

# Profile of the elderly trauma victims assisted at an Emergency Unit

PERFIL DO IDOSO VÍTIMA DE TRAUMA ATENDIDO EM UMA UNIDADE DE URGÊNCIA E EMERGÊNCIA

PERFIL DEL ANCIANO VÍCTIMA DE TRAUMA ATENDIDO EN UNA UNIDAD DE URGENCIA Y EMERGENCIA

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## ABSTRACT

The objective of this study was to identify the epidemiological profile of elderly victims assisted at the Emergency unit of a university hospital. This is a quantitative, descriptive and cross-sectional study. Data treatment was performed using descriptive statistics, charts and tables. Most victims lived in de Campinas (93.5%) and were females (66.7%) with ages between 70 and 74, and presented comorbidities (77.8%), of which arterial hypertension was the most common. As for the type of accident that resulted in the trauma, the highest incidence was falling from their own height (79.6%). The resulting lesions were characterized by the predominance of superficial lesions (22.7%) followed by mild brain injury (15.1%). As to the victim's destination in the first 24 hours, 49.1% were discharged and 22.2% were admitted for surgery.

## DESCRIPTORS

Aged  
Wounds and injuries  
External causes  
Emergency nursing

## RESUMO

O objetivo deste artigo foi identificar o perfil epidemiológico do idoso vítima de trauma atendido em uma Unidade de Urgência e Emergência de um hospital universitário. Trata-se de um estudo quantitativo, do tipo descritivo e transversal. O tratamento dos dados deu-se pelo uso de estatística descritiva e de gráficos e tabelas. A maioria das vítimas residia na cidade de Campinas (93,5%) e era do sexo feminino (66,7%), a faixa etária predominante foi de 70 a 74 anos e grande parte possuía comorbidades (77,8%) com prevalência da Hipertensão Arterial. Quanto ao tipo de acidente resultante do trauma as quedas da própria altura apresentaram maior incidência (79,6%). As lesões resultantes caracterizaram-se pelo predomínio de lesões de superfície (22,7%) seguido pelo traumatismo cranioencefálico leve (15,1%). Com relação ao destino da vítima nas primeiras 24 horas 49,1% obteve alta hospitalar e 22,2% sofreu internação hospitalar para abordagem cirúrgica da lesão.

## DESCRIPTORES

Idoso  
Ferimentos e lesões  
Causas externas  
Enfermagem em emergência

## RESUMEN

El objetivo de este artículo fue identificar el perfil epidemiológico del anciano víctima de trauma atendido en Unidad de Urgencias y Emergencias de hospital universitario. Estudio cuantitativo, descriptivo y transversal. Los datos se sometieron a estadística descriptiva y a gráficos y tablas. La mayoría de las víctimas residía en la ciudad de Campinas (93,5%) y era de sexo femenino (66,7%), la faja etaria predominante fue de 70 a 74 años y gran parte portaba comorbidades (77,8%), con prevalencia de Hipertensión Arterial. Respecto a tipología de accidentes resultantes de trauma, las caídas presentaron mayor incidencia (79,6%). Las lesiones resultantes se caracterizaron por predominio de lesiones superficiales (22,7%), seguidas de traumatismo cráneo-encefálico leve (15,1%). En relación al destino de las víctimas en las primeras 24 horas, el 49,1% obtuvo alta hospitalaria y 22,2% recibió internación para abordaje quirúrgico de la lesión.

## DESCRIPTORES

Anciano  
Heridas y traumatismos  
Causas externas  
Enfermería de urgencia

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## INTRODUCTION

The aging process and its inherent consequences has been a concern of humanity since the beginning of civilization. The sharp increase in the elderly population has implications for society. It is therefore necessary to seek determinants of the health conditions of elderly individuals and identify the multiple facets of age and the aging process<sup>(1)</sup>. Developed countries pass through this demographic transition process gradually, but Brazil, as is the case for other developing countries, has abruptly become an aged country and has failed to support economic and social changes that favor the quality of life of elderly individuals<sup>(2)</sup>. Improvements and advancements in the control of disease, as well as health technologies, have contributed to the increase in the number of individuals capable of surviving childhood problems and other risks faced over a lifetime. Advancements in health care ensure that more individuals have the opportunity to reach an old age and enjoy more productive years<sup>(3)</sup>.

