

Men and motorcycle accidents: characterization of accidents from pre-hospital care

Homens e acidentes motociclísticos: caracterização dos acidentes a partir do atendimento pré-hospitalar

Los hombres y los accidentes de motocicleta: caracterización de los accidentes a partir de la atención prehospitalaria

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ABSTRACT

Objective: To describe the profile of incidents involving motorcycles attended by SAMU-ES (Emergency Care Service of Espírito Santo) from January to March 2012. **Methods:** Documentary, descriptive study with a quantitative approach. Data were collected from 901 Official Incidents of a Pre-Hospital Care, guided by data collection instrument. **Results:** From 901 injured, 89.6% were motorcyclists aged 15-32 years old (67.5%). It was not possible to estimate helmet use or alcohol consumption due to the large number of skipped (86.9% and 93.2%, respectively). The accidents were caused by falls (50.5%), in Vitória (28.1%), on Fridays (22.5%), between 8 am to 9:59 am (23.1%). **Conclusion:** It is evident therefore, the importance of establishing measures of prevention to motorcycle accidents as a way to effect the National Policy for Integral Attention to Men's Health in Brazil.

Keywords: Emergency Nursing; Men's Health; Motorcycles; Accidents.

RESUMO

Objetivo: Descrever o perfil das ocorrências envolvendo motocicletas atendidas pelo SAMU-ES (Serviço de Atendimento Médico de Urgência do Espírito Santo) nos meses de janeiro a março de 2012. **Métodos:** Estudo documental, descritivo, com abordagem quantitativa. Os dados foram coletados de 901 Boletins de Ocorrência de Atendimento Pré-Hospitalar, norteados por instrumento de coleta de dados. **Resultados:** Dos 901 acidentados, 89,6% era motociclista, com idade entre 15 a 32 anos (67,5%). Não foi possível estimar o uso do capacete ou a suspeita de ingestão de bebida alcoólica devido ao grande número de ignorados (86,9% e 93,2%, respectivamente). Os acidentes ocorreram por queda (50,5%), no Município de Vitória (28,1%), às sextas-feiras (22,5%), entre às 8:00 e às 9:59 horas (23,1%). **Conclusão:** Evidencia-se assim, a importância de serem estabelecidas medidas de prevenção aos acidentes motociclísticos como uma das formas de efetivar a Política Nacional de Atenção Integral à Saúde do Homem no Brasil.

Palavras-chave: Enfermagem em Emergência; Saúde do Homem; Motocicletas; Acidentes.

RESUMEN

Objetivo: Describir el perfil de los accidentes relacionados con motocicletas atendidos por el SAMU (Servicio de Atención Médica de Urgencias del Espírito Santo) entre enero y marzo de 2012. **Métodos:** Estudio documental, descriptivo, con abordaje cuantitativo. Se recogieron los datos de 901 Boletines de Ocurriencia Policial de Atención Prehospitalaria, guiados por instrumento de recolección de datos. **Resultados:** De los 901 heridos, el 89,6% eran motociclistas, entre 15 y 32 años (67,5%). No fue posible estimar el uso del casco o sospecha de consumo de alcohol debido al gran número de ignorados (86,9% y 93,2%, respectivamente). Los accidentes causados por caídas (50,5%), en Vitória (28,1%), a los viernes (22,5%), entre 08:00-09:59 horas (23,1%). **Conclusión:** Es evidente, por tanto, la importancia de establecer medidas de prevención a los accidentes motociclísticos como una forma de llevar a cabo la Política Nacional de Atención Integral a la Salud de Hombres en Brasil.

Palabras-clave: Enfermería de Urgencia; Salud Masculina; Motocicletas; Acidentes.

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INTRODUCTION

Since the principles and guidelines of the National Policy for Integral Attention to Men's Health¹ were published in 2008, and the policy officially launched in 2009, despite all the criticism of the health policy model implemented in Brazil, is being sought the inherent difficulties to attend the man in the context of health, with a focus on their main weaknesses².

Research have shown increase in mortality among men, relating sociocultural factors, conception of masculinity, strength of men to seek health services for prevention and self-care, exposure to risky situations, cultural strains of a hegemonic vision of masculinity that lead, to health risks and consequently early death, in relation to women³.

Among the main causes of deaths in males are malignant neoplasms (cancers of the stomach, lung and prostate), ischemic heart disease, cerebrovascular diseases and external causes, like suicide, traffic accidents and homicides⁴.

Men expose more to risk factors, in sedentary lifestyle, smoking, obesity and alcohol abuse, affecting morbidity and mortality by not transmissible chronic diseases and in factors relating to the environment, possibly by the patterns of education for males that stimulate more the manifestation of aggression compared with female patterns⁵.

