Original Article

Awareness of Stroke among General Population Residing in Urban Area of Western Maharashtra: An Observational Study

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Abstract

Background: Stroke is the second leading cause of death worldwide and was responsible for an estimated 6.5 million deaths and 113 million DALYs (Disability Adjusted Life Years) in 2013. Developing countries like India is facing a double burden of communicable and non- communicable diseases. Stroke is one of the leading causes of death and disability in India.

Objectives: 1.To study awareness of warning symptoms, risk factors and treatment of stroke in study population. 2. To study the correlation between socio-demographic factors with awareness of stroke.

Methodology: A Cross -sectional Observational study was conducted in the Urban Field Practice Area of Medical College in Western Maharashtra. The study was conducted in the age group of more than 30 years of the participants in the urban area. Sample size was 380 and two stage sampling was used for the data collection. The data collection was done with pretested semi -structured questionnaire by interview method. Written informed consent was obtained before inclusion in the study.

Results: A total of 380 participants were included in the study. In the study, 182 (47.89%) were females and 198 (52.10%) were males. It was found that 194 (51.05%) participants were aware about what is stroke. 56% of participants said that brain is the affected organ in stroke. Hypertension (78%) is the most important risk factor for stroke.

Conclusion: In the present study it was revealed that the participants had inadequate awareness about stroke, affected organ, symptoms of stroke, and risk factors for stroke.

Key words: Stroke, Hypertension, Brain

Introduction

As per World Health Organization, Stroke is defined as, rapidly developed clinical signs of focal (or global) disturbance of cerebral function, lasting more than 24 hours or leading to death, with no apparent cause other than of vascular origin. Stroke

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is the second leading cause of death worldwide and was responsible for an estimated 6.5 million deaths and 113 million DALYs (Disability Adjusted Life Years) in 2013[1].

An Acquired Brain Injury (ABI) is an injury to the brain, which is not hereditary, congenital, degenerative, or induced by birth trauma. In India, rapid urbanization, economic growth and changes in lifestyle have led to tremendous increase in the incidence of ABI, so much so that it is being referred to as a 'Silent Epidemic'. Stroke is the non-traumatic cause of ABI[2].

Developing countries like India is facing a double burden of communicable and non- communicable diseases. Stroke is one of the leading causes of death and disability in India[3].

The prevalence of stroke in India varies in different regions of the country and ranges from 40 to 270 per 100,000 population. Approximately 12% of all strokes occur in the population less than 40 years of age.[4-7] In India, studies estimate that incidence of stroke population varies from 116 to 163 per 100,000 population[1].According to ICMR report, stroke was 4th leading cause of death and 5th Leading cause of Disability Adjusted Life Years (DALY) in 2016.[8]

In an effort to assist low-income and middle-income countries to establish surveillance systems for stroke, WHO recommended a stepwise approach (STEPS Stroke) through the use of standardized tools and methods for ongoing core, expanded, and optional data collection. STEPS approach consists of three steps representing the possible outcomes of stroke patients in the hospital and the community[9].

Few studies are conducted to study awareness of stroke in relation to risk factors, warning symptoms and treatment in India. Awareness about stroke warning symptoms in India is found to be 34% (at least 1 warning symptom is known) 29 % (at least 2 warning symptoms are known) and awareness about risk factors is found to be 51.2% (at least 1 risk factor), 18.5% (2 risk factors)[10].

The majority of stroke survivors continue to live with disabilities, and the cost of rehabilitation and long term-care are financial burden on their families[9].

Stroke may compromise cognitive, mood, functional abilities and quality of life. It results in caregiver burden and economic stress at individual, familial and national level. [(11)] India is facing an enormous socioeconomic burden to meet the costs of rehabilitation of stroke survivors because the life expectancy has increased and risk of developing stroke also on rise[10].

