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Epidemiological Profile of Injuries in Victims Met At a Hospital of Reference of Paraíba, Brazil

ORIGINAL

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Abstract

Introduction: Violent trauma and car accidents result in deaths of more than 2.5 million people a year worldwide.

Objective: This study aimed to identify the epidemiological profile of trauma victims admitted and hospitalized in a hospital of reference.

Method: This is a retrospective study with a quantitative approach, performed at Patos Regional Hospital - Paraíba. The sample consisted of 179 medical records of inpatients by trauma in the period from August to December 2014. The data were submitted to statistical and descriptive analyzes, and the results presented in graphs and tables.

Results: It was observed that the trauma predominates in male individuals (61%), older than 40 years (52%), agricultural workers (28%), despite the accidents occur mostly in urban areas (77%) with large plot admitted after trauma to extremities, skull and face. It showed a higher number of incidents in October (47%), featuring the Monday (20%), with the highest number of admissions and hospitalization, usually including the night hours from 18:01 to 24.00 (40%). Thus, we see the need to invest in prevention policies directed at this particular profile, in order to develop targeted and effective strategies that can reduce the number of incidents, and consequently the number of deaths and permanent sequel.

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Introduction

The trauma remains one of the three leading causes of death worldwide and is the leading cause of death among children, adolescents and young adults in North America and the UK. Violent trauma and car accidents result in deaths of more than 2.5 million people a year worldwide. About 80% of deaths in adolescents and 60% in children are caused by trauma, been still the seventh cause of death in the elderly [1].

In Brazil, according to the Ministry of Health, there are about 150,000 violent deaths a year, and about nine billion of reals are intended for trauma care annually, nearly a third of all that is invested in public health in the country [1]. Therefore, establishing a routine of priorities in emergency care for trauma victims is crucial to ensure higher chances of survival and reduction of sequels.

Homicides and traffic accidents accounted for 62.5% of all deaths from external causes in Brazil in the last decade (DI CREDO; FELIX, 2012). According to comparative data conducted by the National Confederation of Municipalities (CNM), the year of 2008 also revealed that the Brazilian transit killed 2.5 times more than the US, and 3.7 times more than the European [3].

Trauma is any harmful event to the individual's body, or injury to tissue, organ or body part, caused suddenly by a physical etiology agent, with varied nature and extension and predominantly from external origins. Usually comes from the release of specific forms of energy (mechanical, thermal, chemical, by radiation or electrical). Thus, because it comes from the action of known etiologic agents, by requiring specific therapeutic attitudes and procedures, and above all, to be preventable, trauma is considered a public health disease, representing a serious social and community problem with increasing relevance [4].

By preferentially affect young and previously healthy people, it results in potential loss of work and productivity and thus, in vastly greater social costs than other diseases, such as cardiovascular and neoplastic [5]. This epidemiology has propelled the emergency care services in Brazil and around the world to organize themselves to meet the five major control aspects of the trauma: prevention, care before hospitalization, in-hospital care, rehabilitation and catastrophe and major disasters care plan. [6]

As the daily lives of health professionals, including the nurse, are based on unexpected, diverse and complex situations, especially those who work in urgency and emergency services, it was seen the important need to identify the characteristics of trauma victims assisted in an Emergency Department for a previous improvement in the care of these individuals, as well as the establishment of a preventive plan, aiming at the adoption of public policies that prioritize the use of material and human resources necessary to prevent and reduce these cases.

Based on this assumption, the following question arose: What is the profile of trauma victims treated at Patos Regional Hospital? The study aimed to identify the epidemiological profile of victims of trauma met and admitted at Patos Regional Hospital - Paraiba and to identify the main types of trauma and its complications; enable the epidemiological recognition of trauma treated at the municipality; and describe the trauma prevention strategies and actions of promotion and protection to population health.

