Driving-related behaviour among undergraduate students from Timis County: a cross-sectional study

Sorin Ursoniu, Corina Vernic, Brigitha Vlaicu
"Victor Babes" University of Medicine & Pharmacy, Timisoara, Romania

Simona Apostol
"Tibiscus" University of Timisoara, Romania

ABSTRACT: The aim of this study is to analyze self-reported driving-related behaviour among undergraduate students studying in Timis County area. This study is part of a type A grant financed by the National University Research Council. We conducted a cross sectional study using a multistage stratified cluster sample design to produce a representative sample of undergraduate students for Timis County, Romania. A 126-item questionnaire was developed to investigate health-risk behaviours of young adults and 6 items were dedicated to driving-related behaviour.
KEYWORDS: driving-related behaviour, alcohol, undergraduate students

Introduction

Young adults in the age group of 18-25 pursue a great deal of their space time activities outside their homes.

During these hours of leisure time, in the evening or at right, they tend to rely on individual means of transport such as private cars or motorcycles.

The risk or becoming involved in road accidents is particularly high in this age group. Traffic accidents are the single greatest killer of 15 to 24 year olds in OECD countries, and, although data is not always available the situation appears to be no better in other, non-OECD countries [Eur06].

1 Design and methods

This study is part of a type A grant financed by the National University Research Council. We conducted a cross sectional study using a multistage stratified cluster sample design to produce a representative sample of undergraduate students for Timis County, Romania.

A 126-item questionnaire was developed to investigate health-risk behaviours of young adults and 6 items were dedicated to driving-related behaviour. A pilot test was conducted to establish the validity and reliability of the instrument. The study was carried out between May–June 2005. The selected Universities Boarders approved this study. The questionnaire was administered in a regular classroom setting and it took students about 60 minutes to complete. No filter questions were used. By doing this, comparable amounts of time are required to complete the questionnaire, regardless of risk behaviour status and students cannot detect the risk behaviours of their colleagues simply by looking at the pattern of responses.

Only students present the day of the survey were eligible for participation. Trained public health residents and undergraduate medical students conducted the survey. The data collectors read aloud scripts that explained the survey procedures. Students were told that they do not have to put their names on answer sheets, and that obtained data would be used only for general assessment of the situation in the city and would not be ever associated with their institution or grade. The size of classes ranged from 7 to 100 depending upon the field of study and the institution. A total of 118 classes (clusters) participated to the study. Chi-square test assessed the associations between categorical data. A logistic regression analysis was used to estimate predictors for drinking and driving behaviour. A p-value <0.05 was considered statistically significant, and odds ratios with their respective 95% confidence interval (CI) were calculated.

Anonymity was assured. We used the Epi Info 3.4.3 (CDC Atlanta) and SPSS 10.0 (SPSS Inc, Chicago, Il) software packages for data management and analysis.

2 Results

A total of 2076 students (aged 18-25) were included in the analysis. The overall response rate was 40.0%. Demographic characteristics of the sample

are shown in Table.1. The proportion of students having driver's licence was 47.2% (37.4% of female vs. 63.7% of male students, p<0.001).

Table 1. Demographic Characteristics of the Sample

Characteristics (n=2076)		95%CI
Age, y		
Mean	21.09	
SD	1.48	
Range	18-25	
Sex, %		
Male	37.5	35.4-39.6
Female	62.5	60.4-64.6
Ethnicity, %		
Romanian	95.0	93.9-95.9
Hungarian	2.0	1.4-2.7
Serbian	0.7	0.4-1.2
Moldavian	0.7	0.4-1.2
German	0.5	0.2-0.9
Ukrainian	0.5	0.2-0.9
Other	0.6	0.4-1.1

Because 15.5% of the students having driver's licence have driven in the last 12 months a car or other vehicle after drinking alcohol a logistic regression model was built to identify predictors.

Using backward elimination procedures, the most parsimonious multivariate logistic model was produced for predicting car driving while under the influence of alcohol. Significant predictors are: binge drinking - defined as having 5 or more drinks on at least one occasion in the previous 30 days (OR=4.20; 95%CI: 2.73-6.48), having friends who drive cars after alcohol drinking (OR=2.00; 95%CI: 1.27-3.15), having friends who get drunk at least once a week (OR=1.92; 95%CI: 1.17-3.15), being physically aggressive (OR=2.29; 95%CI: 1.22-4.32). These findings support the idea that the social influence of peers is important to the driving behaviour of undergraduate students.

Table 2. Predictors of car driving after alcohol consumption

Variables	B coefficient	p value	OR	95% C.I. for OR	
				Lower	Upper
binge drinking	1.436	<0.001	4.20	2.73	6.48
friends who drive cars after alcohol drinking	0.692	0.003	2.00	1.27	3.15
friends who get drunk at least once a week	0.650	0.010	1.92	1.17	3.15
being physically aggressive	0.830	0.010	2.29	1.22	4.32

Model chi-square test was 99.97 with 4 degrees of freedom ($p<0.001$). Nagelkerke's R^2 value, an estimate of variations in outcome variables explained by a logistic regression model was calculated. Its value is 0.21, indicating that 21% of the variance in car driving after alcohol consumption was explained by the logistic regression model.

