TRAFFIC INJURIES ISSUE IN ROMANIA

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This study raises the problem of traffic injuries in Romania, as recent statistical data show that, as compared to EU average, East European countries have a significantly higher mortality rate by accident injuries at similar ratio of passengers. In terms of social costs, the increase of traffic accidents rate means a higher social burden and also a higher financial burden for health services and social assistance.

The sudy argues, therefore, that the problem of traffic safety is an important social problem that should be discussed not only by Police specialists but also by sociologists and medical services suppliers and civil society.

Keywords: *traffic injuries, mortality rate by traffic accidents, social costs, awareness of the problem.*

BACKGROUND

This study aims to drive attention to the issue of traffic injuries in Romania, as statistical data show that Eastern European countries and also Romania have a significantly higher mortality rate by accident injuries at similar ratio of passengers, compared to EU average. Unfortunately, the problem is not raised socially, politically or scientifically as an issue in Romania.

National Development Plan of Romania Police Department expects annually increases for all types of transported people (measured in passengers per km) by 3.7% between 2005–2015. As a result, the increased traffic leads also to the probability of higher traffic accidents rate.

In terms of social costs, an increase of traffic accidents rate would mean a higher social burden and also a higher financial burden for health services and social assistance. So, the problem is related also to costs in terms of finance and human capital. Therefore, on the one hand, there is a strong necessity to build

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methods to integrate reliable data about road accidents from a wide range of existing sources, including hospital records, police reports, health surveys, death registers, and on the other hand, to develop successful political strategies to tackle the problem.

Romanian Ministry of Transport, Construction and Tourism has achieved to construct a reliable data base that includes reliable road accidents statistics, only after 14 years of transition, in 2004: "Traffic and Accidents Database" (TRADB). The data base includes data about serious traffic accidents, resulting in deaths and seriously wounded persons.

INTERNATIONAL CONTEXT

According to World Health Organisation statistics, accidents are the 10th cause of mortality at all ages in the world, representing 2.2% of global mortality and a 9-a cause of global burden of disease.

Road traffic accidents in the Member States of the European Union annually claim about 43 000 lives and leave more than 1.8 million people injured, representing estimated costs of 160 billion euros. Since 1984, a large number of measures to reduce road accidents have been taken at a regional level. Along with these measures, the Council adopted a Decision on 30 November 1993 on the creation of a Community database on road accidents (93/704/EC), inside the CARE project (Annual Statistical Report 2008). Rapid pace of urbanization and motorisation leads in the future to an even greater scale of the problem. It is estimated that the problem of traffic accidents will become a true "pandemic" in 2020 and the 3rd cause of disability after heart disease and depression.

Accidents were initially seen as a problem of industrialized countries, but later, it was subsequently shown that there is a negative correlation between the level of a country's economic level and mortality by traffic accidents. While in developed countries there is a constant concern for safety standards for vehicles and safety on public roads (e.g.: in Finland, after 30 years of government programs in traffic safety, mortality by traffic accidents decreased by 50% while the index of motor tripled), in poor countries, the problem is not on the priority agenda (Minca, Cochino, Ion, 2004).

As EUROSTAT reports and European Commission, Directorate-General for Energy and Transport show, there is still a shocking difference between the Western European and the East in terms of safety roads, although important progresses have been accomplished in recent years.

EUROSTAT study Statistics in Focus, 2007 compares 1994 to 2004 statistics and drives the conclusion that Romania is among countries with the highest rate of fatal traffic accidents in the European Union.

