An International Journal
JSCDSS
http://www.jscdss.com
Vol.10 No.5 October 2023: 1-2
Article history:
Accepted 18 September 2023
Published online 18 September 2023

Journal of Soft Computing and Decision Support Systems

E-ISSN: 2289-8603

Heart Disease and Stroke Statistics

Mehrbakhsh Nilashi [a,b,*], Rabab Ali Abumalloh [c]
[a] UCSI Graduate Business School, UCSI University, No. 1 Jalan Menara Gading, UCSI Heights, 56000, Cheras, Kuala Lumpur, Malaysia
[b] Centre for Global Sustainability Studies (CGSS), Universiti Sains Malaysia, 11800 Penang, Malaysia
[c]Department of Computer Science and Engineering, Qatar University, Doha 2713, Qatar

*** Corresponding author email address**: nilashidotnet@hotmail.com

Heart disease and stroke fall under the category of cardiovascular disease (CVD) (Lida et al., 2003; Smith Jr et al., 2012). The cardiovascular system, also referred to as the circulatory system, consists of the heart and the intricate network of blood vessels responsible for pumping and circulating blood throughout the body (Monahan-Earley et al., 2013). Elevated blood pressure is a leading contributor to heart disease and stroke as it inflicts damage to the inner linings of arteries, rendering them more susceptible to the accumulation of plaque. This buildup subsequently narrows the arteries that supply blood to the heart and brain. Shockingly, approximately 116 million adults in the United States, nearly half of the population, grapple with high blood pressure, defined as readings of 130/80 mm Hg or higher. Alarmingly, only a mere one in four individuals with high blood pressure manages to keep it under control (CDC, 2022). Disturbingly, seven out of ten individuals experiencing their initial heart attack and eight out of ten facing their first stroke have high blood pressure as a contributing factor. Moreover, excessive sodium intake poses a substantial risk factor for elevated blood pressure. Americans aged two and older have an average daily sodium consumption of around 3,400 mg, well exceeding the recommended 2,300 mg limit outlined by the Dietary Guidelines for Americans (CDC, 2022). Additionally, it is noteworthy that more than 70% of the sodium Americans consume is incorporated into their diets before purchase, and it is not attributed to salt added at the table or during home cooking. Furthermore, high levels of LDL cholesterol can double an individual's susceptibility to heart disease. This is primarily due to the accumulation of excess cholesterol within arterial walls, which constricts blood flow to essential organs such as the heart, brain, kidneys, and extremities. Astonishingly, despite nearly 86 million adults in the United States who could benefit from cholesterol-lowering medication, only slightly more than half (55%) are currently utilizing these medications as part of their management strategy (CDC, 2022).

According to Tsao et al. (2023), CVD is a major public health concern in the United States, with 928,741 deaths attributed to it in 2020, making it the leading cause of death. Shockingly, heart disease and stroke claim more lives each year in the United States than all forms of cancer and Chronic Lower Respiratory Disease (CLRD) combined (Tsao et al., 2023). Between 2017 and 2020, a staggering 127.9 million US adults had some form of CVD, and the associated direct and indirect costs in 2018 to 2019 were a substantial $407.3 billion, comprising $251.4 billion in direct costs and $155.9 billion in lost productivity and mortality. These costs underscore the immense economic impact of CVD (Tsao et al., 2023). Racial disparities are also evident, with non-Hispanic Black individuals having the highest prevalence of CVD, highlighting the need for targeted interventions. In 2020, coronary heart disease was the leading cause of CVD-related deaths (41.2%), followed by stroke (17.3%), other CVD (16.8%), high blood pressure (12.9%), heart failure (9.2%), and diseases of the arteries (2.6%). Globally, CVD was responsible for approximately 19.05 million deaths in 2020, underscoring its significance on a global scale and its substantial impact on healthcare expenditures (Tsao et al., 2023).

According to Tsao et al. (2023), heart disease continues to be the leading cause of death in the United States, with 382,820 deaths attributed to Coronary Heart Disease (CHD) in 2020 alone. Data from 2005 to 2014 revealed that there were approximately 605,000 new heart attacks and 200,000 recurrent attacks annually in the U.S., with an average age at the first heart attack being 65.6 years for males and 72.0 years for females (Tsao et al., 2023). Alarmingly, approximately every 40 seconds, someone in the United States experiences a myocardial infarction (heart attack). While there has been a notable 19.2% decline in the annual death rate attributable to CHD from 2010 to 2020, the actual number of deaths increased by 0.9%. The economic impact of heart disease remains substantial, with the estimated direct and indirect cost in 2018 to 2019 averaging $239.9 billion in the United States, underscoring the immense burden of this disease on both public health and healthcare expenditures (Tsao et al., 2023).

