Risk Behaviours for Traffic Accidents in 18-20 Years Young People Travelling with Drunk Driver of Timis County, Romania

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The present research aimed to assess some predictors for experiencing traveling in a car with a driver who has consumed alcohol, in a group of young people, aged between 18 and 20 years, residents of Timis County, Romania. The study group of 1606 young subjects, 18-20 years of age, 51.4% pupils and 48.6% students, with girls being significantly better represented, was applied a transversal population study. Percents of 29.8% of boys and 28.4% of girls got 1-3 times in a car with a drunk driver, and 10.1% of boys and 6.5% of girls traveled in such circumstances more than 4 times. Boys tend to accept the risks of traveling in a car with a drunk driver significantly more frequently than girls. We identified some predictors for traveling with a driver who has consumed alcohol, such as the binge drinking model and the model of mixed alcohol and drugs consumption, the practice of alcohol consumption associated with vehicle driving by the father, as well as by friends.

Keywords: young people, traveling with drunk driver, traffic accidents, consumption of alcohol and drugs

Health augmentation of young people worldwide requires daily improvement within families, groups of friends and in schools, by addressing certain risk and protection factors in the social environment [1,2]. According to Viner [3], the most effective interventions are probably structural changes to improve the access to education and jobs for young people and to reduce the risks of transportation-related injuries.

Of the risk factors increasing the probability of certain individuals to be involved in traffic accidents, some risks are high among young traffic participants, including pedestrians, drivers, and passengers of cars and motorcycles. Factors which influence the risk may be factors influencing exposure, accident involvement, the severity of accidents and effects of incidents. Understanding the risks faced by young road users is important for planning adequate programmes to reduce traffic-related deaths and incidents in this age group [4].

Our study aimed to assess certain predictors of experiencing a ride with a driver who consumed alcohol in young people of Timis County, Romania.

Experimental part

Material and methods

We studied a group of 1605 young people aged between 18 and 20 years, of whom 51.4% (825) are pupils, and 780 are students. Boys represent 46.2% (381) of pupils and 38.4% (299) of students. The work method was the transversal population study based on the CORT 2004 Questionnaire on health risk behaviours in adolescents and young adults [5]. The questionnaire was validated by the Ethics Committee of the Victor Babes University of Medicine and Pharmacy Timisoara.

The study obtained written approval from the university teaching institutions in Timis County. Young subjects were only included in the study after freely expressed consent of every participant, according to individual rights.

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Data were processed with the PASW 18 (SPSS18) 2010 programme. The threshold for statistical significance was set at $p<0.05$, except for situations where the Bonferroni correction was applied. For comparing ordinal data, we used the Mann-Whitney and Kruskal-Wallis tests. The Chi-square test was used in tables with ordinal/nominal data. The logarithmic regression was also used for the prediction of various association models between risk behaviours.

Results and discussions

During the last 12 months, of the 671 respondent boys, 60.1% (403) declared they never traveled in a car with a drunk driver, while in girls, out of 921 respondents, the respective proportion is 65.0% (599). Traveling in a car with a drunk driver on 1-3 occasions was reported by 29.8% (200) of boys and 28.4% (262) of girls, and 10.1% (68) of boys and 6.5% (60) of girls reported such experiences on 4 occasions.

Boys traveled in a car driven by a drunk driver significantly more frequently than girls, $U=286893.5$, $z=-2.83$, $p=0.005$, $r=0.070$, with a small sized difference.

Pupils traveled in a car driven by a drunk driver significantly more frequently than students, $U=296596$, $z=-2.62$, $p=0.009$, $r=0.065$, with a small sized difference. Separating participants according to the originating group, the differences between the two genders are not statistically significant in the group of pupils, $p=0.060$, nor are they in the group of students, $p=0.067$ (fig.1).

Car rides with drivers who consumed alcohol were reported at least once during the last 12 months by 30.5% (127) of non-consumers, 52.3% (92) of binge drinkers, 37.5% (9) of drugs consumers, and by 73.9% (34) of those who practice mixed consumption. In the group of girls, 31.7% (254) of non-consumers, 56.3% (40) of binge drinkers, 45.5% (10) of those who consume drugs, and 76.2% (16) of those practicing mixed consumption traveled during the last 12 months with drivers who consumed alcohol.

