RESEARCH PAPER

A Study to Assess the Knowledge Regarding Risk Factors, Warning Signs and Early Treatment Approaches of Stroke Among Adults in Selected Community Area, Puducherry

Subiksha.S[1], Subitha.S[2], Suruthika.M[2], Sushmitha.V[4], Parkavy.P[5] and Dr. Edna Sweenie.J[6]

[1, 2, 2, 4]Vinayaka missions college of nursing, Puducherry.
[5]Nursing Tutor, Department of Community Health Nursing, Vinayaka Mission's College, Puducherry
[6]Principal-cum-Professor, Vinayaka Mission's College of Nursing, Puducherry
[1]subiksha07250605@gmail.com, [2]subithasubitha656@gmail.com, [2]punidhavetri11@gmail.com,
[4]vinothkumarpk12@gmail.com, [5]paru21596@gmail.com and [6]dredna16@gmail.com

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ABSTRACT
Stroke is a leading cause of mortality and disability worldwide, and early recognition of its risk factors, warning signs, and treatment approaches is essential for reducing its burden. The present study aimed to assess the knowledge regarding risk factors, warning signs, and early treatment approaches of stroke among adults in a selected community area of Puducherry. A quantitative research approach with a descriptive design was adopted. A total of 160 adults were selected using nonprobability convenient sampling technique. Data were collected using a structured knowledge questionnaire. The findings revealed that the majority of participants had inadequate knowledge 114 (71.3%), while 40 (25.0%) had moderate knowledge and only 6 (3.8%) had adequate knowledge. Significant association was found between knowledge and variables such as gender, family history of stroke, and chronic illness ($p<0.05$). The study concludes that awareness regarding stroke is inadequate and emphasizes the need for health education programs.

Keywords: Stroke, Knowledge, Risk factors, Warning signs, Treatment.

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INTRODUCTION

Stroke is a major global health problem and one of the leading causes of death and long-term disability worldwide. It is defined as a sudden interruption of blood supply to the brain, resulting in neurological deficits that persist for more than 24 hours or lead to death. Stroke can be broadly classified into ischemic stroke, caused by blockage of blood vessels, and hemorrhagic stroke, caused by rupture of vessels. The brain cells begin to die within minutes due to lack of oxygen and nutrients. Early recognition and timely management are essential to reduce morbidity and mortality. Stroke not only affects physical functioning but also has psychological and social consequences. It remains a significant public health concern, especially in developing countries like India. The causes of stroke are multifactorial and involve both modifiable and non-modifiable risk factors. Major modifiable causes include hypertension, diabetes mellitus, smoking, obesity, physical inactivity, and unhealthy diet. Hypertension is considered the most important risk factor contributing to both ischemic and hemorrhagic strokes. Non-modifiable factors include age, gender, genetic predisposition, and family history of stroke. Cardiac disorders such as atrial fibrillation also increase the risk of embolic stroke. Lifestyle changes and preventive strategies play a key role in reducing stroke incidence. Understanding these causes is essential for early intervention and health education among the population .[1,2,3,4]

Stroke risk factors are broadly categorized into modifiable and nonmodifiable determinants that significantly influence the occurrence of stroke. Modifiable risk factors include hypertension, diabetes, dyslipidemia, smoking, alcohol consumption, obesity, and sedentary lifestyle. Among these, hypertension remains the most predominant and preventable cause of stroke globally. Nonmodifiable factors such as increasing age, male gender, ethnicity, and family history also contribute to stroke susceptibility. Environmental and socioeconomic factors further influence stroke risk in low- and middle-income countries. Effective control of these risk factors through lifestyle modifications and medical management can substantially reduce stroke burden. Public awareness regarding these determinants is essential for prevention .[5,6,7,8,9]

**Author for Correspondence: sourabh.mishra@mangalayantan.edu*

NEED FOR THE STUDY

At Worldwide Level

Stroke is a leading global health burden with significant mortality and disability. According to global reports, approximately **93.8 million people were living with stroke and 11.9 million new cases occurred in 2021**. It is the **third leading cause of death and disability worldwide**, with increasing trends in low- and middle-income countries. The lifetime risk of stroke has increased to **1 in 4 adults globally**. Stroke accounts for nearly **65% of all stroke cases worldwide**, while hemorrhagic stroke contributes to a substantial proportion of mortality. These numerical findings emphasize the importance of improving knowledge about stroke risk factors, warning signs, and early treatment among the general population.[10,11]

At India Level

In India, stroke has emerged as a major public health concern with rapidly increasing incidence and prevalence. Studies report that stroke incidence ranges from **105 to 152 per 100,000 population per year**, with prevalence ranging from **44 to 559 per 100,000 population**. Recent data indicate that India reported approximately **1.25 million new stroke cases in 2021**, contributing to nearly **10% of global stroke cases**. These figures indicate a rising burden of stroke in the country[12,13,14]

