident (RTA) and one in three lifetime risks of being injured²⁰. Of 1,086 motor vehicle drivers and motorcycle riders who died in RTAs, 19% were over the legal limit of 80 mg/dL. The highest proportion of these drivers was aged 30–39²¹. Alcohol thus presents a large threat to road safety.

According to the study which examined behaviour, perceptions and attitudes related to drink-driving among 600 male company vehicle drivers located across eight countries²², driving after any alcohol consumption was found to be relatively common across most of the sample,

while driving when over the legal limit at least once in the previous 12 months was reported by approximately one-third of the drivers.

In the last 10 years, an annual average of 73,000 traffic accidents occurred on Croatian roads (Table 1)²³. 74% of participants in these accidents received minor injuries. In 25% of all cases, accidents were associated with fatalities. On average, 21,000 people get injured in traffic every year. Major injuries were suffered by 20% of people, and 3% were killed, which amounts to 658 people a year. According to the lowest estimates of insurance experts and economic analytics, Croatia today has a direct loss in social value due to traffic accidents of at least 2% of Gross Domestic Product (GDP), whereas collateral losses are multiple. The Road Traffic Safety Act was passed at a Croatian Parliament session on 15 July 2004 (REF Official Gazette No. 105, 28 July 2004) and came in force on 20 August 2004. It was better known as the »0.0 Act«, i.e. the Act on 0.0‰, according to which the driver could be fined if they had even a drop of alcohol in their blood. Thus, the new law banned alcohol use for everyone participating in traffic. Notwithstanding the fact that while the new law was being prepared, the public considered – according to everyday comments – that the previous allowed blood alcohol concentration limit of 0.5‰ should not have been changed, 0.0‰ became mandatory for all traffic participants.

The purpose of the new Act was to remove the observed drawbacks from the previous Act, to make the penal policy stricter towards the most dangerous violation of the traffic rules, and to increase the responsibility of all traffic participants²³. In 1997, there were 714 people killed in road crashes, whereafter this number decreased to 627 in 2002 (Table 1). Unfortunately, in the next year, 2003, the number of people killed in traffic went up again to 701, which was the main reason for the passing the new Act.

The number of persons killed in road crashes within 12 months before and after the new Act was passed was 744 and 558, respectively (Table 2), or 12.7 killed *per* 100,000 citizens, which is the lowest number in the last 40 years. The obvious drop in the number of killed persons by 186 is a 25% decrease. It was the most favourable trend in the history of motor traffic on the Croatian roads, except for 1991, when traffic in Croatia was forcefully interrupted.

However, this pronouncedly positive trend lasted for only 12 months. In the second half of 2005, there was a change in the trend in negative direction. In that period, compared with the same period in 2004, the number of road crashes with fatalities increased by 9.9%, while 12.2% more people were killed and 1.7% more injured.

Although the European Commission does not have a unique law on how much per-milles should be allowed in each country, the majority of European Union countries have stipulated between 0.5‰, and 0.2‰ for young drivers, professional drivers, and bikers. The regulations in the European countries vary from one country to another. Some do not allow alcohol to be used by drivers,

while others do not penalize as much as 0.8‰. For example, Sweden allows 0.2‰ of alcohol in blood and is one of the countries with the lowest fatality rate in traffic accidents. Among the best results are those in Germany, where the alcohol is limited to 0.5‰. Great Britain with 115 fatalities *per* million vehicles is one of the safest countries regarding traffic, and you are allowed to drive there with as much as 0.8‰ alcohol in your blood. Today, regarding fatalities in traffic the Republic of Croatia is classified into the middle and most numerous group of European countries. For instance, in 1998 when Croatia had 13.5 fatalities *per* 100,000 citizens, Slovenia had 15.6; Spain 14.9; France 14.4; Austria 11.9; Germany 10.4; Italy 10.8; and Finland 7.7²³.

One should also emphasise the goals of the European Union, which is to reduce the number of victims in traffic by the year 2010 to a level of 8 fatalities *per* 100,000 citizens.

Methods

This research shows the data about the victims in traffic, and analyses the share of alcoholised participants in the Republic of Croatia, through a four-year period, before and after passing the New Traffic Act, on 20 August 2004. The data have been gathered from the police reports of the Traffic Police Department, MUP, Croatia, which were written during investigations conducted at the site of the respective accidents. The data have been processed by applying descriptive statistics, and the frequency of individual events is presented in the Tables which will be thoroughly discussed in the following chapter.