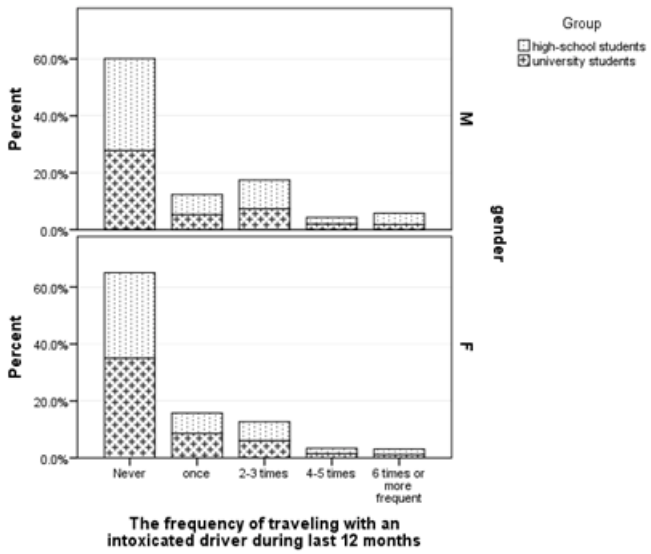

Fig. 1. Percent distribution of participants according to the frequency of rides during the last 12 months in cars or other vehicles driven by persons who consumed alcohol, divided by genders and study group, respectively

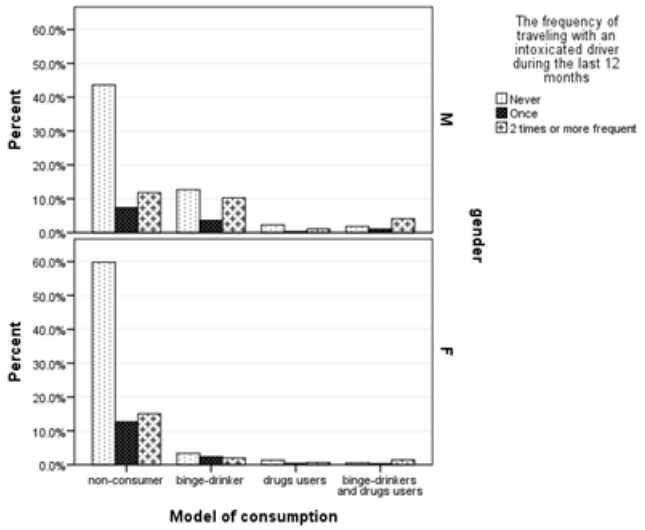

Fig. 2. Percent distribution of participants according to the frequency of rides during the last 12 months in cars or other vehicles driven by persons who consumed alcohol, and consumption model, by genders

In order to detect associations, if any, between the frequency during the last 12 months of rides with drivers who consumed alcohol and the consumption models, we applied the Kruskal-Wallis test and found significant differences both in boys, $H(3)=54.09$, $p<0.001$, and in girls, $H(3)=40.88$, $p<0.001$. We additionally investigated this result and we applied the Bonferroni correction which established the threshold for statistical significance at $p=0.016$.

In boys, the frequency of non-consumers traveling during the last 12 months with drivers who consumed alcohol is significantly lower as compared to participants who practice binge drinking, $U=27397.5$, $z=-5.61$, $p<0.001$, $r=0.23$, and to those who practice mixed consumption, $U=5157.5$, $z=-6.06$, $p<0.001$, $r=0.28$, the size of the difference being small in binge drinkers and small to medium in mixed consumers. The differences between non-consumers and drug consumers were not statistically significant, $p=0.379$.

The situation was similar in girls, where, when comparing to non-consumers, those who practiced binge drinking, $U=21574$, $z=-4.04$, $p<0.001$, $r=0.14$, as well as those who reported mixed consumption, $U=3860$, $z=-5.10$, $p<0.001$, $r=0.18$, frequently reported rides with drivers who consumed alcohol, the size of the difference being small for both types of consumers. As in boys, the differences between non-consumers and drugs consumers are not statistically significant, $p=0.137$ (fig. 2).

