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Original Research Article

Leveraging social media for stroke awareness: a cross-sectional study in a tertiary care hospital in Uttar Pradesh, India

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ABSTRACT

Background: Stroke is a leading cause of mortality and disability globally, with a high incidence in India, particularly among younger populations. Awareness of stroke symptoms and risk factors is crucial for timely intervention and improved health outcomes.
Methods: A cross-sectional observational study was conducted involving total number of participants 250 only kindly change 300 to 250 who were relatives of patients attending an outpatient clinic in a tertiary care hospital. A structured questionnaire with 23 questions assessed participants' knowledge of stroke symptoms, risk factors, and social media usage related to stroke awareness.
Results: The study found that only 48% of participants could identify all warning signs of stroke, and just 30% knew to call an ambulance immediately upon suspicion of a stroke. Although 90% of participants were active on social media, only 10% had encountered stroke-related information online. Instagram was the most frequently used platform, yet 93% reported no exposure to relevant educational content. Notably, 55% believed social media could effectively raise awareness about stroke symptoms and responses.
Conclusions: The findings highlight significant gaps in stroke awareness among participants, emphasizing the underutilization of social media in disseminating critical health information. Targeted social media campaigns could enhance public knowledge and improve response times during stroke incidents, potentially reducing the burden of stroke-related disabilities.

Keywords: Assessment awareness, Social media, Stroke

INTRODUCTION

Stroke is a major neurological, non-communicable disease and the third most common cause of mortality, as well as a significant cause of adult disability worldwide. In India, the incidence of stroke is approximately 1.5 persons per 1000 population, and it ranks third for mortality due to stroke. Notably, 12% of all strokes occur in individuals younger than 40 years of age.[1,2] The resulting disability from stroke includes compromised functional abilities, cognitive impairment, mood changes, and reduced efficiency at work. Stroke not only affects the patients but also imposes significant physical and mental stress on nearly 70% of caregivers.[2] Therefore, stroke is a disease of immense public health importance with profound economic and social consequences.

Given the rising trend of social media use, its role in stroke awareness is becoming increasingly important. As of 2021, approximately 4.2 billion people globally were active social media users, representing over 53% of the world's population.[3] Social media platforms, with their wide reach and interactive nature, have the potential to be powerful tools for educating the public about stroke

symptoms, risk factors, and the importance of timely medical intervention. By leveraging social media, public health campaigns can enhance stroke awareness, potentially reducing the incidence and severity of stroke-related disabilities.

Aim/objective

This study aimed to assess the awareness of stroke among relatives of patients attending an outpatient department at tertiary care hospital patients and explore the potential of social media as a tool for enhancing public knowledge about stroke.

METHODS

In this cross-sectional observational study, awareness and response to stroke were assessed through a questionnaire administered to participants who visited an outpatient clinic and were waiting in the OPD waiting area and gave consent to participate in the research in December 2023 to October 2024. The participants were relatives of patients attending the outpatient department of a tertiary care hospital. Trained junior residents and nurses interviewed participants using a structured, pretested, open-ended questionnaire.

Twenty-three multiple-choice questions were formulated to assess the participants' awareness. For correct answers, 2 marks were given, and 0 marks were given for incorrect answers. 6 questions were open statements for which yes or no, agree or disagree as answers were recorded.

Questionnaire

The survey questionnaire, adapted from previous studies, consisted of 23 questions. Section A gathered demographic information, categorizing education levels into illiterate, 10th to 12th standard, and college level (undergraduate to postgraduate).

Employment status was categorized as employed or unemployed. Section B covered awareness of stroke warning symptoms, risk factors, treatment, the "golden hour", and whether the participants had any of the listed risk factors for stroke as well as on social media use. All questions were open-ended with options for multiple responses. The questionnaire was pretested using a sample of 25 participants.

Inclusion criteria

Patients' relatives waiting in the OPD waiting area and after informed consent participated in the taking up the questionnaire.

Exclusion criteria

Patients' relatives waiting in the OPD waiting area and after informed consent denied participation in the study.

Statistical analysis

The data was entered in a spread sheet and analysed on a Microsoft excel descriptive statistics- frequency counts and percentages used.

RESULTS

Among the 250 participants who voluntarily opted to participate after taking informed consent, 78% chose English as their preferred language for answering the questionnaire. The education level of participants included 47% undergraduates and 26% postgraduates. Employment status showed that 52% were employed. Regarding physical activity, 81% self-reported as active. Current health status was reported as good by 58%, fair by 25%, and affected by some disease by 13%.

Table 1: Social demographics of participants.

