

# Profile of victims of external causes attended in a public hospital in the Federal District

**RESUMO** | Objetivo: caracterizar as vítimas de causas externas atendidas na Sala Vermelha de um Hospital Público do Distrito Federal. Método: estudo quantitativo, descritivo, transversal e analítico, pautado em dados secundários de junho/2019 a junho/2020, obtidos no livro de admissões da sala vermelha. A análise dos dados foi realizada pelo programa Microsoft Excel 2016. Resultados: houve predomínio do sexo masculino (74,4%), com idade entre 20 e 39 anos, com maior ocorrência de atendimentos em dezembro, aos finais de semana, no período noturno. Predominou como principal causa externa as agressões, resultando em traumatismos de cabeça e/ou pescoço. A transferência inter-hospitalar foi o principal desfecho. A agressão por arma de fogo foi prevalente entre os óbitos. Conclusão: a análise dos dados revela maior vulnerabilidade do homem jovem perante as causas externas, evidenciando a necessidade de desenvolver novos estudos que contribuam para o planejamento de políticas públicas com enfoque a redução de violências e acidentes.

**Descritores:** Causas externas; Emergências; Serviço hospitalar de emergência

**ABSTRACT** | Objective: to characterize the victims of external causes treated in the Red Room of a public hospital in the Federal District. Method: quantitative, descriptive, cross-sectional and analytical study, based on secondary data from June/2019 to June/2020, obtained from the Red Room admissions book. Data analysis was performed using Microsoft Excel 2016 software. Results: there was a predominance of males (74.4%), aged between 20 and 39 years, with a higher occurrence of attendance in december, on weekends, at night. The main external cause was aggression, resulting in head and/or neck trauma. Inter-hospital transfer was the main outcome. Aggression by firearm was prevalent among deaths. Conclusion: Data analysis reveals greater vulnerability of young men to external causes, highlighting the need to develop new studies that contribute to the planning of public policies focused on reducing violence and accidents.

**Keywords:** External causes; Emergencies; Emergency service hospital

**RESUMEN** | Objetivo: caracterizar las víctimas de causas externas atendidas en la Sala Roja de un Hospital Público del Distrito Federal. Método: estudio cuantitativo, descriptivo, transversal y analítico, basado en datos secundarios de junio/2019 a junio/2020, obtenidos del libro de admisiones de la Sala Roja. El análisis de los datos se realizó con el programa Microsoft Excel 2016. Resultados: predominó el sexo masculino (74,4%), con edad entre 20 y 39 años, con mayor ocurrencia de atenciones en diciembre, al final de la semana, en el período notorio. La principal causa externa fueron las agresiones con resultado de traumatismo craneal y/o cervical. La transferencia entre hospitales fue el resultado principal. La agresión con arma de fuego fue frecuente entre las muertes. Conclusión: el análisis de los datos revela mayor vulnerabilidad del hombre joven frente a las causas externas, evidenciando la necesidad de desarrollar nuevos estudios que contribuyan a la planificación de políticas públicas con enfoque en la reducción de la violencia y los accidentes

**Palabras claves:** Causas externas; Emergencias; Servicio de urgencia en hospital

## Samara Silva de Queiroz

Nurse. Student of the Multiprofessional Residency Program in Urgency and Trauma at the Escola Superior de Ciências da Saúde (ESCS). Foundation for Teaching and Research in Health Sciences (FEPECS). Health Department of the Distrito Federal (SES-DF). Brasília, DF, Brazil.  
ORCID: 0000-0001-6874-6202

## Moises Wesley de Macedo Pereira

Nurse. Master in Medical Sciences from the University of Brasília (UnB). Professor at the School of Health Sciences (ESCS), Preceptor of the Multiprofessional Residency Program in Urgency and Trauma of the State Department of Health of the Distrito Federal. Brasília, DF, Brazil.  
ORCID: 0000-0002-8666-5702