Accidents and violence are among the main causes of death in the young and adult population. Studies, however, have shown that such causes deserve emphasis in the geriatric population as well. This increased number of external causes should motivate concern among health professionals<sup>(4)</sup>. Causative agents of injuries in human beings are increasingly more varied such as: transportation, agricultural and industrial machines, increased power of gunfire, among others. If, on the one hand, technological advancement has contributed to improved quality of life, on the other hand it has also threatened the survival of citizens<sup>(5)</sup>. Deaths from trauma are a major health problem around the world. Almost 14,000 deaths occur daily in the world due to trauma, which appears among the five main causes of death. When comparing the elderly population to the general population, the former are more susceptible to disease and trauma. Even though trauma is more frequent among young individuals and geriatric emergencies are usually clinical emergencies, the number of traumatized elderly individuals is relevant. Additionally, injuries that could be easily tolerated by younger patients can result in considerable rates of mortality among elderly individuals. Traumas are currently the fifth most frequent cause of death among the elderly population. Aging directly influences an increase in the rates of mortality and morbidity from trauma. Medical problems have systemic repercussions as individuals age and such repercussions are determinants in an individual's capacity to resist death even when facing minor traumas; that is, mortality is directly proportional to the number of pre-existent diseases<sup>(6)</sup>. As age progresses, predictable changes are triggered, which can be identified in practically all bodily systems and these tend to diminish physiological reserves<sup>(7)</sup>. Technological

advancements and improved quality of life allow elderly individuals to develop activities such as driving, exercising, and travelling. Retired individuals maintain paid activities (e.g., jobs) given their financial needs, despite having concomitant health problems<sup>(6)</sup>. Hence, an improved life expectancy adds to improved quality of life for individuals entering old age having enabled seniors to maintain functional independence and the ability to perform daily living activities with a consequent greater exposure to the risk of traumas.

From this context emerges the need for further research considering that a traumatic event in elderly individuals has frightening repercussions on the family and collective spheres, resulting in both economically and emotionally high costs for the injured individual. Even though the theme has been increasingly explored in the literature, this problem is still seldom discussed in the academic and political fields, which are privileged places for the design of proposals for interventions to reduce in the short and long runs the incidence of traumas and adapt the management of this important public health problem.

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## OBJECTIVE

This study identifies the epidemiological profile of elderly victims of trauma cared for in the Emergency Department of a university hospital.

## METHOD

This quantitative, descriptive and cross-sectional study was carried out in the Emergency Department of a university hospital in Campinas, in the interior of São Paulo, Brazil. The study's population was composed of elderly individuals, victims of traumas cared for in the mentioned emergency department. The inclusion criteria were: being 60 years old or older, a victim of trauma, and having been cared for in the Emergency Department of the studied hospital. Elderly individuals who were admitted into the unit already dead due to undetermined causes, even with the hypothetical diagnosis of trauma, but with no clinical or anatomo-pathological confirmation, were excluded from the study. The sample was determined by non-probabilistic convenience criteria. Data were collected from medical files and registration forms for a period of three months (June, July and August 2009) after the Research Ethics Committee from the Pontifical Catholic University of Campinas approved the project (protocol nº 333/09). Data were collected through the use of an instrument composed of questions addressing personal and trauma characterization. Data were tabulated in Epi Info™ Version 3.5.7 2007 and analyzed through descriptive statistics, absolute and perceptual frequency tables and charts.

## RESULTS

The study included 108 elderly individuals, of which 101 (93.5%) lived in the city of Campinas, SP, Brazil and seven

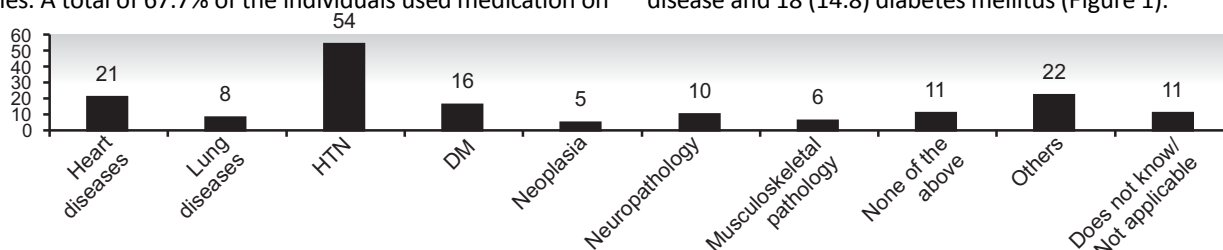
(6.5%) in surrounding towns. A total of 72 victims were women (66.7%) and 36 (33.3%) were men; most were between 70 and 74 years of age followed by individuals 75 to 79 years old (Table 1).

