



Original Research Article

A CROSS-SECTIONAL STUDY ON AWARENESS OF RISK FACTORS, WARNING SIGNS AND PREVENTIVE MEASURES OF STROKE AMONG NURSING STUDENTS IN A PRIVATE NURSING COLLEGE UNDER A TERTIARY CARE TEACHING HOSPITAL, TELANGANA

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Received : 26/12/2025
Received in revised form : 07/02/2026
Accepted : 24/02/2026

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DOI: 10.70034/ijmedph.2026.1.375

Source of Support: Nil.
Conflict of Interest: None declared

Int J Med Pub Health
2026; 16 (1); 2157-2162

ABSTRACT

Background: Nurses play a vital role in patient care; therefore, adequate knowledge about stroke is essential to help prevent complications and reduce morbidity. Aim- to study the awareness about risk factors, warning signs and preventive measures of Stroke. The objective is to assess the awareness of risk factors, warning signs and preventive measures of Stroke among Nursing Students and to determine the sources of information of stroke.

Materials and Methods: This institution-based cross-sectional study was carried out from October to December 2024 among 180 BSc Nursing students of both genders in a private nursing college. The participants were selected using a simple random sampling technique, and data were collected through a self-administered, pre-tested, semi-structured questionnaire.

Results: Approximately half of the students demonstrated a good level of awareness regarding the risk factors and warning signs of stroke. A majority (76.7%) showed good awareness of preventive measures. Furthermore, 95% of the students indicated that calling an ambulance would be the most appropriate first response in the event of a stroke.

Conclusion: The students demonstrated good knowledge of certain warning signs and risk factors of stroke. However, it is recommended that greater emphasis be placed on this topic within the course curriculum.

Keywords: Awareness, Risk factors, Prevention, Stroke, Warning signs.

INTRODUCTION

Stroke is a preventable disease. It is reversible when the individual is brought within the golden hour. Knowledge of stroke is very important to every individual as it empowers them to take preventive measures, make informed lifestyle choices and respond appropriately in emergency situations thereby mitigating the devastating consequences of

stroke. A stroke, sometimes called a brain attack, occurs when something blocks blood supply to part of the brain or when a blood vessel in the brain bursts. In either case, parts of the brain become damaged or die. A stroke can cause lasting brain damage, long-term disability, or even death.^[1]

Annually, 15 million people worldwide suffer a stroke. Of these, 5 million die and another 5 million are left permanently disabled.^[2] Stroke is the 4th

leading cause of death and 5th leading cause of disability in India.³ At the most basic level, stroke is divided into haemorrhagic and ischemic strokes.⁴ Risk factors for haemorrhagic and ischemic stroke are similar, but there are some notable differences. The majority (approximately 80%) of strokes are ischemic, although the relative burden of haemorrhagic versus ischemic stroke varies among different populations.^[5] Reducing the burden of stroke in the population requires identification of modifiable risk factors and demonstration of the efficacy of risk reduction efforts.^[6] Nonmodifiable risk factors (also called risk markers) for stroke include age, sex, race-ethnicity, and genetics. The incidence of stroke increases with age, with the incidence doubling for each decade after 55 years of age.^[7] The modifiable risk factors are of utmost importance, as intervention strategies aimed at reducing these factors can subsequently reduce the risk of stroke. The modifiable risk factors are hypertension, diabetes mellitus, obesity, hyperlipidaemia, and smoking. Early identification and modification of risk factors is imperative. Hypertension is the most important modifiable risk factor for stroke, with a strong, direct, linear, and continuous relationship between blood pressure and stroke risk.^[7] People who are physically active have a lower risk of stroke than those who are inactive.^[8] The relationship between physical activity and stroke may be because of the associated decrease in blood pressure, reduction in diabetes mellitus, and reduction in excess body weight.^[9] Stroke carries a high risk of death. Survivors can experience loss of vision and/or speech, paralysis and confusion. The risk of death depends on the type of stroke.^[2] Transient ischemic attack's temporary symptoms, which can last from only a few minutes up to 24 hours, make diagnosis challenging. Stroke symptoms that disappear in under an hour need emergency assessment to help prevent a full-blown stroke.^[10] The aim of stroke prevention is to decrease stroke incidence through targeted modification of a single risk factor, or a cluster of multiple risk factors, used on a population, community, or individual level.^[11,12] Frontline workers play a vital role in treating patients. Knowledge of stroke among nursing students is important for its early detection and intervention. They can educate the patients and their families about stroke. So, the awareness among public also increases. Moreover, there are only limited studies on stroke awareness among nursing students. So, conducting this study helps in assessing awareness about risk factors, warning signs and preventive measures of stroke will benefit the nursing students to enhance their knowledge about stroke to serve the community.

