

EVALUATING POST-STROKE RECOVERY: A PATIENT-CENTERED APPROACH USING PROM-BASED ASSESSMENT

Dissertation Submitted to



The IIHMR University, Jaipur

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Master of Business Administration (MBA)

in

Hospital and Health Management

by

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Under the Supervision and Guidance of

Dr. Vinod Kumar SV

2025

RBH/2025/MAY/HRD/6752

Date: 31st MAY 2025**TO WHOM SO EVER IT MAY CONCERN**

This is to certify that **Farana Haque** has successfully completed her internship in the Quality Department from 10th March 2025 to 31st May 2025.

Her behavior was respectful, punctual, and in alignment with hospital policies. She showed enthusiasm to learn, adapt, and communicate effectively with staff members, while maintaining a professional attitude throughout the program.

We commend her dedication and discipline during the tenure and believe she has gained valuable exposure to the work culture and expectations of a healthcare environment. We wish a continued success in all future academic and professional pursuits.

For CK Birla Hospital – RBH

Jeetendra
21/5/2025

Jeetendra Kumar Vijayvargiya
Senior Manager | HR

CERTIFICATE

This is to certify that dissertation titled **Evaluating Post-Stroke Recovery: A Patient-Centered Approach Using PROM-Based Assessment** is a record of the research work undertaken by Farana Haque partial fulfillment of the requirements for the award of the degree of MBA (Hospital and Health Management) from the IIHMR University, Jaipur under my guidance and supervision and her approach to the research study has been sincere, scientific, and analytical.

A handwritten signature in blue ink, appearing to be 'P. Sharma', written over a horizontal line.

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Date: 16/06/2025

DECLARATION BY STUDENT

I hereby declare that this dissertation titled "**Evaluating Post-Stroke Recovery: A Patient-Centered Approach Using PROM-Based Assessment**" is the bonafide record of my original research work. I declare that it has not been submitted to any other university or institution for the award of any degree or diploma. Information derived from the published or unpublished work of others has been duly acknowledged in the text.

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Abstract

Stroke is one of the leading causes of long-term disability, affecting how people move, think, feel, and live their daily lives. While hospitals often focus on medical tests and physical symptoms, these may not always reflect how patients truly feel or what they experience during recovery. This study focused on understanding stroke recovery through the patient's eyes using PROMs a simple tool that let patients share their recovery experiences in their own words.

The study aimed to know how well they were able to move, think, feel emotionally, and manage daily tasks. It also explored whether they received the necessary support and therapies, and how satisfied they were with their overall recovery journey

The study was conducted at Rukmani Birla Hospital in Jaipur, where 80 stroke patients who had been discharged between June 2024 and March 2025 were contacted. By using a patient-centered questionnaire, the study sought to highlight areas that are commonly missed in traditional evaluations but are critical to a person's overall recovery journey. The questions focused on physical health, emotional well-being, confidence, quality of life, follow-up care, and therapy participation.

The results showed that most patients had made good progress. About 76% could manage daily tasks independently, and 87% didn't notice major memory or thinking issues. Half felt emotionally positive, 92% were confident in their recovery, and 81% rated their quality of life as good or excellent. A reassuring 95% felt well-supported and informed throughout their recovery.

However, the study also pointed out some areas of concern. More than half of the patients (55%) did not receive any therapy after leaving the hospital like physiotherapy, speech therapy, or counselling even though these services could have helped their recovery. Also, 11% of patients never went for any follow-up checkups, which could put them at risk for complications.

In conclusion, using PROMs helps capture what really matters to stroke survivors, offering a fuller picture of recovery and guiding more personalized and supportive care.

Keywords: Stroke Recovery, Patient-Reported Outcome Measure (PROM), Quality of Life, Rehabilitation, Follow-up Care.

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Abbreviations

- **ADL** – Activities of Daily Living
- **FAST** – Face, Arm, Speech, Time
- **IADL** – Instrumental Activities of Daily Living
- **ICF** – International Classification of Functioning, Disability and Health
- **PROM** – Patient-Reported Outcome Measure
- **PROMIS** – Patient-Reported Outcomes Measurement Information System
- **QoL** – Quality of Life
- **SF-36** – Short Form (36) Health Survey
- **SIS** – Stroke Impact Scale

Chapter 1: Introduction

1.1 Background

Stroke is a major cause of long-term disability worldwide, often impacting a patient's mobility, communication, emotional health, and ability to perform daily activities. Traditionally, stroke recovery has been assessed through clinician-reported outcomes and imaging, which may not fully capture the patient's own perspective on their health and quality of life.