**Table 1** – Age of elderly victims of trauma cared for in the Adult Emergency Department – Campinas, SP, Brazil – 2009.

	60-64	65-69	70-74	75-79	80-84	85-89	>90	Total
N	13	14	26	19	11	14	11	108
%	12.0	13.0	24.0	17.6	10.2	13.0	10.2	100

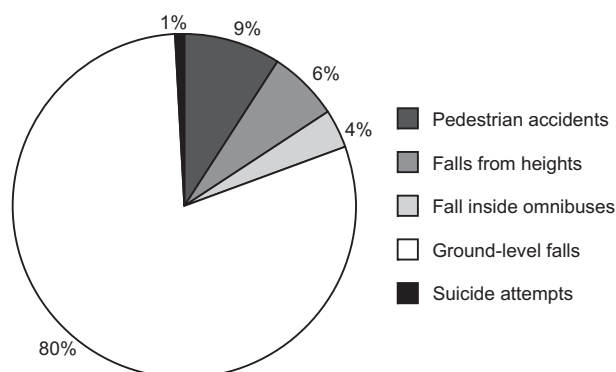
Most of the sample displayed comorbidities (77.8%) while 10.2% did not have comorbidities; this information was impossible to be confirmed in 12% of the sample due to the lack of information in some registration forms and medical files. A total of 67.7% of the individuals used medication on

a regular basis, while 34.3% did not; this information was not confirmed in 17.6% of the sample for the same reason reported earlier. Among the comorbidities, 54 (50%) elderly individuals presented arterial hypertension, 21 (19.4%) heart disease and 18 (14.8) diabetes mellitus (Figure 1).



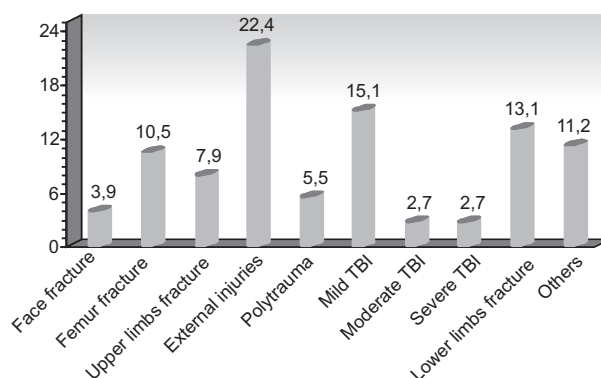
**Figure 1** – Incidence of chronic pathologies in injured elderly individuals – Campinas, SP, Brazil – 2009

In relation to the nature of the traumatic event, those resulting from non-intentional mechanisms and ground-level falls predominated; 9.3% suffered pedestrian accidents. It is worth noting, despite the low incidence, that 6.5% of the elderly individuals were injured in falls from scaffolding, roofs, stairs and 3.7% fell inside omnibuses.



**Figure 2** – Types of accidents involving injured elderly individuals cared for in the Adult Emergency Unit - Campinas, SP, Brazil - 2009

Among the injuries resulting from trauma, 34 (22.4%) individuals suffered external surface injuries, 23 (15.1%) mild traumatic brain injury and 20 (13.1%) traumas in the lower limbs, of which 16 (10.5%) were femur fractures (Figure 3).



**Figure 3** – Types of injuries in traumatized elderly individuals cared for in the adult emergency department - Campinas, SP, Brazil - 2009

Pedestrian accidents resulted in a high rate of hospitalizations; 60% of the pedestrian victims were hospitalized and one individual (10%) ended up dying in the first 24 hours. After initial care, 53 (49.1%) individuals were discharged, 24 (22.2%) underwent operations, and 17 (15.7%) were discharged but had to have follow-up in an outpatient clinic (Table 2).