Methodology

This is a retrospective study with a quantitative approach, which was conducted through the analysis of medical records of patients admitted to the Emergency Department (ED), met and admitted to Deputy Jandhuy Carneiro Regional Hospital, in Patos county - Paraíba, in which, it has its ED divided into four sectors: red wing (emergency), yellow and green wing (urgency) and risk rating. Data were analyzed from the period comprising August to December 2014.

The population were consisted from 332 files of trauma victims met and admitted to the hospital under study, the admissions are for the aforementioned period, while the sample consisted of 179 medical records, and this number is calculated from Santos Calculation Analysis Sample [7], which uses the calculator to find out the necessary which sample in necessary on a survey of simple random sampling for categorical variables.

In the survey were included all records of patients victims of trauma, attended and hospitalized in Patos Regional Hospital between August and December 2014, among the cases: the physical assault (including interpersonal and bites violence, injury by firearms and cold steel), trampling (including car, truck, motorcycle, bicycle and bus), vehicle accidents (including collision with other vehicles, poles, walls, houses and motorcycle fall), bicycle accidents, work accidents, intoxication boards or poisoning, falls from height and impact unrelated to the fall (direct collision with furniture, facilities, internal and external elements of the residences of patients). They were not included in the study records with illegible letters, difficult to understand and incomplete data, as well as those patients admitted to the Hospital from clinical or psychiatric emergencies.

Data were collected using a questionnaire with objective questions including the following variables: type of care the victim, gender, age, profession, origin, day of the week, the incident turn, type of trauma, and other data related to the purpose of the study.

Data collection was conducted between the months of March and April 2015, in good time for the officials of the cold case of the search source Hospital, where the records were selected randomly then individually analyzed for the variables under study.

After collecting the data, the following results were organized in tables and graphs, which were statistically analyzed, analytically and according to its variables. Subsequently, discussed and related to literature from the reading and understanding of the researchers.

The research project was submitted and approved by the Ethics Committee and Research of Patos Integrated College, via Brazil Platform, located in the county of Patos - PB through the CCAA: 44191515.5.0000.5181, where it obtained the legal consent to conduct the research according to ethical principles.

The research was based taking into account the ethical aspects of research involving human subjects, as outlined in Resolution No. 466/12 of the National Council of Health, which regulates research involving human subjects [8].

In this study, it could have presumed risks, not physicists to study participants, but related to damage of moral, intellectual, social, cultural or spiritual dimensions, but were avoided to the maximum.

With respect to the benefits, this study will benefit both the researcher, who will get results to improve users' knowledge about the methods of prevention of trauma, as well as health and academics professionals, to improve their functions, behaviors, their social point of view and forms of interaction with the general population.

Results and Discussions

It was observed that 61% (110) of victims of trauma internal at the hospital under study were male, while 39% (69) were female. It is noticed that the number of men is higher than women, these numbers already expected, since men are more likely and more exposed to certain circumstances that can lead to incidents such as: start working earlier, in remote places, with heavy machinery, at industry or construction; they have more involvement with interpersonal violence or physical abuse; they are more reckless in traffic; and respond to assaults more frequently, in comparison with women.

There is an increased prevalence of trauma in males. Apart from that, the traumas that most affect

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men are caused by traffic accidents, followed by personal violence and falls [2].

The involvement of men may be related to social and cultural behavior. By the tendency to be more aggressive and by characteristics such as impulsiveness, immaturity, the search for intense feelings, motivation and influence of groups of friends and delinquent behavior [9].

The number of deaths has expressive index in the age group between 15 and 49 years and the behavior of violent deaths demonstrates high male mortality. In homicides, male mortality reaches currently 12 men for every woman in the age group 20-29 years of age [10].

Where it was known, the prevalence of victims of trauma aged over 40, who account for 52% (93) of the victims included in the sample. It was observed that 15% (27) of internal subjects were aged between 15 and 20 years of age, 12% (21) aged between 26 and 30, 9% (16) of the victims were aged between 31 and 35, 8% (15) between 21 and 25, and finally quantifying only 4% (7) patients, victims aged between 36 and 40 years.

