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Original Research Article

Awareness of hemiplegic shoulder in hospital nurses: a cross-sectional study

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ABSTRACT

Background: The hemiplegic shoulder, characterized by pain, weakness, and limited range of motion, is a common complication affecting individuals who have experienced hemiplegia due to stroke or other neurological conditions. It significantly impacts the quality of life of patients and hampers their rehabilitation progress. In the context of healthcare, nurses play a pivotal role in the holistic care of patients with hemiplegia. Their knowledge, assessment skills, and interventions contribute to the prevention and management of hemiplegic shoulder, thereby aiding in the overall recovery of patients, awareness of this condition is crucial because early identification and timely interventions can prevent its progression and associated complications. Furthermore, comprehensive knowledge of hemiplegic shoulder management can contribute to patient comfort, better rehabilitation outcomes, and improved patient satisfaction.
Methods: A self-made questionnaire was validated and circulated via Google Forms to hospital nurses of all age groups. 60 participants who fit the inclusion criteria and gave consent to participate in the study were selected. Their responses were recorded, data analysis was done and results were obtained.
Results: 60 responses were recorded via Google Forms. The average age of the population was 32 years. Out of the entire population, only 30.77% of the entire population were aware of the hemiplegic shoulder condition.
Conclusions: According to this study there is a lack of awareness about the hemiplegic shoulder in the population of nurses in India, they need to be made more aware of the safe practices of handling stroke patients.

Keywords: Hemiplegic shoulder, Hospital nurses, Stroke

INTRODUCTION

A stroke is an unforeseen, focal neurologic deficiency that lasts for less than 24 hours, is presumed to be of vascular origin, and is confined to an area of the brain or eye perfused by a specific pathway.[1] The accretive prevalence of stroke ranged from 105 to persons per time, and the crude frequency of stroke ranged from 44.29 to persons in different corridors of the country during the decade.[2] The immediate clinical consequences of stroke are complicated by a variety of musculoskeletal difficulties.[3] Painful hemiplegic shoulder (PHS) secondary to stroke is a common clinical reality; depending on the study cited, prevalence rates range from 34 to 84. Onset may in some cases be beforehand, meaning within the first 2 weeks after the stroke.[4] The biomechanics of the glenohumeral joint depend on the commerce of both static and dynamic-stabilizing structures. stationary stabilizers include bony deconstruction, negative intra-articular pressure, glenoid labrum, glenohumeral ligaments, and joint capsule. The

dynamic-stabilizing structures include the rotator cuff muscles and the other muscular structures girding the shoulder joint. The concerted effect of these stabilizers is to support the multiple degrees of stir within the glenohumeral joint.[5] During the original period following a stroke, the hemiplegic arm is limp or hypotonic. thus, the shoulder musculature, in particular the rotator cuff muscle, cannot maintain the humeral head in the glenoid fossa and there's a high threat of shoulder subluxation. Improper positioning in bed, lack of support, while the case is in the upright position, or pulling on the hemiplegic arm when transferring the case, contributes to glenohumeral subluxation. The performing mechanical effect is overstretching of the glenohumeral capsule and limp supraspinatus and deltoid muscles which increase the threat of soft tissue injury and pain.[6] Factors that may contribute to the appearance of PHS can be distributed as those having to do with the shoulder joint itself (rotator cuff injury or subluxation of the humeral head) and those related to a neurological complaint (lack of sensation, original limp palsy, hemispatial neglect, and spasticity). PHS decreases an individual's capability to take over functional and recuperation conditioning, and it's associated with a lower score on the Barthel score after discharge of the case. It's a predictor of poor functional recovery of the arm and longer hospital stay, and the chance of cases with PHS being suitable to return to their own homes is lower.[7]

Hemiplegic shoulder pain reduces health-related quality of life at 12 months, further attention should be directed towards the operation of this frequent complication of stroke.[3] The significance of maintaining proper posture while positioning and transferring a stroke case is crucial to dwindling the threat of a shoulder injury. Shoulder subluxation injury post-stroke is a consequence of sustained hemiplegia and spasticity. Current exploration substantiation suggests that using curatives similar to a gentle range of motion and functional electrical stimulation may reduce and help shoulder subluxation and hemiplegic shoulder pain. Still, physiotherapists are presently the only professionals who can apply similar therapies Considering that stroke care handed by neuroscience nurses includes transferring, positioning, and aiding in the conditioning of living, it's clear that nurses are an important part of the remedy process.[8] Neuroscience nurses have an important role in facilitating stroke patients to practice transferring out of bed and performing activities of daily living outside of physiotherapy and occupational therapy sessions. Neuroscience nurses also care for stroke patients over 24 hours. Therefore, nurses must understand physiotherapy and occupational therapy strategies in stroke rehabilitation.[9] Numerous hospitals don't have an acceptable number of trained nurses and recuperation professionals to give comprehensive care.[10] Proper management of PHS in stroke patients will allow them to participate more fully in the neuro-rehabilitation process, and may therefore result in a better functional outcome.

