A PATIENT VICTIM OF CAR TRAFFIC VIOLENCE: AN ANALYSIS OF SOCIOECONOMIC PROFILE, ACCIDENT CHARACTERISTICS AND SOCIAL SERVICES INTERVENTION IN THE EMERGENCY ROOM

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SUMMARY

Objective: To identify and analyze patients' profile; the means of transportation that caused the accident; whether the rules of the Brazilian Traffic Code were respected or not; and the support network and actions of social services. Methods: A survey was conducted with 100% of the patients admitted in this institution between August 15th and November 19th, 2004, who were victims of car accidents. We interviewed 37 motorcycle riders, 26 pedestrians, 15 drivers and 6 passengers, totaling 84 patients. Forms with open and closed questions, adopting both a quantitative and a qualitative approach were used. Results: The greatest demand was from motorcyclists, of whom 83% were male, youngsters, who had graduated in high school, with a monthly income equivalent to two minimum wages. Sixty-two percent lived in São Paulo and only 36.5% had a formal job. Most fractures were on the lower limbs (54%). All the patients required further care after hospital discharge and 98% received support from their families. Conclusion: The high number of accidents indicates that traffic violence may be considered a public health problem and there is much to be investigated for the formulation of public policies in this field.

Keywords: *Traffic accident; Characterization and analysis of the victims; Social Service interventions.*

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INTRODUCTION

In the last decades, significant changes have occurred in Brazil, especially advancements in car industry, which generated multiple effects of urban and social changes. All these advancements and technological changes led to a disordered city growth, with no proper infrastructure, and urban centers did not follow vehicles fleet growth. The unsatisfactory quality of public transportation led people to choose individual means of transportation, which worsened traffic issues in big cities.

Traffic accidents and the variables surrounding them, such as human behavior, technology, traffic engineering, among others have been a reason for social concerns. The changes established to the new Brazilian Traffic Code (CTB) were a government's and Brazilian society's attempt to revert the alarming traffic statistics in Brazil. The new law established more severe punishments to infringers: high-cost fines, potential to cancel licenses, and development of legal mechanisms to punish traffic crimes (death resulting from car accidents)[1].

In scientific literature, some relevant data are reported on this topic: - orthopaedic medicine discusses trauma subspecialty due to the increasing occurrence of traffic accidents[2]; SUS (Health Single System) spends more with trauma than is does with diseases[3] ; -traffic accidents account for expenses of up to US$ 8 billions worldwide, and of up to R$ 3.6 billions only in Brazil (April 2003 data) according to the survey "*Social and economic impacts of traffic accidents in large urban cities"* conducted by IPEA[4]. The cost was determined based on victims' treatment and rehabilitation, on the recovery or replacement of material damages, on the administrative cost of involved public services, and on economic and social security losses.

It is estimated that, in the last 20 years, 12 million people died in traffic accidents and other 250 million experienced the most variable kinds of injuries. Machines caused a public health issue[5].

In 2003, the Ministry of Health[6] reported 30,567 deaths resulting from traffic accidents in Brazil. According to Correa Leite*, car accidents accounted for 27,864 rescues provided by São Paulo paramedics in 2003, of which 474 resulted in death.

The Emergency Room of the Orthopaedics and Traumatology Institute at FMUSP Hospital das Clínicas provides care to patients with bone diseases, both men and women, with no age limit, from different regions of the city and the country, either through SUS or Health Insurances. This Institution is regarded as a reference center in health, technology and high-complex cases. The medical emergency service, in addition to receive spontaneous demand cases, also provides healthcare in cases of car and motorcycle accidents, falls in general, aggressions, bone injuries, and orthopaedic and trauma-related conditions. It also provides care to a large patient demand that is referred to our service from other hospitals, rescue centers, paramedics, and Civil and Military Police.

Social Services noticed the increasing number of traffic accident victims. That caused a perturbation that ultimately led us to conduct a survey in order to better understand this reality. We intended to identify and analyze the profile of patients victims of traffic violence, the transportation means that caused the accident, and if the rules of the Brazilian Traffic Code are being followed or not. Also, we intended to review Social Service's interventions and assess how patients perceive hospitalization and its social support network.

