Burden of fatal and non-fatal Injuries: Global and Regional perspectives

Chkhaberidze N.[1], Akhobadze K.[1], Dotchviri T.[1], Gvazava S.[1], Tskaroveli G.[1], Pitskhelauri N.[1], Kereselidze M.[1], Chikhladze N.[1]

Abstract

Background: Traumatic injury is a growing public health concern and a leading cause of death and disability worldwide.
Aim: A review of burden of Injury on global level and its regional distribution.
Methods: Desk research has been conducted based on publications in PubMed and Medline.
Results: Globally, three of the top five major causes of death in people aged 5 to 29 years are related to injuries, particularly road injuries, homicide and suicide. Drowning is the sixth major cause of death among children aged 5 to 14 years. Falls cause more than 684,000 deaths each year and are a growing but under-recognized public health problem. Violence and injuries account for 10 per cent of all years spent with disability. Injuries are the fifth leading cause of death worldwide. The distribution of traumatic injuries across the regions of the world varies significantly in terms of incidence and mechanisms. Injury deaths in low- and middle-income countries in the European region are twice as high as in high-income countries, and in the CIS countries they are four times higher than in the Nordic countries. Almost 90% of injury and violence-related deaths fall for low- and middle-income countries.
Conclusions: The majority of studies related to traumatic injuries are conducted in high-income countries, which confirms the need to study the epidemiology of such injuries in Georgia (including road injuries, falls and other injuries) in order to develop appropriate recommendations for intervention strategies to prevent and reduce the burden of injury. **(TCM-GMJ December 2023; 8 (2):P11-P13)**

Keywords: Injury; Epidemiology; Global Burden; Mortality.

Introduction

Traumatic injury is a growing public health concern and a leading cause of death and disability worldwide.

According to the World Health Organisation, 55.4 million people died worldwide in 2019. Of these, 4.4 million died from traumatic injuries (Figure 1), including 3.2 million from unintentional injuries and 1.2 million from violence-related injuries. Approximately one in three deaths was caused by road injuries, one in six by suicide, and one in ten by homicide (Figure 2). As of 2019, preventable trauma-related deaths were the fifth leading cause of death worldwide (1,2,3).

Maxillofacial traumas are among the most common injuries resulting from road accidents. Globally, three of the top five major causes of death in people aged 5 to 29 years are related to injuries, particularly to those caused by road accidents, homicide and suicide. Drowning is the sixth major cause of death among children aged 5 to 14 years. Falls cause more than 684,000 deaths each year and are a growing but underrated public health concern (4,5,6,7,8).

Every year, tens of millions of people suffer non-fatal injuries that require hospitalization, referral to emergency departments or general practitioners and/or treatment outside of formal medical care. Most of the millions of non-fatal injuries result in lifelong disability. Violence and injuries account for 10 per cent of all years spent with disability (9,10,11).

Injuries and violence account for 9% of causes of death in the European region, resulting in 800,000 early deaths per year. Each year, 2.4 million people sustain serious injuries requiring inpatient care (7,12). Traumatic injuries cause almost half a million deaths in the WHO European Region annually, which is equal to one death per minute and accounts for more than 5% of deaths in the region. More than 60% of deaths are due to self-harm (140 000), falls (83 000) and road injuries (80 000) (10,13,14,15,16). Injury deaths in low- and middle-income countries in the European region are twice as high as in high-income countries, and in the CIS countries they are four times higher than in the Nordic countries. A comparison of the rich and poor populations of European countries shows a threefold difference in hospitalization and post-injury death rates, while death rates in the European countries with the lowest incomes are four times higher than those in the countries with the highest incomes. (16,17,18,20,21,22).

Injuries are the fifth leading cause of death worldwide. Injuries caused by road accidents and falls are

From the [1] Faculty of Medicine, Ivane Javakhishvili Tbilisi State University Tbilisi; Georgia.
Received October 28, 2023; accepted December 1, 2023.
Address requests to: Nino Chkhaberidze
E-mail: Nino.chkhaberidze@tsu.ge

highly lethal by their mechanism.

There is an uneven distribution of traumatic injuries globally, and there is a disparity in the studies conducted in this area. Most studies have been conducted in high-income countries, although the burden of incidence and mortality is higher in low- and middle-income countries (23,24,25).