At State Level

At the state level, studies conducted in South India reveal a considerable burden of stroke with increasing incidence rates. Research indicates that the annual incidence of stroke in urban and rural populations ranges from **108 to 172 per 100,000 population**, with case fatality rates ranging from **18% to 42%**. Rural populations are particularly vulnerable due to limited access to healthcare facilities and lack of awareness. The risk of stroke in certain South Indian regions has been estimated as high as **1 in 9 individuals** .[15,16]

In some areas, prevalence has been reported up to **757 per 100,000 population**, indicating a significant regional burden. Younger populations are also increasingly affected, with studies showing about **24% of stroke cases occurring below 50 years of age**. These regional variations emphasize the need for targeted community-based education programs to improve awareness among adults.[17]

At Puducherry Level

In Puducherry and nearby regions, limited but relevant epidemiological data indicate a rising burden of stroke similar to other parts of India. Hospital-based and regional studies suggest that stroke incidence in South Indian settings follows national trends, with increasing cases due to hypertension, diabetes, and lifestyle changes. Rural and semi-urban populations often present late due to lack of awareness of warning signs and treatment options. This delay contributes to higher morbidity and disability rates .[18,19,20]

Moreover, studies from similar coastal and semi-urban regions indicate that stroke-related disability and mortality are increasing due to inadequate knowledge and delayed healthcare-seeking behavior. Lack of awareness regarding early treatment such as thrombolysis further worsens outcomes. Strengthening community-level education and early recognition programs is essential to reduce stroke burden in Puducherry. Hence, assessing knowledge among adults in selected community areas is crucial for planning effective intervention.[21,22,23,24]

STATEMENT OF THE PROBLEM

A study to assess the knowledge regarding risk factors, warning signs and early treatment approaches of stroke among adults in selected community area, Puducherry.

OBJECTIVES

- To assess the level of knowledge regarding risk factors, warning signs, and early treatment approaches of stroke
- To find the association between knowledge and selected demographic variables

HYPOTHESIS

H1: There will be a significant association between knowledge and selected demographic variables

RESEARCH METHODOLOGY

It is a Quantitative approach and Descriptive study was adopted in this study. The study was conducted in Ariyankuppam area Ariyankuppam community area, Puducherry, convenient sampling technique was adopted for the study. The sample size of the study present study was 160 adults residing in selected community. The Inclusion criteria for the study were the participants age >18 years, willing to participate in this study, who can read, speak and understanding in Tamil. Exclusion for the study Critically ill individuals, not willing to participate , who was unavailable during the data collection period.

Description of the tools

Section A – It consists of demographic variables: Age, gender, marital status, Educational qualification, occupation, types of family, Residence, history of stroke, any chronic illness.

Section: B – It consists of knowledge questionnaire regarding risk factors, warning signs and early treatment approaches of stroke which includes:

Part A: General knowledge on stroke

Part B: Knowledge on risk factors of stroke

Part C: Knowledge on warning signs of stroke

Part D: Knowledge on early treatment and prevention

- Total number of questions 30
- Each correct answer carries 1 mark

DATA COLLECTION PROCEDURE:

The ethical permission to conduct the study was obtained from IRC and IEC and Formal written permission has been

obtained to conduct the study in Ariyankuppam community area. Each participated in this study provided informed written and oral consent. data will be collected using a structured knowledge questionnaire to assess knowledge regarding risk factors, warning signs and early treatment approaches of stroke. The collected data will be carefully compiled, coded, and entered into a master data sheet for further analysis.

Plan for data analysis

- **Frequency and percentage** will be used to compute the demographic among adults.
- **Frequency and percentage** will be used to level of knowledge regarding risk factors, warning signs, and early treatment approaches of stroke among adults.
- **Chi square test** will be used association between knowledge regarding risk factors, warning signs and early treatment approaches of stroke among the adults with their selected demographic variables.

RESULTS

Section A: Description of the socio-demographic variables among adults.