METHODS

Study design, location and duration

Current study is a cross-sectional survey design study. The study began in March 2023 and was completed by August 2023 in 6 months the data was collected from a range of private/public hospitals in Pune City, Maharashtra (Sassoon General Hospital, Criti Care Hospital, Kamala Nehru Hospital, Pune Adventist Hospital, Janseva Care).

Sample size, population and sampling technique

Data was collected from 60 hospital nurses (mean age 32.2 years: Sd 10.08). Non-random convenient sampling technique was used.

Inclusion criteria

Inclusion criteria were; Any individual currently enrolled in a nursing program or working in a hospital, Both Male and Female nurses will be included in the study and Must know at least one of the languages (English/Hindi & Marathi) reading level 10th grade.

Exclusion criterion

Exclusion criterion was; Home care nurses were excluded from the study since they do not necessarily work in a hospital setting.

Study tools

Self-designed questionnaires were used to collect information on awareness of hemiplegic shoulder. The tool consisted of 18 items on a 5-point Likert scale where '1' was strongly disagree, '3' was neutral, and '5' was strongly agree.

Procedure

The nurses were debriefed about the purpose of the study. Written Voluntary Informed Consent was taken from the nurses. Questionnaires were distributed in a group setting and were asked to submit the form as soon as they were finished. The questionnaires were then collected, and transferred to online data analysis software. The data was cleaned, coded, and analyzed as per the objectives designed for the study, and the following hypothesis testing was conducted.

Statistical analysis

Descriptive Analysis was conducted using MS Excel. Descriptive indicators like Mean, Standard Deviation, and distribution were calculated for each item used in the questionnaire.

RESULTS

Descriptive and frequency analyses were used to calculate the results. The mean value for the self-reported 14-item scores was reported for n=60.

Gender distribution

The frequency count for the gender distribution for the results was found to be Male (11.7%) and Female (88.3%) (Figure 1).

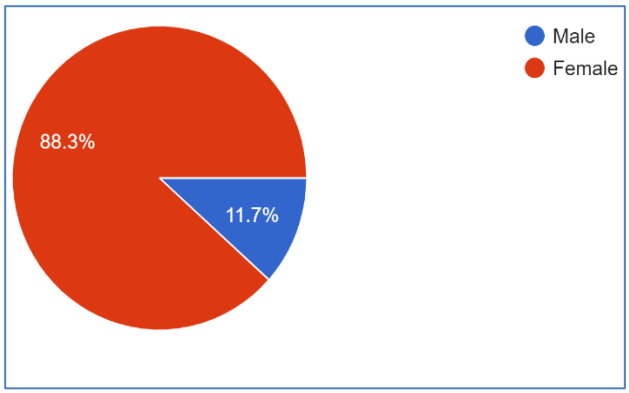

Figure 1: Gender distribution pie chart.

Mean calculation (descriptive analysis)

The questionnaire was based on the Likert scale: 1-Strongly disagree, 2-Disagree, 3-Neutral, 4-Agree and 5-Strongly agree. The mean value will range from 1-5 where a mean closer to '1' represents low awareness whereas a mean value closer to '5' represents high awareness. The frequency analysis of the total scores of the items for all participants revealed that the majority of the participants lie towards the 'Low Awareness' also interpreted as the number of times 'strongly disagree' has been selected in the measure.

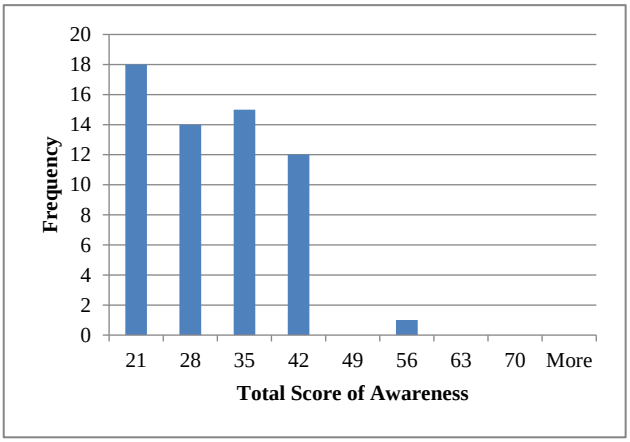

Figure 2: Total score of awareness.