Table 1

Road Fatalities Country Rankings, 2007

Fatalities					
per million inhabitants		**per 10 billion pkm**		**per million passenger cars**	
Malta	29	**United Kingdom**	44	**Malta**	54
Netherlands	43	**Sweden**	46	**Netherlands**	97
United Kingdom	50	**Netherlands**	47	**United Kingdom**	106
Sweden	51	**Malta**	56	**Sweden**	111
Germany	60	**Germany**	56	**Germany**	120
Finland	72	**Finland**	59	**Luxembourg**	135
Denmark	74	**France**	62	**Italy**	145
France	75	**Luxembourg**	64	**France**	148
Ireland	78	**Italy**	64	**Finland**	150
Austria	83	**Denmark**	72	**Austria**	164
Spain	85	**Ireland**	80	**Spain**	179
EU27	86	**EU27**	88	**Ireland**	182
Italy	86	**Belgium**	94	**EU27**	187
Luxembourg	90	**Austria**	94	**Denmark**	199
Portugal	92	**Spain**	108	**Belgium**	213
Belgium	100	**Slovenia**	125	**Portugal**	225
Cyprus	114	**Portugal**	128	**Cyprus**	227
Slovakia	116	**Greece**	158	**Czech Republic**	291
Czech Republic	118	**Cyprus**	158	**Slovenia**	293
Hungary	123	**Czech Republic**	163	**Greece**	338
Romania	130	**Lithuania**	187	**Estonia**	364
Bulgaria	131	**Estonia**	193	**Poland**	399
Greece	141	**Poland**	229	**Hungary**	413
Slovenia	145	**Lativa**	234	**Slovakia**	453
Estonia	146	**Slovakia**	235	**Lithuania**	465
Poland	146	**Hungary**	289	**Lativa**	485
Lativa	184	**Bulgaria**	289	**Bulgaria**	523
Lithuania	219	**Romania**	448	**Romania**	782

Source: National statistics for powered two-wheelers pkm

Notes:
Fatalities: all fatalities on the road: car drivers and passengers, bus and coach occupants, powered two-wheelers' riders and passengers, cyclists, pedestrians, commercial vehicle drivers, etc. indicated in *Table 3.7.1* for 2007
pkm: indicator of traffic volume (in the absence of consistent vehicle-kilometre data); passenger-kilometres of cars indicated in *Table 3.3.4* for 2007 plus passenger-kilometres of motorised two-wheelers
inhabitants: the sum of the population indicated in *Table 1.5* at 1 January 2007 and 1 January 2008 divided by two
passenger cars: the sum of the stock of vehicles indicated in *Table 3.6.2* for 2006 and 2007 divided by two

Sourse of data: EU, European Commission, Directorate-General for Energy and Transport in cooperation with Eurostat.

Table 2

Human factors that affect the likelihood of traffic injuries

Reduce capability to meet traffic contingencies		Modulate risk taking while driving	
Long-term	*Short-term*	*Long-term*	*Short-term*
Inexperience Old age Disease and disability Accident proneness Alcoholism and drug abuse	Drowsiness, fatigue Acute alcohol intoxication Short-term drug effects Binge eating Acute psychological stress Temporary distraction	Overestimation of capabilities, "macho" attitude Habitual speeding Habitual disregard of traffic regulations Indecent driving behavior Non-use of seat belt or helmet Inappropriate sitting while driving Accident proneness Alcoholism	Moderate ethanol intake Psychotropic drugs Motor vehicle crime Suicidal behavior Compulsive acts

(Petridou and Moustaki, 2000)

According to this report, Romania, along with Latvia, Lithuania and Slovakia have recorded the highest number of deaths in road accidents. The figures are astounding, and east-west discrepancy is variable, but important, in some European Western States there are as 10 times fewer deaths compared to the East. At a rate of 1 million passenger cars, Latvia, Romania, Lithuania and Slovakia have recorded average of 752, 749, 571, respectively, 507 of people died in car accidents. On the other hand, Malta, Sweden, Great Britain, Holland and Germany had the lowest average: 61, 171, 121,126, respectively, 129 reported dead people from 1 million registered cars (Statistics in Focus, 2007).

Numerous studies demonstrated that human factors, particularly deviant driving habits, have a considerable impact on the recorded number of accidents (Petridou and Moustaki 2000; Stewart 1993; Janssen 1994; Evans 2004). Also, risks of responsible accidents and accidents' severity maintain an exponential relationship with the concentration of alcohol in the drivers' blood (Blais and Dupont 2005).

Petridou and Moustaki (Petridou, Moustaki, 2000) achieved a classification of behavioral factors Thus, behavioral factors can be distinguished as: (i) those that reduce capability on a long-term basis (inexperience, aging, disease and disability, alcoholism, drug abuse), (ii) those that reduce capability on a short-term basis (drowsiness, fatigue, acute alcohol intoxication, short term drug effects, binge eating, acute psychological stress, temporary distraction), (iii) those that promote risk taking behavior with long-term impact (overestimation of capabilities, macho attitude, habitual speeding, habitual disregard of traffic regulations, indecent driving behavior, non-use of seat belt or helmet, inappropriate sitting while driving) and (iv) those that promote risk taking behavior with short-term impact (moderate ethanol intake, psychotropic

drugs, motor vehicle crime, suicidal behavior, compulsive acts) (Petridou, Moustaki, 2000).