## Nayara da Silva Lisboa

Nurse. Master in Nursing from the University of Brasília (UnB). Coordinator of the Commission for Multiprofessional Residencies and in Professional Areas of the State Health Department of the Distrito Federal. Brasília, DF, Brazil.  
ORCID: 0000-0001-5855-7651

## Caio Cesar Gomes Lu Ferreira

Nurse. Specialist in Critical Patient Care at Hospital Sírío Libanês. Preceptor of the Multiprofessional Residency Program in Urgency and Trauma of the State Department of Health of the Distrito Federal. Brasília, DF, Brazil.  
ORCID: 0000-0003-3651-7397

## Thainná de Rezende dos Santos

Nurse. Student of the Multiprofessional Residency Program in Urgency and Trauma at the Escola Superior de Ciências da Saúde (ESCS). Foundation for Teaching and Research in Health Sciences (FEPECS). Health Department of the Distrito Federal (SES-DF). Brasília, Df, Brazil.  
ORCID: 0000-0002-6254-405X

## Thais Fernandes de Oliveira

Nurse. Master in Nursing from the University of Brasília (UnB). Preceptor of the Multiprofessional Residency Program in Urgency and Trauma of the State Department of Health of the Distrito Federal. Brasília, DF, Brazil.  
ORCID: 0000-0001-9128-7796

## INTRODUCTION

External causes include trauma, physical and/or psychological injuries or other health problems, whether intentional or not, of sudden onset and as an immediate consequence of accidents or violence, whether or not the outcome is death. (1-2) Accidents are usually characterized as unintentional and preventable events, being traffic collisions, falls, drowning, burns, poisoning, and other events caused by environmental conditions. (3-4) Violence is characterized as an intentional event, marked by the use of physical force or abuse of power against oneself, another person or a group, and manifests itself through aggression, homicide and self-harm, such as poisoning and suicide. (5)

In 2019, according to DATASUS Mortality Information System (SIM) bulletins, almost 142,800 deaths from external causes were recorded (10.6% of total deaths in Brazil). Of these, 30.9% were victims of aggression, with the use of firearms being the main cause (70%), followed by 23% of land transport accidents, and 9.5% referring to suicide. (6) Morbimortality from these causes is a serious public health problem, as it generates a great impact on care, with high demands for hospitalization and/or rehabilitation, increasing public spending and impacting the quality of life of individuals and society, thus confirming the dimension of this problem. (7,4)

The investigation of the profile of victims of external causes assisted is an important factor for the knowledge of the population's health problems and identification of the elements that contribute to the increase of the different types of external causes, helping to direct public policies and plan health actions. (8-9) Thus, this study aimed to characterize the victims of external causes treated in the Red Room of a Public Hospital in the Federal District (DF), Brazil.

## METHOD

This is a quantitative, descriptive, cross-sectional and analytical study, based on secondary and retrospective data obtained from the admissions book of the red room of the Hospital Regional da Ceilândia (HRC). The HRC is a hospital unit located in the administrative region of Ceilândia - DF, with 275 beds, providing urgent and emergency care services in the areas of



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internal medicine, general surgery, pediatrics, orthopedics and traumatology, gynecology and obstetrics.

The sample consisted of 207 victims of external causes treated in the red room. In this study, admissions of individuals aged 14 years or older, from

June 2019 to June 2020, were included. As for age, the minimum found was 14 years, so we considered any age equal to or greater than this as a sample, since there was a considerable number of visits in the age group below 18 years, and should not be ignored. The study was exempt from the consent form.

Data collection took place in April and May 2021, through the records contained in the sector's admissions book, within the predetermined time frame. The study variables refer to sociodemographic aspects (gender, age group, race, marital status, place of residence) and general aspects of care (month, day of the week, time of admission, type of external cause, injury characteristics, affected body segment and outcome).

The collected data were properly organized in a Microsoft Excel 2016 data sheet and descriptive statistical analysis was performed using absolute frequency and relative frequency. The results were consolidated in the form of tables.

This study followed the precepts established by Resolution No. 466/2012 of the National Health Council. It began after approval by the Research Ethics Committee (CEP) of the Fundação de Ensino e Pesquisa em Ciências da Saúde, under opinion No. 4.662.786, CAAE 45121421.6.0000.5553.