Results

Table 1 shows that in 1990 there were 1,360 persons killed on the roads. This number gradually decreased until 2004 when 608 persons got killed. However, this number is still large, and therefore, efforts should be made in attempt to reduce it. In that period the Road Traffic Safety Act was brought (implementation since the beginning of 1993), and several amendments, the major ones occurring in 1996 when the National Road Traffic Safety Program was brought, and in 2004 when the New Road Traffic Safety Act was brought with much higher fines for traffic violations, which gained its notoriety for the 0.0‰ provision for all the motorists.

Table 3 shows the data about the fatalities *per* year and month from 2002 to 2004. In the first five months of 2004, the number of fatalities on the roads in Croatia was by 21% higher than in the same period of the previous year. In 2004 motorists driving under the influence of alcohol caused 8,036 traffic accidents, which is by 15.5% fewer than in 2003, but among these, there are also 137 accidents in with fatalities, and that is 6.2% more than in 2003²³. In almost every fourth accident with fatalities the motorist was under the influence of alcohol. In accidents in which one or more of the participants consumed alcohol, 161 persons were killed or 15.8% more, including 71 motorists who caused the accidents or 18.3% more than in 2003. In all other accidents, with the injured or only with material damage, the consequences were smaller than in 2003. If only the period from 20 August to 31 December 2004 was to be observed, the motorists under the influence of alcohol caused 43.8% fewer traffic accidents

TABLE 1
TRAFFIC ACCIDENTS AND CONSEQUENCES FROM 1990 TO 2005

Year	Traffic accidents	Traffic accidents with victims	Share of traffic accidents with victims in the total number	Fatalities	Injured persons	Share of fatalities among the victims
1990	67,952	14,471	21.3	1,360	19,791	6.4
1991	53,297	11,559	21.7	1,020	15,845	6.0
1992	56,815	12,758	22.5	975	17,517	5.3
1993	58,188	11,529	19.8	855	15,596	5.2
1994	62,120	12,846	20.7	804	17,679	4.3
1995	61,656	12,668	20.5	800	17,665	4.3
1996	59,420	11,740	19.8	721	16,182	4.3
1997	61,658	11,652	18.9	714	16,234	4.2
1998	67,982	12,846	18.9	646	18,118	3.4
1999	68,798	12,958	18.8	662	18,103	3.5
2000	73,387	14,430	19.7	655	20,501	3.1
2001	81,911	15,079	18.4	647	22,093	2.8
2002	86,611	16,500	19.1	627	23,923	2.6
2003	92,102	18,592	20.2	701	26,153	2.6
2004	76,540	17,140	22.4	608	24,271	2.4
2005	58,132	15,679	27.0	597	21,773	2.7
Total	1,086,596	222,447	24.1	12,392	311,444	3.5

TABLE 2
FATALITIES IN ROAD TRAFFIC 12 MONTHS BEFORE AND AFTER PASSING OF THE NEW ACT

Month	Last 12 months of the old Act 03/04	First 12 months of the new Act 04/05	Difference	%
VII. – XII.	423	287	-136	- 32.2
I. – VI.	321	271	-50	-15.6
Total	744	558	-186	-25.0

TABLE 3
KILLED PARTICIPANTS IN ROAD TRAFFIC FROM 2002 TO 2004

Year	Months												Total fatalities
	I	II	III	IV	V	VI	VII	VIII	IX	X	XI	XII	
2002	44	38	58	31	47	63	60	62	69	63	47	45	627
2003	29	34	41	54	48	72	83	81	66	56	66	71	701
2004	44	32	44	67	61	73	47	62	42	48	45	43	608

TABLE 4
COMPARISON OF TRAFFIC ACCIDENTS, FATALITIES AND INJURED DRIVERS UNDER THE INFLUENCE OF ALCOHOL IN 2005 AND 2006

Drivers under influence of alcohol	Traffic accidents			Fatalities		Injured	
	2005	2006	+/- (%)	2005	2006	2005	2006
Up to 0.5 g/kg of alcohol	1,096	1,164	+6.2	14	9	586	575
From 0.5 to 1.5 g/kg alcohol	2,314	2,582	+11.6	53	54	1,537	1,781
More than 1.5 g/kg of alcohol	2,809	2,844	+1.2	57	60	1,656	1,668
All motorists under the influence of alcohol	6,219	6,590	+6.0	124	123	3,779	4,024

with fatalities than within the same period in 2003, with almost 41% fatalities less²³.