In order to prevent road fatalities, police organizations implements various enforcement programs (random breath testing, sobriety checkpoints, random road watch, photo-radar, red-light cameras) that are designed to detect deviant driving behaviors, which increase the risks of serious accidents. Also, statistics show that risks of accidents maintain an exponential relationship with the concentration of alcohol in the drivers' blood (Blais, Dupont, 2005).

ISSUE OF BURDEN OF INJURIES AS RESULT OF CAR ACCIDENTS IN ROMANIA

As we mentioned above, there is still a considerable difference between the Western European and the East in terms of safety roads and according to EUROSTAT report, Romania, along with Latvia, Lithuania and Slovakia have recorded the highest number of deaths in road accidents.

From 2004, Traffic and Accidents Database of Romania (TRADB) has started to function. The statistical data in case of Romania show an increase of casualties since 2006 onward, and we can draw the conclusion that a better recording of accidents can partly explain (we do not know in what extent) the "spectacular" increase of the number of recorded accidents.

The new data base is aimed to be interconnected to European Union's Base Community data of road accidents – CARE *(Council Decision 93/704/EC)* and also to exchange data with insurance companies. ("CARE" focuses on road accidents in which casualties have resulted (dead or wounded, not to keep track of where the accident resulted only material damage). The software allows an analysis of the "black point" and the behavior of drivers for both cars and trucks.

According to Romanian Police, TRADB collects the following data:

Road/accident site

- area (inside or outside the urban area), road category, the state road (holey, dirty, etc.), position (km), lighting conditions, signaling, structure (bridges, tunnels, viaducts, etc.) geometry, weather, date/time, the conditions favored the accident, etc.

Drivers and pedestrians

- data about persons involved in accidents (the position of the person – driver/passenger/pedestrian, gender, age) and about psychical and physical state.

Vehicles

- Category of vehicle (car, taxi, farm vehicle, bus, goods transport vehicles, trucks of less than 3.5 tons, motorcycles, others);
- Data on compulsory technical biannual check of vehicles involved in accident;
- Technical data about the vehicles involved in accident;

- Preliminary Conclusions due to the alleged accident;
- Accident consequences on people, vehicles, environment.

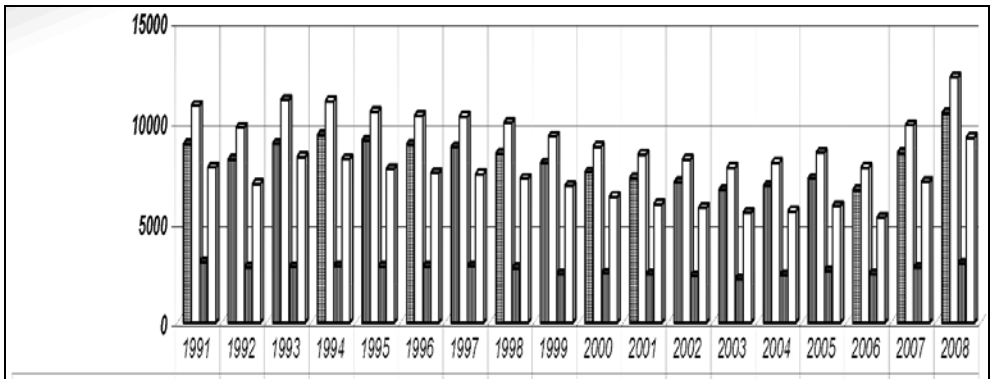
Traffic Regulations changes of the last years have made an impact on the rate of decline of mortality from traffic accidents in Romania. In 1994, 1998, 2003 there have been significant changes in the Road Code*:* the introduction of compulsory use of safety belts outside villages in 1994 and inside the village in 1998; increase of the amount of fines for offenses regarding excessive speed, driving under the influence of alcohol, (amendments in 1994, 1998 and most of the new code in 2003) (Minca, Cochino, Ion, 2004).

