



Journal Website:
<https://theamericanjournals.com/index.php/tajjir>

Copyright: Original content from this work may be used under the terms of the creative commons attributes 4.0 licence.

Research Article

PREVALENCE OF LOCOMOTOR SYSTEM INJURIES DUE TO TRAFFIC ACCIDENTS IN BRAZIL

Submission Date: October 18, 2023, **Accepted Date:** October 22, 2023,

Published Date: October 24, 2023 |

Crossref doi: <https://doi.org/10.37547/tajjir/Volume05Issue10-03>

Zenodo doi: <https://doi.org/10.37547/tajjir/Volume05Issue10-03>

Melissa Alves Aires Marques

Medical Student At The University Iguaçú, Itaperuna-Rj

Bianca Gabriella Oliveira

Medical student at the University Salvador, Salvador-BA

Ana Freitas Goulart Terra

Medical student at the University Iguaçú, Itaperuna-RJ

David Augusto Abrantes Teixeira Melo

Medical Student At The University Iguaçú, Itaperuna-Rj

Damiana Pereira Da Silva Neves

Medical Student At The University Iguaçú, Itaperuna-Rj

Débora Aguiar Martins

Medical Student At The University Iguaçú, Itaperuna-Rj

Elenize De Oliveira Silva Neves

Medical Student At The University Iguaçú, Itaperuna-Rj

João Breno Marreira Franco

Medical Student At The University Nilton Lins, Manaus-Am

Karla Aparecida Carvalho Santos Costa

Medical Student At The University Iguaçú, Itaperuna-Rj

Lívia Ximenes Rocha

Medical Student At The University Iguaçú, Itaperuna-Rj

Thaís Simões De Oliveira Borges

Medical Student At The University Salvador, Salvador- Ba

Yasmim Maia De Souza Tavares

Medical Student At The University Iguazu, Itaperuna-Rj

ABSTRACT

Road traffic accidents (RTAs) are a public health problem worldwide, representing the leading cause of death in the 5-29 age group and the eighth leading cause of death in all age groups. It also accounts for 12% of all deaths on the planet and 20 to 50 million individuals with some kind of sequelae, whether osteoarticular or not. This is a literature review study, in addition to a cross-sectional data collection from 2018 to 2022 from the SUS Hospital Information System (SIH-SUS) by the SUS IT Department (DATASUS) and also by calculating data on the Compulsory Insurance for Personal Injury Caused by Land Vehicles platform. For this reason, public strategies for effective enforcement, strengthening mobility and accessibility policies, improving roads, implementing and improving traffic legislation and investing in safe and sustainable public transportation are necessary.

KEYWORDS

Accident; Traffic accident; Road transport accident; Wounds and injuries; Osteoarticular injuries.

INTRODUCTION

In 1969, the first vehicle was built, the Fardier, by a French military engineer, Nicholas Joseph Cugnot, and during its inaugural test there was the "first automobile accident" in history. However, the automobile only became popular in 1899, the same year as the first accident involving two motor vehicles in the United States (Vieira, 2008). In the second half of the 20th century, some items such as seat belts and airbags were included in vehicle production processes and with the emergence of the information age, the computerization of automobiles was unabated. However, even with the growing adoption of these items, land transport accidents (LTA) persist (Andrade, Antunes, 2019).

Globally, RTAs represent the leading cause of death for children and young people aged between 5 and 29

(WHO, 2018) and the eighth leading cause of death for all age groups (HWO, 2018). Each year, around 1.35 million deaths occur on public roads, representing more than 3,698 deaths per day and corresponding to around 12% of all deaths on the planet (WHO, 2018). Furthermore, in addition to the deaths, road traffic accidents account for 20 to 50 million individuals with some kind of sequelae, whether or not they are osteoarticular, including many vulnerable users, such as cyclists, motorcyclists and pedestrians. Thus, road traffic accidents are considered a global public health problem, especially in low and middle income countries, such as Brazil (WHO, 2009).

In Brazil, around 49,000 deaths occur every year due to these events, with the highest morbidity and mortality rate among young men aged 10 to 24, which is the



second leading cause of death among men (26.6 per 100,000 inhabitants) and the first among women (6.2 per 100,000) in 2019 (Aquino, 2020; Malta, 2021).

Traffic accidents represent a multifactorial phenomenon that is influenced by cultural, commercial, social and environmental determinants of health. These accidents have a very high social and economic impact on individuals, families, society and governments, as they result in disability, early death and loss of productivity (Malta, 2022). Because their damage is not restricted to the individual and/or family, it has an influence at national level, affecting the country's economy and representing a cost of 3% of gross domestic product (GDP) (Pal, 2016).