In the first six months of 2005, after the passing of the New Act, there were 3,275 accidents for which motorists under the influence of alcohol were accused (12.5% of the total number of accidents), with 64 fatalities. Only five fatalities (8%) were caused by motorists with blood alcohol concentration measuring up to 0.5‰. As many as 27 fatalities (42%) were caused by motorists with more than 1.5‰. Half of the fatalities, namely 32 (50%) were caused by the motorists with 0.5–1.5‰. In this period, more than 451,000 violations were recorded, whereas in the same period of the previous year, the number of violations was about 519,000. The decrease of the total number of accidents is the result of the new legislation provision, according to which accidents with no human victims need not be reported to the police.

Table 4 shows that the number of traffic accidents caused by the motorists under the influence of alcohol was increased by some dozen *per cent* as follows: 2005 – 6,219 persons, 2006 – 6,590 persons, although in 2006 there was one fatality less, amounting to 123. In 2005 motorists with alcohol concentration of 0 – 0.5‰ caused 1,096 accidents with 14 fatalities, whereas in 2006 there were 1,164 accidents and 9 fatalities. There were 2,314

accidents caused by motorists with more than 0.5‰ and up to 1.5‰ in 2005 (in 2006 – 2,582), with 53 fatalities (1 fewer than in 2006). Motorists with more than 1.5‰ participated in 2,809 accidents (in 2006 – 2,844), with 57 fatalities among the motorists, 3 fewer than in 2006.

Table 5 compares the share of the traffic accident participants under the influence of alcohol regarding the total number of participants in the last four months in 2003 and 2004. It is evident that in the absolute amount for 2004 the number of traffic accident participants under the influence of alcohol decreased. However, if one takes into consideration the percentage, one may notice that in the last four months in 2004, compared to the last four months in 2003, there was an increase in the percentage of traffic accident participants under the influence of alcohol from 5.7% to 6.2%. It should be emphasised that this increase is not the result of increased alcohol consumption after the New Act has been enforced, but rather the result of also registering those participants with blood alcohol concentration level from 0.01‰ to 0.05‰.

Table 6 compares the data on the distribution of traffic accident participants regarding the level of alcohol in the blood, and the seriousness of traffic accident consequences for the last four months in 2003 with those in

TABLE 5
COMPARISON OF SHARE OF ALCOHOLISED PARTICIPANTS IN TRAFFIC ACCIDENTS REGARDING THE TOTAL NUMBER IN THE LAST FOUR MONTHS OF 2003 AND 2004 IN THE REPUBLIC OF CROATIA

Time period	Total number of participants in traffic accidents	Number of participants positive to alcohol	%
2003 (IX–XII)	72,122	4,134	5.70%
2004 (IX–XII)	38,886	2,421	6.20%

the last four months in 2004. It is obvious that during the last four months in 2003 in traffic accidents with fatalities 14.16% of participants were registered, whereas in the same period in 2004 there were 14.51% participants registered. Since in 2003 only participants with more than 0.5‰ of alcohol in blood were registered, whereas in 2004 all participants with a concentration greater than 0.00‰ were registered, this resulted with an increase of only 0.45% of participants under the influence of alcohol. Thus, the increase of 0.45% can be assigned to the share of participants with concentrations from 0.0 to 0.5‰, which started to be registered in 2004 according to the »New Act«. Analysing the data that in 2003 there were 701 fatalities in traffic accidents compared to 608 fatalities in 2004, which means a reduction in the number of fatalities by 13.4%, the question arose regarding how much the implementation of 0.00‰ provision affected this reduction. Considering the traffic accidents involving the injured, at the time of the implementation of the 0.0‰ provision a reduction of 0.76% of participants positive to alcohol was registered compared to the analysed period of time in 2003 when traffic accident participants with alcohol concentrations from 0.0 to 0.5‰ were not registered. Analysing the traffic accidents with material damage, for the last four months in 2004, compared to the same period in 2003, an increase in the number of traffic accident participants of only 0.54% was registered.