It was concluded that most of the individuals included in the survey, internal after involvement in traumatic conditions, are older than 40, or are already in the elderly (60 and over), which contradicts common sense and some other studies, that point out young people, as a category that is more involved in incidents, because they are more irresponsible in traffic; been in experimental phase and in phase of new discoveries.

It is noticed that the older the individual, the greater also its fragility and susceptibility to external events [11]. Falls are the most common and disabling events in the elderly, causing large number of institutionalization and mortality and may be defined as unintended event that causes a person inadvertently fall to the ground at the same level or lower in another [12].

The strands are influenced by several factors, according to the culture and living conditions of the elderly, in addition to being associated with biopsychosocial problems [13], the own aging is associated with a higher risk of occurrence of the frailty syndrome, which consists another predisposing factor to trauma, having decreased of physiologic reserve and homeostatic body's ability to withstand stressful events [14].

The importance of prevention is seen as fundamental, because in conception, the trauma is the leading cause of death in individuals under 45 years of age [15].

It is observed from the data presented in **Table 1**, which asks the profession and an occupation of the hospitalized victims, 28% (51) of the victims were farmers, 26% (46) retired, 12% (22) were students,

Table 1. Data relating to the profession of victims assisted.

Socio-demographic characteristics		
Specifications	**F**	**%**
Victims Occupation		
Butcher	1	1
Administrative agent	1	1
Farmer	51	28
Retired	46	26
Dealer/Self Employed	4	2
Cook/Domestic	13	7
In charge of production	1	1
Nurse	1	1
Student	22	12
petrol attendant	1	1
Public agent	4	2
Mechanical	2	1
Military	2	1
Driver / Moto Taxi Driver	4	2
Originally from Civil Construction	16	9
Concierge	1	1
Broadcaster	1	1
shoemaker	1	1
General Services	4	2
Uninformed	3	2
Total	179	100

Source: Research data, in 2015

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9% (16) of the victims worked in construction (bricklayers, painters, locksmiths and servants), and 7% (13) are cooks or domestic.

Sharing the same percentage of 2%, with (4) representatives, civil servants, people working with general services, traders or self-employed, and drivers or motorcycle taxi drivers. With the same percentile, it is observed that 1% of the victims, represented by (2) individuals are mechanical and military, while 1% (1), also sharing the same percentage, is represented by butchers, administrative staff, people responsible for production, nurses, attendants, porters, broadcasters and shoemaker. 2% (3) did not inform the profession or are unemployed.

Note that farmers are the most affected by traumatic conditions, often due to the misuse of tools or instruments used at work, as well as professionals from the construction industry. It is worth noting, too, that are high statistics related to students (due to exposure) and retirees, who are often victims of falls, by the perception and decrease in reflexes arising from the aging process itself.

The various health problems presented by farmers are related to the lack of adoption of health promotion programs for agricultural workers, which could actually bring changes in the workplace and in the living and health conditions of these individuals [16].

The data of **Figure 1**, show that the Urban Zone remains the place more frequently to traumatic events. It is observed through the analysis that 77% (137) of the incidents took place within the city, while 23% (42) occurred in the rural area or local roads, linking the country to the city.

Studies have shown that the origin of the trauma has a higher concentration in urban zone [17]. The traffic is influenced by neighboring towns compared to big cities and metropolitan areas, leading to a high demand in the traffic lanes that without major investments by the public sector, have critical points that favor the occurrence of accidents [18].

About the Rural Zone, which was once synonymous with peace and tranquility, now loses some of this concept due to the high rate of robberies in the field, given the ease of escape by offenders through the back roads, deserted and untended.

Figure 1: Data about The origin of the victims attended.