Treatments of acute ischemic stroke with thrombolytic can reverse the acute paralysis in many patients. However, such treatment can be utilized only within the window period of four and half hours with good hospital care. For maximum utilization of thrombolysis within golden time period, the identification of stroke patients and awareness among general masses is essential[11]. To reduce burden of stroke in community, public knowledge, the right attitude and practices, are required[12]. Lack of awareness, under usage of population-wide strategies, false reassurance of low risk, management of blood pressure and cost barrier are the gaps in prevention of stroke at primary level[1].

Hence it becomes important that public should have appropriate knowledge about stroke. With this background, the present study will be conducted to study awareness of stroke among the general population residing in urban area of western Maharashtra.

Aim and Objectives:

The present study aims at assessing the awareness of stroke among the general population in urban area. Specific objectives of this study are:

- To study awareness of warning symptoms, risk factors and treatment of stroke in study population.
- To study the correlation between socio-demographic factors with awareness of stroke.

Material and Methods

Study Design: A Cross -sectional Observational study

Study area: Urban Field Practice Area of Medical College in Western Maharashtra

Study Population: The study was conducted in the age group of more than 30 years of the participants in the urban area.

Inclusion Criteria: Person from selected household aged more than 30 years were included in the study.

Exclusion Criteria: Any person from the family suffered from stroke, all those family members will be excluded from the study.

Study duration: 6 months (1st Jan 2021 to 30th June 2021)

Sample size calculation:

Considering 55% awareness regarding the stroke [10] of with 95%

Confidence interval and 5% allowed error sample size was calculated using the formula $4pq/l^2$.

$$\text{Sample size (n)} = \frac{(1.96)^2 * p * q}{l^2}$$

$$= \frac{(1.96)^2 * 55 * 45}{5*5}$$

$$= 380.16$$

$$\approx 380$$

So sample size is = 380

The total sample size was 380 subjects in the study

Sampling:

Two stage sampling was used while collecting the data. In the first stage, as per census 2011, out of total 23 wards, 20% i.e. 5 wards were selected randomly covering the geographical distribution of Talegaon and in the Second stage, from these selected 5 wards, households were selected by proportionate sampling as per the population proportion of the selected wards. One person from each household aged 30 years and above was interviewed with pretested semi structured questionnaire from each selected 5 wards.

The data collection was done with pretested semi -structured questionnaire by interview method. The study participants were informed about the purpose of the study and written informed consent was obtained before inclusion in the study. The permissionwas taken from the Institutional Ethical Committee for conducting the study.

Questionnaire includes:

1. The first section includes demographic details- name, age, sex, education, occupation, address, and socio-economic status.
2. The second section includes- Questions related to awareness of stroke, risk factors, symptoms and treatment of stroke.

The data was entered in Microsoft Excel sheet and statistical analysis has been done using appropriate statistical tests. Percentage and chi- square test were carried out in the study. Chi – square test was applied to find the association between socio demographic factors and awareness of stroke.