Parameters		Number
Sex	Males	228
	Females	22
Preferred language	English	228
	Hindi	22
Education level	UG	117
	PG	65
Employment status	Employed	130
	Unemployed or pursuing some course	120
Physical activity level	Active	202
	Sedentary lifestyle	19
Current health status	Good	145
	Fair	62
	Affected	32

Of the 23 questions assessing awareness and response to stroke, 73% of participants correctly identified stroke, while 21% answered that it was caused by a blocked blood vessel in the brain only. 69% of participants did not suffer from or know someone who suffered from a stroke previously. 14% mistakenly chose the heart as the affected organ in stroke, and 25% chose heart attack as another name for stroke. Only 48% were aware of all the mentioned signs and symptoms of stroke, 54% were unaware of ischemic stroke, and 48% were aware of the golden hour.

Regarding treatment awareness, 51% of participants knew about stroke treatment, and 70% could identify all the mentioned risk factors, while the least chosen risk factor was excessive intake of alcohol (12%). 65% of participants heard about the medical term thrombolysis from doctors only, and 51% were aware of all the mentioned consequences of stroke. Notably, 81% had never heard about the acronym FAST for action in case of a suspected stroke, only 30% chose to call an ambulance and seek immediate medical help, whereas 38% chose to wait for symptoms to subside and alcohol consumption as

the least chosen risk factor for stroke among study participants.

Table 2: Questionnaire assessing stroke awareness.

Questions	Correct answers	Incorrect answers
What is stroke?	182 correctly answered	68 chose blocked blood vessel in the brain only
Did you suffer or know someone who suffered stroke?	172 answered No	78 participants didn't suffer or knew someone who suffered stroke
Have you ever heard about stroke?	182 answered Yes	68 weren't aware
Stroke Affects which organ?	212 correctly answered	38 chose heart
What is another name of stroke?	185 correctly answered	65 chose Heart attack
What are warning signs/symptoms of stroke?	120 answered correctly	130 weren't aware of the all the warning signs
An ischemic stroke occurs when a blood clot blocks a vessel to the brain?	112 answered correctly	138 were not aware what is ischemic stroke
If a person has an ischemic stroke, how quickly should the person be treated to minimize long problems?	105 answered correctly	145 incorrect answers
Which type of medicine is given to help prevent a stroke?	175 answered correctly	75
Risk factors?	175 answered correctly	75 (least chosen option is excessive intake of alcohol
Have you heard about thrombolysis in stroke patient?	162 heard about thrombolysis by the doctor, 62 through friends and relatives 25through social media	-
Strokes rarely occur in people under 65?	127	79
More women die from stroke than men?	98 answered correctly	151 answered that its false
Consequences of stroke?	143 answered correctly	107
Have you heard acronym F.A.S.T?	95 answered yes	152 have never heard of
Action in case of a suspected stroke?	75 only chose to call ambulance right away	
Do you use social media platforms? If yes mention the most used social media platform by you	100% yes Instagram is the most used social media platform by 145 participants, 80 used Facebook, 100% participants used WhatsApp	
What is frequency of going on the preferred social media platform in a day?	2 hours daily chosen by 163 participants	
Have you ever come across any stroke awareness information education material (IEC)? Kindly mention	232 participants chose cancer and skin products 18 participants said yes and mentioned world stroke day	
Do you think social media can play an important role in making you aware of the stroke symptoms, dos and don'ts	112 participants chose maybe 138 chose yes	
How willing are you to follow those instructions by an authentic platform	193 participants chose only by authentic medical bodies	
Awareness video regarding stroke may be displayed in cinema halls like tobacco cessation/cancer awareness. Do you agree with the statement?	212 agreed	

Warning symptoms of stroke

The most common warning symptom described by participants was paralysis of one side of the body. Other symptoms identified by 60% of participants included headache, loss of consciousness, sudden onset of weakness on one side of the body, loss of balance, difficulty in speech, and loss of vision. 12% chose sudden onset of weakness on one side of the body only, and 28% did not know a single warning symptom of stroke.

Risk factors of stroke

The identified risk factors included hypertension (70%), stress (63%), diabetes (70%), heredity (48%), obesity (70%), heart disease (70%), lack of exercise (19%), smoking (75%), old age (80%), and excessive intake of alcohol (12%). Only 70% of participants could name three or more risk factors, and higher education was significantly associated with knowing more than four risk factors.

Knowledge of thrombolysis and treatment of stroke

65% of participants heard about thrombolysis from doctors, 25% through friends and relatives, and 10% through social media.

