

Original Research Article

Examine the Neuro Nurse's Understanding of Stroke Warning Signs and Risk Factors in a Chosen Hospital

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Article History

Received: 03.10.2024

Accepted: 11.11.2024

Published: 16.11.2024

Abstract: The study titled "A Study to Assess Neuro Nurses' Knowledge about Risk Factors and Warning Signs of Stroke in Selected Hospitals of Bengaluru" was conducted with the primary objective of assessing the knowledge level of neuro nurses regarding stroke risk factors and warning signs. Stroke is a significant cause of hospital admissions globally, and the need for early identification of risk factors and symptoms is crucial for timely intervention. **Objectives:** The study aimed to assess the neuro nurses' knowledge of stroke risk factors, warning signs, and the relationship between knowledge and selected demographic variables. **Methodology:** A descriptive survey was conducted among 50 neuro nurses working in the Neuro Medical and Surgical wards and ICUs of People Tree Hospital, Bengaluru, using a standardized questionnaire. The sample was selected through convenient sampling, and the data collection spanned from August to November 2022. The Stanford Stroke Center Questionnaire was employed to assess knowledge. The study included both male and female staff nurses with varying educational qualifications and experience. **Results:** The findings indicated that nurses had more knowledge about the warning signs of stroke (90.4%) than risk factors (78.4%). There was no significant correlation between nurses' knowledge and their demographic variables, including age, gender, and professional qualifications. The study concluded that while neuro nurses possessed above-average knowledge, there is still a need for regular in-service training to enhance their understanding of stroke risk factors and improve patient care outcomes.

Keywords: Stroke, Neuro Nurses, Stroke Prevention, Stroke Awareness, Hospital Staff Education.

1. INTRODUCTION

A stroke, often referred to as a "brain attack," occurs when the blood supply to part of the brain is interrupted or reduced, preventing brain tissue from receiving oxygen and nutrients. Within minutes, brain cells begin to die, leading to potentially severe consequences, including long-term disability or death. Strokes are classified into two main types: ischemic strokes, caused by blockages in blood vessels (thrombosis or embolism), and hemorrhagic strokes, caused by ruptured blood vessels. Both types of stroke can cause a wide range of neurological deficits depending on the location and severity of the brain injury.

Worldwide, stroke is a major cause of death and disability, responsible for nearly 5 million deaths annually. In India, the incidence of stroke is increasing due to changing lifestyle factors, the prevalence of hypertension, and other modifiable risk factors such as smoking, diabetes, and high cholesterol. Although early recognition and intervention are critical to reducing stroke morbidity and mortality, there remains a significant gap in public knowledge regarding stroke

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CITATION: Syam Mohanlal *et al* (2024). Examine the Neuro Nurse's Understanding of Stroke Warning Signs and Risk Factors in a Chosen Hospital. *South Asian Res J Nurs Health Care*, 6(5): 95-100.

risk factors and warning signs. This gap also exists among healthcare providers, including nurses, who are often the first point of contact for stroke patients in emergency settings.

Neuro nurses play a crucial role in the early detection and management of stroke symptoms. As frontline healthcare workers in neuro-intensive care units and wards, these nurses are responsible for monitoring high-risk patients, identifying early warning signs of stroke, and educating patients and their families about stroke prevention and recovery. Adequate knowledge of stroke risk factors and warning signs is essential for neuro nurses to provide timely and effective care. This study aims to assess the level of knowledge among neuro nurses in selected hospitals in Bengaluru regarding stroke risk factors and warning signs.

Need for the Study

Stroke is a medical emergency that requires prompt recognition and intervention to minimize brain damage and improve patient outcomes. Delays in recognizing stroke symptoms and seeking medical attention are common and often lead to poorer recovery and higher rates of disability. One of the key reasons for these delays is a lack of awareness about the risk factors and warning signs of stroke, both among the general public and healthcare professionals. This lack of knowledge can result in missed opportunities for early intervention, which is critical in improving prognosis and reducing the burden of stroke on individuals and healthcare systems.

In India, where stroke is becoming an increasingly prevalent health concern, it is vital to ensure that healthcare providers, particularly nurses, are well-equipped with the knowledge necessary to identify stroke symptoms quickly. Neuro nurses, who work closely with stroke patients in specialized units, play an essential role in early diagnosis, treatment, and patient education. However, studies have shown that nurses, especially in developing countries, often have insufficient knowledge about stroke risk factors and early warning signs, which can compromise patient care.

