

## Road Safety Related Behaviours of Romanian Young People

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### Abstract

*Aim:* The objective of this study was to assess the behaviors with risk for road traffic injuries among Romanian young people. *Material and Method:* Self-administered questionnaires were completed by the study sample consisting of 1598 junior high school students, senior high school students and university students aged 11-24 years from both urban and rural areas of two counties (Cluj and Hunedora) of Romania. *Results:* The results show that around 80% of the junior high school students and more than 90% of the senior high school students and university students who go by bike do not wear helmets or use them rarely when they are cycling. Seatbelts are used more frequently than the helmets, but still more than one third of the junior high school students and senior high school students and a quarter of the university students do not use seatbelts or use them rarely. In the month previous the survey around one quarter of the students travelled in a car whose driver used alcohol before driving. Moreover, 15% of the university students who drove recognized that, at least once during their life, they did this after they used alcohol. *Conclusions:* The results indicate that comprehensive actions must be developed in order to prevent road traffic injuries among Romanian young people. They must include educational programs for youngsters and parents as well as adoption and enforcement of legislative measures and technical actions, which promote road safety.

**Keywords:** Road safety; Romanian young people; Health promotion.

### Introduction

Road traffic injuries are the leading cause of death by injury, the eleventh leading cause of all deaths and the ninth leading contributor to the burden of disease worldwide. Each year 1.2 million men, women and children around the world lose their lives as a result of road traffic collisions. Hundreds of thousands more are injured on the world's roads, some of whom become permanently disabled. More than half of all global road traffic deaths occur among young adults between 15 and 44 years of age [1, 2].

In many parts of the world children and young people and other vulnerable road users have been given inadequate consideration in urban planning decisions. As a result, they are often forced to share transport space with motorized vehicles, increasing their chances of being involved in a road traffic crash. A combination of physical and developmental immaturity among children, and

inexperience and youth-related lifestyles further increase the risk of young road users – particularly males – to road traffic collisions [3, 4].

The factors which lead to road traffic injuries include attitudes and behaviors of the road users - pedestrians, drivers, cyclist and motorcyclists - roads characteristics and vehicle characteristics. Children and adolescents are a special category which is vulnerable to road traffic injuries from many reasons, including their attitude and behavior regarding road safety, as well as in many cases the behaviors of the persons from their environment: parents, relatives, peers [1,2,4,8]. In some cases they suffer injuries as passengers traveling in a car drove by another person, maybe young inexperienced driver, or a driver who drank alcohol or likes to drive with a high speed. In some situations, after the age when they can get their driving license, the young people themselves are the drivers and they do not respect the rules of a safety drive. Moreover, both as passengers or drivers, they might not use the seatbelt [1-4].

On the other hand, children and young people might suffer injuries as cyclists or as pedestrians as consequences of their own risky behavior (such as inappropriate use of helmets or crossing the street in an unsafe way) or because of others people risky road behavior (e.g. drivers which do not respect the safe driving rules) [2].

In order to prevent and decrease the severity of the road traffic injuries among young people it is very important to assess their behaviors, which could lead to these types of injuries. Nevertheless, very little information is available with regard to road safety related behavior of Romanian young people. Hence, the objective of this study is to assess behaviors with risk for road traffic injuries among Romanian young people, as a first step in order to identify strategies, which will promote a preventive behavior regarding road safety among them.

## **Material and Method**

### *Sample*

The data were obtained from a cross-sectional study conducted between November 2003 and February 2004 among 1598 young people aged 11- 24 years old from two counties - Cluj and Hunedoara - situated in the North West part of Romania. From each county there were selected one town (Cluj-Napoca for Cluj county and Deva for Hunedoara county) and one rural area (Cuzdrioara, respectively Criscior). In Romania the school system comprises four types of educational levels: elementary school (students have age between 7 and 11 years), junior high school students (students' age is between 11 and 15 years), senior high school students (age between 15 and 19 years) and university (students' age starting from 19 years).

The study was performed in two junior high schools and in two senior high schools in each of the two towns and in one junior high school and one senior high school in the rural areas (each rural area has no more than one junior and one senior high school). In each of the selected high schools the study involved students from 1-2 classes of each grade level.