Discussion

This paper compares the frequency of traffic accident participants regarding blood alcohol concentration levels

and the seriousness of the consequences for the last four months in 2003 with those for the last four months in 2004. This period is extremely significant since it represents the condition before and after the passing of the New Traffic Act, better known in the public as the »0.0 Act«. Analysing the alcohol levels among traffic accident participants with fatalities, a minimal increase from 14.16 to 14.51% can be noticed, which may have been contributed by the registration of even the minimal amounts of alcohol according to the provisions of the New Traffic Act²⁴. However, although there was no obligation for the police to be called to the scene of every traffic accident with material damage, it is reasonable to assume that there must have been a certain number of participants who were under the influence of alcohol.

Evidence has shown that binge drinking induces acute psychomotor and cognitive impairments, blurs logical reasoning as well as increases the likelihood of self-destruction or aggression towards others²⁵. For planning and designing comprehensive and effective prevention and intervention programs, it is necessary to further broaden the array of drinking and driving behaviours. This should also include formulating programs to promote a shift in social norms concerning alcohol consumption and acceptability of drinking and driving²⁶.

Relating accident risk to BAC (blood alcohol concentration), the global risk function indicates an exponential increase of accident risk for BACs above 0.05%²⁷. Controlling for correlating factors leads to an overall lower estimation with, however, the same structure, indicating that alcohol is consumed by drivers in circumstances which further increase the risk introduced by alcohol. By analysing the attributable risk (AR), it was ascertained that about 12% of all accidents are attributable to alcohol. Over 96% of these happen with BACs of 0.05% and above. Hence, measures aimed at reducing alcohol-related accident risk must focus on larger BACs, especially 0.08% and above.

Reductions in alcohol-impaired driving problems require attention to be focused on all relevant target groups²⁸. Collaboration between public health, traffic safety professionals and criminal justice agencies will prove to be critical and rewarding when lives are saved and tragedies averted as the downward trend is resumed in alcohol-impaired driving and related behaviours. It

TABLE 6
COMPARISON OF PARTICIPANTS ACCORDING TO THE LEVELS OF ALCOHOL IN BLOOD AND SERIOUSNESS OF TRAFFIC ACCIDENTS IN THE LAST FOUR MONTHS OF 2003 AND 2004 IN THE REPUBLIC OF CROATIA

Seriousness of traffic accident	Levels of alcohol in the participants' blood								Positive to alcohol %	
	Yes		No		Unknown		Total			
	2003	2004	2003	2004	2003	2004	2003	2004	2003	2004
Traffic accidents with fatalities	94	64	570	377	0	0	664	441	14.16	14.51
Traffic accidents with the injured	1,435	994	14,835	11,309	0	33	16,270	12,336	8.82	8.06
Traffic accidents with material damage	2,605	1,374	52,583	24,608	0	131	55,188	26,113	4.72	5.26
Total	4,134	2,432	67,988	36,294	0	164	72,122	38,890	5.73	6.25

may prove essential to focus on resolving the underlying issues that directly influence the behaviour such as alcohol misuse and/or dependence, rather than solely relying on traditional punitive approaches²⁹.

Conclusion

The »0.0« Act was abolished on 1 June 2008, with the exception of professional drivers and drivers under 24 years of age. All others may drive with a blood alcohol level of up to 0.05%. While it was being implemented, the »0.0« Act was under heavy criticism, especially by tourist boards, bar owners and winemakers.

Yet, regardless of the current allowed blood alcohol concentration limits for Croatian drivers, in order to plan and conceive comprehensive and efficient programmes of prevention and intervention, it is necessary to expand the area of gathering data on driving under the influence of alcohol. Certainly the program design should also concentrate on promoting changes of the social norms regarding alcohol consumption and active participation in traffic under its influence. Such public and wide-ranged approach would bring benefits not only to hazardous traffic participants (young motorists and alcoholics) but also to their families, wider community and generally the society in which we live.

One should also concentrate on solving personal problems that are in direct correlation with hazardous behaviour in traffic: consumption of alcohol and driving under

the influence of alcohol. Unfortunately, some persistent violators remain resistant to the implementation of the New Traffic Act even in case of more rigorous penalisation.