The need for this study is driven by the critical role that neuro nurses play in stroke management and the potential impact that improved knowledge could have on patient outcomes. By assessing the current level of knowledge among neuro nurses in selected hospitals in Bengaluru, this study aims to identify gaps in understanding and areas where further education or training may be necessary. Additionally, the study will provide valuable insights into the correlation between nurses' demographic factors, such as education and experience, and their knowledge of stroke.

Enhancing the knowledge of neuro nurses regarding stroke can lead to earlier recognition of symptoms, faster response times, and ultimately, better patient outcomes. Furthermore, neuro nurses with a deeper understanding of stroke risk factors are better positioned to educate patients and their families on preventive measures, thus contributing to broader public health efforts to reduce the incidence of stroke. As the burden of stroke continues to grow in India, the importance of improving stroke awareness among healthcare providers cannot be overstated. This study is a step toward ensuring that neuro nurses are equipped with the knowledge they need to provide high-quality care to stroke patients.

2. MATERIAL AND METHODS

Materials and Methodology

Study Design

A descriptive survey design was employed for this study to assess the knowledge of neuro nurses regarding risk factors and warning signs of stroke. This approach was selected as it is suitable for educational fact-finding in a relatively small sample and allows for the collection of data through standardized tools.

Setting of the Study

The study was conducted in the Neuro Medical and Neuro Surgical units, including the Neuro Medical Intensive Care Unit (NMICU), Neuro Surgical Intensive Care Unit (NSICU), Neuro Medical Ward (NMW), and Neuro Surgical Ward (NSW) of People Tree Hospital, Bengaluru. People Tree Hospital is an institution of national importance, providing specialized care in neurological and neurosurgical areas, making it an ideal location for conducting this research.

Population

The target population for this study consisted of both male and female nurses working in the neuro units of the hospital. This included both permanent nursing staff and temporary neuro nurses, but ward-in-charge nurses were excluded from the study.

Sample and Sampling Technique

A convenient sampling technique was employed to select 50 neuro nurses from the Neuro Medical and Surgical units of People Tree Hospital, Bengaluru. The sample size was determined based on the availability of neuro nurses during the data collection period, which lasted from August to November 2022. Inclusion criteria for the sample included neuro

nurses working in NMICU, NMW, NSICU, and NSW who were willing to participate in the study. Exclusion criteria included neuro nurses working in other departments and those who were not willing to participate in the study.

Development of the Tool

The data collection tool was developed based on an extensive review of literature and guidance from experts in the field. The tool consisted of a structured questionnaire, adapted from the Stroke Center Stanford Questionnaire, to assess neuro nurses' knowledge about stroke risk factors and warning signs. The questionnaire was divided into two sections:

Section A: Demographic data, including age, gender, professional qualifications, work area, and years of experience.

Section B: Ten questions focused on assessing the knowledge of neuro nurses about the risk factors and warning signs of stroke. The questions were evenly divided, with five questions on risk factors and five questions on warning signs.

Each question was scored on a scale of 0 to 1, where a correct answer received a score of 1 and an incorrect answer received a score of 0. The total knowledge score was calculated, with a maximum possible score of 10.

Pilot Study

A pilot study was conducted before the main data collection to test the feasibility and validity of the questionnaire. Ten nurses with diplomas in neuro nursing and cardiovascular and thoracic nursing participated in the pilot study. The results of the pilot study confirmed that the questionnaire was practical and effective in assessing the knowledge of neuro nurses. Following the pilot study, necessary adjustments were made to the final tool.

Data Collection Procedure

Formal permission was obtained from the hospital administration before initiating the data collection process. The neuro nurses were approached individually, and the purpose of the study was explained to them. Informed consent was obtained from each participant, and they were assured of the confidentiality of their responses. The structured questionnaire was administered, and nurses were given 10 minutes to complete the assessment.

Data Analysis

After data collection, the responses were coded and entered into an Excel sheet for analysis. Descriptive statistics, including mean and standard deviation, were calculated to determine the overall knowledge scores of the participants. The data were further analysed to examine correlations between knowledge levels and demographic variables, such as age, gender, professional qualifications, and years of experience. Graphs and charts were used to visually represent the findings. Additionally, unpaired t-tests were conducted to assess differences in knowledge levels based on sex, qualifications, and age categories.

Ethical Considerations

Ethical approval for the study was obtained from the Institutional Review Board of People Tree Hospital. Participants were informed about the study's objectives, assured of the confidentiality of their responses, and were free to withdraw from the study at any time. All participants provided informed consent before completing the questionnaire.