We applied logistic regression to demonstrate the influence of gender, originating group, model of consumption of high risk substances and of certain variables linked to family environment and school performance, on reporting the ride with drunk driver. We found that the model containing these predictors is statistically significant $\chi^2(16)=204.1$, $p<0.001$, indicating that the model may discriminate between respondents who traveled with a driver who consumed alcohol and those who did not report such an experience. The model explains between 17.0% and 23.4% of the variance of reporting the ride with a driver who consumed alcohol and correctly classifies 72.2% of cases.

Only four independent variables significantly contribute to the model, these being the group ($p=0.010$), the substance consumption pattern ($p<0.001$), father ($p=0.009$), and friends ($p<0.001$) who practice driving after alcohol consumption. The highest odds ratio values were found in those who consumed drugs and practiced binge drinking versus non-consumers with an OR=5.22, and in those who practiced binge drinking vs those who did not consume at all (OR=2.24). Participants whose friends (OR=4.42) and fathers (OR=2.86) drive after consuming alcohol have a higher risk of traveling with a driver who consumed alcohol. Pupils had 1.46 times higher chances than students of reporting rides with drunk drivers, OR=1.46, when the other factors remain constant. The gender of participants and the other aspects of the family environment, such as imposing or respecting rules and school performance, mothers or brothers driving after alcohol consumption did not significantly influence the prediction model (table 1).

In the analysed group, 60% of boys and 65% of girls never travelled during the last 12 months in a car with a driver who consumed alcohol. Similar percents, 29.8% of boys and 28.4% of girls traveled 1-3 times in cars with drunk drivers, and experiencing such an event more than 4 times was reported by 10.1% of boys 6.5% of girls. Boys tend to accept the risk of traveling with a drunk driver significantly more frequently than girls. We found an association between the consumption pattern and the frequency of rides with drivers who consumed alcohol, participants who pactice binge drinking and those who practice mixed consumption declaring significantly more often this risk behaviour, in both genders. In boys with mixed consumption, the association with the frequency of this high-risk behaviour was small to medium, all the other associations being small sized. The unique drugs consumption was not associated with the decision to travel with a driver who consumed alcohol.

The multivariate prediction model for this behaviour explains between 17 and 23.4% of the variance of the reported decision to travel with a driver who consumed alcohol and has the following predictors: mixed consumers vs non-consumers (OR=5.22), binge drinkers vs non-consumers (OR=2.24), friends who drive after consuming alcohol (OR=4.42), father who drives after consuming alcohol (OR=2.86), pupils vs students (OR=1.46).

According to Zuckerman [6], sensation-seeking in young people is *a feature defined by looking for varied, novel, intense and complex sensations and experiences, as well as by the wish to accept physical, social, legal and financial*

Table 1

COEFFICIENTS OF LOGARITHMIC REGRESSION FOR PREDICTING RIDES WITH DRIVERS WHO CONSUMED ALCOHOL IN YOUNG PEOPLE AGED BETWEEN 18-20 YEARS