In the 2000–2007 period, between 6,600 and about 8,000 serious road accidents and around 2,500 deaths were annually reported in Romania. The mortality rate from traffic accidents remained constant 1991–2008 although the number of the accidents decreased between 1998 and 2004 and increased since 2006. The reasons remain to be investigated. The intervention of the emergency units of care significantly improved in the last 10 years.

The late construction of TRADB data base and the existence of several institutions involved in data collection before 2005 derives discrepancies in data reporting and can explain the differences in data provided by different institutions as the National Statistical Annual Report and Romanian Police Reports. According to statistics. Romanian Police, the number of serious accidents, resulting in severely injured and died is as depicted in *Table 3*.

Table 3

Number of traffic accidents and casualties by year

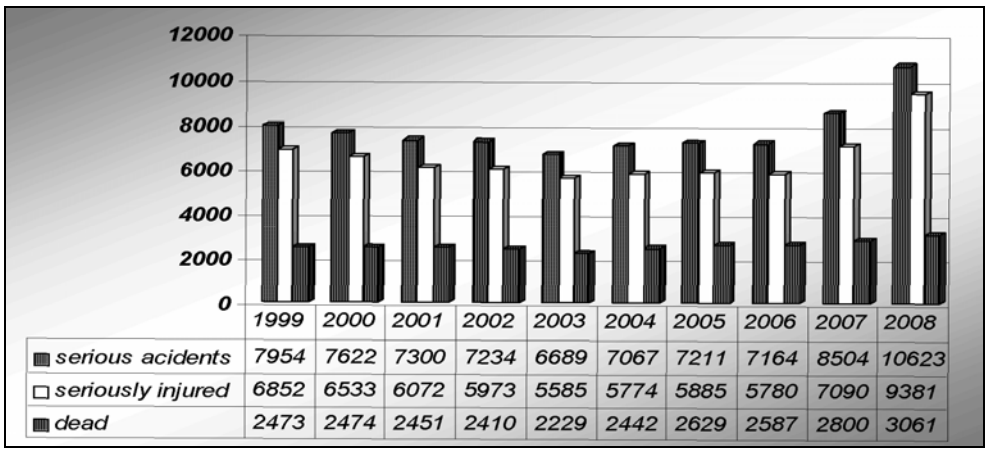


	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008
Serious traffic accidents	8948	8181	8972	9381	9119	8931	8801	8457	8000	7555	7244	7047	6654	6860	7226	6640	8496	10472
Casualties	10867	9776	11128	11075	10561	10349	10314	9999	9334	8814	8424	8175	7773	8012	8509	7769	9878	12259
Deceased	3078	2816	2826	2877	2845	2845	2863	2778	2479	2499	2461	2398	2235	2418	2641	2478	2800	2999
Seriously injured	7789	6960	8302	8198	7716	7504	7451	7221	6855	6315	5963	5777	5538	5594	5868	5291	7078	9260

Source of data: National Statistical Annual Report.

Table 4

Number of serious traffic accidents and injures by year: 1999–2008



	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008
serious acidents	7954	7622	7300	7234	6689	7067	7211	7164	8504	10623
seriously injured	6852	6533	6072	5973	5585	5774	5885	5780	7090	9381
dead	2473	2474	2451	2410	2229	2442	2629	2587	2800	3061

Sourse of data: Police reports.

According to Police Report statistics, most of the ***accidents*** in Romania is due to irregular and non-adapted speed to road conditions (29%), followed by incidents caused by pedestrians irregularly crossing street (25%), inappropriate passing (12%), failure to yield the right to way to vehicles and pedestrians (some 9%), unmindful children (5%) unsafe lane changes (4%) *(Police Reports 2007)*.

Significant differences between different moments of the day and the days of the week can be found, most of accidents occurs in the 12.00–18.00 hrs interval, also Friday and Saturday, and increase in summer time. Analysis shows a similar trend for the evolution of the number of accidents in urban and rural areas.

According to data provided by the Traffic Police Department (TPR), one of three people injured in serious accidents in Romania traffic dies. Statistics place our country on the last place in Europe, the European average is one death to 40 persons seriously injured.

According to experts, one of the main causes of this situation is precarious condition of the car fleet and the large number of cars whose safety features are practically inexistent. A driver side impact suffered by Romanian made car manufactured 15 years ago, Dacia 1300, is fatal in 99% of cases for the driver at 60 km/h.

