

Incidence and Prevalence of Stroke and its Risk Factors in the Philippines: A Systematic Review

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Introduction

The Philippines currently has a population of 101 million Filipinos.¹ It has a young population with 90% in the age group below 55 years old and only 10% are in the age group above 55 year old.² Stroke is considered the third leading cause of deaths with crude death rate of 58.1 per 100,000 (equivalent to 60,277 deaths), next to the diseases of the heart and malignant neoplasms, among Filipinos. In the latest available Philippine Health Statistics, it was reported that more than half (54%) of those who have died from stroke failed to seek medical attention.³ Furthermore, Filipinos were observed to have died from the same kinds of diseases particularly ischemic heart diseases, cancer and stroke for the past two decades.³ This burden is further worsened by different challenges in the health system. The lack of medical attendance is secondary to the disintegration of the once integrated referral system involving both public health services and hospital services. Other challenges that contribute to the growing burden of stroke in the country include inadequate service delivery and support to the different sectors particularly the poor and the underprivileged. Furthermore, the financial burden of Filipinos in paying for these health services. These factors further push mortality and disability rates due to stroke higher among Filipinos.⁵ On top of these, access to information in depicting the real burden of stroke remains a challenge.

Objective

- This systematic review was performed to provide evidence on the incidence and prevalence of stroke and associated risk factors in the Philippines.

Materials & Methods

•Search Strategy

•For PubMed, we used the search terms Philippines and stroke as well as its other terminologies: cerebrovascular disease, cerebral infarction, ischemic stroke, intracerebral hemorrhage, and subarachnoid hemorrhage. For HERDIN, since all studies indexed were already in the Philippines, we only used MeSH terms for stroke. Search was performed from inception to 12 April 2020. No restriction on the year of publication was observed.

•Information Sources

•Two databases were utilized namely PubMed and HERDIN. SCOPUS and WPRIM were searched and no additional relevant studies were obtained. Background references and citations were identified when possible to relevant articles.

•Eligibility criteria

•Any epidemiologic study either population or hospital based, with included participants of at least 18 years old and looking at the prevalence, incidence of stroke and its associated risk factors in the Philippines were included in the review. Only studies with accessible full text articles were included.

Results & Discussion

Table 1. Incidence of stroke among included studies (Abola, 2017)²¹

Year	Total	
	Incidence	95% C.I.
Year 1	3.95	-
Year 2	4.26	1.86-6.61
Year 3	4.55	2.09-6.94
Year 4	5.61	2.64-8.48

Table 2. Point prevalence of stroke among included studies

Study ID	Male		Female		Total	
	Prevalence	95% C.I.	Prevalence	95% C.I.	Prevalence	95% C.I.
Sy, 2003 ¹⁹	-	-	-	-	6.0	-
Dans, 2005 ¹⁶	2.1	-	1.7	-	1.9	-
Navarro, 2005 ¹⁷	0.663	0.514 - 0.843	0.311	0.214 - 0.439	0.486	0.395 - 0.593
Roxas Jr, 2007 ¹⁸	-	-	-	-	1.4	-
Soria, 2007 ²²	6.08	3.83 - 8.36	5.02	3.10- 6.94	5.51	4.04- 6.98
Sy, 2012 ²⁰	1.2	-1.8 - 4.2	0.7	-2.0-3.4	0.9	-1.1-2.9
Castillo 2019 ¹⁵	-	-	-	-	2.6	-

Table 3. Prevalence of stroke according to subtypes¹¹⁻¹⁴

Study ID	Ischemic	Hemorrhagic	Transient Ischemic Attack	Others
Guieb, 1988 ¹³	51.0%	37.4%	4.7%	6.9%
Dayrit, 2004 ¹¹	78.0%	22.0%	-	-
Carcel, 2009 ²³	68.6%	31.4%	-	-
Ong, 2011 ¹⁴	26.0%	14.0%	-	60% ¹

Conclusions

- Based on this systematic review, the national stroke incidence rate ranges from 3.95% to 5.61%
- Hypertension remains as the commonly reported risk factor of stroke. Diabetes and smoking were also identified as top risk factors.
- Noting the variability of data and the limited studies on the national epidemiology of stroke in the Philippines, it is recommended that the national government consider establishing a system such as a national registry for better data collection and analysis