Aim: To study the awareness about risk factors, warning signs and preventive measures of Stroke.

Objectives:

1. To assess the awareness of risk factors, warning signs and preventive measures of Stroke among Nursing Students.

2. To determine the sources of information of stroke.

MATERIALS AND METHODS

Study Design: An Institutional based cross-sectional study.

Study Setting: Private Nursing College located within a tertiary care teaching hospital in Telangana.

Study Duration: 3 Months (October-December 2024)

Study Population: Study included students from 1st to 4th year of BSc Nursing of either gender.

Sample size: Sample size was calculated by taking a prevalence of 53.2% from previous studies [13]

Sample size $N = (z^2pq)/l^2$

Where in,

‘z’ is relative deviate (at 95% confidence levels)

‘p’ (Expected prevalence) = 53.2% 13

‘q’ is $(100-p) = 46.8\%$

‘l’ is relative error taken as 15% of prevalence i.e. 7.98%

$N = 150$

we will cover the sample size of 150, assuming the non-response rate as 20%

In this way, we will approach 180 Nursing Students.

Sampling technique:

- Simple Random Sampling was employed for 4 batches of BSc Nursing of Malla Reddy Institute of Medical Sciences.
- 45 students from each batch were selected by their registered roll numbers randomly using random number generator on Google until the required sample size is achieved.
- All the students were then screened based on the eligibility criteria and given the questionnaire individually.
- If any picked student failed to be eligible, then the next selected student was contacted.

Inclusion criteria:

- 1st to 4th year nursing students of either gender.
- Students who were willing to participate and given informed consent.
- Students who were available during the time of data collection.

Exclusion criteria:

- Incomplete filled forms were excluded.

Ethical consideration: The study was approved by Institutional Ethics Committee (MRIMS/DHR-IEC-MBBS/2024/293). The participants were briefed about the purpose of the study and prior informed consent was taken.

Methodology

- Informed consent was taken from the study participants after explaining about objectives of study and strict confidentiality was assured to all the participants.
- The data was collected through a self-administered, pre-tested, semi-structured questionnaire consisting mainly of two sections
- The initial section contains socio-demographic information of participants

- The final section is focused on the questions about the awareness of risk factors, warning signs and preventive measures of stroke.

Statistical Analysis: The data collected was entered into Microsoft Excel (Microsoft Corp., Redmond,

WA, USA), and statistical analysis was done using SPSS software version 21 (IBM Corp., Armonk, NY, USA). Mean values and standard deviation were calculated for descriptive data.

RESULTS

Table 1: Socio-demographic characteristics of the Nursing Students n=180

Variable	Categories	Frequency	Percentage (%)
Age (Mean ± SD)		20.63±1.307	
Gender	Male	77	42.8
	Female	103	57.2
Education (B.Sc. Nursing)	1st year	25	13.9
	2nd year	41	22.8
	3rd year	65	36.1
	4th year	49	27.2

A total of 180 students participated in this study. The mean age of the participants was 20.63 ± 1.307 and the majority of them were female students (57.2%).

Nearly 36.1% of students belong to 3rd year BSC Nursing.