Action in case of a suspected Stroke: 30% of participants chose to call an ambulance and seek immediate medical help, 38% chose to wait for symptoms to subside, 17% would contact a doctor, and 15% would contact relatives or friends first.

Social media usage and stroke related information education communication (IEC) availability

In our study 250 participants were active on social media and Instagram was the most preferred platform by the participants, 93 participants didn't come across any IEC related to stroke awareness.

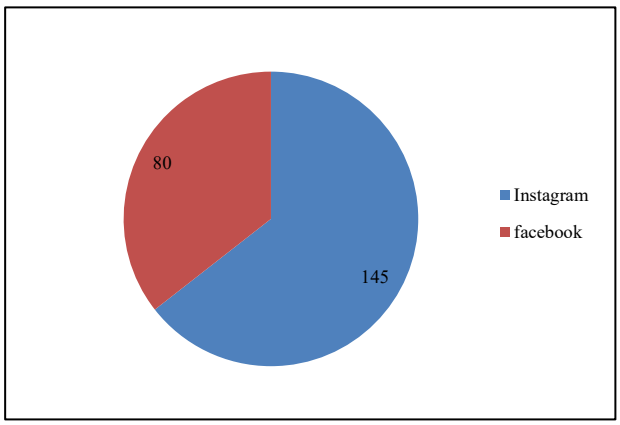

Figure 1: Social media preferred applications by study participants.

Figure 2 depicts that 93 participants came across cancer and skin products awareness regularly on social media platforms and only 7 participants recalled stroke awareness through social media platforms.

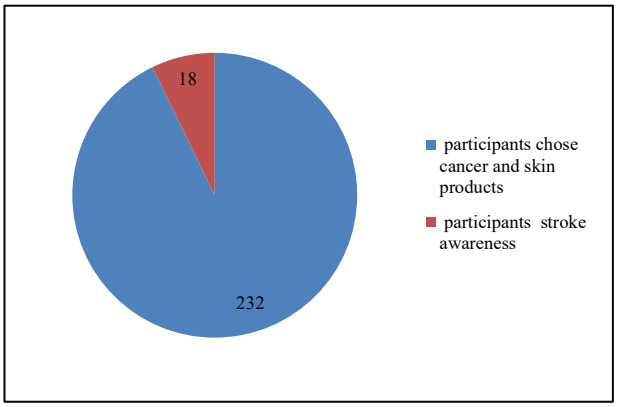

Figure 2: Social media awareness among participants.

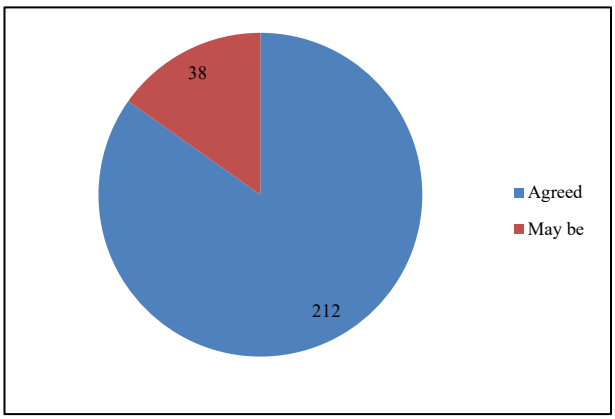

Figure 3: Should awareness video regarding stroke be displayed in cinema halls like tobacco cessation/cancer awareness.

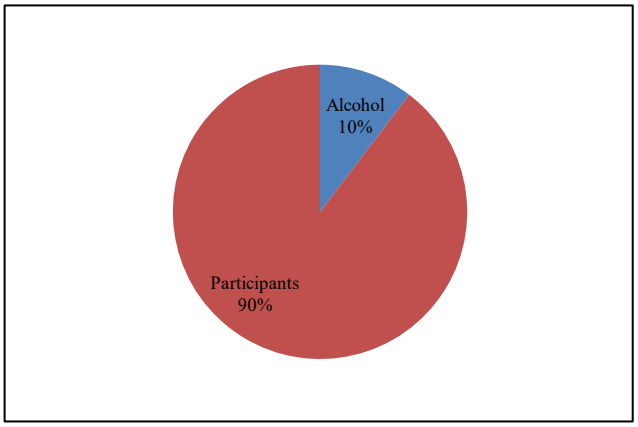

Figure 4: Alcohol consumption as the risk factor.

Pie graph depicts alcohol consumption as the least chosen risk factor for stroke among study participants.