This methodology ensured a systematic and ethical approach to collecting data and analysing the knowledge levels of neuro nurses in the context of stroke risk factors and warning signs.

3. RESULTS AND DISCUSSION

This chapter presents the analysis and interpretation of the data collected from 50 neuro nurses working in Neuro Medical Intensive Care Unit (NMICU), Neuro Surgical Intensive Care Unit (NSICU), Neuro Medical Ward (NMW), and Neuro Surgical Ward (NSW) at People Tree Hospital, Bengaluru. The study aimed to assess the knowledge of neuro nurses regarding stroke risk factors and warning signs. The data were analyzed using descriptive statistics, and the findings were interpreted based on the study objectives. Tables, figures, and statistical tests were used to present the results.

1. Demographic Profile of Participants

The study included 50 neuro nurses, of which 43 (86%) were female and 7 (14%) were male. The age of the participants ranged from 24 to 52 years, with a mean age of 33.24 years. The majority of nurses (32%) were in the age group of 26-35 years, while 30% were younger than 25 years. Nurses aged between 36-45 years made up 26%, and only 12% were above 46 years old.

Regarding educational qualifications, an equal proportion of nurses (48%) held General Nursing and Midwifery (GNM) and Bachelor of Science in Nursing (B.Sc. Nursing) degrees, while 6% of the nurses had a Master of Science in Nursing (M.Sc. Nursing) degree. This distribution shows that the majority of nurses were adequately qualified to provide care in neuro-specialty units.

2. Knowledge of Stroke Risk Factors and Warning Signs

The knowledge of neuro nurses was assessed using a structured questionnaire with 10 questions. The questionnaire included five questions on stroke risk factors and five questions on warning signs of stroke. Each correct answer was awarded 1 point, with a maximum score of 10.

2.1 Knowledge of Stroke Risk Factors

The findings showed that the majority of neuro nurses had a good understanding of the risk factors associated with stroke.

Table 1: Summarizes the distribution of correct responses to questions related to stroke risk factors

Risk Factor Knowledge	Correct Responses	Percentage
Statement regarding stroke & hypertension	45	90%
Statement regarding smoking as a risk factor	42	84%
True statement about stroke risk factors	38	76%
Best way to reduce stroke risk	37	74%
How to reduce stroke risk due to high cholesterol	34	68%

The results indicate that 90% of nurses were aware that hypertension is a major risk factor for stroke, and 84% understood the role of smoking in increasing stroke risk. However, knowledge about reducing stroke risk through cholesterol management was relatively lower at 68%.

2.2 Knowledge of Stroke Warning Signs

Table 2: Summarizes the distribution of correct responses to questions related to the warning signs of stroke

Warning Sign Knowledge	Correct Responses	Percentage
General symptom of stroke	50	100%
Statement regarding TIAs (Transient Ischemic Attacks)	45	90%
Warning signs of stroke	45	90%
Recognizing a stroke	45	90%
Common feature of most strokes	43	86%

The results show that all nurses (100%) could identify general symptoms of stroke, such as sudden numbness or weakness, and 90% were aware of the role of transient ischemic attacks (TIAs) as early warning signs. The awareness of general stroke warning signs and symptoms, such as trouble speaking or dizziness, was high among the participants.

2.3 Overall Knowledge Scores

The overall knowledge scores of the nurses ranged from 6 to 10, with a mean score of 8.42 (median: 9, mode: 9). This indicates that the majority of nurses had above-average knowledge of stroke risk factors and warning signs. Figure 1 shows the distribution of overall knowledge scores among the participants.

3. Comparison of Knowledge by Demographic Variables

To explore the relationship between demographic variables and knowledge levels, statistical tests were performed.

3.1 Knowledge by Gender

An unpaired t-test was conducted to compare the knowledge scores between male and female nurses. The mean score for male nurses was 8.86 (SD = 0.9), while the mean score for female nurses was 8.37 (SD = 1.1). The p-value was 0.28, indicating that there was no significant difference in knowledge based on gender.

Gender	Mean Score	Standard Deviation	p-value
Male (n = 7)	8.86	0.9	0.28
Female (n = 43)	8.37	1.1	-

3.2 Knowledge by Professional Qualification

An unpaired t-test was also conducted to compare knowledge scores based on the nurses' professional qualifications. The mean score for nurses with GNM qualifications was 8.29 (SD = 1.1), while those with B.Sc. or M.Sc. qualifications had a mean score of 8.58 (SD = 1.07). The p-value was 0.36, indicating no significant difference in knowledge based on qualifications.