Further, the percentage distribution of participants scoring on different items of the measure was calculated to ascertain the theme of questions which has a higher percentage of 'strongly disagree' meaning less awareness of the construct. The highlighted items in (Table 1) represent a higher number of 'Strongly Disagree' which represents 'Low awareness'. Item-1 asked the participants 'Do you think that there are physical effects of stroke on muscles?'.

Table 1: Frequency distribution of scores of participants on different items of the self-reported measure.

Item no.	Strongly disagree, N (%)	Disagree, N (%)	Neutral, N (%)	Agree, N (%)	Strongly agree, N (%)
1	44 (73.3)	8 (13.3)	5 (8.33)	3 (5)	0
2	36 (60)	13 (21.6)	9 (15)	1 (1.66)	1 (1.66)
3	17 (28.33)	13 (21.6)	22 (36.66)	7 (11.66)	1 (1.66)
4	28 (46.66)	16 (26.66)	12 (20)	3 (5)	1 (1.66)
5	22 (36.66)	19 (31.66)	15 (25)	4 (6.66)	0
6	12 (20)	19 (31.66)	13 (21.6)	11 (18.33)	5 (8.33)
7	25 (41.66)	19 (31.66)	12 (20)	4 (6.66)	0
8	18 (30)	9 (15)	18 (30)	14 (23.33)	1 (1.66)
9	14 (23.33)	18 (30)	15 (25)	13 (21.66)	0
10	20 (33.33)	18 (30)	15 (25)	6 (10)	0
11	30 (50)	19 (31.66)	9 (15)	2 (3.33)	0
12	29 (48.33)	17 (28.33)	10 (16.66)	4 (6.66)	0
13	31 (51.66)	15 (25)	12 (20)	2 (3.33)	0
14	34 (56.66)	17 (28.33)	7 (11.66)	1 (1.66)	1 (1.66)

Item-12 asked the nurses 'Patients can be discharged earlier from the hospital and with less disability if hemiplegic shoulder is avoided' which is based on the theme of time of discharge and condition at discharge. Item-13 asked the participants 'Rehabilitation in the hospital can be done more effectively if the hemiplegic

shoulder is avoided?' based on the theme of Quality of rehabilitation. Finally, item-14 asked the nurses 'Patients can return to function and activities of daily living will be much faster if the hemiplegic shoulder is avoided' based on the theme of daily living and onward care of the patients. Overall, the mean value total scores of all the items were m=1.97, SD=10.9 suggesting that the awareness among the nurses was low. The themes which showed the lowest awareness have been discussed above.

DISCUSSION

The hemiplegic shoulder is a condition that can be caused very easily in patients' post-stroke if the necessary precautions are not taken. The muscles are in a weakened state and can cause shoulder subluxation easily leading to pain, and cause significant delay in the rehabilitation process. Nurses are the backbone of hospitals; they are responsible for everything from administering medication on time to taking care of the patient's well-being and making sure that they are comfortable including positioning and transfers. Improper handling of patients leads to this condition which eventually leads to pain, decreased quality of life, and delayed rehabilitation. Therefore, nurses should be made aware of conditions such as these so they can take the necessary measures and precautions to make sure the patient gets the best care possible. In this study out of the 60 participants (nurses), 73% knew the physical effects of stroke on the muscles in comparison to a study done in 2013 by Adelman et al where 84% of the nurses were aware of the effects of stroke and 85% out of those knew about the symptoms and complications. Therefore, this shows that we have much less awareness among the Indian population of nurses about hemiplegic shoulder and its effects.