In Cluj-Napoca the study was also carried out among university students randomly chosen from 8 student dorms deserving the 4 main universities of the town. From each university there were randomly chosen 40 girls, respectively 40 boys living in the selected student dorms. In Deva the study involved 40 girls and 40 boys from the main university of the town, who were randomly chosen and asked to participate in the study during the university activity, because there were no student dorm belonging to the university.

### *Procedure*

All study subjects were asked to complete an anonymous questionnaire, which took approximately 50 minutes. Study procedures were designed to protect student anonymity and allow for voluntary participation. Among junior and senior high school students the questionnaire was administered and collected in the classroom by members of the research team. Teachers were present in the classroom during the data collection, but they stayed in the front of the class and they did not take part in the questionnaires' collection. Consent to participate was obtained from the school administration, the standard procedure in Romania.

Students from Cluj-Napoca completed the questionnaire in the student hostel and students from Deva completed it at home and after this the researchers collected them.

### *Questionnaire*

Question content included items relating to demographics as well as a broad range of healthy and unhealthy behaviors, the presence or absence of which may have immediate or long-term effects on the health status of adolescents and young adults

For this analysis we used 4 marker questions for behaviors related with road traffic injuries: use of helmets when cycling, use of seatbelt, traveling in a car with a driver who used alcohol, the way of crossing the street. For university students one additional question was included with regard with their habit of driving under the influence of alcohol.

### *Analysis*

Prevalence of road traffic injuries related behaviors were calculated. The chi square test was used in order to evaluate the age and gender differences regarding the prevalence of different risky behaviors.

Data analysis was performed with SPSS-12 statistical program. Significant results were reported at  $p < 0.05$ .

## **Results**

The study sample consisted of 630 junior high school students aged 11-15 years old (324 boys and 306 girls, 498 from urban area and 132 from rural area), 568 senior high school students aged 15-19 years old (281 boys and 287 girls, 325 from urban area and 243 from rural area) and 400 university students with age between 19 and 24 years (200 boys and 200 girls).

A percentage of around 80% of the junior and senior high school students declared that they are cycling, while only 64.5% of the university students declared this. In all three age groups cycling was statistically significant ( $p < 0.05$ ) more frequent among boys than among girls (90.5% vs. 68.2% among junior high school students, 87.5% vs. 70.0% among senior high school students and 75.8% vs. 54.5% among university students). The results of the study (see Table 1) show that around 80% of the junior high school students and more than 90% of the senior high school students and university students who go by bike did not wear helmets or used them rarely when they were cycling. Use of helmets on frequently bases decreased with age, being noticed statistically significant differences between junior high school students for one side and senior high school and university students for other side ( $p < 0.01$ ). No significant differences ( $p > 0.05$ ) were found between boys and girls with regard to this issue in none of the three age groups.

With regard to seatbelts in the car (see Table 2), they are used more frequently than the helmets when cycling, but still more than one third of the junior high school students and senior high school students and a quarter of the university students do not use seatbelts or use them rarely. Use of seatbelts on frequently basis was statistical significant more frequent among university students than among junior and senior high school students ( $p < 0.001$ ), but no statistically significant difference was found between junior and senior high school students. Moreover, the use of seatbelts on regular bases seems to be more frequent among girls in all three groups and the difference reached significance among junior high school students and university students ( $p < 0.001$ ).

Around 95% of the junior and senior high school students and 91% of the university students traveled in a car in the month previous the survey. Table 3 shows that around of quarter of these subjects traveled in the last month in a car whose driver used alcohol before driving; no significant differences were observed between junior high school, senior high school and university students. Gender differences were noticed; girls were less often in a car with a driver who used alcohol than the boys did and this difference reach significance among all the three age groups ( $p < 0.05$ ).

