



A STUDY ON STROKE HAND DYSFUNCTION AMONG STROKE PATIENTS AT
KEMPEGOWDA INSTITUTE OF MEDICAL SCIENCES HOSPITAL AND RESEARCH
CENTRE, BANGALORE

Neurophysiotherapy

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ABSTRACT

Background And Objectives: Stroke is the leading cause of disability and death for most low-income and middle income countries, around 80% of patients with stroke have impairments in their hand function which makes it difficult for them to perform activities which are important for functioning in daily life. These include bathing, dressing, toileting, feeding, brushing etc. The purpose of this study was to determine the awareness of hand dysfunction that is caused due to stroke in patients who have stroke hand dysfunction and the knowledge given to them by their healthcare professionals. **Methods:** 40 stroke patients aged <50 to >60 years were recruited for this study from July 2024 to July 2025. The questions focusing on awareness of hand dysfunction of patients with stroke were prepared. Questionnaire was divided into 3 parts; Part I: Socio-demographic data and Part II: awareness of disability, Part III : awareness of hand disability. **Results:** In this study, 40 participants were recruited, wherein, age distribution of the participants were between <50 years of age to >60 years old among whom there were 14 females (35%) and 26 males (65%). Most of whom were illiterate 26 participants (65%). Overall, patients have average knowledge of hand dysfunction but most of them were willing to perform exercises and take physiotherapy for their hand dysfunction. They had not received enough information from their healthcare professional regarding hand dysfunction caused due to stroke. **Conclusion:** This study has reported that patients have and average knowledge of hand dysfunction post-stroke it also reported that they didn't receive sufficient knowledge about the impairments of hand after stroke from their healthcare professionals, we also found out that patients are willing to take physiotherapy and perform the exercises advised regularly to improve their hand function.

KEYWORDS

Stroke; awareness of hand dysfunction; stroke hand knowledge; hand physiotherapy; experience of stroke.

INTRODUCTION

Stroke, or brain attack, is the sudden loss of neurological function caused by an interruption of the blood flow to the brain. Ischemic stroke is the most common type, affecting about 80 percent of individuals with stroke, and results when a clot blocks or impairs blood flow, depriving the brain of essential oxygen and nutrients. Hemorrhagic stroke occurs when blood vessels rupture, causing leakage of blood in or around the brain.⁹ Stroke is becoming an important cause of premature death and disability in low- and middle-income countries like India, largely driven by demographic changes and enhanced by the increasing prevalence of this key modifiable risk factor.⁸

Motor impairment, which includes hand function, affects about 80% of patients. On hospital admission, more than two-thirds of stroke patients have impairment of upper extremity function; after three months, 20% still have hand function problems, which can range from mild to severe.¹ Less than half of stroke survivors can regain normal arm function six months after the stroke, and up to 85% of them have hemiparesis, which affects the upper extremities on one side.¹⁰

The hands play a very important role in a human's life, they help to develop independence, competence, and a sense of volition.⁴ In Indian scenario within ADL/ IADL, activities like dressing, walking across a room, bathing, eating, using the toilet, cooking, shopping, using telephone, taking medications, household chores, gardening, money management and getting around or finding an address in unfamiliar places are included.⁵

The recovery of the upper limb in stroke is extremely poor, with 50% of stroke survivors likely to regain some functional use compared to 82% who could expect to walk independently again. This gap has been allocated to less time being spent on the upper limb during rehabilitation.² Many times, patients's views on what matters in their everyday lives are neglected; it may be very different from the clinician's point of view, and a few may display upper limb-related problems in social settings such as maintaining relationships and using transportation.³

Stroke Subjects have inadequate stroke knowledge and poor personal health behaviors. This large gap in stroke knowledge makes Subjects vulnerable for stroke related complications. Reasonable awareness on affected hand function and associated factors among the observant/family members could improve early identification and facilitation of medical care in stroke. This study is conducted to

understand the existing knowledge regarding affected hand function and associated factors which can help design appropriate intervention programs and may enhance stroke care and outcome.

MATERIALS AND METHODS

MATERIALS

- Pen
- Pencil
- Eraser
- Paper
- Questionnaire

METHODOLOGY

- Those subjects admitted to the Kempegowda Institute of Medical Sciences Hospital and Research Centre, Bangalore, and those who have visited the outpatient department for treatment with a diagnosis of stroke were randomly selected.
- Those subjects who fulfilled the selection criteria are included in the study after obtaining their informed written consent.
- All the information related to the subject will be kept confidential.
- The stroke awareness questionnaire, which focuses on basic stroke care and was prepared with the help of literature and a neurophysician, is administered to the participants, and their responses are marked by the investigators on the data sheet. The questionnaire is divided into 3 parts: Part I: sociodemographic data (6 questions), Part II: stroke disability awareness (10 questions), and Part III: awareness about hand function (13 questions).

It included questions on stroke symptoms, stroke disability. Demographic characteristics and the literacy level of subjects were also recorded on the pre-formatted data sheet for further analysis.