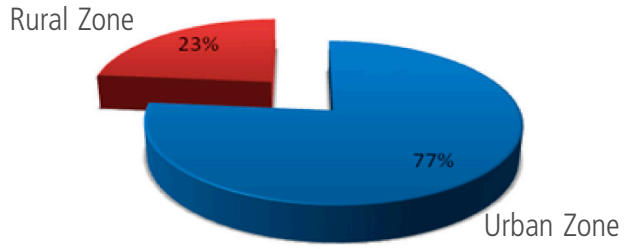
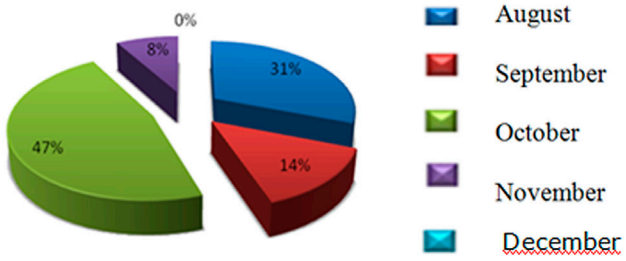


Figure 2: Data about the month of care of the victims attended.



According to data from **Figure 2**, which defines the month of care for victims, we note that 47% (84) of hospitalized trauma patients were admitted in October, 31% (55) of admissions were made in the month of August, 14% (25) in September, 8% (15) in November, and was not obtained hospitalization data for the month of December. It is perceived by the data that the highest number of admissions was made in October.

It is noteworthy that at the time of the survey, we did not find any data for the month of December, by the absence of hospitalizations for traumatic conditions in the service or the non-inclusion of records relating for this month in the archive of the studied Hospital, since by it is a festive month, prior to the summer, it may be that the trauma rates in December are similar to other months in the study.

These data contradict what most literature points. Studies show that December, January and July are the months with the highest incidence of traumatic because they correspond to longer drive

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on highways due to the completion of the year, the largest movement of people due to the time of school vacations and festivities.

Thus, it was observed by the study, that in the state of Paraiba, the highest admission rate and hospitalization for trauma happens in October.

Analyzing the data in **Table 2**, it was concluded that 20% (36) of trauma victims were attended on Monday, 16% (29) were met on Sunday, 15% (27) were met on Saturday, as well as Friday, 12% (22) were met on Tuesday, and share the same percentage of 11% (19) on Wednesday and Thursday.

Given these results, we can see that Monday is the day of week that receives more victims of accidents, due to the increased rate of accidents that begins on Friday and lasts throughout the weekend.

This result differs from the literature, saying that the weekend is the period that people are off from work and school activities, resulting in greater traumatic incidence due to high movement in the streets, to the increased flow in traffic associated with alcohol consumption and drug use.

The Monday is the third day of the week that more reported injuries, being behind only Saturday and Sunday. Therefore, according to the study done in Paraíba, this shows that the traumas are accumulated throughout the weekend and reach the peak of incidence on Monday [19].

It was observed that 40% (72) of the victims suffered the accident in the period comprising of 18:01 to 24:00, as 33% (59) of the victims suffered the accident among the 12:01 and 18:00 22% (40) in the range from 06:00 to 12:00, and 5% (8) between 00:01 to 05:59.

Note that most of the accidents happened in the time of the evening, including the hours of 18:01 to 24h00min, period in low light, which can lead to falls in the elderly; the most hazardous time in the streets, susceptible to robberies, interpersonal violence, which can lead to injuries with knives and fire, as well as the time referring to the end of the day, where there is an increase in traffic, pedestrian circulation, back of students of schools and etc.

Table 2. Data relating to the week of care victims.

Socio-demographic characteristics		
Specifications	**F**	**%**
Weekly Day of Care		
Monday	36	20
Tuesday	22	12
Wednesday	19	11
Thursday	19	11
Friday	27	15
Saturday	27	15
Sunday	29	16
Total	179	100

Source: Research data, in 2015

Table 3. Data referring for the diagnosis of victims assisted.

Socio-demographic characteristics		
Specifications	**F**	**%**
Diagnosis of Victims		
TEC	14	8
Face Trauma	18	10
Trm	0	0
Chest Trauma	3	2
Abdominal Trauma	3	2
Trauma In Extremities	120	67
Burns	0	0
Polytrauma	21	11
Total	179	100

Source: Research data, in 2015

The high number of injuries early in the evening from 18:01 to 24:00, in this study are similar to the findings of Stocco [20] pointing to fatigue in the evening and the elevation of the flow of vehicles as factors that increase the number of accidents and victims.