**Table 1.** Use of helmets among study subjects who were cycling

	Junior high school students %	Senior high school students %	University students %
Total	N=454*	N=438*	N=242*
Always	13	4.6	5.3
Frequently	6.2	3.4	2.1
Rarely	13	14.6	11.2
Never	67.8	77.4	81.4
Girls	N=196*	N=195*	N=109*
Always	13.3	6.2	0.9
Frequently	6.1	2.1	2.8
Rarely	16.8	12.3	11
Never	63.8	79.5	85.3
Boys	N=258*	N=243*	N=133*
Always	12.8	3.3	9.0
Frequently	6.2	4.5	1.5
Rarely	10.1	16.5	11.3
Never	70.9	75.7	78.2

\* Due to absence of answer to this question in some cases, the number of students decreased

**Table 2.** Use of seatbelts

	Junior high school students %	Senior high school students %	University students %
Total	N=612*	N=556*	N=387*
Always	48.2	38.1	41.6
Frequently	14.7	24.5	32.8
Rarely	19.1	28.4	21.9
Never	18.0	9.0	3.7
Girls	N=301*	N=281*	N=196*
Always	53.5	38.1	44.9
Frequently	16.3	25.6	34.2
Rarely	16.9	26.7	18.9
Never	13.3	9.6	2
Boys	N=311*	N=275*	N=191*
Always	43.1	38.2	38.2
Frequently	13.2	23.3	31.4
Rarely	21.2	30.2	25.1
Never	22.5	8.3	5.3

\* Due to absence of answer to this question in some cases, the number of students decreased

**Table 3.** Traveling in a car with a drunk driver in the last month

	Junior high school students %	Senior high school students %	University students %
Total	N=573*	N=531*	N=344*
Never	74.7	76.5	77.1
Once	9.8	10.5	11.6
More than one time	15.5	13	11.3
Girls	N=282*	N=269*	N=178*
Never	85.4	81.0	81.5
Once	11.2	8.2	10.1
More than one time	3.4	10.8	8.4
Boys	N=291*	N=262*	N=166*
Never	68.0	71.8	72.3
Once	13.4	13.0	13.2
More than one time	18.6	15.3	14.5

\* Due to absence of answer to this question in some cases, the number of students decreased

Moreover, 15% of the university students who drove recognized that they drove after they used alcohol at least once during their life. Statistical significant ( $p < 0.05$ ), more boys than girls (19.6% vs 8.3%) engaged themselves in this risky behavior.

In several situations young people can suffer serious injury as pedestrians also. Table 4 shows that around 40% of the junior high school students and around 60% of the senior high school students and university students recognized that generally they do not pay attention in order to cross the street only at crossing zebra. Boys were statistical significant ( $p < 0.01$ ) more likely than girls to do this in all three age groups.

**Table 4.** Crossing the street

	Junior high school students %	Senior high school students %	University students %
Total	N=617*	N=557*	N=379*
Only at the crossing zebra	60.4	37.2	35.6
Anywhere, after taking precocious	32.1	56.6	61.2
Anywhere	7.5	6.3	3.2
Girls	N=300*	N=280*	N=198*
Only at the crossing zebra	68.3	41.1	48.0
Anywhere, after taking precocious	29	54.3	50.5
Anywhere	2.7	4.6	1.5
Boys	N=317*	N=277*	N=181*
Only at the crossing zebra	53.0	33.2	22.1
Anywhere, after taking precocious	35.0	58.8	72.9
Anywhere	12.0	7.9	5

\*Due to absence of answer to this question in some cases, the number of students decreased

## Discussion

Road traffic injuries and their consequences contribute together with other unintentional injuries to a silent epidemic experienced by young people throughout the world. They can result in pain, suffering, loss of time and productivity, and inconvenience to the victims and their families. More severe forms of injury can result in substantial medical treatment, the need for rehabilitation, continuing disability and even death. During the latter half of the 20th century, injuries replaced infectious disease as the largest cause of death in children and adolescents in some countries [2,4,5].

The results of our study show that many Romanian junior and senior high school as well as university students engage in behaviors that place them at risk for road traffic injuries.

As pedestrians, crossing the street in a correct manner is an important issue, which may prevent many injuries. Our study shows that only less than half of the subjects cross generally the street on the crossing zebra. This may be the result of adolescents' risk taking behavior, but also because of the road environment and inadequate consideration in urban planning decisions.