In our study we also investigated the helmet use. Head injury is the leading cause of death in bicycle, motorcycle and scooter crashes [Cen95, SSW96] and use of helmets is the single most effective way of reducing head injuries and fatalities (results shown in Fig.1) [Nat08b]. Estimates indicate bicycle helmets may prevent approximately 56% of bicycle-related deaths, 65%-88% of bicycle-related brain injuries, and 65% of serious facial injuries to the upper and middle regions of the face [Riv85, TRT96, TRT89, T+96].

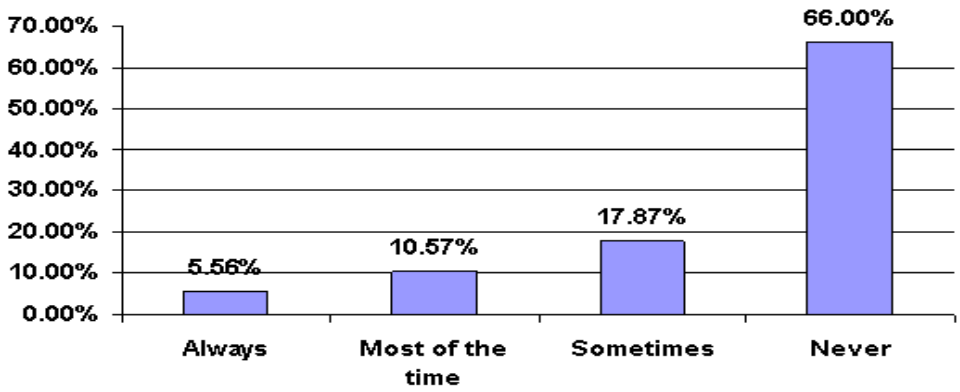

Figure 1. Helmet use among bicycle, motorcycle and scooter drivers during previous 12 months

Young drivers drive more frequently under high risk circumstances.

For instance they use less frequent safety belts. Motor-vehicle related injuries kill more young adults than any other single cause in many countries. Safety belts, when used, reduce the risk of fatal injury to front-seat passenger car occupants by 45% and the risk of moderate-to-critical injury by 50% [Nat08a]. We found out in our survey that 35.90% of the students wear only sometimes seat belt and 5.68% never wear seat belt when riding in a car driven by someone else (Fig. 2).

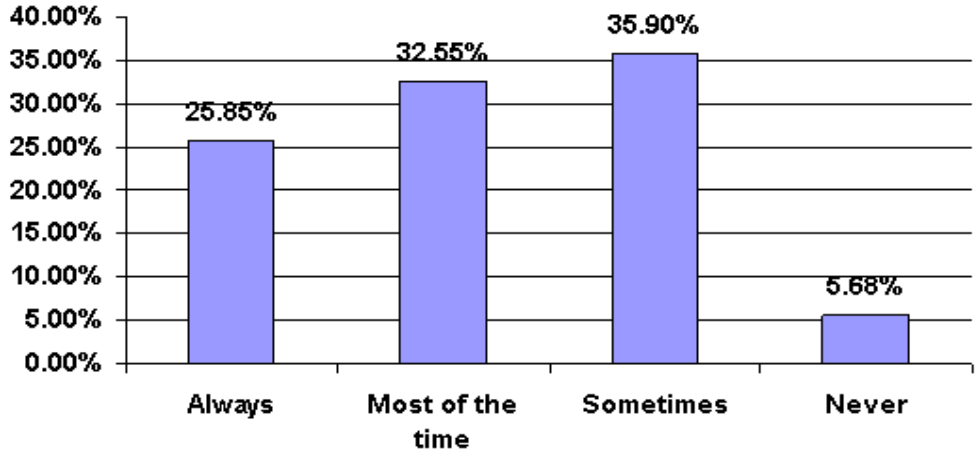

Figure 2. Seat belt wearing when riding in a car driven by someone else.

Alcohol is a key factor in young driver crashes, particularly when combined with other factors, such as speed, night time driving and carrying passengers. Young driver risk differs markedly from that of older drivers for the effect on crash risk of carrying passengers. For older drivers the crash risk decreases when they carry passengers; for 18-19 year-old drivers the risk doubles [Eur06]. For the last 12 months preceding the study about one third of the students rode in a car or other vehicle driven by someone who had been drinking alcohol, exposing themselves to road accidents (Fig. 3).

