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## Global Stroke Burden: Population Growth, Ageing, Environmental, Behavioural Risk Factors



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Accurate estimates of the stroke burden, its attributable risks, and global, regional, and national trends are crucial for informed healthcare decision-making, effective prevention strategies, and efficient resource allocation. A recent review sought to present these estimates for the period from 1990 to 2021.

While stroke is both preventable and treatable, the global stroke burden has increased significantly between 1990 and 2021. This surge is largely attributed to population growth, ageing demographics, and greater exposure to environmental and behavioural risk factors.

According to a new analysis from the Global Burden of Disease, Injuries, and Risk Factors Study (GBD), published in *The Lancet Neurology* and presented at the 2024 World Stroke Congress in Abu Dhabi, the number of new stroke cases reached 11.9 million in 2021, a 70% rise since 1990. The number of stroke survivors increased by 86%, and stroke-related deaths climbed by 44% to 7.3 million, making stroke the third leading cause of death globally, behind ischaemic heart disease and COVID-19. Over three-quarters of those affected live in low- and middle-income countries (LMICs).

The burden of stroke, measured by disability-adjusted life years (DALYs), increased by 32% between 1990 and 2021. DALYs increased from 121.4 million to 160.5 million during this period, positioning stroke as the fourth leading cause of health loss globally. This rise is driven by demographic changes and increasing exposure to modifiable risk factors such as high body mass index (BMI), elevated blood sugar, high blood pressure, and low physical activity.

However, when adjusted for age, the rates of stroke incidence, prevalence, deaths, and DALYs have declined globally since 1990. Incidence fell by 22%, deaths by 39%, and DALYs by 39%. Despite this, improvements have stalled since 2015, with certain regions such as Southeast Asia, East Asia, Oceania, and populations under 70 years old seeing a worsening trend.

These findings show that current stroke prevention strategies are insufficient, and there is a need for the implementation of more effective, population-wide prevention measures. The study also highlights significant disparities in stroke burden, with regions like East and Central Asia and sub-Saharan Africa experiencing far higher rates of stroke-related health loss than high-income countries.

The analysis revealed that haemorrhagic strokes are responsible for half of the global disability and health loss due to stroke despite being less common than ischaemic strokes. This form of stroke disproportionately affects younger populations in low-income countries.

Metabolic factors, particularly high BMI, high systolic blood pressure, and elevated LDL cholesterol, were major contributors to the stroke burden in 2021. Environmental factors, including air pollution, played a significant role, particularly in LMICs.

The study underscores the importance of tackling modifiable risk factors. While progress has been made in reducing risks associated with poor diet, air pollution, and smoking, rising rates of obesity, high blood sugar, and diets high in sugary beverages pose ongoing challenges.

The authors advocate for immediate action, including the adoption of recommendations from the 2023 World Stroke Organization-Lancet Neurology Commission. Implementing these strategies, such as shifting tasks from doctors to nurses and expanding mobile and telehealth

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services, could help reduce the global stroke burden and improve public health outcomes.

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