The result of this behavior profiling reveals the problem of morbidity and mortality from external causes, considered the first cause of death among men of working age, particularly aggression and traffic accidents, being serious public health since problems that cause an increase in social and economic costs required for treatment and rehabilitation of these victims⁶.

According to the World Health Organization (WHO), traffic accidents caused more than 1.2 million deaths and caused injuries for 20 to 50 million people in 2010, with an increasing emphasis on motorcycle accidents⁷.

The increasing difficulty of urban and rural mobility together with low coverage and quality of mass transportation in the country still associated with the advantages of lower costs of acquiring and maintaining a motorcycle and agility provided comparing to a car, it is one excellent means of transportation with increasing its use in work activities⁸.

The result of this is the increase in the number of motorcycle accidents in Brazil and especially in the Espírito Santo. Thus, to know in detail this problem, the first step is the description of how this phenomenon occurs, being very important to achieve the greatest amount of information possible in order to collect systematically data on the extent, characteristics and consequences of this public health problem⁹.

Understanding the factors related to motorcycle accidents have shown the need for resources available for prevention, acting in guiding interventions according to the specific risk factors of the target population¹⁰.

Given the above, the present study aimed to describe the pattern of occurrences involving motorcycles attended by the SAMU-ES (Emergency Care Service of Espírito Santo) from January to March 2012.

METHOD

It is a documentary and descriptive study with a quantitative approach carried out in SAMU-ES, which is composed of a Central Medical Regulation of Emergencies located in Vitória, having ten decentralized databases, distributed in the metropolitan area of Grande Victoria and within the state, who cover the pre-hospital care in these regions.

The sample consisted of all incidents involving male victims of motorcycle accidents attended by the SAMU-ES in the period of January-March 2012. Months were chosen randomly, due to the regularity of monthly treatments of trauma victims during the year.

For data collection, the official reports of the Pre-Hospital Care generated by the Basic and Advanced Support Units were used. Inclusion criteria were all incidents involving motorcycle in men accidents in the period from January 1, 2012 to March 31, 2012. The Medical Regulation excluded those police reports whose service was canceled by escape of the victim of the accident place, for early removal, for incomplete reports or illegible handwriting. Fatal motorcycle accidents reports were not analyzed.

Information was collected from the manual query for all records of daily attendance for the period provided in this research and transcribed for a specific instrument developed by the researchers, presenting the following variables. 1) Characterization data of victims: age, condition, helmet use and suspicion of alcohol consumption. 2) Characterization data of the incident: city, day of week, shift, type of motorcycle accidents, type of ambulance used in the incident and referral to hospital. Data were stored in a database in Microsoft Excel software and analyzed using descriptive statistics, through the STATA 13.0 program. The results were presented in tables using absolute and relative frequency.

The research followed the criteria of the resolution of the National Health Council (CNS) 466/2012, it was approved by the Ethics Committee in Research - CEP of the Health Sciences Center of the Federal University of Espírito Santo (Opinion Nº 148,876 of 28/11/2012), authorized by the State Department of Health of Espírito Santo.

RESULTS

SAMU-ES performed 8,419 attendance that led Police Report of the Pre-hospital Emergency Care between January and March 2012. Analysis of these reports revealed that 1,514 incidents were motorcycle accidents being 18% of the attending causes. Of the 1,514 reports analyzed, 474 were excluded,

totaling 31%. There were 06 fatal motorcycle accidents in the period, and the reports of the attendance were also excluded from the sample. Of the 1,040 reports, 901 were care attendance of injured men with motorcycles.

The epidemiological survey of 901 police reports revealed that in relation to the characterization of the victims, as shown in Table 1, the highest prevalence of motorcycle accidents occurred among young adults people aged 15-32 years old (67.5%).

Table 1. Characterization of male victims of motorcycle accidents, attended by SAMU, Espírito Santo, from January to April 2012

Variable	Absolute frequency (n)	Relative Frequency (%)
Age (years old)		
0-4	03	0.3
5-14	21	2.3
15-23	294	32.6
24-32	314	34.9
33-41	155	17.2
42-50	59	6.6
51-60	29	3.2
> 60	21	2.3
Ignored	05	0.6
Victim condition		
Motorcyclist	808	89.6
Passenger	51	5.7
Pedestrian	36	4.0
Ignored	06	0.7
Use of helmet		
Yes	38	4.2
No	43	4.8
Not applicable	37	4.1
Ignored	783	86.9
Suspicious of alcohol consumption		
Yes	61	6.8
Ignored	840	93.2

With regard to the condition of the victim, 808 (89.6%) are motorcyclists. As for the helmet use and the suspicion of alcohol consumption, these variables were largely ignored in the records of information on incidents, totaling 783 (86.9%) and 840 (93.2%) ignore respectively.