In a study done in December 2004 by Seneviratne et al concluded that neuroscience nurses have an important role in facilitating stroke patients to practice transferring out of bed and performing activities of daily living. Neuroscience nurses also care for stroke patients over a 24-hour period, in our study 48.4% of the participants felt that they played an important role in helping with the hemiplegic shoulder.[10] Therefore, it is important that nurses understand physiotherapy and occupational therapy strategies in stroke rehabilitation. According to the results of this study, 66.6% of the nurses strongly agreed that they should be trained to handle stroke patients to prevent hemiplegic shoulder conditions, the results were similar to a study done recently in 2023 by Cole et al stated that training in nurses increased adherence to the best practices for handling and positioning patients' arms after stroke and therefore nurses need to be trained by occupational and physical therapists.[11-13] Only 51.7% of the nurses from the study believe that there is more possibility of hemiplegic shoulder during transfers and positioning whereas a study done in 2005 by Seneviratne et al concluded that, Neuroscience nurses continually position, reposition, and transfer stroke patients over a 24-hour period. Not unlike range-of-motion exercises, positioning and transfers are nursing interventions that neuroscience nurses employ for reasons such as comfort, pain relief, and mobility. In order to be mobile, stroke patients depend greatly on the assistance and interventions provided by nurses.[8] 51.7% of nurses also agree that the incidence of hemiplegic shoulder can be caused by mishandling a patient which can happen due to not providing adequate support to the affected arm using slings or excessive pulling or torsion stresses while trying to reposition the patient in bed.

A study was done in October 2016 by Wakeling et al that the onset of hemiplegic shoulder in stroke is as early as the first two weeks post-stroke when the muscles are in their flaccid stage and more prone to subluxation.[4] In our study when nurses were asked if they think the highest occurrence of hemiplegic shoulder happens in the first two weeks post-stroke 28.3% of the nurses agreed while 28.3% of nurses had a neutral stance or did not know about the period between stroke and hemiplegic shoulder. Adey-Wakeling et al in a study concluded that hemiplegic shoulder pain, depression, increased dependency, stroke severity, and absence of initial rehabilitation were each associated with a reduction in quality of life therefore, more effort should be directed towards screening and management of this frequent complication of stroke.[4] 73.4% of nurses, in our study, agree that there is a reduced quality of life post hemiplegic shoulder. According to a study in 1984 by Rizk et al, the recuperation of hemiplegic cases is frequently dragged by the problem of a painful shoulder.[11] Compared to this study, 78.4% of the nurses in our study also agree that rehabilitation can be done more effectively if the hemiplegic shoulder is avoided. A study in 2004 by Gilmore et al showed that there were lower suggestions of the rate of discharge to go home after a first stroke that was followed by a painful hemiplegic shoulder.[12] 76.6% of the nurses in our study also believed that the case could be discharged from the hospital if they didn't have hemiplegic shoulder pain. This study clearly states that there is a lack of awareness about the hemiplegic shoulder condition and its implications among nurses in the Indian population. Nurses need to be trained by physical therapists on the proper handling of patients and where to provide adequate support while positioning, transferring, and handling patients who have strokes in order to prevent conditions like hemiplegic shoulder which leads to pain among patients and delays their rehabilitation process. By referring to this study, there are further implications for awareness in nurses for handling stroke patients. Prevention of hemiplegic shoulder is the best strategy that can be implemented as an early intervention and has implications in community education and awareness campaigns among nurses, so they can prevent further complications from the early stages of the condition. When the incidence of hemiplegic shoulder reduces the quality of life of the patient will also improve. This study can also be further referred to find out the best ways of providing support in such conditions

and if these can be applied practically by nurses in hospitals while handling patients.

Limitations

Like every study, this study also had a few limitations, there were accessibility issues for the sample collection which resulted in an overall low sample turnout. The effect of confounding variables was not accounted for in the level of knowledge of nurses for hemiplegic shoulder. Future research should possibly look at the qualitative experiences of nurses while dealing with such neurological complications.

CONCLUSION

The cross-sectional survey study collected data from 60 nurses (mean age 32 years) from a range of public/private hospitals in Pune City in the state of Maharashtra, India. This study aimed to ascertain the level of awareness of hemiplegic shoulder among working nurses. The data was collected using a 14-item self-designed measure which had items to evaluate the level of awareness for the Hemiplegic shoulder. The data was collected offline/in-person from the nurses for a duration of 3 months. The results showed that there was overall less awareness about the hemiplegic shoulder condition, among the hospital nurses. Although there was some knowledge about the physical effects of stroke on muscles and its implications on quality of life, overall awareness about hemiplegic shoulder, how it is caused, and how it can be avoided is not satisfactory. This opens potential research opportunities for researchers to assess the level of understanding of neurological complications which are imperative in rehabilitative care.

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