MATERIALS AND METHODS

The survey was conducted with patients victims of traffic accidents hospitalized at the Emergency Room between 08/15/04 and 11/19/04. During that period, 389 patients were hospitalized; 22% due to traffic accidents (Figure 1).

Study conducted at Orthopaedics and Traumatology Institute's Emergency Room, Hospital das Clínicas, Medical College, University of São Paulo – IOTHCFMUSP.
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The survey instrument was divided into: personal data, socioeconomic status, traffic accident and social support network. On item 'traffic accident', we used four different forms for each kind of patient: motor vehicle driver, motorcycle rider, pedestrian, and passenger. The forms had open and closed questions, of quantitative and qualitative approach. The questionnaires were applied to patients after approval and upon a signed Free and Informed Consent Term. In the quantitative approach, we employed statistical analysis, and, in the qualitative approach, the methodology of "collective subject speech"[7] which consists of capturing from each testimonial the key expressions, which are the thinking peculiarities that are similar to each other, and core thinking, which are expressions that synthetically describe the assessed testimonial, generating a single speech. The survey was applied to 84 patients - 100% of period sample: 15 motor vehicle drivers; 37 motorcycle riders; 06 passengers, and; 26 pedestrians (Figure 2).

Due to the peculiarities of each kind of accident, we will present the results by distinguishing them according to patient type.

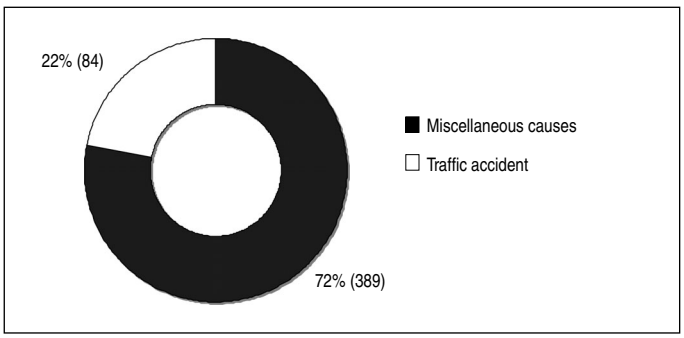

Figure 1 - *Causes of hospitalizations at the Orthopaedics and Traumatology Institute's Emergency Room for the period of 08/15/2004 to 11/19/2004.*

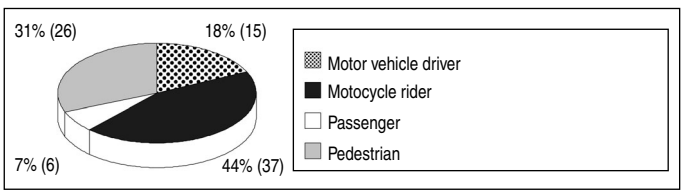

Figure 2 - *Total number of interviewed patients hospitalized at the Emergency Room, by kind of accident for the period of 08/15/2004 to 11/19/2004.*

Motor Vehicle Driver

Fifteen motor vehicle driver patients have been interviewed: 54% are young adults between 18 and 28 years old, 93% males. According to Montal[5], "*a young automotive vehicle driver's license represents a real ritual in today's world... the challenges added by the lack of experience in driving vehicles, the unawareness of the traffic rules, the ease of drinking alcohol, the feeling of invulnerability causing an idea of immortality, resultant from the unawareness of the risks*".

Among respondents: - 40% had a high-school degree; - 46% have formal jobs (Table 1); - 47% are married. A large number of the accidents happened on week days (67%), the time period when most of the accidents happened was from 12h01PM to 6PM (46%) and 60% were at working time. It's worthy to highlight that weekend accidents (80%) happened in the early morning hours and 53% of the drivers had no private car insurance (Table 2).

We emphasize that the rescue of those victims was provided in 46% of the cases by Paramedics and 26% by the Military Police helicopter, which evidences the efficiency of those services. We found that 74% were wearing the safety belt, and 93% had license to drive.

Motorcycle Rider

Thirty-seven hospitalized motorcycle riders were interviewed during the period of survey: 95% were males; the most representative age group was between 29 and 38 years old (43%), followed by 18 - 28 year-old young individuals (41%). According to Bastos Junior apud Sparti[8], "*in São Paulo city, 50% of the fatal accidents with motorcycle riders happen to people below the age of twenty-four, 23% of the traffic accidents resulting in death happen with teenagers".*

Regarding education level, 35% had a high-school degree, 62% are married, 43% have informal jobs, which means that they are at the margin of labor laws, and only 40% have formal registered jobs (Table 1). According to Koizumi[9], "*motorcycle accidents are now not only traffic accidents, but labor accidents as well".* These data cause a great deal of concern, because 43% of the respondents had no formal job, meaning that they were withdrawn from their professional activities and left with no income source during that period, which worsens family's economic status.