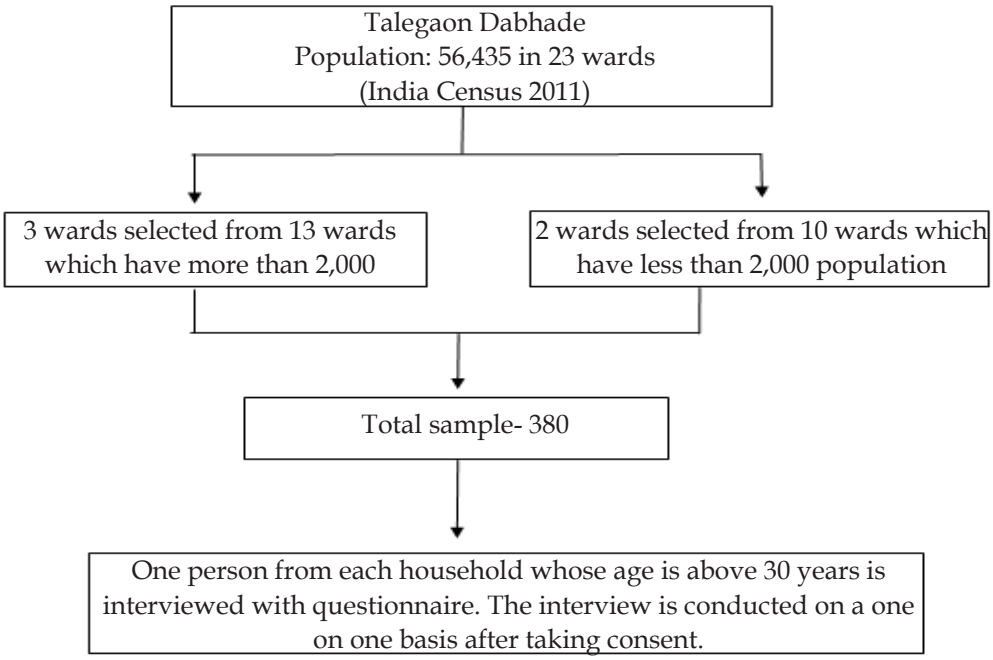

Figure 1: Flow chart depicting sampling and data collection in the study:[13]

Results

The present study was carried out in the Urban Field Practice Area of Medical College in Western Maharashtra to observe awareness of stroke, its risk factors, symptoms and treatment.

A total of 380 participants were included in the study. In the study, 182 (47.89%) were females and 198 (52.10%) were males.

Table 1: Distribution of Study Participants according to Age and Education

Age group	Study Participants (n=380) (%)
30-34	49 (12.89)
35-39	43 (11.32)
40-44	59 (15.53)
45-49	75 (19.74)
50-54	70 (18.42)
55-59	33 (8.68)
>60	51 (13.42)

Educational status	Study Participants (n =380) (%)
Primary	08 (2.11)
Secondary	68 (17.89)
Higher secondary/ diploma	30 (7.89)
graduate/ post graduate	274 (72.11)

Table 1 shows the age wise distribution of study participants. The maximum percentage of participants were from the age group of 45-49 years (19.74%) followed by 50-54 years (18.42%) and minimum were from 55-59 years (8.68%) among the participants. Mean age was observed 47.75 years among males and 47.74 years among females.

It was observed that 274 (72.11%) study subjects were educated up to graduation or post-graduation while higher secondary or diploma 30 (7.89%), secondary 68 (17.89%) and 8 (2.11%) up to primary education.

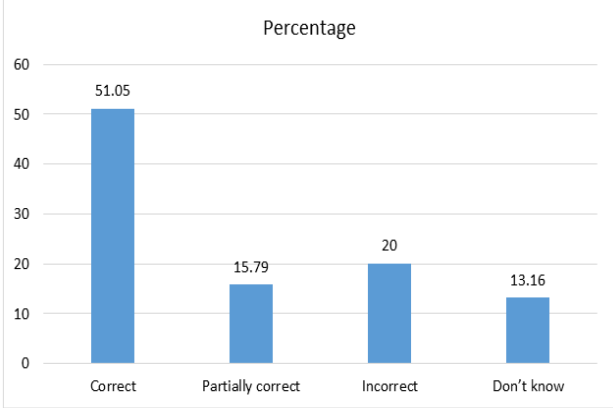

Figure 2: Awareness of stroke among study participants

It was found that 194 (51.05%) participants were aware about what is stroke while 60 (15.79%) were aware partially. 76(20%) participants answered incorrectly and 50 (13.16%) were not knowing about stroke.