Table 1: Frequency and Percentage Distribution of socio-demographic variables among adults (N = 160)

Variables	Category	Frequency (n)	Percentage (%)
Age Group	20–40 years	51	31.9%
	41–60 years	57	35.6%
	61–70 years	52	32.5%
Gender	Male	94	58.8%
	Female	66	41.3%
Marital Status	Single	30	18.8%
	Married	44	27.5%
	Widowed	41	25.6%
	Divorced	45	28.1%
Education	Illiterate	32	20.0%
	Primary School	33	20.6%
	High School	30	18.8%
	Graduate	25	15.6%
	Postgraduate	40	25.0%
Occupation	Government employee	37	23.1%
	Private employee	28	17.5%
	Self-employed	27	16.9%
	Daily wage worker	30	18.8%
	Unemployed	38	23.8%
Family Type	Nuclear	51	31.9%
	Joint	50	31.3%
	Extended	59	36.9%
Residence	Urban	81	50.6%
	Rural	79	49.4%
Family History of Stroke	Yes	9	5.6%
	No	151	94.4%
Chronic Illness	Yes	49	30.6%
	No	111	69.4%

Table 2: Frequency and Percentage Distribution of level of knowledge regarding risk factors, warning signs, and early treatment approaches of stroke among adults in selected community area. (N = 160)

Knowledge Level	Frequency (n)	Percentage (%)
Inadequate knowledge	114	71.3%
Moderate knowledge	40	25.0%
Adequate knowledge	6	3.7%
Total	160	100%

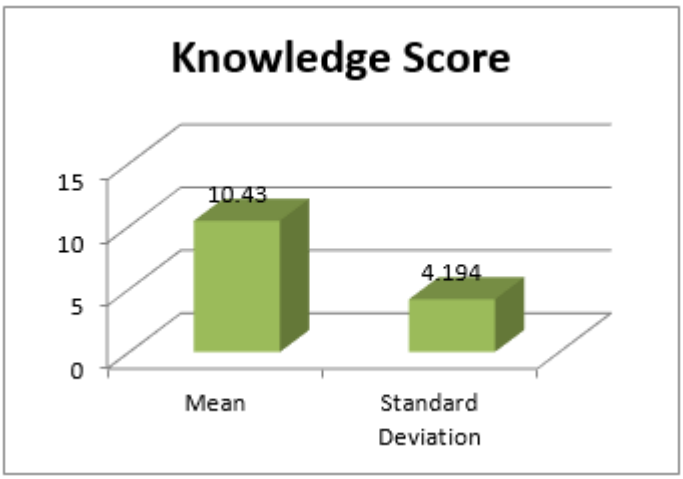


Fig: 1 Mean and Standard Deviation of level of knowledge regarding risk factors, warning signs, and early treatment approaches of stroke among adults in selected community area.

Association between knowledge regarding risk factors, warning signs and early treatment approaches of stroke among the adults with their selected demographic variables

The association between knowledge regarding risk factors, warning signs, and early treatment approaches of stroke among adults and their selected demographic variables (N = 160). The analysis revealed that gender ($\chi^2 = 9.836$, $p = 0.007$), family history of stroke ($\chi^2 = 23.743$, $p = 0.000$), and presence of chronic illness ($\chi^2 = 9.436$, $p = 0.009$) had a statistically significant association with knowledge level. In contrast, variables such as age group ($\chi^2 = 3.534$, $p = 0.473$), marital status ($\chi^2 = 10.762$, $p = 0.096$), education ($\chi^2 = 8.950$, $p = 0.347$), occupation ($\chi^2 = 8.841$, $p = 0.356$), family type ($\chi^2 = 4.398$, $p = 0.355$), and residence ($\chi^2 = 1.042$, $p = 0.594$) did not show any statistically significant association with knowledge level.

DISCUSSION

The majority of participants had inadequate knowledge 114 (71.3%), indicating poor awareness about stroke-related information. A smaller proportion of participants demonstrated moderate knowledge 40 (25.0%), suggesting a partial understanding of stroke risk factors and warning signs. Only a very minimal number of participants had adequate knowledge 6 (3.7%), The result was supported another study Pandian JD (2023) conducted a study titled "Awareness of stroke risk factors and warning signs among adults" in South India (Tamil Nadu). The results showed that only 42% had adequate knowledge, while 58% had inadequate knowledge regarding stroke risk factors. About 36% recognized at least one warning sign, and only 28% were aware of early treatment options. The study highlighted a significant gap in awareness among community adults. The analysis revealed that gender ($\chi^2 = 9.836$, $p = 0.007$), family history of stroke ($\chi^2 = 23.743$, $p = 0.000$), and presence of chronic illness ($\chi^2 = 9.436$, $p = 0.009$) had a statistically significant association with knowledge level.[18]

CONCLUSION

The study concluded that most adults had inadequate knowledge regarding stroke risk factors, warning signs, and treatment approaches.

There is a need for structured health education programs to improve awareness and promote early management.

NURSING IMPLICATIONS

- Nursing Education: Strengthen curriculum on stroke awareness
- Nursing Practice: Conduct community awareness programs
- Nursing Administration: Organize training programs
- Nursing Research: Promote further studies

RECOMMENDATIONS

- Conduct structured teaching programs
- Extend study with larger sample
- Comparative rural vs urban studies
- Evaluate educational interventions

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