Questions	Motor vehicle driver	Motorcycle rider	Pedestrian	Passenger
Have an informal job	20%	40%	49%	33%
Income as Minimum Wages	3 - 4 (26%)	1 - 2 (30%)	1 - 2 (65%)	1 - 2 (49%)
Followed Brazilian Traffic Code rules	93%	86%	54%	0%
Perception about Social Service care	87%	76%	81%	67%
Injuries	90% Fractures	95% Fractures	92% Fractures	100% Fractures
Affected limbs	33% Lower limb	68% Lower limb	50% Lower limb	33% Lower limb 33% Lower limb + Upper limb
Number of patients with open fractures	3 Lower limb	17 Lower limb 5 Upper limb	7 Lower limb 2 Upper limb	2 Lower limb

Table 1 - *Distribution of most significant results by kind of accident, for the period of 08/15/2004 to 11/19/2004.*

*Captain of São Paulo Fire Department (paramedics); personal contact in 12/09/2004.

Kind	Absolute nr.	%
Car x car crash	04	25
Crash on static object	05	33
Car x truck crash	01	07
Truck x truck crash	01	07
Trampled by his own pick-up truck	01	07
Tumbled truck	01	07
Fall from his own car	01	07
Couldn't report	01	07
Total	**15**	**100**

Table 2 - *Description of accidents with motor vehicle drivers*

Of the respondents, 72% had the accident on week days, and for 58%, the accident happened during the first half-hour driving. The time when most accidents happened was from 12h01PM to 6PM (43%), and 65% were working or going to/ coming back from work. It must be stressed that 51% worked as a motorcycled delivery agents (Table 3).

Kind	Absolute nr.	%
Motorcycle x car crash	20	54
Fall from motorcycle	06	16
Motorcycle x truck crash	02	05
Motorcycle x bus crash	03	08
Motorcycle x motorcycle crash	02	05
Motorcycle x dog crash	01	03
Stuck between two cars	01	03
Fall followed by bus trampling	01	03
Cound't report	01	03
Total	**37**	**100**

Table 3 - *Description of accidents with motorcycle riders*

We found that 59% had previously had other traffic accidents, which evidences the risks of riding motorcycles and also the social and hospital expenses that are involved throughout the process. 73% of the cases were rescued by Paramedics, and 5% by Military Police helicopter.

The motorcycle riders wore: closed helmet (92%); reflex straps on clothes (32%); leather clothes (22%); leather jacket only (19%); rain clothing (16%). Most of them were licensed (89%). According to Greve[10], *"for motorcycle riders, wearing appropriate clothing is important for bumping an eventual fall and reduce the impact of the fall. However, for motorcycle riders, respecting traffic laws is crucial, since they are the ones most exposed to accidents and present the highest potential to suffer serious injuries".*

Pedestrian

Twenty-six pedestrians, most of them males (62%), ages ranging from 39 to 48 years (27%) have been interviewed. We highlight that 15% of the respondents belonged to the age group of 09-16 years old. According to Mello Jorge[11], "in *São Paulo, it has been possible to demonstrate that in about 60% of the deaths resulting from traffic accidents pedestrians are victims, and that percentage reaches 75% when deaths of children aged less than 15 years are accounted alone*" (Table 4).

Regarding education level, 43% are at elementary school; 50% have informal jobs (Table 1); 61% are single; 80% live in São Paulo; only 8% were homeless. When questioned about recklessness at the moment of the accident, the respondents report that drivers had the guilt (35%); 14 assume their recklessness, and 15% both. In most of the cases, the accident happened between 6PM and 12AM (38%), on Sundays (27%), and 69% have been rescued by Paramedics.

We highlight that 96% of the respondents received no assistance from drivers.