## RESULTS

In the analyzed period, 207 attendances were registered. There was a higher prevalence in males (74.2%). The age range ranged from 14 to 93 years, between the age group of 20 to 39 years (52.6%), with a mean of 36 years and standard deviation of  $\pm 15.16$ . Regarding the variables race/color and marital status, it was found that 66.7% and 50.7%, respectively, had no records. As for the place of residence, 67.1% live in the city of Ceilândia, as shown in table 1.

When proceeding with the evaluation of the consultations, a higher prevalence was observed in the month of December/2019 (14.5%), with Saturday (20.8%) and Sunday (23.2%) being the days with the highest number of admissions in the sector, occurring mainly during the night period (37.2%), between 18:00 and 00:00.

Assaults account for 39.6% of the total number of visits, with a predominance of assaults by white weapons (17.9%) and firearms (14.9%), affecting more males (95.1%). It is important to highlight intentional self-harm injuries (15.9%), affecting more females (69.7%), with a predominance of poisoning (13%). Among land transport accidents (22.2%), pedestrians being run over (11.1%) are the majority. Table 2 exposes the causes in detail.

As for the characteristics of the injury, traumas (blunt, penetrating, multiple trauma) are predominant, representing 72.4%. The head and/or neck body segment (31.4%) was the most affected.

Regarding the outcome, inter-hospital transfer (28%) to Instituto Hospital de Base was predominant. It is noteworthy that 10.1% of the patients died, affecting mainly males (85.7%), with a mean age of 29 years and standard deviation of  $\pm 10.98$ . Aggression (42.9%) was responsible for the majority of deaths, 38.1% by firearms, as shown in Table 3.

## DISCUSSION

Regarding the characterization of the sample, the same occurred as described in the literature, where there is a higher incidence of external causes in young males of working age. (9-10-11) Some authors attribute these data to greater exposure to risk factors and differences in lifestyle and behavior, eventually making men more exposed to violence and accidents. (1,9) These results should encourage preventive and effective measures that can change

**Table 1. Sociodemographic characterization of consultations for external causes according to sex, between June/19 and June/20. Brasília - DF, Brazil, 2021.**

Variables	Male n (%)	Female n (%)	General n (%)
<b>Age group</b>			
14 - 19 years	16 (7,7)	8 (3,9)	24 (11,6)
20 - 29 years	45 (21,7)	14 (6,8)	59 (28,5)
30 - 39 years	34 (16,4)	16 (7,7)	50 (24,1)
40 - 49 years	27 (13)	7 (3,4)	34 (16,4)
50 - 59 years	23 (11,1)	4 (2)	27 (13,1)
60 years or older	9 (4,3)	4 (2)	13 (6,3)
Total	154 (74,2)	53 (25,8)	207 (100)
<b>Race/Color</b>			
Black	2 (1)	-	2 (1)
White	3 (1,4)	6 (2,9)	9 (4,3)
Brown	46 (22,2)	12 (5,8)	58 (28)
Not declared	103 (49,8)	35 (16,9)	138 (66,7)
<b>Marital status</b>			
Single	46 (22,2)	20 (9,7)	66 (31,9)
Married	19 (9,1)	7 (3,4)	26 (12,5)
Others	3 (1,4)	7 (3,4)	10 (4,9)
Unknown	86 (41,6)	19 (9,1)	105 (50,7)
<b>Place of residence</b>			
Ceilândia	100 (48,3)	39 (18,9)	139 (67,2)
Taguatinga	13 (6,3)	5 (2,4)	18 (8,7)
Recanto das Emas	9 (4,3)	2 (1)	11 (5,3)
Águas Lindas	7 (3,4)	1 (0,5)	8 (3,9)
Samambaia	6 (2,9)	-	6 (2,9)
Others	19 (9,1)	6 (2,9)	25 (12)

Source: the authors, 2021

**Table 2. Distribution of types of external causes attended between June/19 and June/20 according to gender. Brasília - DF, Brazil, 2021**