Table 2: Awareness of risk factors, warning signs and preventive measures of stroke among Nursing Students n=180

Variables	Frequency	Percentage
Target Organ		
Heart	61	33.9
Brain	111	61.7
Not Known	08	4.4
Encountered stroke person		
Yes	144	80
No	36	20
Stroke can be prevented		
Yes	160	88.9
No	20	11.1
Risk Factors		
Blood diseases	90	50
Sex	86	47.8
Overweight	121	67.3
Small vessel diseases	124	68.9
Diabetes	130	72.3
Irregularities in the heartbeat (AF)	134	74.5
Lack of physical exercise	138	76.7
Age	112	62.3
High cholesterol level	138	76.7
Excessive alcohol consumption	146	81.2
Smoking	148	82.3
Family history of stroke/TIA	154	85.6
Carotid stenosis	158	87.8
Heart diseases (MI or angina)	164	91.2
Suffering previous stroke/TIA	172	95.6
Hypertension	176	97.8
Warning Signs		
Nausea/vomiting	112	62.3
Dyspnoea	122	67.8
Heart palpitations	127	70.6
Visual problems	148	82.3
Severe headache	152	84.5
Difficulty in walking, loss of balance or coordination	171	95
Numbness or weakness in the face	168	93.4
Slurred speech	174	96.7
Weakness one side of the body	167	92.8
Stroke prevention measures		
Regular medicine use	146	81.2
Providing ideal weight	162	90
Restriction of alcohol consumption	168	93.4
Regular physical activity	172	95.6
Smoking cessation	176	97.8
Appropriate nutrition	168	93.4
Regular doctor check	152	84.5
Avoid stress	174	96.7
Blood Pressure Control	176	97.8

The majority of students (61.7%, n = 111) expressed the brain as the target organ involved in the stroke. Among the risk factors, the majority of students were aware of Hypertension (97.8%, n = 176), suffering previous stroke/TIA (95.6%, n = 172), heart diseases such as myocardial infarction or angina (91.2%, n = 164). Among the warning symptoms, the majority of students were aware of slurred speech (96.7%, n = 174), difficulty in walking, loss of balance or co-ordination (95%, n=171), numbness or weakness in

the face (93.4%, n = 168), Weakness of one side of the body (92.8%, n = 167). The majority of students (88.8%, n = 160) stated that stroke could be prevented. The most identified preventive measures were blood pressure control (97.8%, n = 176), cessation of smoking (n=176, 97.8%), avoid of stress (96.7%, n = 174) regular physical activity (95.6%, n = 172),) appropriate nutrition (93.4%, n = 168) and restriction of alcohol consumption (93.4%, n = 168).

Table 3: Level of awareness regarding the risk factors and warning symptoms and prevention measures of stroke n=180

Awareness of risk factors	n	%
Good (>80%)	102	56.7
Moderate (70-80%)	31	17.2
Poor (<70%)	47	26.1
Awareness of warning signs		
Good (>80%)	91	50.5
Moderate (70-80%)	28	15.6
Poor (<70%)	61	33.9
Awareness of prevention measures		
Good (>80%)	138	76.7
Moderate (70-80%)	19	10.5
Poor (<70%)	23	12.8

The majority of students (n=138, 76.7%) had a good level of awareness about preventive measures and half of the students (n=102, 56.7%; n=91, 50.5%) had

a good level of awareness about risk factors and warning signs for stroke.