Kind	Absolute nr.	%
Trampled by car	19	72
Trampled by bus	02	08
Trampled by truck	02	08
Trampled by motorcycle	01	04
Couldn't report	02	08
Total	**26**	**100**

Table 4 – *Description of accidents with pedestrians*

Passenger

Only six passengers were hospitalized during the survey period: four car passengers on the back seat not wearing safety belt; a child on a truck body and an individual on a motorcycle crupper wearing only a helmet. Of the accident victims, 83% were males; 66% were 21 - 30 years old; 34% had high-school degree. About the accident, 50% reported driver's guilt. Regarding the time of accident, 66% occurred on Fridays, and 100% between 6PM and 6AM. We noticed that most of the respondents had the accident at night/ early morning, which shows that they were susceptible to accidents, with sleeping, high speed and alcohol use prevailing. Military Police rescued 83% of these victims (Table 5).

Kind	Absolute nr.	%
Car x car crash	01	17
Car x motorcycle crash	01	17
Truck x truck crash	01	17
Lost control in a curve and crashed against tree	02	32
Tumbled car	01	17
Total	**06**	**100**

Table 5 - *Description of accidents with passengers.*

A very interesting data is that, when asked about driver's conditions, 50% had no serious injury and one was discharged from hospital that very day. However, two died (33%0, showing the severity of accidents when passengers have to be hospitalized, since in both cases resulting in drivers' death, the passengers occupying the front seat also died. We must highlight one case where the driver was not much damaged, while the passenger at the front seat died. In the case of the child on a truck body, two people died: a bicycle rider, who was trampled by other trunk crashing the front truck, and a passenger who was also on truck's body.

DISCUSSION

Before making any analysis, we must understand the rationale behind traffic and all variables surrounding it. In general, we noticed that most of the interviewed patients are young males (Figure 3) and that causes great distress and broad social issues to be worked on. That demand has been increasing for Social Services. Actions workflow, procedures, skills and technical control are required for providing care to each case that are necessary to social interventions but renders patient healthcare difficult, usually requiring long-term rehabilitation (Figure 4).

Another important issue evidenced by the present study is that motorcycle riders, followed by pedestrians, are the ones most frequently affected (Figure 2). That demonstrates

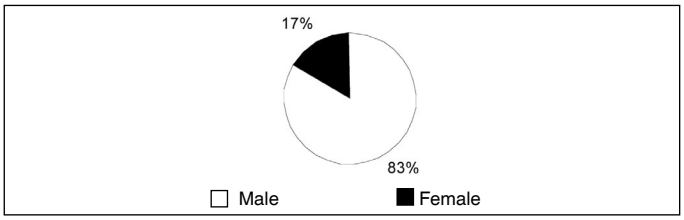

Figure 3 - *Interviewed patients' gender in the survey period between 08/15/2004 and 11/19/2004.*

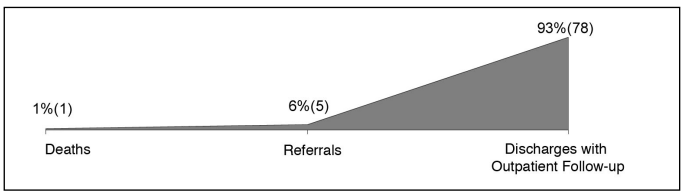

Figure 4 - *Patients' outcomes after discharged from the Orthopaedics and Traumatology Institute's Emergency Room for the period of 08/15/2004 to 11/19/2004.*

and evidences how vulnerable they are in public streets. In their day-by-day lives, they are exposed to higher risks, as indeed is disseminated on the newspapers. The professional motorcycle riders in our survey had previous record files of hospitalizations, with high-cost diagnoses, leading to an immense expense to public health system.

Big motorcycle manufacturers and vehicle insurance companies neither participate nor pay for the expenses these patients cause to hospitals. More and more, companies offer easy options, such as low costs and motorcycle financing. They should invest on these riders' safety.

Data reveal us that the number of labor-related and route accidents are very high, since these patients in performing their jobs - and the overall population - are subjected to various risks. The social worker is essential to an Emergency Room service, because social security guidance given to patients is the basis for them to pursue their rights, assuring that they are not economically neglected during rehabilitation period, since orthopaedic rehabilitation and hospital discharge usually require a long time.