**Table 2** – Outcome in the first 24 hours of injured elderly individuals – Campinas, SP, Brazil – 2009

Outcome	Frequency	Percentage
Discharge	53	49.1%
Discharge with outpatient follow-up	17	15.7%
Hospitalization-surgery	24	22.2%
Hospitalization-clinical conduct	6	5.6%
Death <24h	2	1.9%
Observation for 12h	6	5.6%
<b>Total</b>	<b>108</b>	<b>100.0%</b>

## DISCUSSION

The increased occurrence of certain groups of events, among which external causes (accidents and violence) has become a matter of concern among health professionals in the field. In Brazil, the elderly population is not usually a priority in terms of external causes since young individuals are those who display the highest coefficients and largest number of cases. However, studies indicate that the mortality rate of elderly individuals due to external causes is very close to the rate of adolescents and young adults. The increased incidence of traumatic events in the elderly population might be correlated with improved quality of life and consequent functional independence. Elderly individuals present characteristics of the adult population younger than 60 years old and have maintained their independence and autonomy, hence becoming more exposed to traumatic events of a varied nature<sup>(8)</sup>.

Despite the alarming increase in the rates of trauma among the geriatric population, we highlight that few studies seek to identify risk factors to enable prevention of the onset of complications and mortality in this age group<sup>(7)</sup>. The increasing aging population tends to experience a higher incidence of chronic-degenerative diseases. This type of disease coupled with accidents and violence currently configure a new profile of health problems<sup>(9)</sup>.

Most (77.8%) of the study's sample presented comorbidities, which corroborates other studies that found a high incidence of comorbidities among seniors, even if not related to trauma<sup>(10)</sup>. Hypertension was the most prevalent (n=54) among comorbidities. It is important to stress that the cardiovascular system is the first to experience distress in the face of a trauma. The considerable prevalence of hypertension among elderly individuals might be an aggravating factor in the first assessment, as well as the use of medication, which might interfere in this assessment, and which should receive special emphasis.

In relation to the nature of the traumatic event, results are similar to those of other studies, where traumas resulting from non-intentional mechanisms predominate. This phenomenon deserves an individualized study because it is different from what occurs in the general population<sup>(8)</sup>.

Ground-level falls are the predominant cause of traumas, which corroborates previous studies that show a great incidence of hospitalizations secondary to falls with femur fractures<sup>(8,11-12)</sup>. Falls comprise an intercurrent of major importance for older individuals because they cause a range of injuries from small bruises to diverse fractures, head injuries and hip fractures, while the latter often lead to death<sup>(4)</sup>. Falls can be considered a sentinel event in the lives of elderly individuals as a potential marker of declining function or as a symptom of a new pathology<sup>(13)</sup>. Fractures that result from falls account for approximately 70% of accidental deaths in people older than 75 years old and seniors present ten times more hospitalizations and eight times more deaths resulting from falls compared to children. About 5% of falls result in trauma and 5 to 10% result in a significant injury that requires medical care. More than two thirds of those who fall will fall again in the following six months. Seniors who suffer a fall may see it as a sign of failure generated by the perception of a loss of capacity<sup>(14)</sup>. The prevention of falls may be achieved with actions involving knowledge concerning the relationship of the elderly individual with the environment where s/he lives, aiming to reduce architectural barriers both at home and even public ones, implement preventive interventions in the biopsychosocial sphere such as improving visual acuity, low bone mineral density, low physical activity, muscle weakness and even try to reduce their fear of falling<sup>(4)</sup>.

This study identified victims of falls other than from ground level: 6.5% fell from scaffolding, roofs and stairs and 3.7% fell inside omnibuses. These events, even though with a low number of incidences, might be related to the maintenance of functional independence that allows seniors to perform activities that in turn make them more susceptible to accidents<sup>(13)</sup>.

Traumas caused by automobiles are the main cause of death in the geriatric population between 64 and 74 years of age; elderly pedestrians represent more than 20% of the fatalities<sup>(13-14)</sup>. This study's sample did not include any victim in which the elderly individual was the driver or passenger of a motor vehicle, though 9.3% of the individuals suffered pedestrian accidents. Automobile accidents in which elderly individuals are involved generally occur at a low speed and do not include alcohol<sup>(15)</sup>. Nevertheless, this type of accident is one of the most violent because it involves an absolutely unequal mechanism of shock. Even when the vehicle is moving at a slow speed, the greater vulnerability of an elderly individual contributes to increased lethality<sup>(8)</sup>. Studies reveal that car accidents among the elderly population require attention especially if one considers the possibility of avoiding them.