The literature shows that the risk factors for ATB injuries and deaths include: low investment in traffic education and awareness-raising activities on safe traffic; risky behavior, such as the use of alcohol and other drugs; disrespect for traffic laws; excessive speed; a progressive increase in the number of motorcycles and cars on the roads; failures in enforcement; poor road conditions; unfavorable weather conditions and lack of vehicle maintenance (Moraes, 2010). However, with regard to factors that protect against injuries and deaths from accidents, there is the use of safety equipment (such as helmets, seat belts, airbags and child seats), the application of legislation on drinking and driving, the non use of cell phones in conjunction with driving, vehicle speed limits and adequate infrastructure, which includes sustainable and safe urban and human mobility (Moraes, 2010).

Against this backdrop, in February 2020, the 3rd Global Ministerial Conference on Road Safety (WHO, 2021) brought together civil society and governments from more than 140 countries and reaffirmed the

Sustainable Development Goals (SDGs) target of a 50% reduction in road traffic deaths by 2030 (Civil Society Working Group for Agenda 2030, 2021). The main objective of this study is to analyze the prevalence of injuries to the locomotor system caused by traffic accidents in Brazil.

METHOD

This study is a literature review, plus a cross sectional data collection from 2018 to 2022 from the SUS Hospital Information System (SIH-SUS) by the SUS IT Department (DATASUS) and also using data from the Compulsory Insurance for Personal Injury Caused by Land Motor Vehicles, or by their Cargo, to Individuals Transported or Not (DPVAT insurance) platform. Epidemiological data was analyzed using certain variables, such as gender, age group, region and vehicle profile. This study used the descriptors "Road Accident", "Traffic Accident", "Vehicle Accident" and "Injury and Trauma", previously defined on the DECS platform and entered into the SCIELO, LILACS and PUBMED databases, using publications in Portuguese, English and Spanish as a filter.

RESULTS

In Brazil, according to an analysis of data from the Hospital Information System regarding hospitalizations paid for by the Unified Health System (SUS), from 2000 to 2013, it was revealed that hospitalizations with a suggestive diagnosis of physical sequelae due to traffic injuries is equivalent to around 26% in the population aged 20 to 29, affecting more young men and motorcycle drivers (Andrade SS, 2016).

According to data from DATASUS and the DPVAT platform from 2018 to 2022, osteoarticular injuries, especially fractures, caused by traffic accidents in Brazil are higher in the Southeast and Northeast

regions, with an emphasis on 2021. The Southeast region had the highest number of fractures caused by these events, increasing by 11.39% compared to the previous year (2020). In terms of the total number, 2021 was the year with the highest number, 26% of the total. The Southeast and Northeast regions dominated the statistics, with 42.93% and 39.34%, respectively. In terms of gender, males accounted for 80% of cases, while females accounted for 20%. The leading victims were drivers, who accounted for 144,222 of the incidents. The most susceptible age group, which represents the main victims, is between 25-34 years old, economically active individuals and present in 61,602 occurrences. As for the profile of the vehicles, motorcycles continue to account for most of the accidents compensated.

DISCUSSION

The tendency to reduce the number of deaths and injuries, particularly serious ones, highlights the implications of these injuries, especially those of an economic nature (Andrade, Antunes, 2019). The Institute for Applied Economic Research (IPEA) (Instituto de Pesquisa Econômica Aplicada, 2015) analyzed the costs of these accidents on federal highways in 2014 and found that each event cost the country an average of R\$72,705.31, including vehicle, institutional and individual costs. When there are fatalities, this figure is substantially higher. In the case of serious injuries and death, the impact of RTAs is felt at home, especially when it involves the family breadwinner. The care and health support of a person with sequelae, sometimes irreversible, from an accident causes a permanent cost for the family, which is not limited to the financial aspect, but also implies quality of life (Prinja, et al., 2016).

Driving a motorized vehicle by children under 18 years of age is a risky practice and is prohibited in Brazil. However, it has been found that this habit is growing: in 2009, 18.5% of Brazilian schoolchildren aged 13 to 15 reported having already driven a vehicle (Morais, 2010; Souto, 2018). In 2019, this percentage increased by around 68% among adolescents in the same age group. It is dangerous to normalize this traffic infraction, precisely because this age group is more exposed to RTA, due to less skill and experience. This practice is more common among boys aged 16 and 17, especially in the states of the North, Northeast and Midwest (World Health Organization, 2021). Adolescence is a period of great bodily, psychological, family and community changes, comprising a time of great vulnerability to the occurrence of certain diseases, including RTA (Alves, 2019). For this reason, it is important to expand surveillance actions to cover this behavior that exposes young people and society to countless risks to health and well-being (Malta, 2022).

Even though traffic accidents are not completely preventable, because they are sensitive to human error, they can be prevented (WHO, 2011), and legislation for this purpose is indispensable (Zhao et al., 2016). Although Brazil has comprehensive legislation on traffic safety, there are significant deficiencies in monitoring compliance with these laws, which is a decisive condition given that it is a key strategy for maintaining road safety (Aguilera, Moysés, Moysés, 2014). The WHO carried out some monitoring in 2013, 2015 and 2018 and observed an improvement in the enforcement of some risk factors. However, the policing of other points remained unchanged or even worsened, especially alcoholism (HWO, 2013; WHO, 2015; WHO 2018).

