

Introduction

Epilepsy is one of the most common global neurological disorders, yet its disease burden is still inadequately characterized. Epilepsy disproportionately impacts low- and middle-income countries (LMICs), where access to surgical care is also disproportionately limited. The incidence of LMICs is twice as high as that in HICs, and these LMICs are home to 80% of all people living with epilepsy. Its burden is compounded by a global shortage of surgical care, wherein 5 billion people are lacking access to timely and safe surgical care. We sought to compile regional data to quantify global prevalence and incidence of epilepsy.

Learning Objectives

Understanding the global disease burden and epidemiology of epilepsy as it is crucial for diagnosis, treatment, and resource allocation.

Methods

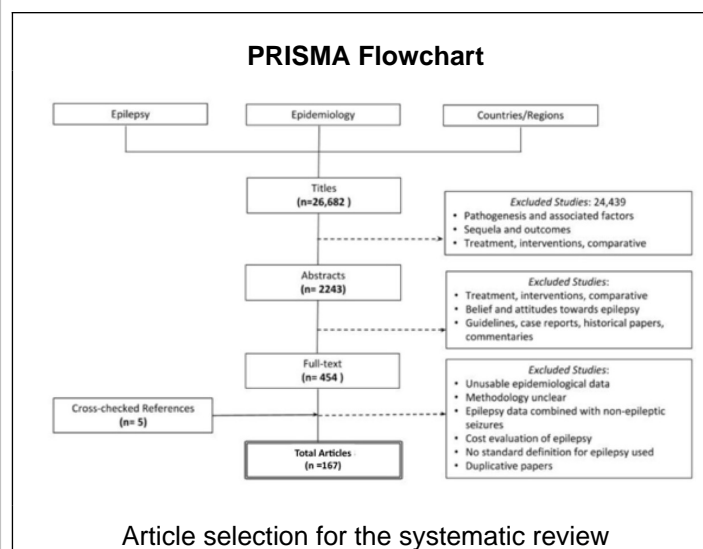
We performed a systematic literature review and meta-analysis to calculate the global prevalence and incidence of epilepsy by World Health Organization region and World Bank Income Level. We extracted data from all population-based studies worldwide, from 1990-2016, and used for meta-analysis by a dedicated statistician.

Results

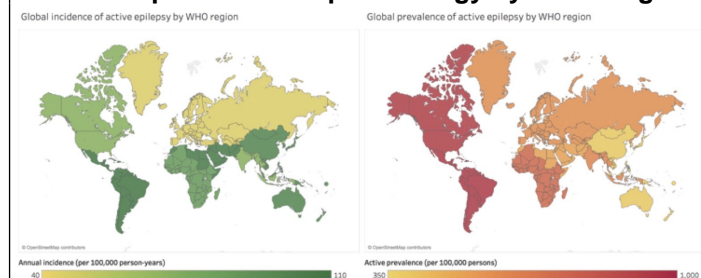
Our systematic review yielded 167 articles, representing 58 countries and inclusive of all WHO regions and income levels. Our meta-analysis for the incidence rate of epilepsy included 49 studies, while the active and lifetime prevalence of epilepsy were derived from 93 and 82 studies respectively.

The raw global prevalence of lifetime epilepsy is 1098.5 per 100,000 people, while active epilepsy is slightly lower at 690.1 per 100,000 people. Global incidence is estimated at 61.6 cases per 100,000 person-years. Our meta-analysis predicts 4.6 million new cases of epilepsy every year worldwide, and 51.7 million people with active epilepsy.

The highest estimated prevalence is found in Africa and Latin America, although the highest incidence is reported in the Middle East and Latin America. These regions are primarily comprised of low- and middle- income countries by World Bank categorization, making the highest disease burden fall disproportionately on regions with the fewest healthcare resources.



World Map of Seizure Epidemiology by WHO Region



Incidence and Prevalence of Seizure Disorders Worldwide by Meta-analysis

Conclusions

Our understanding of the global epidemiology of epilepsy has evolved as more regions have been studied, and we predict 4.6 million new cases of epilepsy every year worldwide, and 51.7 million people with active epilepsy. This up-to-date worldwide analysis provides the most comprehensive picture yet of current trends in epilepsy prevalence and incidence. The preferential distribution of this disease in LMIC may require targeted efforts in diagnosis and treatment to reduce the global disparities in care and cost.