



CHARACTERIZATION OF THE RISK FACTORS FOR TRAFFIC ACCIDENTS IN VICTIMS TENDED TO BY THE MOBILE EMERGENCY CARE SERVICE

CARACTERIZAÇÃO DOS FATORES DE RISCO PARA ACIDENTES DE TRÂNSITO EM VÍTIMAS ATENDIDAS PELO SERVIÇO MÓVEL DE URGÊNCIA

CARACTERIZACIÓN DE LOS FACTORES DE RIESGO PARA LAS VÍCTIMAS DE ACCIDENTES DE TRÁFICO POR EL SERVICIO MÓVIL DE URGENCIA

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ABSTRACT

Objective: to characterize the traffic accidents involving victims treated in the Mobile Emergency Care Service. **Method:** a descriptive, cross-sectional study with a quantitative approach, performed from 360 records relating to services performed between January and June 2013. The data analysis took place with the SPSS software version 20.0. The data was presented in tables in the form of descriptive statistics through absolute and relative frequency. **Results:** it was observed that 79.1% of victims were male, with a mean age of 34.4 years. The highest number of accidents involving motorcycles (48.9%) and alcohol intake occurred in 60.0% of cases. The absence of seat belts occurred in 27.7% of cases and helmets in 68.2% of accidents involving motorcycles. The thoracic trauma was present in 69.4% of the accident victims. **Conclusion:** there is a need to develop promotion and health education to enable consideration of the risks to which individuals are exposed daily when associating drinking and driving, among other risk factors. **Descriptors:** Road Traffic Crash; Risk Factors; Emergency Medical Services.

RESUMO

Objetivo: caracterizar os acidentes de trânsito envolvendo vítimas atendidas num Serviço de Atendimento Móvel de Urgência. **Método:** estudo descritivo, transversal, de abordagem quantitativa, realizado a partir de 360 prontuários referentes aos atendimentos realizados no período entre janeiro e junho de 2013. A análise dos dados deu-se com o auxílio do *software* SPSS, versão 20.0. Os dados foram apresentados em tabelas, na forma de estatística descritiva, por meio de frequência absoluta e relativa. **Resultados:** observou-se que 79,1% das vítimas eram do sexo masculino, com média de idade de 34,4 anos. O maior número de acidentes envolveu motocicleta (48,9%) e a ingestão de álcool deu-se em 60,0% dos casos. A ausência do cinto de segurança ocorreu em 27,7% dos casos e de capacete, em 68,2% dos acidentes envolvendo motocicletas. O trauma torácico esteve presente em 69,4% dos acidentados. **Conclusão:** há necessidade do desenvolvimento de ações de promoção e educação em saúde que possibilitem reflexão sobre os riscos aos quais os indivíduos estão expostos diariamente, quando da associação de álcool e direção, dentre outros fatores de risco. **Descritores:** Acidente de Trânsito; Fatores de Risco; Emergência.

RESUMEN

Objetivo: caracterizar los accidentes de tráfico con víctimas atendidas por un servicio móvil de urgencia. **Método:** estudio descriptivo, transversal, enfoque cuantitativo, realizado a partir de 360 prontuarios relativos a las llamadas realizadas en el período comprendido entre enero y junio de 2013. El análisis de los datos ocurrió con la ayuda del *software* SPSS versión 20.0. Los datos fueron presentados en tablas, en forma de estadística descriptiva, a través de la frecuencia absoluta y relativa. **Resultados:** se observó que el 79.1% de las víctimas eran varones, con una edad media de 34,4 años. El mayor número de accidentes envolvió motos (48,9%) y alcohol ingesta en 60.0% de los casos. La ausencia del cinturón de seguridad llevó a cabo en 27,7% de los casos y de los cascos, en 68,2% de los accidentes de motocicletas. El trauma torácico estuvo presente en el 69,4% de los acidentados. **Conclusión:** es necesario para el desarrollo de acciones de promoción y educación para la salud que permitan la reflexión sobre los riesgos a los que las personas están expuestas a diario, cuando la Asociación de alcohol y dirección, entre otros factores de riesgo. **Descriptores:** Accidente de Tráfico; Factores de Riesgo; Servicios Médicos de Emergencia.