In relation to pedestrian accidents involving seniors, some factors have to be taken into account such as the limitations inherent to age (more restricted mobility, lack of attention, visual and hearing impairment, among others) and wide streets, for which completing a crossing in the time set by traffic lights is not always possible, though a

share of blame may be attributed to drivers' intransigence. However, a study conducted in Maringá, PR, Brazil revealed that half of the elderly individuals involved in pedestrian accidents were crossing the street outside the crosswalk. In Brazil, legal measures favoring the protection of pedestrians are subtle and isolated in addition to the fact that there is not in Brazil a specialty on the urgent treatment for the elderly population, while the fields of geriatrics and gerontology are still in development<sup>(16)</sup>.

A greater understanding of the needs of elderly individuals can enable health professionals, specifically nurses, to implement gerontological actions aiming to prevent the occurrence of pedestrian accidents such as traffic education and authorities having greater control of traffic lights<sup>(4)</sup>. Injuries in this sample are diversified regardless of the nature of the trauma, which might be related to the lower physiological reserve of elderly individuals in the face of aggressions<sup>(7)</sup>. This is an alarming factor if we consider that elderly victims have a reduced capacity to recover, require more time of hospitalization and display a higher rate of mortality compared to younger victims. The late mortality rate is higher among elderly individuals given a combination of a larger number of injuries and a larger number of comorbidities and complications post trauma<sup>(17)</sup>. Head and facial injuries are occurrences commonly found among traumatized elderly individuals in other studies, which corroborate this study's findings<sup>(2)</sup>. Poly-traumas among seniors are uncommon and only six individuals suffered this type of injury.

The outcomes are of paramount importance when we note that 22% (n=24) of the victims were hospitalized for a surgical procedure, which shows the need to implement primary health care measures to prevent such events, considering the economic, social and personal costs that result from a prolonged hospitalization. Economic costs assume a particular meaning for the victim's family, especially for those families whose elderly members have a paid job, since a large share of the geriatric population keeps working after retirement to ensure their own survival and that of their family members. In the face of such a traumatic event, they interrupt their gains while costs from medication, orthotics and prosthetics increase<sup>(16)</sup>.

Nurses, given the profession's nature, are included in all the spheres of elderly care. Hence, it is imperative that

nursing actions are established with an emphasis on the prevention of traumas in this age range, though aspects related to treatment and rehabilitation cannot be overlooked. Educational actions can be implemented in collective areas of primary health care facilities, such as waiting rooms and groups of elderly individuals, among others, addressing themes such as traffic education and the prevention of falls. In regard to falls, environmental adaptations and encouraging individuals to be physically active to strengthen muscles, increase muscle flexibility and improve balance and walking, systematic monitoring of medication use and of signs and symptoms are measures that can contribute to reducing the chances of such event<sup>(18)</sup>. Further research, though, is needed to better support the effectiveness of these measures.

In relation to treatment, the qualification of the nursing team should include academia, nursing undergraduate programs and also continuing education in hospitals and emergency departments given the particularity of care provided to traumatized elderly individuals.

Another aspect that needs to be considered is the strengthening of support networks for elderly individuals and their caregivers, seeking integrality of care delivery in partnership with families and care centers<sup>(19-20)</sup>. The main objective of care provided in a traumatic event, in addition to the maintenance of patients' lives, is to enable them to return to society with their functional capacities as close as possible to their condition prior to the trauma<sup>(21)</sup>, which is a challenge even greater when it involves the elderly population.

## CONCLUSION

This study reveals that the profile of elderly victims of trauma in the studied sample is characterized by individuals from 70 to 74 years of age, with comorbidities (77.8%), especially hypertension. Falls from ground level accounted for the majority of traumas (79.6%). Surface lesions were the most frequent injuries followed by mild head trauma and fractures in the lower limbs, mainly femur fractures. Regarding the outcomes: 49.1% were discharged after initial care, 22.2% were hospitalized for future surgery and 15.7% was discharged with outpatient clinic follow-up.

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