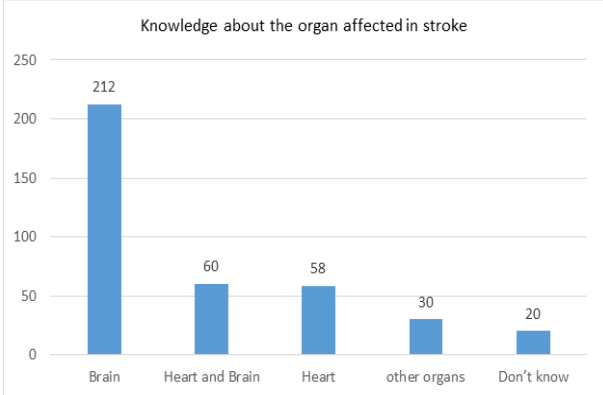

Figure 3: Knowledge about the organ affected in stroke among the participants

This figure shows the knowledge of organ affected in stroke among the participants. There were 212 (55.79%) participants who knew the brain is affected organ in stroke and 60 (15.79%) participants answered both heart and brain are affected in stroke. Among the participants, 58 (15.26%) told heart is affected organ and 30 (7.89%) told other organs which include liver, kidney, knee are affected in stroke, while 20 (5.26%) were now aware about the organ affected in stroke.

Table 2: Awareness of symptoms of stroke among the participants

Awareness of Symptoms of Stroke*	Frequency	Percentage
Loss of consciousness	193	50.79
Paralysis of one side	232	61.05
Headache	104	27.37
Loss of balance	170	44.74
Difficulty in speech	164	43.16
Loss of vision	83	21.84
Tingling sensation	112	29.47

* The numbers are mutually exclusive

Table 2 shows awareness of symptoms of stroke among the participants. Among awareness of symptoms of stroke, paralysis of one side 61.05% followed by loss of consciousness 50.79%, loss of balance 44.74%, difficulty in speech 43.16% tingling sensation 29.47% and loss of vision 21.84 percent.

Table 3: Awareness of risk factors for stroke

Risk factors for stroke*	Frequency	Percentage
Hypertension	298	78.42
Stress	260	68.42
Diabetes	137	36.05
Dyslipidemia/ high Cholesterol	122	32.10
Heredity	61	16.05
Obesity	107	28.16
Heart Disease	152	40
Lack of Exercise	141	37.10
Smoking	132	34.74
Tobacco	82	21.58
Black Magic	3	0.79
No idea	6	1.58

* The numbers are mutually exclusive

It was observed that maximum 298 (78.42%) participants were aware that hypertension is risk factor for stroke and minimum 61 (16%) answered as it is hereditary or familial. It was observed that, there was myth (black magic) regarding the risk factor for stroke. Knowledge of other risk factors includes, Stress (68.42%), heart disease 40%, lack of exercise (37.10%), Diabetes (36%), smoking 34.74%, Dyslipidemia 32%, obesity 28.16% and tobacco 21.58 percent.

Table 4: Awareness about the treatment of stroke

Treatment for stoke*	Frequency	Percentage
Don't know	107	28.16
Control BP	220	57.89
Oil Massage	41	10.79
Blood thinning	146	38.42
Aspirin	77	20.26
Surgery	67	17.63
Ayurvedic	74	19.47
Faith healing	9	2.36
Homeopathy	32	8.42

* The numbers are mutually exclusive

Out of total 380 participants, 57.89% were aware about control of Blood Pressure as treatment of stroke followed by blood thinning drugs 38.42% and aspirin 20.26 percent. 28.16% participants were not aware of treatment of stroke.

Table 5: Awareness about the first thing to do after stroke

First thing to do after stroke*	Frequency	Percentage (%)
Take to hospital	294	77.37
Call a doctor	66	17.37
Show to Reg. practitioner	56	14.74
Buy medicine from shop	2	0.53
Don't Know	64	16.84

* The numbers are mutually exclusive

Table 5 shows the awareness about the first thing to do after stroke among the study subjects. Around 77% study subjects were aware that it's an emergency so take the patient to the hospital.

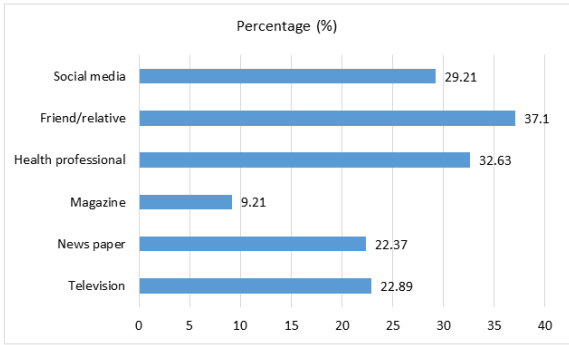

Figure 4: Source of information about stroke (the responses were mutually exclusive)

This figures hows about the source of information regarding stroke among participants. It was observed that 37.1% were from friends or relatives followed by health professionals 32.63%, social media 29.21 percent.