Regarding the characterization of accidents, as shown in Table 2, these occurred at a higher frequency in Vitória, with 253 attendance, which totaled 28.1% of cases; followed by Vila Velha, with 214 incidents (23.8%); Serra with 181 incidents (20.1%); Cariacica 160 incidents (17.8%) and Viana, with 21 (2.3%). These municipalities are from the metropolitan area of Grande Vitória, concentrating 92.1% of all incidents of the period.

Table 2. Characterization of incidents involving motorcycle accidents in men, assisted by SAMU, Espírito Santo, from January to April 2012

Variable	Absolute Frequency (n)	Relative Frequency (%)
Incident municipality		
Vitória	253	28.1
Vila Velha	214	23.8
Serra	181	20.1
Cariacica	160	17.8
Viana	21	2.3
Guarapari	20	2.2
Other municipalities	52	5.7
Incidents' day of the week		
Monday	138	15.3
Tuesday	140	15.5
Wednesday	114	12.7
Thursday	86	9.5
Friday	203	22.5
Saturday	136	15.1
Sunday	78	8.7
Ignored	06	0.7
Incident shift		
0h-01:59	86	9.5
2h-03:59	113	12.5
4h-05:59	62	6.9
6h-07:59	186	20.6
8h-09:59	208	23.1
10h-11:59	76	8.4
12h-13:59	26	2.9
14h-15:59	41	4.6
16h-17:59	35	3.9
18h-19:59	29	3.2

Continued...

Variable	Absolute Frequency (n)	Relative Frequency (%)
20h-21:59	19	2.1
22h-23:59	14	1.6
Ignored	06	0.7
Type of motorcycle accident		
Running over	37	4.1
Fall	455	50.5
Motorcycle collision	35	3.9
Car collision	282	31.2
Truck collision	24	2.7
Bicycle collision	08	1.0
Barrier collision	21	2.3
Bus collision	15	1.7
Other	11	1.2
Ignored	13	1.4
Type of ambulance used in the incident		
Advanced Support	78	8.7
Basic Support	821	91.1
Ignored	02	0.2
Sent to hospital		
No	32	3.6
Yes, public hospital	675	74.9
Yes, private hospital	76	8.4
Other hospital	62	6.9
Ignored	56	6.2
Total	901	100.0

Regarding the distribution of the incidents according to the day of the week, Friday has the largest number of incidents, totaling 203 attendance (22.5%); and Sunday has the smaller number of incidents, totaling 78 attendance, totaling 8.7% of calls.

With regard to the time of the accident, there was 394 victims (43.7%) between 06:00 am and 9:59 am in the morning.

The most common mechanisms of injury were falls (50.5%) and bike-car collision (31.2%). Regarding the type of ambulance used in the incident, the majority was the Basic Support Unit (BSU) totaling 91.1% of attendance.

Most of the victims were sent to hospital care, 74.9% were sent to public hospitals and 8.4%, to private hospitals. Only 3.7% of the victims were not sent to hospital care.

DISCUSSION

In the present study, motorcycle accidents were 18% of all emergency department attendance by SAMU-ES in the period January-March 2012. On average, 504 accidents occurred per month, 16 per day, and about one collision every two hours, and of this total, about 87% were with men.

These data are in agreement with a new reality of Brazilian traffic and emergency care, which emphasizes in the last decades, an increasing number of victims involved in motorcycle accidents associated with a large increase in this type of vehicle fleet^{7,11}.

In addition, factors such as greater social permissibility of more aggressive behavior, excessive speed, most dangerous maneuvers and alcohol consumption among men, have contributed to the higher incidence of accidents among male motorcyclists¹².

Observing Table 1, it is possible to see that the age group of 15-32 years old has a prevalence of 67.5% compared to other ages. Similar data were found in São Paulo, Pernambuco, Fortaleza, Teresina and Sergipe. The finding shows that this reality is due to inexperience, impulsiveness, pleasure in experiencing feelings of risk, confidence in driving the vehicle, speeding and disregard the safety rules of traffic. The predominance of young adults involved in traffic accidents has direct impact on the state and the country's economy by reaching people in their labor age^{5,8,12,13,14}.

The fact that 89.6% of the victims are motorcyclists shows the increasing use of motorcycles as a means of working. Although our research has not examined the purpose of motorcycle use, it is widely known its use in labor activities. Working long hours can lead the user to periods of fatigue, tiredness and decreased reflexes and the ability to concentrate, raising the number of accidents¹⁵.

Regarding the use of the helmet and the suspicion of alcohol consumption, these variables are not data to be recorded in the police report of the Pre-Hospital Care by SAMU-ES. The report only provides a space called "Clinical Findings", in which the professional must make a record of information considered important and not listed in checklist evaluation of the victim. In our study, however, information on helmet use and the suspicion of alcohol consumption has been ignored in the majority of treatment (86.9% and 93.2%, respectively). We believe that the few records we found on these data were made only when they were in great evidence in pre-hospital care provided.

