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Knowledge attitude and practice on acute stroke in an urban community: a cross-sectional study

Abstract

Background: Stroke remains to be one of the top leading causes of morbidity and mortality in the Philippines despite the increasing number of Acute Stroke Ready Hospitals. Identifying the community's knowledge gaps, current attitude and practices towards the disease will help develop targeted programs for stroke prevention and better treatment.

Objective: We aimed to assess the baseline knowledge and current attitude and practice towards stroke among residents in an urban community in Metro Manila.

Methods: A cross-sectional face to face survey using an adapted study on Stroke Recognition Questionnaire (SRQ) tool was done among residents of an urban community for assessment of their knowledge, attitude, and practice towards stroke.

Results: The results showed that the majority of the respondents had poor knowledge about stroke (n=223; 59.79%). Specifically, most of them were not familiar with the warning signs of stroke (n=303; 81.23%), risk factors (n=166; 44.50%) and available treatment (n= 150; 40.21%). Many of the respondents, however, manifested a good attitude towards stroke prevention such as regular intake of medications (n=309, 82.84%), doctor consultations (n=301, 80.70%), and lifestyle changes (n=198, 53.08%). Majority of the respondents (n=229; 61.39%) would advise seeking medical attention for stroke. A significant statistical correlation between stroke knowledge and the level of educational attainment (p-value <0.001).

Conclusion: Effective education interventions should be adopted and used for primary stroke prevention programs in the community.

Keywords: knowledge, practice, attitude, stroke, urban community

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Introduction

The general call to action in acute stroke care is the phrase "Time Is Brain". The phrase emphasizes the idea that neurons are rapidly and irretrievably lost as the stroke progresses and highlights the need for timely therapeutic interventions.[1] Following the results of the NINDS trial in 1996, Intravenous Recombinant Tissue Plasminogen Activator (IV RTPA) has been utilized as the primary agent capable of reversing or reducing the extent of neurologic injury if given in a timely manner.[2] In the Philippines, the rate of thrombolysis improved from 1.4% in 2014-2016 to 11% in 2021 based on the RES-Q database. Thrombolysis rates were also found to be higher in government hospitals due to government subsidy.[3] However, despite the increased utilization of thrombolysis, cerebrovascular disease remains to be the second leading cause of death and first cause of morbidity among Filipinos.[4] These statistics highlight the urgency with which the phenomenon of stroke needs to be treated in the Philippines with the goal of reducing the burden of the disease.

Stroke burden cannot be reduced with the lack of public knowledge and right attitude and practices. For instance, despite the government's subsidy for the IV RTPA, the public has no idea that the therapeutic option is time-limited. Furthermore, ignorance of the warning symptoms of stroke results into delayed treatment and hospitalization. The existing studies on the Knowledge, Attitude and Practice (KAP) of stroke in the Philippines were mostly undertaken prior to the issuance of the government subsidy for the use of IV RTPA in stroke. The years following the last KAP study, we have seen an increase in the number of Acute Stroke Ready Hospitals and a gamut of available information in social media. However, stroke incidence continues to increase and have not yet reached plateau. Identifying the knowledge gaps and current attitude and practices towards the disease could help develop targeted community programs for stroke prevention and treatment.

Objectives

In this study, we aimed to assess the baseline knowledge and current attitude and practice towards stroke among residents in an urban community in Metro Manila. Findings in this study were intended to help in the planning of community-based stroke prevention and management strategies.

Methodology

Study design, setting and participant selection

We conducted a cross-sectional face to face survey among barangay residents in Quezon City. The city has the largest population and is among highly urbanized cities in the country.[5] The study included only barangays with close proximity to a certified Acute Stroke Ready Hospital. Included in the study are adults aged 19 and above, bonafide residents of Quezon City and well-versed with the Tagalog language. Mentally-incapacitated individuals and adults who did not wish to participate were all excluded from the study.

Data collection and bias

A convenient sampling method was used to recruit participants for this study. One member per household who fit the inclusion criteria was invited and recruited to answer the questionnaire. Before proceeding to the study questions, the participant must agree and sign a written consent form. The data collection phase took place between July and August 2023. Risk of selection bias was considered for this study.