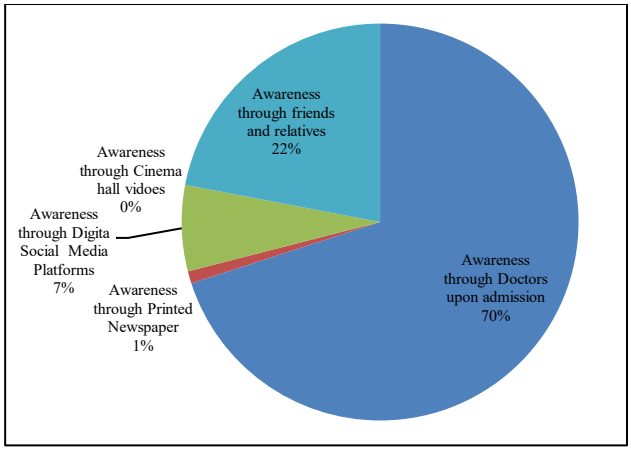

Figure 5: All mediums through which participants got awareness of stroke.

DISCUSSION

In a study by Sirisha et al 56.9% of participants were aware of what a stroke is. Among those, most could not name more than four risk factors and three warning signs. Importantly, only 14.6% of those aware of stroke knew the appropriate response in case of a stroke.[2] Our study found similar results, with most participants unable to select more than five correct risk factors and three warning signs.

Hypertension was the most commonly identified risk factor, consistent with Das et al hospital-based studies.[3] However, only 12 out of 100 participants recognized excessive alcohol intake as a risk factor, highlighting the need for increased awareness about the relationship between alcohol consumption and stroke. The FAST (face, arms, speech, time) acronym, a crucial tool for recognizing stroke warning signs, was known by only 19 participants.

A study by Das et al in India found that awareness of stroke warning symptoms among the general population is far from satisfactory. This lack of awareness leads to delays in receiving medical advice and hospitalization, hindering timely treatment. While unilateral motor and sensory impairments were recognized, other symptoms such as headache, dizziness, difficulty speaking, and altered sensorium were less commonly identified. Only 55% of the urban population were aware of 1 warning symptom of stroke; 16.2% were aware of 2 symptoms; and only 6.2% could identify 3 symptoms.[3]

Our study suggests that measures must be taken to spread stroke awareness to minimize stroke-related deaths. Cabrera-Maqueda et al emphasized that stroke is a leading cause of death and disability globally, and new paradigms are needed to optimize stroke-related healthcare. The characteristics of omnipresence and high popularity, along with an interactive format, make social media platforms potentially powerful tools for awareness.[4]

A study by Garg et al concluded that there is limited preliminary data of low quality indicating that social media is used by persons with stroke and their caregivers. Social media could be harnessed for education and research, but future studies must address the current lack of high-quality evidence for its use in stroke care engagement, education, and recruitment of stroke patients and healthcare professionals.[5]

In our study, only 10% of participants became aware of stroke through social media, despite 90% being registered on social media platforms. This suggested that social media could play a crucial role in spreading awareness through information, communication, and educational materials. Currently, 65% of participants heard about stroke treatment and thrombolysis at medical facilities.

Sousa et al suggest that several stroke and health organizations actively engage in social media, especially during "world stroke day" campaigns.[6] The impact of such activities has not been studied extensively and represents an interesting area for future research. Additionally, future research could explore how rehabilitation-based content on social media improves long-term outcomes for stroke patients. Social media platforms have also been used to enhance the citation scores of academic journals, with some evidence suggesting that tweeted stroke articles may improve citation rates. This area deserves further exploration.[7]

Our observations during the study suggest that spreading awareness through short videos displayed in theatre halls, public places, and health programs could reach a larger population. Incorporating stroke awareness into these venues and using social media as an educational tool could significantly enhance public knowledge and reduce stroke-related deaths similarly in a study by Pandian suggested that efforts should be made to educate the public about modern concepts of stroke treatment, so that people make more rational and beneficial health care decisions.[8]

The study's limitations include a small sample size and the focus on relatives of stroke patients, which may not represent the broader population. Further research is needed to evaluate the effectiveness of social media interventions in diverse communities.

CONCLUSION

The findings highlight significant gaps in stroke awareness among participants, emphasizing the underutilization of social media in disseminating critical health information. The study also reflects that there is hesitance in people admitting alcohol consumption and its correlation to stroke attack. The FAST acronym and rushing the affected to the hospital in golden hour that is

widely now used as education/awareness to provide timely treatment to patients remains not known to the participants of the study whereas skin products and cancer awareness was much higher than these two of the study parameters. Targeted social media campaigns could enhance public knowledge and improve response times during stroke incidents, potentially reducing the burden of stroke-related disabilities.

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