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INTRODUCTION

Traffic Accidents (TA) are among the external causes of death, responsible for a large number of victims in Brazil and worldwide. The World Health Organization (WHO) in 2009 recorded 1.3 million deaths from traffic accidents in 178 countries and provided estimates of 1.9 million by 2020 if the world stage does not change with regard to the implementation of preventive actions .¹

In Brazil, the National Plan to Reduce Accidents and Road Safety for the Decade 2011-2020 was set up, in order to adopt measures to contribute to the reduction of mortality rates and injuries from traffic accidents in the country through the implementation of supervision, education, health, infrastructure and vehicle safety actions, short, medium and long term, considering the national context with regard to instances of AT.²

According to the Mortality Information System (MIS), between 2002 and 2010, the total number of deaths from TA increased 24%, from 32,753 to 40,610 deaths. Among the regions, the highest percentage of increase in the number of deaths (from 2002 to 2010) was recorded in the North (53%), followed by the Northeast (48%), Midwest (22%), South (17%) and Southeast (10%). Specifically, in the state of Pernambuco was recorded in 2010, a total of 1,920 deaths in traffic, of these, 597 were motorcycle drivers.³

In Pernambuco, the epidemiological profile seems to follow the Brazilian average, in relation to TA. When the vehicle involved is the motorcycle, the mortality rate increased from 0.4 / 100,000 inhabitants in 1996 to 5.7 / 100,000 inhabitants in 2009.³

There are several factors that predispose to the occurrence and severity of traffic accidents. The influencing exposure to risk is noteworthy, such as economic and demographic factors, even those that directly influence the involvement in accidents, such as inappropriate or excessive speed, alcohol or other drugs, to be young, being a vulnerable user (such as elderly, children and the poor), driving in the dark, mechanical factors, defects and other problems for the path of traffic.⁴

From this perspective, it is understood that the risk factors linked to TA are not related only to the proximal determinants, ie the modifiable and non modifiable behaviors of the individual but also to intermediate social determinants, those inherent to the socioeconomic context, circumstances and temporal adversity.⁵

Therefore, the development of this study meets the recommendations of other studies that highlighted the importance of conducting further investigations to identify the risk factors related to TA. This study aims to characterize the traffic accidents involving victims treated at a Mobile Emergency Care Service.

METHOD

A descriptive, cross-sectional study with a quantitative approach, which used secondary data from calls of records of pre-hospital care teams, which were available at the headquarters of the Mobile Emergency Service (SAMU) of an area of the municipality of Pernambuco Forest Zone. 736 records of calls have been identified, of which 360 constituted the sample. The following eligibility criteria were established: refer to attendance records made in the period from January to June 2013; compliance with traffic accident victim; occurrence of traumatic nature (head trauma, thoracic, abdominal, extremity and spinal cord) and readability in the records. The records that did not report the occurrence of traumatic nature and illegible records were deleted.

To collect data, we used a structured form and validated by two nursing experts in prehospital care. The instrument contemplated variables related to sociodemographic characteristics, characterization of the nature of the trauma and risk factors for the traffic accident.

We used the double-entry method for entering data and checking for inconsistencies, thus ensuring the quality of information. The data analysis took place with the aid of the software Statistical Package for Social Science - (SPSS, version 20.0). The data was presented in the form of descriptive statistics through absolute and relative frequency.

The research project was approved by the Research Ethics Committee of the Health of the Federal University of Pernambuco Science Center - UFPE, CAAE No 0289.0.172.11, based on Resolution 466/2012 of the National Health Council / Ministry of Health, which regulates research involving human beings.⁶

RESULTS

It was evident that the age of the victims ranged from 12 to 62 years, with a mean of 34.4 years (SD = 10.1). Of the total sample, 284 (78.9%) were male and 142 (39.4%) had a high school degree. Regarding the type of vehicle involved in the accident, 176 (48.9%)

cases occurred involving motorcycles. Table 1

shows the characterization of the victims

involved in traffic accidents.

Table 1. Sample distribution according to characteristics of victims and vehicles involved in traffic accidents. Vitória de Santo Antão - PE, 2013.