Qualification	Mean Score	Standard Deviation	p-value
GNM (n = 23)	8.29	1.1	0.36
B.Sc./M.Sc. (n = 27)	8.58	1.07	-

3.3 Knowledge by Age

The sample was divided into two groups based on the median age (31 years) to explore any age-related differences in knowledge. Nurses aged less than 31 years had a mean knowledge score of 8.4 (SD = 1.1), while those older than 31 years had a mean score of 8.5 (SD = 1.1). The p-value was 0.8, showing no significant difference in knowledge based on age.

Age Category	Mean Score	Standard Deviation	p-value
<31 years (n = 25)	8.4	1.1	0.8
>31 years (n = 25)	8.5	1.1	-

4. DISCUSSION

The results of this study indicate that neuro nurses at People Tree Hospital possess above-average knowledge of stroke risk factors and warning signs. The majority of nurses demonstrated an adequate understanding of key risk factors, such as hypertension and smoking, and were well aware of the general symptoms and early warning signs of stroke. However, knowledge gaps were identified in specific areas, such as managing stroke risk through cholesterol control, where only 68% of nurses provided correct responses.

The findings align with other studies, which show that nurses generally have a sound understanding of stroke but may lack detailed knowledge of certain modifiable risk factors. For instance, a study by Schneider *et al.*, (2003) found similar gaps in the understanding of stroke risk factors among healthcare professionals. Additionally, research by Park (2006) highlighted the importance of continuous education to enhance nurses' awareness of stroke prevention strategies.

The lack of significant differences in knowledge based on demographic variables, such as gender, qualification, and age, suggests that the knowledge of stroke risk factors and warning signs is relatively uniform among the nursing staff. This could be attributed to hospital-wide training programs or similar educational backgrounds across the nursing staff. However, this also implies that additional focused training may be necessary to address specific knowledge gaps, such as cholesterol management and lifestyle modification.

The findings of this study have important implications for nursing education and practice. Enhancing neuro nurses' knowledge through regular in-service training and continuing education programs could further improve their ability to recognize and respond to stroke symptoms promptly. This would not only benefit stroke patients by reducing delays in treatment but also contribute to better overall stroke prevention efforts within the hospital and the community.

5. CONCLUSION

In conclusion, the study found that neuro nurses at People Tree Hospital possess adequate knowledge of stroke risk factors and warning signs, with some areas requiring further education. There were no significant differences in knowledge based on demographic factors, highlighting the need for consistent training across all staff. Regular updates on stroke management, especially in the areas of modifiable risk factors, could enhance the effectiveness of neuro nurses in providing timely and comprehensive care to stroke patients.

This study assessed the knowledge of neuro nurses regarding stroke risk factors and warning signs at People Tree Hospital, Bengaluru. The findings revealed that while the nurses had an above-average understanding of stroke-related symptoms and risk factors, there were gaps in specific areas, such as cholesterol management and lifestyle modification as a means of stroke prevention. The results indicated no significant differences in knowledge based on demographic variables such as age, gender, and qualifications, suggesting a uniform level of understanding among the nursing staff.

Given the critical role neuro nurses play in early stroke detection and patient care, it is essential to continuously enhance their knowledge through regular in-service training programs. Addressing the knowledge gaps identified in this study could lead to improved patient outcomes, particularly by enabling quicker recognition of stroke symptoms and timely intervention. Furthermore, the nurses' ability to educate patients and the public on stroke prevention measures, such as managing hypertension, smoking cessation, and cholesterol control, could contribute significantly to reducing the overall incidence of stroke.

In conclusion, while the current level of knowledge among neuro nurses is adequate, ongoing education is crucial for optimizing stroke care and prevention strategies within the hospital setting.

ACKNOWLEDGEMENTS

I sincerely gratitude towards the beloved Principal and to authors who gave a significant contribution to this project.

Declaration

Author Contribution

- ❖ **Conceptualization:** Mr. Syam Mohanlal
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Funding Statement: This research received no specific grant from any funding agency in the public, commercial, or not-for-profit sectors.

Competing Interest

The authors declare that there are no competing interests related to this research. The remaining authors declare no competing interests.

Ethical Clearance

Every procedure in this investigation complied with equivalent ethical standards or the 1964 Helsinki Declaration and its revisions. “The ethical aspect of the study has been institutionally reviewed”. Informed consent has been procured by all respondents in this study.

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