Also long time needed for the intervention of emergency health care teams in some country areas contribute also to the death in accidents that could survive if the ambulance would arrived quicker.

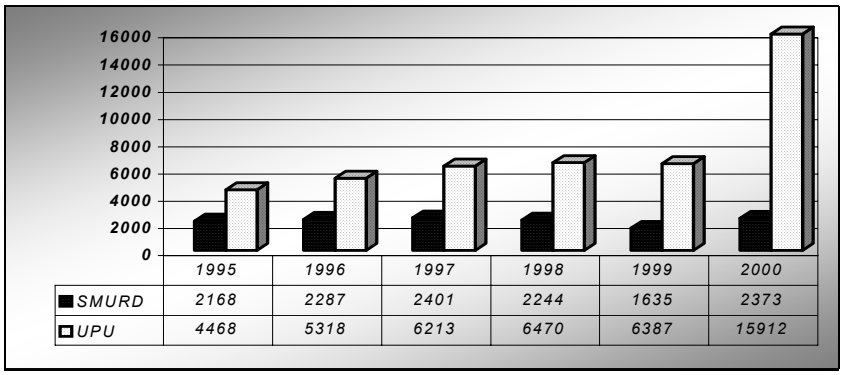
SMURD service (Mobile Emergency Service for Resuscitation and Extrication) has appeared in 1993 in Mures County *and* has been a service with a relevant contribution to the problem. SMURD should be welcomed as a model of good practice, with a relevant contribution to a better medical emergency services.

It has spread at a national level in the last 10 years, contributing significantly to quick and effective interventions. The rate of dead persons as a result of car accidents did not decrease after 1993, meaning that emergency interventions was not the problem. The steady figures of rate of death in car accidents can be probably explained to the poor safety elements of old cars as Dacia.

The number of cases took by SMURD and the Emergency Department (UPU) during 1995–2000 has been, as shown in *Table 5*:

Table 5

Number of cases took by SMURD and the Emergency Department (UPU) during 1995–2000



	1995	1996	1997	1998	1999	2000
SMURD	2168	2287	2401	2244	1635	2373
UPU	4468	5318	6213	6470	6387	15912

CONCLUSIONS

It can be said that the problem of traffic safety is an important social problems that should be discussed not only by Police department but also by sociologists and medical services suppliers. The social costs should be notices and better policies for prevention initiated. So, there is the necessity for the establishment of burden of the injuries from social, economic, and medical point of view. The issue should involve multidisciplinary analyses from medical, sociological, economical point of view. Several needs for estimation of burden injuries and non fatal events have also been detected: necessity for reliable data from different data sources as Policy reports, Emergency rooms reports, health surveys, hospital registers. The issue should be disscused also in terms of risk factors and vulnerable areas in access to medical emergency services in case of injuries. There is also a lack of analysis of data for present situation of traffic safety in Romania that could be used for future public policies regarding traffic safety. Also, there is need to analyze possible measures that can be taken at policy level, with focus on prevention.

Romania, as Member State of EU, needs to develop efficient measures according to The European Road Safety Charter, the largest platform of actions covering all 27 European Union member states. Romania signed this Charter in

2008. The European Road Safety Charter is much more than a policy document, it is an invitation made by the European Commission to take concrete actions, assess results and further heighten awareness about the need to reduce road accident fatalities. The European Commission wishes that all national stakeholders (institutions, associations and companies) will have the opportunity to share ideas and practices across Europe, so that the road situation in Europe can be improved.

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Studiul aduce în atenţie problema accidentelor rutiere în România. Datele statistice arată, în mod îngrijorător, că ţările est-europene, inclusiv România, au o rată de mortalitate prin accidente rutiere mai mare decât media ţărilor UE, raportat la acelaşi nivel de pasageri. Din punct de vedere social, numărul de accidente rutiere soldate cu vătămări grave înseamnă un cost suplimentar din punct de vedere financiar pentru serviciile de sănătate şi asistenţă socială, dar şi un cost din punct de vedere al recuperării capitalului uman. Studiul susţine, prin urmare, că problematica ar trebui adusă în discuţie nu numai de către specialiştii de poliţie, dar şi de către sociologi şi furnizorii de servicii medicale şi analizează, în linii mari, câteva aspecte ale subiectului.

***Cuvinte-cheie**: accidente rutiere, mortalitate, costuri sociale, conştientizarea problemei.*