Latin America and the Caribbean regions generally show low injury rates, but have one of the highest road accident rates in the world. China has the highest rates of intentional self-harm but the lowest rates of injuries related to violence, war and road accidents. Sub-Saharan Africa has the highest rates of injuries caused by fire, drowning, violence and war and the lowest rates of intentional self-harm. Former socialist countries have high rates of injuries caused by falls and poisoning (2,8,26,27).

Conclusion

The distribution of traumatic injuries across the regions of the world varies significantly in terms of incidence and mechanisms. Although almost 90% of injury and violence-related deaths fall for low- and middle-income countries, the majority of studies related to traumatic injuries are conducted in high-income countries, which confirms the need to study the epidemiology of traumatic injuries in Georgia (including road injuries, falls and other injuries) in order to develop appropriate recommendations for intervention strategies to prevent and reduce the burden of injury.

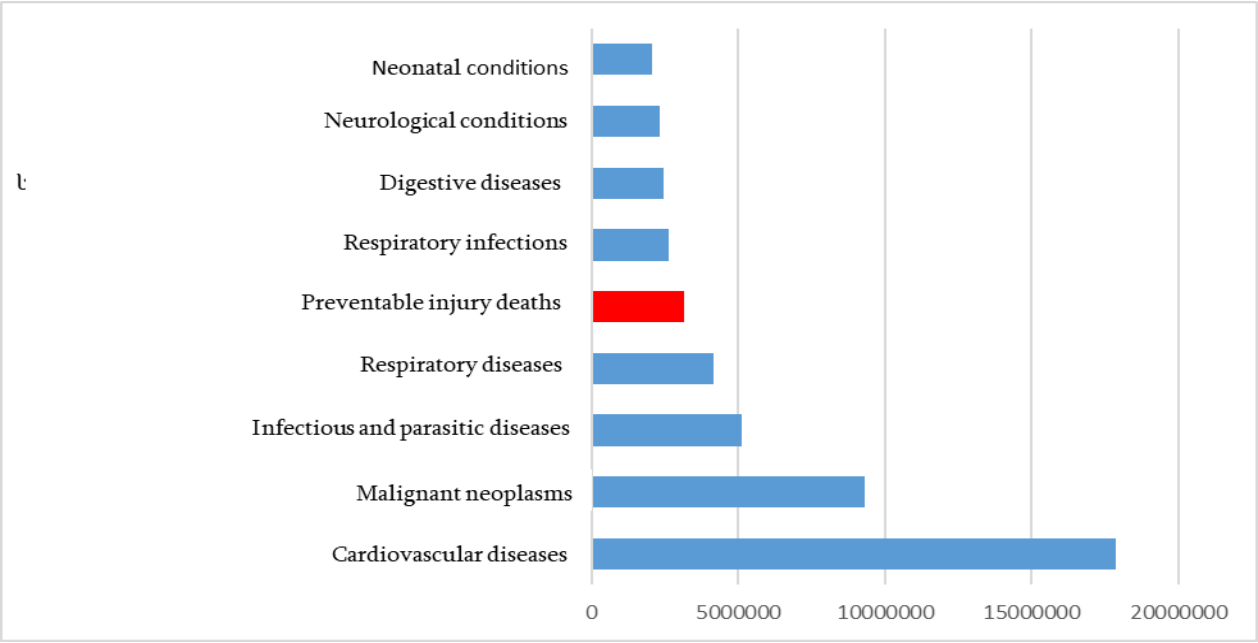

Figure 1. Leading causes of death globally, 2019.
Source: https://www.who.int/news-room/fact-sheets/detail/injuries-and-violence