Variables	B	SE	Wald	df	Sig	Exp (B)	95% CI for Exp(B)	
							Lower	Upper
Group	.381	.148	6.686	1	.010	1.464	1.097	1.955
Gender (M)	-.095	.155	.381	1	.537	.909	.671	1.231
Consumption pattern			28.420	3	.000			
• Binge drinking vs non-consumer	.810	.200	16.469	1	.000	2.248	1.520	3.325
• Drugs vs non-consumer	.299	.418	.512	1	.474	1.349	.594	3.060
• Binge drinking and drugs vs non-consumer	1.654	.412	16.138	1	.000	5.226	2.332	11.709
Rules set by parents			.094	3	.993			
• Almost never vs Always	-.016	.282	.003	1	.956	.985	.566	1.712
• Almost never vs Often	-.056	.249	.050	1	.823	.946	.581	1.541
• Almost never vs sometimes	-.047	.171	.077	1	.781	.954	.683	1.333
Respect the established rules			5.902	3	.116			
• Often vs always	-.013	.193	.005	1	.946	.987	.676	1.440
• Sometimes vs always	.331	.171	3.756	1	.053	1.393	.996	1.948
• Almost never vs Always	.411	.326	1.590	1	.207	1.509	.796	2.859
School situation	.183	.147	1.559	1	.212	1.201	.901	1.602
Father consumes alcohol and drives	1.052	.405	6.752	1	.009	2.863	1.295	6.329
Mother consumes alcohol and drives	1.814	1.160	2.446	1	.118	6.134	.632	59.543
Brothers consume alcohol and drive	1.132	.962	1.384	1	.239	3.102	.471	20.451
Friends consume alcohol and drive	1.485	.143	108.015	1	.000	4.415	3.337	5.842
Constant	-3.602	1.187	9.203	1	.002	.027		

Legend: B=â coefficient; SE=standard error of â coefficient; Wald=Wald coefficient; df=degrees of freedom; Sig.= p value; OR=odds ratio

risks for the sake of obtaining such experiences. Individuals who seek for sensations tend to engage themselves in behaviours which increase the amount of stimulation they experience.

Alcohol has a significant effect on the risk of accidents for both vehicle drivers and pedestrians and it is usually reported as one of the factors which contribute to the most severe traffic accidents in countries with a high number of motor vehicles. After alcohol consumption, car drivers are at a much higher risk of being involved in accidents than those who have not consumed alcohol, and this risk rapidly increases with the blood concentration of alcohol [7]. In a transversal study [8] including 907 deaths caused by traffic incidents, the authors found that 42.3% of victims were drivers with blood alcohol levels over 0.6 g/L. In a study, Shyhalla et al [9] started from the premise that alcohol consumption delays perception, response time and coordination. The analysis was performed on 1.4 million incidents extracted from the NHTSA database and it revealed that drivers who had consumed alcohol had a lower chance to wear the seat belt, drove with higher speed and were significantly more distracted as compared to the other traffic participants. The severity of incidents was significantly higher for those who consumed alcohol and it additionally increased when other risks were involved as well.

In a multivariate model, Italian researchers [10] found an association between the consumption of alcohol and energizing drinks with several risk behaviours such as multiple sexual partners, heavy smoking, masculine gender, traveling with drivers who consumed alcohol, marijuana consumption. Other authors [11] also found behaviour associations between the consumption of alcohol mixed with energizing drinks leading to intoxication, drunk driving and traveling with drivers who consumed alcohol. Testing the association between the factors involved in the decision to take a ride with a driver who consumed alcohol [12], researchers concluded that the major predictors were the intensity of sensation seeking, the perceived peer pressure and the inadequate alcohol consumption. Alcohol consumption in teenhood is usually associated with other addictive behaviors; it can also be linked to the risk of teenage pregnancy and motherhood [13].

Traffic accident-related facial trauma is a frequent and significant cause of maxillofacial injury. About 51.2% patients had open wounds on the face, such as lacerations, abrasions, skin or soft tissue defects, and friction burns. The complication rate was 46.3%, and scars were the most common followed by nose-related complication, hypoesthesia, and eyelid deformities [14]. Also, traffic accident can produce severe ocular problems, such as prosthetic anophthalmia. For these young people, with visual disabilities, to study in schools or Universities they need proper aids for low–vision. Socio-professional orientation should be performed as early as possible to increase the quality of life [15,16].

A study [17] conducted in persons aged between 18-21 years, used a prospective design to test a dual process model offering reactive psychological influences and psycho-social constructs as predictors of rides with alcohol intoxicated drivers. It was found that motivated and

reactive influences predicted the ride with a driver who consumed alcohol.

Conclusions

In 18-20 years old people in Timis County, Romania, the multivariate prediction model of taking a ride in a car driven by a driver who consumed alcohol has the following predictors: binge drinking type consumption pattern and the mixed alcohol and drugs consumption pattern, alcohol consumption associated with driving both in fathers and in friends.

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