Other factors were also associated with a higher number of accidents and victims in this period, as the variation of visibility limited by the scope of ve-

hicle headlights, use of dark clothing by pedestrians, vehicles flagged and small contrasts with the environment, high speeding, disregarding traffic signals and use of alcohol or drugs [21].

Regarding the diagnosis of victims, analyzed by **Table 3**, shows that 67% (120) of the injuries were in extremities (fractures in arms and legs). It is well known and rather satisfactory, the few 11% (21) multiple trauma, what surprises the expectation of results. Already, the 10% (18) of the face of trauma exceed 8% (14) of the EC Treaty.

By the time, the trauma of Chest and Abdominal share the same percentile of 2%, with (03) cases, and finally, the TRM and the burns, that were not mentioned during the data collection.

It is clear the high index of Trauma on the extremities, with the highest prevalence in the elderly and farmers, which are often caused by simple falls or improper use of sharp tools and heavy machinery. Thus, it sees the need for attention mainly directed to this listing.

Trauma in extremities, though common in victims of trauma, rarely present risk of immediate death. It may present a risk when associated with blood loss. It is often found in day-to-day, and generally is not severe, but it can cause shock, damage to blood vessels and nerves, the most common causes of automobile accidents, falls and sports injuries [4].

It is emphasized the importance of these injuries, because although alone may not be life risk to the rough, on the other hand, are responsible for most of the assets and, consequently, the loss of functional independence of these people, even if temporary. Considering, also the most prevalent type of injury among the elderly [22].

Compared and analyzing the TBI and Fractures of face numbers, the traumatic brain injury (TBI) is the main determinant of morbidity, disability and mortality in the types of trauma. The severe TBI is associated with a 30% to 70% mortality rate, and recovery of the survivors is marked by severe neurological sequel and a greatly impaired quality of life [23].

Vehicle accidents are the most common causes of TBI, especially in adolescents and young adults. Falls are responsible for the second largest group of injuries and are more common in pediatric and geriatric groups. In some places, injuries by firearms cause more TBI than automobile accidents[24].

The study about the epidemiology of TBI realized in 2013 proved to be very relevant. In it, there was a lot of studies done in the Northeast and in-hospital level, where it was observed that most cases of TBI in all ages were victims of falling, contrary to what was thought to be by Traffic accident. The most affected age group was between 21 and 60 years. More than 50% of traffic accident victims who had TBI did not make the use of IPE, this fact leads us to infer that it is extremely important to use them [25].

Final Considerations

The study resulted in very relevant data, since the epidemiology of trauma victim in this population is not consistent with the other national studies, witch show victims every time younger, usually presenting TBI, admitted in festive time and on weekends.

However, with regard to the data analyzed in the work, it was observed that the trauma predominates in male persons, aged over 40 years, rural workers, despite the accidents occur mostly in urban areas, with large plot admitted after trauma to extremities, skull and face. It showed a higher number of incidents in October, featuring Monday, with the highest number of admissions and hospitalizations, usually comprising the evening hours of 18:01 to 24:00.

The regional reality is directly reflected in the high cost to the city, to society and to the Unified Health System. Underscoring although that many of these injuries could be prevented and avoided spending. Therefore, it sees the need for greater attention on the elderly and farm workers to be more susceptible to trauma, not only by traffic accidents and violence, but also, and mainly, by workplace accidents.

It is necessary that public bodies invest in human resources and infrastructure, in order to improve the assistance provided; and promote the implementation of effective public policies for the prevention and reduction of traumatic incidence numbers and, thus, of morbidity and mortality.

This study allowed us to draw a line of information that might come to the people so that they can contribute to reduction of death from accidents and decrease in numbers of sequel people and unproductive victims to the country.

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