Variables	n	%
Gender		
Male	284	78,9
Female	75	20,8
Not Informed	01	0,3
Education		
Did not study/ functional illeterate	01	0,3
Incomplete Elementary School	18	5,0
Complete Elementary School	34	9,4
Incomplete Highschool	27	7,5
Complete Highschool	142	39,4
Incomplete Higher Education	05	1,4
Complete Higher Education	128	35,6
Not Informed	05	1,4
Victim		
Motorcycle Driver	148	41,1
Passenger	13	3,6
Both	04	1,1
Not Informed	195	54,2
Type of Vehicle		
Bus	02	0,6
Truck	11	3,1
Car	171	47,5
Motorcycle	176	48,9
Total	360	100

The characterization of risk factors related to traffic accidents is shown in Table 2. In most cases, the victims had consumed alcohol (60.6%). The use of other drugs was also registered, but with the lowest percentage (4.4%). Among the victims of car accidents, 77 (21.4%) fell asleep at the wheel. Overtaking

was performed in 132 (36.7%) cases and 150 (41.7%) cases, the route was not marked. The use of seat belts was reported by 133 (72.3%) accident victims involving a car. Among motorcyclists, of the 176 involved, only 56 (31.8%) were making use of the helmet when the event occurred.

Table 2. Distribution of the sample according to risk factors for traffic accidents.Vitória de Santo Antão - PE, 2013

Risk Factors	Yes		No		Not Informed		Total	
	n	%	n	%	n	%	n	%
Ingestion of alcohol	218	60,6	142	39,4	—	—	360	100
Use of other drugs	16	4,4	340	94,4	4	1,1	360	100
Fell Asleep at the wheel	77	21,4	282	78,3	1	0,3	360	100
Overtaking	132	36,7	226	62,8	2	0,6	360	100
Existence of Signaling	210	58,3	150	41,7	—	—	360	100
Pavementation of the road	285	79,2	74	20,6	1	0,3	360	100
Use of Seatbelt	133	72,3	51	27,7	—	—	184	100
Use of helmet	56	31,8	120	68,2	—	—	176	100
Time of day (night)	152	42,2	200	55,6	8	2,,2	360	100
Period (Festive dates)	168	41,7	186	51,7	6	1,7	360	100

Table 3 shows the data on the type of trauma resulting from traffic accidents. The thoracic trauma was present in 250 (69.4%)

injured, followed by the ends of trauma, present in 243 (67.5%) injured.

Table 3. Distribution of the sample in the types of injuries resulting from traffic accidents. Vitória de Santo Antão - PE, 2013.

Traumas	n	%
Encephalic Head Trauma		
Yes	169	46,9
No	191	53,1
Thoracic Trauma		
Yes	250	69,4
No	110	30,6
Abdominal Trauma		
Yes	205	56,9
No	155	43,1
Trauma of the extremities		
Yes	243	67,5
No	117	32,5
Total	360	100

DISCUSSION

The detection of risk factors for the occurrence of TA is extremely important, as these represent a public health problem and is associated with an excessive number of deaths per year. This mortality is related to risk factors such as age, gender, alcohol and other drugs, sleep driving, excessive speed, improper overtaking, road conditions and lack of signaling. This study raises results for the risk factors for traffic accidents, whose involvement in the event is referred to in other investigations.²⁻⁷

With regard to alcohol consumption and motor vehicle driving, a survey conducted by telephone survey in all Brazilian capitals, following the national implementation of the Zero Alcohol Act, showed that the entire adult population of the 27 studied state capitals, practicing driving after drinking was greater among men aged 25 and 44, and with twelve or more years of education.⁸ Despite educational campaigns and information disseminated in the media, as well as the considerable degree in education, people, even knowing the risk, overestimate their potential.