For bike users the main risk factor for injuries is the non-use of crash helmets. The lack or inappropriate use of helmets has been shown to increase the risk of fatalities and injuries resulting from road crash involving bike users [1, 5]. Among Romanian young people who use bicycles, the majority does not use helmets at all or use them rarely. This issue combined with the lack of cycling lanes observed in Romania could have serious consequences in terms of frequency and severity of road traffic injuries suffered by young Romanian bicyclists.

On the other hand, the lack or inappropriate use of seat belts is an important risk factor for the fatalities and injuries that result from road crashes. The most frequent and most serious injuries occurring in frontal impacts to occupants unrestrained by seatbelts are to the head [6-8]. Instead of this, more than one third of the junior high school students and senior high school students and a quarter of the university students do not use seatbelts or use them rarely.

Impairment by alcohol is an important factor influencing both the risk of a road crash as well as the severity of the injuries that result from crashes. The frequency of drinking and driving varies between countries but it is almost universally a major risk factor for road traffic crashes. The extent

to which alcohol contributes to road traffic crashes varies between countries, and direct comparisons are difficult to make. In many high-income countries, about 20% of fatally injured drivers have excess alcohol in their blood (i.e. above the legal limit). Studies in low-income countries have shown alcohol to be present in between 33% and 69% of fatally injured drivers [1,2,9]. In our study, the results show that around one quarter of the subjects were in a car with a driver under the influence of alcohol in the last month. Besides, 15% of the university students who drive recognized that they drove at least once in their lifetime after the use of alcohol.

Some risky behaviors increased with age; the exception was use of seatbelts, which was more frequent among university students than among junior and senior high school students. The explanation may be partially the fact that the Romanian national car has seatbelts only for passengers who stay in the front. Hence, since junior and senior high school students may stay more frequent in the back of the car, they might not be able to use seatbelts. Similar with other studies, gender differences were also found; boys were generally more likely than girls to involve themselves in risky behaviors [1,10,11].

The results of the study have several implications for road safety promotion activities. Adolescence is the time when several health-related habits are established. If risky behaviors appear at this age, besides the immediate consequences, which might appear, long-term consequences and the risk that these behaviors will continue into the adulthood exists [5,12]. Hence, comprehensive actions must be developed in order to prevent road traffic injuries among Romanian young people. They must include educational programs for youngsters, which emphasize the importance of road safety and motivate them to avoid risky behaviors. Educational activities must target also the Romanian parents in order to increase awareness among them regarding their role as models for their children as well as the importance for them and their children to adopt a safety behavior, which could prevent road traffic injuries.

As several studies from different countries proved [1,5,12], the educational programs must be accompanied by adoption and enforcement of legislative measures, which promote use of seatbelts, use of helmets and discourage use of alcohol before driving (such as enforcing blood alcohol limits, introducing disincentives for drink-driving, restricting the availability of alcohol to young drivers). The preventive role of these measures must be explained to general population in order to increase their compliance with them. Mass media campaigns represent a useful tool in order to increase awareness of population about road safety and the importance of the laws, which try to promote this.

At the same time, technical measures such as ensuring that vehicles are fitted with appropriate seat belts, modifying the road environment in order to be safe for cycling as well as for pedestrians, distributing free helmets to young people could have big benefits in order to prevent road traffic injuries among Romanian young people.

This study is subject to limitations. The conclusions are based on a sample of 1598 young people from both rural and urban area of two counties of Romania. Hence, the results may not generalize to other populations. Moreover, this study involved junior and senior high school students as well as university students, but no out of school adolescents who are more likely to engage in health risk behaviors than in-school youth. Hence, future studies must include national representative sample and must try to reach out of school young people, too.

Another limitation in common with most studies on this topic is the reliance on student self-report. Although some respondents may not report truthfully, the likelihood of honest responses is maximized in this survey by conducting it anonymously.

Instead of these limitations, this current study is one of a few studies regarding road safety related behaviors of Romanian young people. It affirms the complexity of Romanian adolescents' road safety related behavior and shows the necessity of future research in this area in order to develop appropriate road safety promotion interventions among Romanian young people.

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