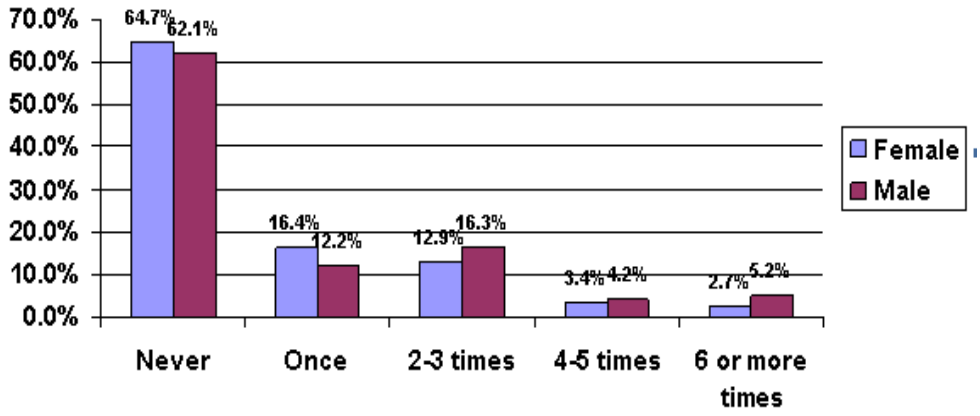

Figure 3. Students riding in a car or other vehicle driven by someone who had been drinking alcohol during previous 12 months

A small proportion of the students use only zebra crossings (21.3% of female vs, 16.3% of male students, p=0.01).

Speed and speeding is undoubtedly one of the main causes of crashes involving young drivers, particularly men (almost 30% of all causation factors for crashes involving male drivers and 21% for female drivers, compared with only 15% for older driver's crashes). Speeding is much more likely to be a crash cause in a fatal crash when the driver is under 25 years old, the likelihood being highest for the youngest drivers.

Speeding is much more prevalent for young male drivers than for young female drivers [Eur06]. Driving faster than the speed limit was quite common in our study, almost one fifth of the undergraduate students declaring they frequently surpass regulation speed (Table 3).

Table 3. Driving speed of undergraduate students

Driving speed	SEX		Total
	female	male	
Only regulation speed	28.6%	12.2%	20.5%
Seldom beyond regulation speed	56.0%	56.7%	56.4%
Frequently beyond regulation speed	14.2%	25.9%	19.9%
Always beyond regulation speed	1.2%	5.2%	3.2%

Conclusions

Undergraduate students drive frequently under high risk circumstances: they use less frequent safety belts, 15.5% of those having driver's licence have driven in the last 12 months a car or other vehicle after drinking alcohol and about one fifth of them drive faster than the speed limit. Logistic regression analysis of car driving after alcohol consumption showed that having friends who drive cars after alcohol drinking, having friends who get drunk at least once a week and being physically aggressive are moderate predictors and binge drinking is a strong predictor for such behaviour.

References

[Cen95] **Centers for Disease Control and Prevention -** *Injury-control recommendations: Bicycle helmets. Morbidity and Mortality Weekly Report 1995;* 44(RR-1):1-17.

[Eur06] **European Road Safety Observatory** (2006) - *Novice Drivers*, http://ec.europa.eu/transport/road_safety/users/novice-drivers/index_en.html. Accessed October 10, 2008.

[Nat08a] **National Highway Traffic Safety Administration.** Traffic Safety Facts 2004: Occupant protection. National Highway Traffic Safety Administration Web site. Available at: http://wwwnrd.nhtsa.dot.gov/pdf/nrd30/NCSA/TSF2004/809909.pdf. Accessed October 10, 2008.

[Nat08b] **National Highway Traffic Safety Administration.** Traffic Safety Facts, Laws: Bicycle Helmet Use Laws. National Highway Traffic Safety Administration Web site. Available http://www.nhtsa.dot.gov/portal/nhtsa_static_file_downloader.jsp?file=/staticfiles/DOT/NHTSA/Communication%20&%20Consumer%20Information/Articles/Associated%20Files/810886.pdf Accessed October 10, 2008.

[Riv85] **F. P. Rivara -** *Traumatic deaths of children in the United States: currently available prevention strategies*. Pediatrics 1985; 75:456-462.

[SSW96] **D. M. Sosin, J. J. Sacks, K. W. Webb** - *Pediatric head injuries and deaths from bicycling in the United States. Pediatrics 1996;* 98:868-870.

[TRT96] **D. C. Thompson, F. P. Rivara, R.S. Thompson -** *Effectiveness of bicycle safety helmets in preventing head injuries: a case-control study*. Journal of the American Medical Association 1996; 276:1968-1973.

[TRT89] **R. S. Thompson, F. P. Rivara, D. C. Thompson -** *A case-control study of the effectiveness of bicycle safety helmets.* New England Journal of Medicine 1989; 320:1361-1367.

[T+96] **D. C. Thompson, M. W. Nunn, R. S. Thompson, F. P. Rivara -** *Effectiveness of bicycle safety helmets in preventing serious facial injury*. Journal of the American Medical Association 1996; 276:1974-1975.