Measurement

We designed and constructed a self-administered questionnaire utilizing an adapted version of a Stroke Recognition Questionnaire (SRQ) to assess stroke knowledge and practices.[6] The original questionnaire was translated using the forward-backward translation method by three bilingual experts and was validated by the *Komisyon ng Wikang Filipino*. We modified the study instrument based on the recommendations of three experts in vascular neurology. We conducted a pilot test involving thirty respondents using the questionnaire's final version and made corrections accordingly for the content applicability and feasibility of the questionnaire.

The thirty respondents of the pilot study were excluded from the main study. To ensure reliability, we pre-tested the instrument's items before the questionnaire was released. The Tagalog version of the SRQ in this study had acceptable reliability with Cronbach's alpha coefficient of 0.88 and 0.91 respectively, for KAP.

Questionnaire components

The questionnaire included 19 items divided into four parts. Part 1 included questions on the respondents socio-demographic status. Part 2 consisted of questions that assessed the participant's baseline knowledge of stroke as to the organ location, etiology, risk factors, warning signs, treatment and complications. Participants who scored four and above were deemed to possess good knowledge of stroke while those who scored three and below were classified as having poor knowledge. Parts 3 and 4 comprised of questions towards attitude and current practices on stroke.

Sample size

The sample size was determined using Raosoft sample size calculator.[7] Keeping an indicator percentage of 0.50, margin of error of 5% and confidence interval (CI) of 95%, the calculated sample size was 373.

Ethical considerations

The study conforms by the Principles of the Declaration of Helsinki (2013) and was conducted along the Guidelines of the International Conference on Harmonization-Good Clinical Practice, National Ethical Guidelines for Health and Health-Related Research (NEG HHRR) 2017. It complied with the Data Privacy Act of 2012 and the National Ethical Guidelines for Health and Health-Related Research of 2017. The Clinical Protocol and all relevant documents were reviewed and approved by the Institutional Ethics Review Board (IERB-2023-77)

Statistical analysis

Microsoft Excel Data Analysis version 2019 and the Statistical Package for Social Sciences (SPSS) version 27 was utilized for data processing and analysis. We used descriptive statistics to calculate the frequencies, percentages, means and standard deviations. Pearson's chi-square test was used to study correlation between variables. The significance level was fixed at a p-value of <0.5 in all results.

Results

Demographic and clinical characteristics of the study population

A total of 373 respondents participated in the study. The median age of the study participants was 41(IQR: 19-68). Most of the respondents were females (n= 238, 63.8%), high-school graduates (n=201, 53.9%), currently employed (n= 190, 50.9%) and belonging to low-income class (n = 337, 90.3%).

Majority of the respondents had traditional cerebrovascular disease risk factors like hypertension (n=120,32.2%), diabetes mellitus (n=63, 16.9%), and hyperlipidemia (n=47, 12.6%). Information pertaining to stroke were mostly obtained by the respondents from the doctors (n=264, 70.78%), social media (n=174, 46.65%), and television (n=145, 38.87%). Other pertinent baseline characteristics were summarized in Table 1.

Table 1 Baseline demographic characteristics of the study participants

Category	Frequency (n, %)
Age (median)	41 (IQR 19-68)
Sex	
Female	238 (63.8)
Male	135 (36.2)
Educational attainment	
None	3 (0.8)
Elementary	36 (9.7)
High school	201(53.9)
Vocational	62 (16.6)
College	60(16.1)
Postgraduate	11(2.9)
Employment status	
Employed	190(50.9)
Unemployed	183(49.1)
Monthly Income	
Low income	337(90.3)
Middle income	35(9.4)
High income	1 (0.3)
Comorbidities	
Stroke	25(6.7)
Hypertension	120(32.2)
Diabetes Mellitus	63(16.9)
Heart Disease	37(9.9)
Kidney Disease	14(3.8)
Family history	
Stroke	80(21.4)
Hypertension	217(58.2)
Diabetes Mellitus	102(27.3)
Heart Disease	73(19.6)
Kidney Disease	28(7.5)
Source of information	
Radio	90(24.13)
Television	145(38.87)
Social Media	174(46.65)
Relatives	128(34.32)
Doctors	264(70.78)
Nurses	75 (20.11)

Assessment of knowledge level on stroke

The results showed that the majority of the respondents had poor knowledge about stroke (n=223; 59.79%). Most respondents (n=272;72.65%) incorrectly identified the heart, as the organ affected by stroke. In addition, a greater number of them were not familiar with the warning signs of stroke (n=303; 81.23%), risk factors (n=166; 44.50%) and available treatment (n= 150; 40.21%). None of the respondents were familiar with alteplase as treatment for acute stroke (Table 2).