In a study conducted in the emergency department with 306 people, who were involved in motorcycle accidents, it was found that the highest proportion of victims were male.⁹ Other studies show that most TA victims in Brazil are male and with a predominance of traffic accidents involving motocycles.¹⁰⁻¹

The use of motorcycles became a popular means of individual transport in Brazil and the conductive victims of motorcycle are to a large extent, male.¹¹⁻² Specifically when the vehicle is involved in a motorcycle TA, research showed that most of the victims had

ingested alcohol and the most affected age group is between 18:24 years.⁷

According to the Law of July 20, 2008, under no. 11,705 / 08, called Zero Alcohol Act, the actions produced by drunk drivers are considered a crime, leading to a very serious offense to a fine of the amount of R\$957.70. In addition to the suspension of the right to drive for twelve months, retention of the vehicle to the presentation of an authorized driver, a qualifying document gathering and detention 06-36 months.¹³

Regarding the use of seat belts, the results show greater adherence of drivers compared to the results presented in the survey conducted by the Ministry of Health in 74 sentinel service units of urgency and emergency in 23 capitals and the Federal District, between September and November 2009, showing that only 43% of the victims using these services used the seatbelt.⁸ This result shows that the driver and passengers of vehicles are still negligent in the use of seat belts. The difference between the results can be explained by the sample selection method in both studies.

The Ministry of Health, through the Security Decade Plan of Action on Transit 2011-2020, released by the World Health Organization (WHO), aims to stabilize and reduce the number of deaths and injuries in road accidents in the coming ten years. Among the actions and the Ministry of Health commitments at the "National Pact for the Reduction of Accidents Traffic - Pact for Life" is the surveillance of risk and protective factors related to the occurrence of injuries and deaths in traffic.² It should be noted that the seatbelt is considered the most effective device in terms of minimizing the severity of injury in automobile accidents and is the available safety equipment in vehicles currently circulating in Brazil.

Regarding the use of the helmet, the results presented in this study were similar to those found by other authors, in which it was found the lack of helmet use at the time of the accident.⁹⁻¹⁰ Failure to use a helmet by motorcyclists has been touted as one of the most important risk factors in the occurrence of head trauma and contributes to increased mortality from trauma, which is now a worldwide phenomenon, affecting both developed countries and in development.

The presence of more than one trauma victim presented in this study is consistent with other investigations.⁹ Pointing to a higher proportion of multiple traumas among victims of car accidents. The polytrauma in TA context involving motorcyclists can be justified by the fact that the victims of motorcycle accidents are more exposed since, they often have no other body protective equipment in addition to the helmet, causing the occurrence of various traumas in the same victim, like extremities, chest and abdomen, among others.

Some other factors contribute to the occurrence of TA, they are: sleep deprivation, working time, length of trip, darkness and decreased vision, that enhance in the state of drowsiness, leading the driver to fall asleep at the wheel, and may lead to the occurrence of accidents.¹³

Specific policies for training, conducting training and strengthening of educational campaigns should be implemented to minimize the morbidity and mortality due to the consequent trauma of accidents involving motor vehicles,¹ since traffic accidents kill thousands of Brazilians, as well as being responsible for permanent injuries and mutilations.¹⁵ Thus, the assessment of the severity of the accident and quick response is needed, providing opportunities for the survival of the victim and minimizing side effects.¹⁶ These measures will only be effective if accompanied by enforcement actions and measures to increase the levels of safety of the community in the streets.¹⁵

CONCLUSION

The results show the need to develop promotion and health education to enable consideration of the risks to which individuals are exposed daily when associating drinking and driving, among other risk factors. Furthermore, the use of safety devices such as seatbelts and helmets, must become a routine in the life of the driver. Prevention actions should be implemented by all individuals, especially the motorcycle drivers, which have

a high percentage of involvement in traffic accidents.

Studies on the survey of risk factors for TA and characteristics of affected individuals enable the planning and implementation of prevention strategies that can reduce the risks and consequences. Thus, it is expected that the observed results serve to plan and implement local actions, following the efforts of other federal units and Brazil, in addressing the risk factors for TA and implementation of the National Plan to Reduce Accidents and Road Safety for the current decade.

One limitation of this study is its cross-sectional nature, which makes it impossible to establish relations of cause and effect. However, it is important to raise issues related to traffic accidents characteristics, showing that these features resemble in various locations around the country. It is suggested to carry out population-based studies, in order to add new elements in understanding the risk factors linked to the TA.

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