Preventive procedures need to be implemented parallel to the legal penalising measures. Favourable results could be achieved by means of public warning through increased risk of being arrested and rigorous penalties for drunken motorists, in combination with the implementation of public-health measures, designed to reduce alcohol consumption among active traffic participants. The use of modern technologies is also recommended, pertaining to, for instance, the mechanism which may block the vehicle if a person under the influence of alcohol wants to start it and participate in traffic.

Despite the descriptive nature of this report, several important research topics for further in-depth analysis have been identified: social norm, lifestyle characteristics, accessibility to alcohol and laws regarding drinking and driving practices in order to refine prevention and intervention strategies targeted towards drinking and driving.

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REFERENCES

1. PEEK-ASA C, *Am J Prev Med*, 16 (1999) 57. DOI: 10.1016/S0749-3797(98)00116-0. — 2. MISSONI E, KERN J, *Croat Med J*, 44 (2003) 610. — 3. LITMAN T, *Am J Health Prom*, 18 (2004) 103. DOI: 10.4278/0890-1171-18.1.103. — 4. STROHM PC, SÜDKAMP N, ZWINGMANN J, EL SAMAN A, KÖSTLER W, *Unfallchirurg*, 108 (2005) 1022. — 5. MISSONI E, KERN J, *Društvena istraživanja*, 16 (2007) 587. — 6. SCHEIMAN S, MOGHADDAS HS, BJORNSTIG U, BYLUND PO, SAVEMAN BI, *Accid Anal Prev*, 42 (2010) 758. — 7. RICHTER M, OTTE D, HAASPER C, KNOBLOCH K, PROBST C, WESTHOFF J, SOMMER K, KRETTEK C, *J Trauma*, 62 (2007) 1118. — 8. NIKOLIC N, MISSONI E, MEDVED G, *J Travel Med*, 12 (2005) 53. DOI: 10.2310/7060.2005.00009. — 9. ELDER RW, SHULTS RA, SLEET DA, NICHOLS JL, ZAZA S, THOMPSON RS, *Traffic Inj Prev*, 3 (2002) 266. DOI: 10.1080/15389580214623. — 10. Fatal Accident Reporting System. In: *Traffic Safety Facts*, 1996. (United States Department of Transportation, National Highway Traffic Safety Administration, Washington DC, 1997). Available from: URL: <http://www.nrd.nhtsa.dot.gov/Pubs/96Overview.pdf> — 11. ARIAS E, ANDERSON RN, KUNG HC, MURPHY SL, KOCHANNEK KD, *Natl Vital Stat Rep*, 52 (2003) 1. — 12. MIŠKULIN M, PETROVIĆ G, MIŠKULIN I, PUNTARIĆ D, MILAS J, DAHL D, RUDAN S, *Coll Antropol*, 34 (2010) 1315. — 13. HINGSON RW, HEEREN T, ZAKOCS RC, KÖPSTEIN A, WECHSLER H, *J Stud Alcohol*, 63 (2002) 136. — 14. CHERIPITEL CJ, BOND J, YE Y, *Eur Addict Res*, 12 (2006) 42. DOI: 10.1159/000088582. — 15. MCDERMOTT FT, *Pediatrician*, 12 (1985) 41. — 16. PACIULLO G, *Med J Australia*, 1 (1983) 620. — 17. RICHTER ED, FRIEDMAN LS, BERMAN T, RIVKIND A, *Am J Prev Med*, 29 (2005) 440. — 18. ROBERTS I, MOHAN D, ABBASI K, *BMJ*, 324 (2002) 1107. DOI: 10.1136/bmj.324.7346.1107. — 19. CHARLTON R, SMITH G, *J R Soc Med*, 96 (2003) 475. DOI: 10.1258/jrsm.96.10.475. — 20. HAEGI M, *BMJ*, 324 (2002) 1110. DOI: 10.1136/bmj.324.7364.1110. — 21. Blood Alcohol Levels in Road Accident Fatalities for 2000 in Great Britain (Transport Research Laboratory, Crowthorne, 2002). — 22. GUPPY A, ADAMS-GUPPY JR, *J Stud Alcohol*, 56 (1995) 348. — 23. Bilten o sigurnosti cestovnog prometa 2005. (Ministarstvo unutarnjih poslova. Republika Hrvatska, Zagreb, 2006). Available from: URL: <http://www.mup.hr/UserDocsImages/Bilten%20o%20sigurnosti%20cestovnog%20prometa.PDF> — 24. GRMOVŠEK M, HULJAK M, ŽUPIĆ T, *Suvremeni promet*, 25 (2005) 396. — 25. SKIBIN L, BILBAN M, BALAZIC J, *Forensic Sci Int*, 147(S) (2004) 49. DOI: 10.1016/j.forsciint.2004.09.083. — 26. HEDLUND JH, ULMER RG, PREUSSER DF, Determine why there are fewer young alcohol-impaired drivers (National Highway Traffic Safety Administration, publication no. DOT-HS-809-348. Washington DC, 2001). Available from: URL: http://www.nhtsa.gov/people/injury/research/feweryoungdrivers/tech_doc.htm. — 27. KRÜGER HP, VOLLRATH M, *Accid Anal Prev*, 36 (2004) 125. DOI: 10.1016/S0001-4575(02)00134-3. — 28. WILLIAMS AF, MCCARTT AT, FERGUSON SA, *Traffic Inj Prev*, 8 2007 1. DOI: 10.1080/15389580600992895. — 29. BEIRNESS DJ, MAYHEW DR, SIMPSON HM, *DWI repeat offenders: A review and synthesis of the literature* (Health Canada, Ottawa, 1997).