It is very important to think about the use of the safety belt on back seats. Today, people respect and wear it on front seats due to the potential to get a fine or even because they became aware of its need as stressed by media. But the use of the safety belt on back seats is different; people usually don't use it or value its need. Fines resulting from failure to use back seat safety belt are difficult because of the poor visualization. An educational and preventive work is crucial in these cases, because acting on causes is a lot easier than on the effects, which are the serious traffic accidents and their various sequels.

It is worthy to highlight the issue of pedestrians, because most of them do not receive any assistant from drivers at the moment of the accident. This is a very sensitive situation, because, in addition to suffer an accident, they don't receive any support from the individual who caused the accident, unless the victim subsequently suits him/ her for losses and damages. Therefore, alternative penalties should be discussed, or even drivers should be mandated to provide support to these victims, who are usually left with physical and emotional sequels for a long time of their lives.

A large portion of the respondents seem to follow the rules established by the Brazilian Traffic Code - CTB (Table 1), and blamed third parties of being reckless. This fact evidences that, in the cases of motor vehicles drivers and motorcycle riders, these must know the law, since most of them are licensed to drive. In the case of pedestrians, 35% reported failure to follow CTB rules (Table 1). Thereby we noticed that this group do not know the rules of the Brazilian Traffic Code, and the overall population is not aware of their rights and duties while pedestrians and traffic system users. Higher quality preventive efforts should be made in order to get as closest as possible to awareness or conscience about traffic accidents and their physical and social consequences.

We can emphasize that, in the vast majority of the cases, the patients have experienced previous traffic accidents, which indicates hospitalization and various accidents recurrence, further evidencing high social and hospital costs with those patients. A traffic accident brings uncountable expenses and losses in financial, family, hospital, rehabilitation, social security, and public damages among others. Continuous efforts are required for preventing traffic accidents, since the number of victims is growing.

The emergency/ urgency room is the place where the unexpected happens, and the social worker should be prepared to manage different conflicts and provide guidance to patients regarding social rights such as mandatory insurance, compensation, labor-related accidents, referral, finding families, network with other institutions, or even for acting as a medical-social support in cases of inappropriate lodging or homelessness, everything according to the need shown by patients (Annex I).

Qualitative Survey

Did you receive any guidance from Social Service during hospitalization?

"I received guidance about social security, mandatory insurance, it found my family, found me a place to stay after discharge, helped me with transportation tickets for my family to visit me" (collective subject speech).

Can you understand the work of a Social Assistant?

"Refers people, informs, helps, check for transportation arrangements, and provides an educational and social work" (collective subject speech).

How do you feel about being in hospital as a result of a traffic accident?

"I feel bad because I'm afraid, because I can't do what I used to do, because I can't help my family, because I know I'll be submitted to a surgery, concerned, because of the humiliation, loss, because it's terrible to be in hospital" (collective subject speech).

What kind of support have you received or hope to receive?

"I hope I receive support from my family, friends, neighbors, co-workers, social security, government, acquaintances and hospital" (collective subject speech).

What is your suggestion for mitigating or reducing traffic accidents?

"Everybody must be more attentive, aware; the Traffic Department should require more detailed tests, offer defensive driving courses, have more responsibility. Change laws, the laws should be more severe, reckless people should be arrested, not only suited. To improve public transportation, because this would reduce the number of private cars on the streets". (collective subject speech).

Annex I - *Questionnaire: In the qualitative survey, the most relevant results are described.*

Another very interesting data is how these patients feel about hospitalization resulting from traffic accidents (Annex I). These patients - victims of the unexpected - move from an active status to a dependent status. Healthcare professionals should respect and understand all distresses and concerns experienced by patients at the moment of hospitalization. Some mention "humiliation", "dependency" and "fear" feelings (Annex I). Finally, as different as can be the word used, we see that the hospitalization issue means a period of significant emotional conflicts for the patient and family members. Health teams should act as interdisciplinary groups during that phase, and fully understand patients.

CONCLUSION

An educational and preventive work focused to the victims of traffic violence should be done by healthcare professionals, because this has become a public health issue because of the high number of accidents and care provided by public emergency services. We notice that the State needs to implement public policies especially focused to public transportation revitalization, awareness and educational programs in order to avoid alcohol use associated to traffic.

Therefore, we suggest a scientific and in-depth probing on this topic so that new projects can be developed to reduce traffic accidents, improving social and health issues surrounding it.

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