It was observed that older age group is more aware about stroke than the younger age group, this difference was not found to statistically significant ($p > 0.05$). Association between gender and awareness of stroke was not found to be significant ($p > 0.05$).

It was observed that awareness of stroke is associated with education of study participants. Chi Square value is 15.370 and the difference is found to be statistically significant ($p = 0.002$) while there was no significant association between age groups and awareness of stroke.

Discussion

The present study was carried out to observe the awareness among the population in urban area in western Maharashtra. Total 380 study subjects participated in the study. The Age- wise distribution was observed as 24.21% were less than 40 years, 62.37% were aged between 40 to 60 years and 13.42% were more than 60 years of age with mean age of population as 47.4 years. A study conducted by Pandian et al [10] has shown 54.6% were less than 40 years, 39.7% aged between 40 to 60 years and 5.7% were more than 60 years with mean age was 40.1 years.

In the present study, there were 52.1% were males and 47.89% were females. It was found that 194 (51.05%) participants were aware about what is stroke while 50 (13.16%) were not knowing about stroke. There is lack of awareness about stroke among the public even in developed countries like the United States[14] and Australia[15].

There were 212 (55.79%) participants who knew the brain is affected organ in stroke and 58 (15.26%) told heart is affected organ and 30 (7.89%) told other organs which include liver, kidney, knee are affected in stroke, while 20 (5.26%) were now aware about the organ affected in stroke. This finding is similar to study carried in Northwest India[10]. Study conducted by Sirisha et al[16] showed that 47% participants were aware that brain is the organ affected in stroke.

Among awareness of symptoms of stroke, paralysis of one side 61.05% followed by loss of consciousness 50.79%, loss of balance 44.74%, difficulty in speech 43.16% tingling sensation 29.47% and loss of vision 21.84 percent. The results were similar to the study conducted by Das S, et al[12]. Kurmi et al[17] and Deepthi et al[18] study findings about weakness on one side was observed to be 64%and 54% respectively.

In this study, 78.42% participants were aware that hypertension is risk factor for stroke and knowledge of other risk factors includes, Stress (68.42%), heart disease 40%, lack of exercise (37.10%), Diabetes (36%), smoking 34.74%, Dyslipidemia 32%, obesity 28.16% and tobacco 21.58 percent and heredity sixteen percent.

The findings of study carried by Pandian et al [10]showed awareness of risk factors, hypertension 45.1%, stress 40.9%, diabetes 10.7%, and high cholesterol 6.7percent.

Hypertension is the most important risk factor for stroke followed by diabetes, heart disease, dyslipidemia was observed by the studies conducted by Sirisha et al[16] and Deepthi et al[18].

In the present study, source of information about stroke, was observed that 37.1% was from friends or relatives followed by health professionals 32.63%, social media 29.21 percent the findings were similar to the study conducted by Pandian et al[10] except from health professional as source of information which was observed to be 3.6 percent.

The association between age, groups, gender and education with awareness of stroke was studied among these, educational status of participants was found to be significant with awareness of stroke.

Conclusion

In the present study it was revealed that the participants had inadequate awareness about stroke, affected organ, symptoms of stroke, and risk factors for stroke. Lack of knowledge about the disease may become an obstacle in preventive measures as stroke is one of the most common cause of morbidity and mortality worldwide leading to disabilities and long-term care. Hence, it is suggested to create awareness among community by health care professionals.

Ethical Clearance: Institutional Ethics Committee (Biomedical & Health Research)

Maharashtra institute of Medical Education & Research, Talegaon Dabhade

IEC/MIMER/2020/675 dated 7th March 2020

Conflict of interest: Nil

Source of funding: This was ICMR - STS project

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