

Stroke is Prevalent among South Asians, whether Living in Their home Country or Abroad

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Received date: August 02, 2023; **Accepted date:** September 03, 2023; **Published date:** September 11, 2023

Citation: Andaleeb Fatima, Ambreen Fatima, Saiyeda Ghaniyah Imam, (2023), Stroke is Prevalent among South Asians, whether Living in Their home Country or Abroad, 14(2); DOI:10.31579/2690-1919/334

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Abstract

Background and Purpose: Every year, 15 million people worldwide suffer from an acute stroke, with one-third dying due to the incident. South Asians have a greater stroke mortality rate than the rest of the world. The causes of South Asians' increased risk of cerebrovascular illness remain unknown. The following study seeks to examine current stroke knowledge comprehensively and systematically in South Asian populations, particularly identifying distinctive aspects of stroke epidemiology in this demography.

Summary of Review: Stroke is a common occurrence among South Asians, which may be due to inadequate metabolic and glycemic responses. Furthermore, hyperglycemia and stress, early predictors of long-term stroke mortality, appear to predict stroke-related death. Socioeconomic circumstances additionally serve as contributory factors.

Conclusion: Given their greater incidence of heart disease, stress, diabetes, and the need for specific healthcare techniques, this study emphasizes the urgency of more significant stroke research among the South Asian population.

Keywords: cerebrovascular disorders; stroke; epidemiology; risk factors, south asia community; diabetes; stress; hypertension; lifestyle; coronary artery disease; smoking

Introduction

A *stroke* is a cerebrovascular condition in which the arteries leading to the brain become clogged or ruptured, destroying brain tissues. It is thus named because it affects both the brain (Cerebro-) and the blood vessels (vascular) (Merck Manual, 2020). Stroke claims the lives of 5 million people annually while leaving another 5 million permanently disabled (*Stroke, Cerebrovascular accident* 2023), making it the world's second-largest cause of death (11% of all fatalities) (WSO).

There are two different classifications of strokes. The most common type is known as an ischemic stroke (Medline Plus, 2021). Ischemic strokes represent 80% of strokes triggered by an obstruction or clogging within the major arteries of the cerebral circulation. Hemorrhagic strokes, which

account for 20% of all strokes, are caused by vascular lesions within the cerebrovascular rupturing, which typically occurs by an aneurysm or a damaged blood artery within an arteriovenous malformation.

Over 85% of strokes occur in developing nations, which causes an economic burden, increasing their healthcare expenditure (Journal of Multidisciplinary Healthcare 2020).

South Asia's atherosclerotic cardiovascular disease (CVD; ASCVD) burden is significantly increasing. Since 2010, the overall incidence of coronary artery disease (CAD) deaths in South Asia has risen at an average rate of 2.1%, compared to 0.8% internationally. Therefore, these communities have a considerably higher prevalence of ASCVD-related fatalities (Gupta et al., 2022). After controlling for established CVD risk

factors, a new study using data from the National Health Interview Survey 2006-2015 in the United States found that the risks of self-reported premature ASCVD are 77% greater among Asian Indians than Whites (Gupta et al., 2022). South Asians have an early clustering of dyslipidemia, diabetes mellitus (DM), and hypertension, considered the most critical CVD risk factors (Gupta et al., 2022).

Stroke Subtype and Predictors of Stroke Severity in South Asians

The subtypes of stroke studied are ischemic stroke, hemorrhagic stroke, and subarachnoid hemorrhage, and the following are the predictors of stroke in the South Asian population globally and their region itself.

Family history: A stroke family history, both paternal and maternal, may be associated with an increased risk of stroke. Significant contributors to stroke inheritance include genetics, external factors such as lifestyle, food habits, abuse of drugs, and psychological influences, all of which are shared by family members (Blaz et al., 2021). As a result, individuals with relatives with a history of stroke are up to 30% more prone to suffer from the disease themselves (Fournier, 2022).

Smoking and Dyslipidemia: Cigarette smoking is a significant cause of cardiovascular disease, accounting for one out of every four deaths (Smoking and Heart Disease and Stroke, 2023). Tobacco consumption adds to plaque formation within the arteries, increasing the risk of blood clots and decreasing the amount of oxygenated blood. As a result, the heart must operate more diligently than usual, making smokers twice as likely as non-smokers to develop coronary heart disease, including stroke (Smoking and Tobacco N.d.). South Asians, like other stroke patients, have a rise in triglycerides, a reduction in HDL cholesterol, and experience low HDL cholesterol (Smoking and Heart Disease and Stroke, 2023). As the region of South Asia possesses a significant stroke burden, it has fewer than 3000 neurologists and a limited number of stroke centres (Yadav et al., 2021). According to one study, acute ischemic stroke (AIS) accounts for 85% of all stroke cases, and rural patients are less likely to receive timely treatment than their urban counterparts (Yadav et al., 2021). Since South Asian countries are developing, most of the population lives in rural areas. As a result, individuals in these countries frequently suffer from the disease, leaving them with lasting disabilities or mortality (Yadav et al., 2021).