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CESTOVNE NESREĆE POVEZANE S ALKOHOLOM PRIJE I POSLIJE DONOŠENJA ZAKONA O SIGURNOSTI PROMETA NA CESTAMA

SAŽETAK

Cilj ovog rada bio je prikupiti dovoljno podataka kako bi se na temelju teorije i istraživanja formulirale preporuke zakonodavstvu s namjerom smanjenja broja nesreća i žrtava vezanih uz alkohol na hrvatskim cestama. Podaci o ozlijeđenim sudionicima u prometu i udjelu sudionika pod utjecajem alkohola prikupljeni su iz zapisnika prometne policije, sastavljenih na poprištima samih nesreća. Ta je dokumentacija zatim obrađena metodom deskriptivne epidemiologije i analizirana tijekom četverogodišnjeg razdoblja, prije i poslije donošenja novog Zakona o sigurnosti prometa na cestama u Republici Hrvatskoj, dana 20. kolovoza 2004. U prvih šest mjeseci 2005., nakon donošenja Zakona, bilo je 3275 nesreća koje su uzrokovali vozači pod utjecajem alkohola (12,5% svih nesreća), sa 64 poginulih osoba. Samo pet smrtnih slučajeva (8%) uzrokovali su vozači s izmjerenom koncentracijom alkohola u krvi do 0,5 ‰. Čak 27 smrtnih slučajeva (42%) uzrokovali su vozači s izmjerenih više od 1,5 ‰, dok su polovicu smrtnih slučajeva, 32 (50%), uzrokovali vozači s 0,5 do 1,5 ‰. U tome razdoblju zabilježeno je više od 451.000 prometnih prekršaja, dok ih je u istom razdoblju prethodne godine bilo oko 519.000. Smanjenje ukupnog broja nesreća rezultat je odredbe novog zakona, prema kojoj se incidenti bez ljudskih žrtava ne moraju prijaviti policiji. Broj prometnih nesreća koje su uzrokovali vozači pod utjecajem alkohola porastao je za oko deset posto, i to: 2005 – 6219 osoba, 2006 – 6590 osobe, s tim da je 2006. ubijena jedna osoba manje (123) u odnosu na 2005. U 2005., vozači s koncentracijom alkohola od 0 do 0,5 ‰ uzrokovali su 1096 nesreća, s 14 poginulih, dok je u 2006. bilo 1164 nesreća s 9 smrtnih slučajeva. Ukupno 2314 nesreća uzrokovali su vozači s više od 0,5 ‰ i do 1,5 ‰ u 2005. (2006. – 2582), uz 53 poginulih (1 manje nego u 2006.). Vozači s više od 1,5 ‰ sudjelovali su u 2809 nesreća (2006. – 2844), pri čemu je broj poginulih vozača iznosio 57, tri manje nego u 2006. U svjetlu tih činjenica, konzumacija alkohola i dalje ostaje značajan čimbenik prometnih nesreća te tvori važno područje za provedbu mjera prevencija od ozljeda.