Variables	Male n (%)	Female n (%)	General n (%)
<b>GTA</b>			
Running over	12 (5,8)	11 (5,3)	23 (11,1)
Overtuning	4 (1,9)	2 (1)	6 (2,9)
Car vs car collision	1 (0,5)	-	1 (0,5)
Car vs motorcycle collision	1 (0,5)	1 (0,5)	2 (1)
Motorcycle vs motorcycle collision	1 (0,5)	-	1 (0,5)
Collision between other vehicles	1 (0,5)	-	1 (0,5)

the current situation. (11)

Most victims reside in Ceilândia, considered the most populous city in the Federal District. (12) The exponential growth of the city culminated in serious social problems such as violence and drug trafficking, in addition to economic and social discrepancies. (13) In this sense, these data are related to the occurrence of consultations due to external causes, and educational actions can act positively in reducing the number of cases. (13-14)

Regarding the period and shift of care, the data corroborate a study conducted in São Tomé and Príncipe, whose highest number of visits also occurred at night (38.8%), 75.1% on weekends. (15) A study on the factors associated with hospital mortality from external causes suggests the presence of holidays and commemorative dates, with a greater occurrence of parties and gatherings at night, and greater consumption of alcoholic beverages, increasing exposure to the risks of violence and accidents. (9)

As for the different types of external causes, aggressions are the majority, however, a study carried out in 2019 pointed out that, although aggressions represent the highest mortality rate among external causes, it has a much lower number of hospitalizations (3.8%) when compared to other causes, perhaps due to the high lethality of these events at the place of occurrence, preventing the victim from reaching the hospital. (2) Currently, violence is seen as one of the biggest health problems in the country, having its own characteristics according to the situation of each region, so it is essential to understand the aspects related to its social determination, in order to create strategies to reduce these rates. (16)

Regarding intentional self-harm, the data are in agreement with a study carried out in Ceará, which identified 5.1% of suicide attempts among women, mainly through self-medication

Collision against a fixed object	6 (2,9)	3 (1,4)	9 (4,3)
Motorcycle fall	3 (1,4)	-	3 (1,4)
<b>Aggression</b>			
Beating	13 (6,3)	1 (0,5)	14 (6,8)
Fire gun	30 (14,4)	1 (0,5)	31 (14,9)
Melee weapon	35 (16,9)	2 (1)	37 (17,9)
<b>ISH</b>			
Poisoning	8 (3,9)	19 (9,1)	27 (13)
Sharp instrument	-	2 (1)	2 (1)
Other ways	2 (1)	2 (1)	4 (1,9)
<b>Falls</b>			
Fall from own height	17 (8,2)	4 (1,9)	21 (10,1)
Drop from height	7 (3,4)	1 (0,5)	8 (3,9)
<b>Other External Causes</b>			
Drowning	1 (0,5)	-	1 (0,5)
Electric shock	2 (1)	-	2 (1)
Fire injury	1 (0,5)	1 (0,5)	2 (1)
Accidental poisoning	6 (2,9)	2 (1)	8 (3,9)
Others	3 (1,4)	1 (0,5)	4 (1,9)

Source: the authors, 2021

Subtitle: GTA: Ground Transportation Accident | ISH: Intentional self-harm

**Table 3. Distribution of outcomes due to external causes between June/19 and June/20 according to sex. Brasilia, Brazil, 2021.**

Variables	Male n (%)	Female n (%)	General n (%)
<b>Transfer</b>	<b>45 (21,7)</b>	<b>13 (6,3)</b>	<b>58 (28)</b>
Nursery	32 (15,6)	19 (9,1)	51 (24,7)
Surgery Center	39 (18,9)	5 (2,4)	44 (21,3)
Death	18 (8,7)	3 (1,4)	21 (10,1)
<b>GTA</b>	<b>2 (9,5)</b>	<b>1 (4,8)</b>	<b>3 (14,3)</b>
Aggression	9 (42,9)	-	9 (42,9)
<b>ISH</b>	<b>2 (9,5)</b>	<b>1 (4,8)</b>	<b>3 (14,3)</b>
Falls	2 (9,5)	-	2 (9,5)
<b>Other causes</b>	<b>3 (14,3)</b>	<b>1 (4,8)</b>	<b>4 (19,1)</b>
ICU	10 (4,8)	6 (2,9)	16 (7,7)
Yellow Room	7 (3,4)	4 (1,9)	11 (5,3)
Others	3 (1,4)	3 (1,4)	6 (2,9)