CONCLUSION



In conclusion, this study shows that traffic accidents are a public health problem, representing the main cause of death among children and young adults, affecting both the individual, their family, the community and the country's economy, since most of the victims are economically active individuals aged between 25 and 34, who suffer from minor injuries such as abrasions to death. In this way, we highlight public strategies for effective enforcement, strengthening mobility and accessibility policies, improving roads, implementing and improving traffic legislation and investing in safe and sustainable public transport.

REFERENCES

1. Alves, G., Kunz, S.A.S., Boeira, D.A. (2019). Psicologia do trânsito e direção de adolescentes não habilitados. Revista Com Censo: Estudos Educacionais do Distrito Federal, 2019.
2. Andrade, F. R. D., Antunes, J. L. F. (2019). Tendência do número de vítimas em acidentes de trânsito nas rodovias federais brasileiras antes e depois da Década de Ação pela Segurança no Trânsito. Cadernos de Saúde Pública, 35.
3. Andrade, S.S., Jorge, M.H. (2016). Estimate of physical sequelae in victims of road traffic accidents hospitalized in the Public Health System. Revista Brasileira Epidemiologia, 2016.
4. Aguilera, S.L.V.U., Moysés, S.T., Moysés, S.J. (2014). Intervenções de segurança viária e seus efeitos nas lesões causadas pelo trânsito: uma revisão sistemática. Revista Panam Salud Pública 36:257-65.
5. Aquino, É.C., Antunes, J.L.F., Morais, N.O.L. (2020). Mortality by road traffic injuries in Brazil (2000-2016): capital cities versus non-capital cities. Revista Saúde Pública.
6. Grupo de Trabalho da Sociedade Civil para a Agenda 2030. (2021). V Relatório Luz da Sociedade Civil Agenda 2030 de Desenvolvimento Sustentável Brasil.
7. Instituto de Pesquisa Econômica Aplicada. (2015). Acidentes de trânsito nas rodovias federais brasileiras: caracterização, tendências e custos para a sociedade. Brasília: Instituto de Pesquisa Econômica Aplicada.
8. Malta, D.C., Ferreira, A.C.M., Prates, E.J.S., Andrade, F.M.D., Silva, M.M.A., Lima, C.M., Andreazzi, M.A.R. (2022). Fatores de risco e proteção para acidentes de transporte terrestre entre adolescentes brasileiros, PeNSE 2015/2019. REME - Revista Mineira Enfermagem.
9. Malta, D.C., Minayo, M.C.S., Cardoso, L.S.M., Veloso, G.A., Teixeira, R.A., Pinto, I.V., Naghavi, M. (2021). Mortality among Brazilian adolescents and young adults between 1990 to 2019: an analysis of the Global Burden of Disease study. Ciência Saúde Coletiva.
10. Morais, N.O.L., Malta, D.C., Mascarenhas, M.D., Duarte, E.C., Silva, M.M., Oliveira, K.B., et al.(2010). Risk factors for road traffic injury among adolescents in Brazil: National Adolescent School-based Health Survey (PeNSE). Ciência Saúde Coletiva.
11. Pal, D., Mitra, S.K. (2016). An application of the directional distance function with the number of accidents as an undesirable output to measure the technical efficiency of state road transport in India. Transportation Research Part A: Policy and Practice., Elsevier, vol. 93, pages 1-12.
12. Prinja, S., Jagnoor, J., Chauhan, A.S., Aggarwal, S., Nguyen, H., Ivers, R. (2016). Economic burden of hospitalization due to injuries in North India: a cohort study. Int J Environ Res Public Health 13:673.
13. Souto, R.M.C.V., Barufaldi, L.A., Malta, D.C., de Freitas, M.G., Pinto, I.V., Lima, C.M., et al. (2018).

Perfil e tendência dos fatores de risco para acidentes de trânsito em escolares nas capitais brasileiras: PeNSE 2009, 2012 e 2015. Revista Brasileira Epidemiológica., 21: E180016.

14. Vieira, J.L. (2008). A história do automóvel: a evolução da mobilidade. São Paulo: Alaúde Editorial.
15. World Health Organization (WHO). (2018). Global status report on road safety 2018. Geneva: World Health Organization.
16. World Health Organization (WHO). (2009). Global status report on road safety: time for action. Geneva: World Health Organization.
17. World Health Organization. (2011). Global plan for the decade of action for road safety 2011-2020. Geneva: World Health Organization.
18. World Health Organization. (2013). Global status report on road safety 2013. Geneva: World Health Organization.
19. World Health Organization. (2015). Global status report on road safety 2015. Geneva: World Health Organization.
20. World Health Organization (WHO). (2021). Plano Global - Década de Ação pela segurança no trânsito 2021-2030.
21. Zhao, A., Chen, R., Qi, Y., Chen, A., Chen, X., Liang, Z., et al. (2016). Evaluating the impact of criminalizing drunk driving on road-traffic injuries in Guangzhou, China: a time-series study. Journal Epidemiol 26:433-