On this issue, this is a reality about the lack of information in pre-hospital care in Brazil, in particular, on the helmet use and the suspicion of alcohol consumption, preventing the elucidation of this phenomenon and the formulation of public policies to deal with this problem, leaving a gap in police reports. Similar to our case, other authors did not have adequate information in enough

number of protocols that allow a reliable evaluation of the use or non-use of helmets and suspected alcohol intake^{14,16}.

In Brazil, since 1995, the National Traffic Code has contributed to a significant reduction in mortality and severity of accidents through educational programs and preventive measures such as mandatory helmet use. This is a measure associated with a better prognosis in accidents involving motorcyclists and although we do not know for sure what percentage of drivers who actually use the helmet in large cities, it is believed that most of them follow the law¹⁶.

Regarding the suspicion of alcohol intake, research show a strong relationship between alcohol consumption and traffic accidents, since the drink creates a feeling of confidence in drivers at the same time that reduces their ability to reaction and coordination¹⁷.

Study conducted in Rio de Janeiro reports that 70% of traffic accidents caused by alcohol consumption tend to be more violent, with death of drivers and passengers¹⁸.

It is the need of a reformulation of the police report of the Pre-Hospital Care of SAMU-ES considering objectively, the variables "helmet use" and "suspicion of alcohol intake", as well as a policy of continuing education on the importance information to the health care system.

The Metropolitan Region of Vitória is the largest urban development area of Espírito Santo. Thus, it is easy to understand the high influx of vehicles and the intense movement of people in this region, which justifies the concentration of 92.1% of all incidents in the period. Although the majority of accidents occurred in the metropolitan region, it can be noticed that the municipalities not of this region, do not present a lower number of accidents (5.7%), the victims are mostly of the time sent to hospital care in urban centers, perhaps for lack of specialized equipment and services in hospitals of these municipalities, forcing even greater overcrowded of care in trauma centers.

We found that the day of the week on which the greatest number of motorcycle accidents occurred was on Friday (22.5%). However, it is weird the shift occurring this accident, with high values of accidents between 8 am and 9:59 am, suggesting that the accidents were caused by hours of major flow of people and vehicles on public roads in the morning shift in the workplace. This situation is different from accidents in other Brazilian cities where the prevalence occurred on weekends and at night^{13,14}.

Fall and bike-car collisions were the main mechanism of injury, accounting for nearly 81.7% of all types of accidents. These data are similar to those reported in the literature^{8,11}. In relation to falls, we consider factors such as road conditions, speeding, rushing to get to work, beyond the unpreparedness in the motorcyclist riding. In bike-car collision is related to the difficulty of the driver of other vehicles to realize the approach of motorcycles and to appropriately time to avoid a collision^{14,15}.

SAMU-ES offers two types of ambulance to carry out urgent care: Basic Support Unit (BSU), with a paramedic driver and a nursing technician; and the Advanced Support Unit (ASU), with a paramedic driver, a doctor and a nurse appropriate to meet the most serious situations. In the study, the majority of victims' attendance of motorcycle accidents were conducted by BSU, totaling 91.1% of attendance. Although we have not established the severity of accidents, we can assume that accidents during this period were of mild to moderate severity involving bruises and minor injuries, but if it was a critical situation, with more severe injuries, the medical regulator would selected the ASU.

The need for hospital care to victims of motorcycle accidents has been a constant in our research. Only 3.7% of them were not sent to a hospital, while 90.2% were treated in hospital emergency rooms, and 74.9% received care in a public institution.

These data showed the issue of public spending related to traumatology attendance in Brazil, specially and increasingly the expenses arising from motorcycle accidents. On average, the mild injured motorcycle man is hospitalized for at least 12 hours and requires a specialized medical workup and nursing care to establish their clinical condition, increasing the cost of hospitalization¹⁴.

CONCLUSION

The National Policy on Attention Care for Men's Health treats external causes as a leading indicator of male mortality, surpassing cardiovascular diseases and malignant tumors, especially in younger age groups. Even though with poor data, the policy also brings the issue of external injuries in relation to hospitalization.

The results of the analysis of 901 reports of pre-hospital care delivered by SAMU-ES show that young men are the biggest victims of motorcycle accidents, being hit mostly on Fridays mornings.

Knowing this scenario and problem involving men is crucial, both in intra-hospital, pre-hospital and post-hospital and nursing care provided to victims in the emergency rooms of trauma centers in primary care promoting discussion and traffic education among the population, particularly among motorcyclists' adolescent boys.

We hope that these data can contribute to the dialogue regarding the National Policy for Integral Attention for Men's Health and the problem of external injuries among men.

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