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Table 2 Knowledge level towards stroke

	Frequency	
	(n)	(%)
Good Knowledge (≥4 correct answers	150	40.21
Poor Knowledge < 4 correct answers	223	59.79

Assessment of attitude towards stroke

Most of the respondents agreed that stroke is preventable (n=312; 83.6%). Of the specific attitudes towards stroke prevention, the results showed that regular intake of medications (n=309, 82.84%) followed by regular doctor consultations (n=301, 80.70%) and lifestyle changes (n=198, 53.08%) is a preventive attitude for stroke.

Assessment of practice towards stroke

The findings for practices towards stroke prevention showed that majority (n=229; 61.39%) would respond by taking the person immediately to the hospital and calling an ambulance. However, 31.64% (n=118) of the respondents would advise the stroke victim to just rest or self-medicate. A minority said they would resort to prayers and faith healers (n=20, 5.36%).

Correlation between stroke knowledge, educational attainment and socio-economic status

Pearson's Chi-Square Test was used to examine the correlation between knowledge, educational attainment, and socio-economic status. Results showed a significant statistical correlation between stroke knowledge and the level of educational attainment (p-value <0.001). No significant correlation exists between stroke knowledge and economic status (Table 3).

Table 3 Correlation between stroke knowledge, educational attainment and socio-economic status.

Knowledge	Monthly income			Educational attainment					
	Low	Middle	High	None	Elementary	High School	Vocational	College	Postgraduate
Good	131(35.1)	19 (5.1)	0 (0.00)	0 (0)	13 (3.49)	66 (17.69)	28 (7.51)	34 (9.12)	9 (2.41)
Poor	206 (55.2)	16 (4.3)	1 (0.3)	3 (0.8)	23 (6.17)	135 (36.19)	34 (9.12)	26 (6.97)	2 (0.54)
p value	0.149			<0.001					

Discussion

Good knowledge, or awareness, about the warning signs and the stroke risk factors by a community increases the likelihood that a stroke patient receives timely and appropriate medical intervention, and prevent morbidity and mortality. This study unfortunately revealed that many city dwellers near a tertiary government hospital capable of administering IV thrombolysis, still have poor knowledge about stroke - its risk factors, symptoms and treatment. Our study revealed that a low level of educational attainment (not household income) significantly correlated with poor knowledge about stroke.

The results are similar to the telephone survey study done by Anlacan, et al, in 2001, which also showed that a considerable majority of their respondents had low level of knowledge of the stroke warning signs and risk factors.[8] It is also consistent with the other studies that indicated basic knowledge of the risk factors and warning signs was inadequate among the study populations in India, Saudi Arabia, Australia and Brazil.[9–12] Only one study,[13] done in France, showed that majority of their respondents had good knowledge about stroke symptoms and risk factors.[9]

The current study also showed that most of the respondents had good attitude towards stroke prevention. The results were similar to a study conducted in India which showed high attitude scores towards stroke prevention.[14] In addition, despite having poor knowledge, most of the respondents in our study showed good practices towards stroke prevention, like seeking medical attention immediately. This result is inconsistent with other international studies that showed lack of educational knowledge resulted to poor practices.

Our study showed that high school graduates (majority of our respondents) do not know that stroke is a brain (not a heart) disease, cannot recognize the warning signs, and are not aware of the available treatments for acute stroke. This study was conducted 24 years after the availability of alteplase in the Philippines and 22 years after the study by Anlacan. These suggest that the easier access to information through the internet has not been very effective for health education. Based on our study's findings, therefore, we are recommending that our educational system should introduce serious diseases as part of the Health Education in the secondary level curriculum. Awareness of the risk factors for debilitating diseases, like stroke, can improve the health-seeking behavior of our population. This study may also support a recommendation that continuous health education by primary health care workers should be mandated to adopt stroke preventive measures and to increase utilization of time-bound therapies for stroke.[15–19]

Study limitations

Results of the study were inconclusive and had some limitations. First, it involves only selected barangays in Quezon City. Second, a convenience sampling technique was used for the data collection. Both limitations affected the generalizability of the study results.

Conclusion

The study highlighted that low level of education correlates with poor knowledge towards stroke recognition. The findings suggest that we should implement effective education interventions early in the school curriculum that could be useful for primary stroke prevention and stroke recognition.

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None.

Conflicts of interest

The authors declare that there are no conflicts of interest.

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