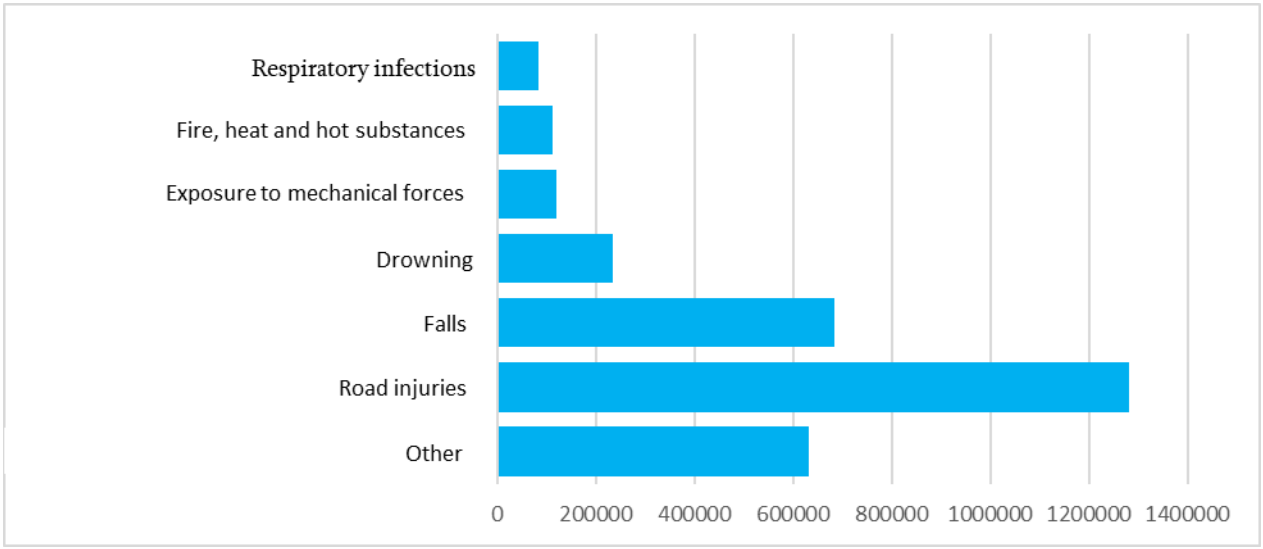

Figure 2. Unintentional injury deaths in the world, 2019.
Source: (6,7,8).

References:

1. Assembly, T. G., & Goals, S. D. (2018). Resolution adopted by the General Assembly on 12 April 2018 72/271. Improving global road safety. 05866(April 2018), 1–9.
2. Sekaran, Holliday, C. O. J., Schmidheiny, S., Watts, P., Schmidheiny, S., Watts, P., Montgomery, H., Pmi, University of Pretoria, Gentry, R. R., Lester, S. E., Kappel, C. V., White, C.,Bell, T. W., Stevens, J., Gaines, S. D., Zavadskas, E. K., Cavallaro, F., Podvezko, V., … Branch, B. (2018).
3. KNBS. (2021). World health statistics 2021s
4. Sangadah, khotimatus, & Kartawidjaja, J. (2020). Who World health statistics. In Orphanet Journal of Rare Diseases (Vol. 21, Issue 1).
5. World Health Organization. (2014). Preventing suicide Preventing suicide. WHO Library Cataloguing-in-Publication Data, 89.
6. World Health Organization. (2020a). Global status report on preventing violence against children. https://www.unicef.org/eapro/Preventing_Violence.pdf
7. World Health Organization. (2020b). Violence and injuries in Europe: burden, prevention and priorities for action. 148. https://www.euro.who.int/en/health-topics/disease-prevention/violence-and-injuries/publications/2020/violence-and-injuries-in-europe-burden,-prevention-and-priorities-for-action-2020
8. World Health Organization. (2021). Suicide worldwide in 2019: global health estimates.In World Health Organization,Geneva.
9. Ronan, L. et al. (2015). Disability Adjusted Life Year (DALY) estimates for injury utilising the European Injury Data Base (IDB). 1–30.
10. Krug, E. G., Sharma, G. K., & Lozano, R. (2000). The global burden of injuries. American Journal of Public Health, 90(4), 523–526.
11. Leilei, D., Pengpeng, Y., Haagsma, J. A., Ye, J., Yuan, W., Yuliang, E., Xiao, D., Xin, G., Cuirong, J., Linhong, W., Bannick, M. S., Mountjoy-Venning, W. C., Hawley, C. N., Liu, Z., Smith, M., James, S. L., Vos, T., & Murray, C. J. L. (2019). The burden of injury in China, 1990–2017: findings from the Global Burden of Disease Study 2017. The Lancet Public Health, 4(9), e449–e461.
12. Aldridge, E., Sethi, D., & Yon, Y. (2017). Injuries: a call for public health action in Europe. An update using the 2015 WHO global health estimates. 1–28. http://www.euro.who.int/en/health- topics/disease-prevention/violence-and-injuries/publications/2017/injuries-a-call-for-public- health action-in-europe-2017
13. Garcia, P. J. (2020). Global burden of injuries: It is time to understand the data in order to intervene. Injury Prevention, 26, 2–3. https://doi.org/10.1136/injuryprev-2020-043937
14. Wasim Aktar, M., Paramasivam, M., Ganguly, M., Purkait, S., Sengupta, D., Tez, S., Deltasi, U., Rezerv, Y., Olu, T., Peyzaj, T., Adana, D., Sönmez, A. Y., Hisar, O., Yanık, T., Shammi, T., Ahmed, S., Rahman, Z., … Ahmad Susanto, Teori Belajar Dan Pembelajaran Di Sekolah Dasar,(Jakarta: Kencana Prenada Media Group, 2013). (2018). World Health Statistics 2018. In Biomass Chem Eng (Vol. 3, Issue 2).
15. Peden, M. (WHO). (2002). THE INJURY CHART BOOK A graphical overview of the global burden of injuries Department of Injuries and Violence Prevention Noncommunicable Diseases and Mental Health Cluster World Health Organization. International Classification.
16. Yon, Y., Hernández-García, L., Di Giacomo, G., Rakovac, I., Passmore, J., & Mikkelsen, B. (2020). Reducing violence and injury in the WHO European region. The Lancet Public Health, 5(8), e422. https://doi.org/10.1016/S2468-2667(20)30158-4
17. Lopez, A. D., Mathers, C. D., Ezzati, M., Jamison, D. T., Murray, C. J. L., & Asia, S. (2006). Global Burden of Disease and Risk Factors Editors AND PACIFIC THE CARIBBEAN. http://apps.who.int/iris/bitstream/10665/41864/1/0965546608_eng.pdf
18. Shanthakumar, D., Alfa-wali, M., Payne, A., & Leitch, T. (2021). Trauma Care in Low- and Middle-Income Countries.
19. WHO. (2009). Global Status Report. In Global Status Report on Road Safety.
20. WHO. (2019). Global burden of diseases in low and middle income countries.World Health Organization. 2019(10/23). http://www.europarl.europa.eu/cmsdata/130573/Khassoum Diallo.pdf
21. Alonge, O., Agrawal, P., Talab, A., Rahman, Q. S., Rahman, A. F., Arifeen, S. El, & Hyder, A. A. (2017). Fatal and non-fatal injury outcomes: results from a purposively sampled census of seven rural subdistricts in Bangladesh. The Lancet Global Health, 5(8), e818–e827. https://doi.org/10.1016/S2214-109X(17)30244-9
22. Whitaker, J., O'Donohoe, N., Denning, M., Poenaru, D., Guadagno, E., Leather, A. J. M., & Davies, J. I. (2021). Assessing trauma care systems in low-income and middle-income countries: A systematic review and evidence synthesis mapping the Three Delays framework to injury health system assessments. BMJ Global Health, 6(5), 1–15. https://doi.org/10.1136/bmjgh-2020-004324
23. Wisborg, T., Montshiwa, T. R., & Mock, C. (2011). Trauma research in low- and middle- income countries is urgently needed to strengthen the chain of survival. Scandinavian Journal of Trauma, Resuscitation and Emergency Medicine, 19(October). https://doi.org/10.1186/1757- 7241-19-62
24. Whitaker, J., Denning, M., O'Donohoe, N., Poenaru, D., Guadagno, E., Leather, A., & Davies, J. (2019). Assessing trauma care health systems in low- and middle-income countries, a protocol for a systematic literature review and narrative synthesis. Systematic Reviews, 8(1), 4–9. https://doi.org/10.1186/s13643-019-1075-8
25. Gosselin, R. A., Spiegel, D. A., Coughlin, R., & Zirkle, L. G. (2009). Injuries: The neglected burden in developing countries. Bulletin of the World Health Organization, 87(4), 246. https://doi.org/10.2471/BLT.08.052290
26. Peden, M., & Sminkey, L. (2004). World Health Organization dedicates World Health Day to road safety. Injury Prevention, 10(2), 67. https://doi.org/10.1136/ip.2004.005405
27. Naz, F., Qamarunnisa, S., Shinwari, Z. K., Azhar, A., & Irtifaq Ali, S. (2013). Phytochemical investigations of Tamarix indica willd. and Tamarix passernioides del. ex desv. leaves from Pakistan. Pakistan Journal of Botany, 45(5), 1503–1507.