Source: the authors, 2021

Subtitle: GTA: Ground Transportation Accident | ISH: Intentional self-harm | ICU: Intensive Care Unit

and poisoning, related to easy access to medicines and rodenticides at home.

(17) An international study points out that pesticide poisoning is one of the

most used methods of suicide by women in several countries (South Korea: 43% - United States: 31%), being associated with the existence of psychiatric illnesses, problems with finances and relationships, demanding some preventive actions such as awareness programs, blocking access to the means used and professionals trained to act in crises. (18)

Regarding land transport accidents, the data are in agreement with a study carried out between 2000 and 2014 in the city of São Paulo, which recorded 48,879 hospitalizations for being run over, considering pedestrians part of a more vulnerable group, with accidents associated with them, of greater severity, due to the kinematics of the trauma. (19) Research on the characterization of hospitalizations due to external causes shows that victims of being run over need longer hospital stays (average of 6.4 days), with a high lethality coefficient (4.6%), probably due to greater body exposure, reinforcing the need to implement measures to prevent these accidents, also offering education actions aimed at the most vulnerable groups. (5)

As for the characteristics of the injury and the affected body segment, the prevalence of head and/or neck injuries is in agreement with the literature, relating its occurrence to depend on the type of external cause suffered, with aggression being the main responsible for this result. (1) These injuries are one of the most serious, due to their high lethality and ability to leave sequelae, as well as a greater number of hospitalizations and health expenses, legitimizing the need for actions that reduce morbidity and mortality from trauma. (20-21)

Regarding the outcomes, inter-hospital transfer for opinion response was predominant, with Instituto Hospital de Base being the main destination, characterized as a referral service qualified in neurosurgery. (22) It is known that some patients need specialized care

and urgent diagnostic and/or therapeutic tests that are not usually offered at the hospital of admission, a study car-



The limitations found in this study were the sub-registrations in the patients' register, leaving unknown data such as race/color and marital status, making a more detailed analysis unfeasible. Such limitations can influence the results obtained, representing aspects that need improvement to achieve a more reliable characterization of the population served



ried out in the United States suggests worse outcomes for transfer patients compared to direct admissions.(23)

As for deaths, the data are consis-

tent with a study on mortality and years of life lost due to violence, which point to firearm homicide as the main cause of death among young men, probably due to the encouragement of violent behavior, in addition to illegal contact with weapons, reflecting a 9.2 times greater probability of dying from homicide than women. (10) According to a report published by the Small Arms Survey, men represent the biggest victims of lethal violence (84%), mainly by firearms (92%), and in South America, an individual is four times more likely to be a victim of lethal violence compared to the global average. (24)

The limitations found in this study were the sub-registrations in the patients' register, leaving unknown data such as race/color and marital status, making a more detailed analysis unfeasible. Such limitations can influence the results obtained, representing aspects that need improvement to achieve a more reliable characterization of the population served. (5)

#### CONCLUSION

In this study, it was possible to verify that external causes predominate among young, male individuals and victims of aggression, especially caused by bladed weapons and firearms. Patients with trauma injuries that affect the head and/or neck segment, admitted on weekends, at night and in December were prevalent, with inter-hospital transfer as the main outcome.

Data analysis reveals the vulnerability of young men to these causes, especially aggression, which has repercussions on the country's health indicators, in particular, the years of life lost due to premature death. With this, it is expected that the results of this study can support measures that will minimize the occurrence of avoidable causes, through the elaboration of public policies that contribute to the reduction of violence and accidents.

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