Inclusion Criteria

- More than 18 years of age
- Duration of stroke – 3 weeks
- MoCA – score more than 26
- Both male and female
- Michigan hand outcome questionnaire (MHQ)- median score of 79.9

Exclusion Criteria

- Subjects with hearing disability
- Subjects with aphasia
- Subjects less than 18 years of age
- Subjects who are health care professionals

- Patient with visual disability
- Patients with cognitive deficits
- Patients who've had hand deformity prior to stroke

Outcome Measures

MODIFIED RANKIN SCALE(mRS) - The Modified Rankin Scale measures the degree of disability or dependence in the daily activities of people who have suffered a stroke or other causes of neurological disability.⁷

MICHIGAN HAND OUTCOME QUESTIONNAIRE (MHQ) - a multidimensional questionnaire that was previously validated in stroke patients, provides detailed information regarding several domains of hand function.¹¹

MONTREAL COGNITIVE ASSESMENT (MoCA) – simple, stand-alone cognitive screening tool with good sensitivity and specificity in detecting MCI MoCA assess attention and concentration, memory, language, visuo-construction skills, conceptual thinking ,calculations and orientation.⁶

Measurement Tools

Categories of questions in the questionnaire

Part: I (Socio-demographic characteristics)

This part consists of questions regarding :-

- Name
- Age
- Gender
- Religion
- Educational status
- Occupation
- Caretaker

Part II: (Stroke Disability Awareness)

This part has questions about how aware they are of stroke :-

- Family history
- Organ involved
- Causative factors
- Result of stroke
- Changes after stroke
- Effect on function
- Effect on joints and muscles
- Effect on behaviour
- Modified rankin scale

Part III: (Awareness about Hand Dysfunction)

This part consists of questions regarding awareness about hand dysfunction after stroke :-

- Priority
- Effect on performing ADL and tasks
- Ease of performance
- Willingness to take physiotherapy
- Information received by them
- Adherence to exercise
- Reaction
- Adaptation
- Challenges faced
- Hinderances in daily activities

RESULTS AND DISCUSSION

The primary aim of the study was to assess the knowledge of patient with stroke about the hand dysfunction.

The purpose of this study was to assess the knowledge of stroke patients about resulting hand dysfunction post stroke and the information that they received from their health provider regarding the progression of hand disability. In this study 40 participants who were admitted in Kempegowda Institute of Medical Sciences and Research Center were recruited based on the inclusion criteria over a duration of 12 months and were provided with the questionnaire.

Then questions focusing basic stroke care were prepared with the help of a neurosurgeon, general physician, community health professionals and physiotherapists. Questionnaire was divided into 3 parts; Part I: Socio-demographic data (6 questions) and Part II: Stroke disability awareness (10 questions) and Part III: awareness about home-based exercises (12 questions). The questionnaires were completed in a face-

to face survey which ensured a high response rate. This also allowed clarification of questions by the respondents and responses by the researcher.

The questionnaire used in this study had three parts. In the first part, socio demographic data was taken that include gender, age, and occupation of the participants, their educational status, about who their caretakers are, dominant side and side affected.

The second part of the questionnaire was about disability in stroke and the awareness and knowledge about the disease risk factors and progression of the disease.

Third part of the questionnaire was about awareness of hand dysfunction in stroke patients and participants knowledge about it.

The study surveyed 40 stroke survivors predominantly male, right-handed, and many without formal education to evaluate their understanding of post-stroke hand dysfunction and the support they received. While 75% had heard of stroke, only about 27.5% knew high blood pressure was a risk factor, and a quarter identified none. Seventy percent were aware that stroke can impair hand function, and nearly all recognized that improved hand control eases daily activities such as feeding, writing, gripping, and dressing. Despite this, half reported they had not been informed by healthcare providers about potential hand impairments. Most respondents (97.5%) expressed willingness to undertake physiotherapy and perform hand exercises regularly. Many experienced emotional distress despair in 40%, emotional turmoil in 32.5% and half resisted adapting to their condition. The findings underscore both a strong patient desire for recovery and significant gaps in education and emotional support, pointing to a need for enhanced, community-based rehabilitation services.

CONCLUSION

This study has reported that patients have and average knowledge of hand dysfunction post-stroke it also reported that they didn't receive sufficient knowledge about the impairments of hand after stroke from their healthcare professionals, we also found out that patients are willing to take physiotherapy and perform the exercises advised regularly to improve their hand function. Educational and awareness programs at the community level involving campaigns, informal education, mass media, schools, universities and governmental agencies are needed in order to improve stroke awareness among the targeted population. Hence, our study has demonstrated an average level of awareness amongst majority of participants interviewed in different areas of basic care and home-based exercises awareness of stroke patients.

LIMITATIONS

The days of hospital stay was not considered, which allows the patient to gain knowledge via observation and follow up was not taken about the knowledge level of the participants.

Further Scope Of Study

It is recommended that future research can follow up to assess the knowledge of patient, large scale multicentric study can give us in-depth analysis may reveal better understanding of patient's knowledge and help design an appropriate targeted intervention for stroke patient's Interventional protocol for treatment can be planned for hand rehabilitation, from patients perspective for their priority of activity.

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