According to Tsao et al. (2023), in 2020, stroke continued to be a significant health concern in the United States, accounting for approximately 1 out of every 21 deaths. The grim statistic that someone died of a stroke every 3 minutes and 17 seconds underscores the urgency of this issue. When considered separately from other cardiovascular diseases, stroke ranked as the fifth leading cause of death in the United States, causing 160,264 deaths in 2020 (Tsao et al., 2023). The age-adjusted US stroke death rate, as an underlying cause of death, was 38.8 per 100,000 in 2020, marking a slight decrease of 0.8% from 2010. However, during the same period, the actual number of

stroke deaths increased by a substantial 23.8%. On a global scale, in 2020, there were a staggering 7.08 million deaths attributed to cerebrovascular disease worldwide. This included 3.48 million deaths from ischemic stroke, 3.25 million deaths from intracerebral hemorrhage (ICH), and 0.35 million deaths from subarachnoid hemorrhage. Notably, central, southeast, and east Asia, Oceania, and sub-Saharan Africa had the highest rates of overall stroke mortality (Tsao et al., 2023). Eastern Europe and Central Asia had the highest mortality rates attributable to ischemic stroke, while ICH mortality was highest in Oceania, followed by several regions in Africa and Southeast Asia. Mortality attributable to subarachnoid hemorrhage was highest in Oceania, Andean Latin America, and Central Asia. These statistics emphasize the global impact of stroke and the variations in its prevalence across different regions (Tsao et al., 2023).

Identifying individuals who are at the highest risk of CVDs and ensuring they receive timely and appropriate treatment is a crucial strategy to prevent premature deaths related to heart disease and stroke. Early detection and intervention are paramount in managing CVDs effectively. This involves conducting risk assessments, such as evaluating an individual's family history, lifestyle factors (like smoking, diet, and physical activity), and medical history (including hypertension and diabetes). Moreover, providing access to noncommunicable disease medicines and basic health technologies in all primary healthcare facilities is essential for comprehensive CVD management. This ensures that individuals identified as high-risk or those already diagnosed with CVDs have access to life-saving medications, such as antihypertensives, statins, and antiplatelet agents, as well as necessary health technologies, like blood pressure monitors and cholesterol tests. Equally important is the provision of counseling and education to empower individuals with knowledge about their condition and the necessary lifestyle changes. Promoting healthier behaviors, such as adopting a heart-healthy diet, engaging in regular physical activity, and quitting smoking, can significantly reduce CVD risk and improve overall cardiovascular health.

Keywords: Heart disease, Stroke, Statistics, Cardiovascular disease

References

CDC. (2022). *Heart Disease and Stroke*. Retrieved September 18 from https://www.cdc.gov/chronicdisease/resources/publications/factsheets/heart-disease-stroke.htm

Lida, M., Ueda, K., Okayama, A., Kodama, K., Sawai, K., Shibata, S., Tanaka, S., Keijnkai, T., Horibe, H., & Minowa, M. (2003). Impact of elevated blood pressure on mortality from all causes, cardiovascular diseases, heart disease and stroke among Japanese: 14 year follow-up of randomly selected population from Japanese--Nippon data 80. *Journal of human hypertension*, *17*(12), 851-857.

Monahan-Earley, R., Dvorak, A. M., & Aird, W. C. (2013). Evolutionary origins of the blood vascular system and endothelium. *Journal of Thrombosis and Haemostasis*, *11*, 46-66.

Smith Jr, S. C., Collins, A., Ferrari, R., Holmes Jr, D. R., Logstrup, S., McGhie, D. V., Ralston, J., Sacco, R. L., Stam, H., & Taubert, K. (2012). Our time: a call to save preventable death from cardiovascular disease (heart disease and stroke). *Circulation*, *126*(23), 2769-2775.

Tsao, C. W., Aday, A. W., Almarzooq, Z. I., Anderson, C. A., Arora, P., Avery, C. L., Baker-Smith, C. M., Beaton, A. Z., Boehme, A. K., & Buxton, A. E. (2023). Heart disease and stroke statistics—2023 update: a report from the American Heart Association. *Circulation*, *147*(8), e93-e621.

An International Journal
JSCDSS
E-ISSN: 2289-8603