Hypertension: High blood pressure, or hypertension, contributes to cerebral infarction and intracerebral bleeding. An increase in systolic pressure, either alone or in combination with an increase in diastolic pressure, has been linked to a higher risk of cerebrovascular accidents. As the world undergoes significant technological improvements and urban population increases, people living in cities may encounter epidemiological shifts, notably regarding health issues. As a result, non-communicable disorders such as hypertension and other cardiovascular diseases gain prominence (Nawi et al., 2021). South Asians are four times more likely than the overall population to succumb to cardiovascular disease, acquiring it up to a decade earlier (O'Connor, 2019).

Obesity and Diabetes: Diabetes is the most prevalent cause of lack of vision, kidney failure, heart attacks, strokes, and amputation of lower limbs. It strikes South Asians at a younger age with a lower BMI than other races/ethnicities (Diabetes, 2023). In South Asians, diabetes plays a significant role in the etiology of ASCVD. South Asia is experiencing a diabetes epidemic, with a high prevalence beginning at a young age (Diabetes, 2023). The increased incidence at a younger age and with a lower BMI has been linked to decreased cell function and elevated insulin levels among South Asians (Diabetes, 2023). This heightened attributable risk could be traced to a more extended asymptomatic period with less examination, inadequate management, limited healthcare access, and a higher occurrence frequency despite comparable glucose control (Diabetes, 2023). South Asians have the greatest Lipoprotein(a) Lp(a) levels and the most considerable attributable risk for ASCVD after Black

communities (Diabetes, 2023). Lp(a) levels are genetically transmitted, helping to predict risk without other abnormalities in cholesterol (Diabetes, 2023). Another significant contribution is the South Asian eating traditions, as they vary greatly based on religion, culture, and amount of integration (Diabetes, 2023). South Asians have a combination of cardioprotective (greater likelihood of vegetarianism, spice utilization, and fasting) and detrimental behaviours (increased salt and essential carbohydrate intake) (Diabetes, 2023). A high probability of hypertension and future ASCVD within the South Asian communities is associated with an excessive salt intake (Gupta et al., 2022). A comprehensive assessment of salt use in South Asian countries found that the average salt consumption is ten g/d, double the World Health Organization's advised limit (5 g/day) (Gupta et al., 2022). As a result, these populations are more vulnerable to such diseases and the long-term consequences that accompany them.

Conclusion:

South Asians tend to have an exceptionally high global incidence of stroke. Furthermore, when comparing South Asian countries to other populations, this risk disparity is increasing. Underestimating the burden of stroke, screening, diagnosis, and care are all at relatively low levels, implying that the disease's load will soon explode. To prevent the spread of this disease, authorities and health practitioners must work together, aided by an informed public. With the ageing of South Asian populations, a decline in death due to infectious diseases, and an increase in the frequency of cardiovascular risk among countries in transition, the stroke load in South Asia will surely increase. According to research, there is a wide variety of stroke epidemiology among the South Asian population worldwide, owing to variables such as low socioeconomic position, inadequate dietary habits, and changing lifestyle behaviours during the last two decades. It may be linked to a higher prevalence of hypertension caused by malfunctioning metabolic and glycemic processes. South Asians continue to experience a higher stroke mortality rate, according to most outcome studies, and glycemic status is an independent predictor of long-term stroke death. More research, however, is required to determine why South Asian stroke victims suffered from a lower short-term survival rate.

Summary:

According to one study, South Asians have a greater chance of experiencing stroke than other ethnic groups. Therefore, they also possess higher blood pressure, cholesterol, and inflammatory levels, all detrimental to brain, heart, and vascular health. These communities also experience higher hospitalization rates and a higher risk of mortality from CVA than other minority groups, most likely because they have more risk factors such as diabetes, hypertension, stress, unhealthy dietary habits high in carbs and trans fats, and poor socioeconomic conditions than the general population. All of these are symptoms of metabolic syndrome. As a result, the combination of these disorders can raise the risk of hypertension, stroke, and diabetes. Many South Asians, according to questionnaires, have adopted a more American diet that includes French fries, grilled cheese, and carbohydrate drinks. As a result, research studies in South Asians actively advocate for earlier detection, treatment, and prevention. To improve their quality of life, these communities must implement a more nutritious lifestyle and be screened for risk factors, including diabetes and hypertension, regularly. Individuals can address risk factors earlier, reducing the likelihood of potentially significant occurrences.

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DOI: [10.31579/2690-1919/334](https://doi.org/10.31579/2690-1919/334)

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