Table 4: Sources of information about stroke n=180

	n	%
First Action to be taken		
I'll give patient medicine	1	0.5
I apply cold water to head	1	0.5
I call the doctor	27	15
I call one of the family members	18	10
I take the patient to hospital	29	16.2
I call ambulance	172	95.5
Getting information about stroke		
No	48	26.6
Yes	132	73.4
Information source		
Television	1	0.5
Newspaper	1	0.5
My relatives	8	4.4
Patient with stroke and patient relatives	26	14.5
Internet	26	14.5
Academy	72	40
Textbooks	44	24.5
Suggestions for community education		
First intervention for stroke	124	68.9
Prevention	136	75.6
Risk factors	152	84.5
Early warning signs	163	90.5

The majority of participants (n=172, 95.5%) answered that they will call the ambulance when they realize that someone else is having an acute stroke. Most of the participants (73.4%, n = 132) stated that they had been informed about the stroke before. The major source of information about stroke were academy (n=72, 40%), followed by textbooks (n=44, 24.5%), Internet (n=26, 14.5%) and patients with stroke and relatives (n=26, 14.5%). The suggestions for community education about stroke was answered as “Early warning signs” by majority of students (n=163, 90.5%), followed by “Risks factors (n=152,

84.5%)”, “Prevention (n=136, 75.6%)”, and “First intervention for stroke (n=124, 68.9%)”.

DISCUSSION

Adequate knowledge of stroke including its risk factors, warning signs, preventive measures, and immediate management—is essential for timely intervention and improved patient outcomes. In this aspect, the current study is undertaken to assess the awareness of stroke among the nursing students rather than evaluating the general public. The

findings of the current institutional-based study among nursing students indicated that more than half (56.3%) of the students had a good level of awareness of risk factors for stroke. A similar study conducted by Kankaya H et al,^[13] showed that half of the students (53.3%) had a high level of awareness of stroke risk factors. These results were also consistent with the study about nursing students by Islam et al.,¹⁶ which showed that nearly half of the students (42.4%) had a high and very high level of awareness of stroke risk factors.

Among the listed risk factors, Hypertension was one of the most commonly recognized by the participants in this study. A similar observation was noted in a study conducted by Kankaya H et al,^[13] and Shehata HS.^[17] In the current study, 50.5% of the nursing students had good level of knowledge regarding the warning signs of stroke. In contrast, Islam et al,^[16] reported that their participants had a very low level of awareness of stroke warning signs. However, findings from a study by Kankaya H et al,^[13] were consistent with the results of the present study.

The most frequently identified warning signs are Slurred speech (96.7%), Difficulty in walking, Loss of balance or co-ordination (95%), Numbness or Weakness in face (93.4%), Weakness one side of the body (92.8%). These findings are consistent with the study by Obembe et al,^[18] where slurred speech, weakness, and numbness were the most commonly recognized warning signs. Similar findings have been reported in several other studies.^[13,19]

The findings of this study indicate that nursing students demonstrated a high level of awareness regarding stroke prevention measures. Similar results were reported in a study conducted by Kankaya H et al,^[13] In the present study, majority of students (61.7%) accurately identified the brain as the organ affected in stroke. Similarly, a study conducted by Park et al,^[20] reported that 74.3% of high school students correctly recognized the brain as the affected organ prior to receiving stroke education. In another study, 86.2% of participants were able to identify stroke appropriately.^[21] The majority of students (95.5%) reported that calling an ambulance should be the immediate action taken during a stroke. These findings are consistent with studies conducted by Park et al,^[20] and Milner et al,^[22] which showed that the majority of participants (79.8% and 80.8%, respectively) identified calling an ambulance as the most appropriate first response to a stroke.

The results of this study revealed that the most common sources of information about stroke were Academy (40%). In a study done by Komolafe et al,^[23] and Obembe et al,^[18] reported that television and literature were found to be common source of taking information for the students.

CONCLUSION

The students demonstrated a good level of knowledge and awareness regarding the warning signs and risk

factors of stroke; however, their understanding was lower than anticipated. In contrast, their awareness of preventive measures was found to be comparatively better. In this context, the students who participated in the study were provided with education on stroke, which led to an improvement in their knowledge

Recommendations: Frontline healthcare professionals play a crucial role in stroke prevention and in reducing morbidity among survivors. Therefore, it is essential for nurses to enhance and regularly update their knowledge and awareness of stroke during their training period. These findings suggest that greater emphasis on stroke-related content should be incorporated into the course curriculum.

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