Patient-Reported Outcome Measures (PROMs) are structured tools that allow patients to directly report their symptoms, functional limitations, and emotional well-being. In stroke care, PROMs help identify domains such as fatigue, depression, and social reintegration that are often overlooked in standard clinical assessments.

The World Health Organization's framework on health and disability (ICF) supports the use of PROMs to better understand how medical conditions affect real-life functioning. Incorporating PROMs in stroke follow-up enables more personalized rehabilitation strategies, improves communication between healthcare providers and patients, and ensures that care is aligned with what matters most to the individual.

PROMs are increasingly being used in both clinical settings and research to evaluate recovery outcomes post-stroke, especially during the transition from hospital to home, where continuous monitoring is limited but essential for long-term well-being.

Value of PROMs to Stakeholders:

Stakeholder	How PROMs Help
Health System Policy-Makers / Managers	- See how stroke recovery outcomes vary over time and in different regions. - Understand which care models work best by comparing patient outcomes. - Use patient feedback to make smarter decisions about allocating resources. - Identify hospitals or areas that may need extra training or support.

Health Care Organizations	- Track how well hospitals and clinics are supporting stroke recovery from the patient's point of view. - Spot teams or departments that are doing really well – or those that need improvement. - Use this insight to target training and better rehabilitation programs.
Health Care Providers (Doctors, Therapists, Nurses)	- Get direct feedback from stroke patients to fine-tune their care plans. - See if patients feel their needs are being met post-discharge. - Identify issues early, such as poor emotional well-being or limited mobility. - Compare their care with expected standards and learn where to improve.
Patients	- Share their own perspective on recovery, not just what doctors observe. - Become more aware of what to expect during recovery and whether they're on track. - Feel empowered by having their voice heard in their care. - Improve communication with doctors and be more involved in decisions about their care.

1.2 Purpose of the Research

The primary purpose of this study is to assess the recovery of stroke patients after discharge from a hospital setting using a structured Patient-Reported Outcome Measure (PROM) tool. By collecting data directly from patients through telephonic interviews, the study aims to capture their perspectives on key aspects of post-stroke recovery, such as mobility, ability to perform daily activities, emotional well-being, and overall satisfaction with the care received.

This patient-centered approach acknowledges that recovery is not solely defined by clinical observations or test results, but also by how patients perceive their health and ability to function in real-life situations. The study intends to highlight the often-overlooked challenges faced by

stroke survivors once they return home, and to provide healthcare professionals with actionable insights that can enhance rehabilitation plans, follow-up care, and support systems.

In doing so, the study not only evaluates outcomes but also encourages the integration of patient voices into the continuum of care, ultimately contributing to more compassionate, effective, and personalized stroke management.

1.3 Significance of the Research

Recovering from a stroke is not just about what doctors see, it's also about how patients feel, cope, and regain their independence in daily life. This study is important because it listens directly to stroke survivors through a PROM (Patient-Reported Outcome Measure), giving them a voice in their recovery journey.

By understanding what patients experience after discharge, whether it's difficulty walking, managing emotions, or feeling unsupported, healthcare teams can design better follow-up care that meets real needs, not just medical checklists. In the long run, this approach helps create more personalized, compassionate, and effective stroke care.

1.4 Research Problem

Stroke leads to long-term disabilities, and traditional recovery assessments often miss the patient's personal experience of recovery. Clinical evaluations focus on physical aspects but overlook emotional well-being, mobility, and quality of life after discharge. This study aims to fill that gap by using a Patient-Reported Outcome Measure (PROM) to assess post-stroke recovery from the patient's perspective, providing valuable insights for better care and rehabilitation strategies.

1.5 Research Objectives

- To evaluate post-stroke recovery using a Patient-Reported Outcome Measure (PROM) tool in patients discharged after acute stroke care.
- To identify the key areas affected in post-stroke recovery, such as mobility, self-care, and emotional well-being, using the PROM tool.
- To assess patient satisfaction with the care and support received after discharge from the hospital.

Chapter 2 : Review of literature

Authors (Year)	Study Location	Sample Size	Sampling Technique	Salient Features
Duncan et al. (1999)	USA	240 stroke survivors	Convenience Sampling	Developed the Stroke Impact Scale (SIS) Version 2.0, a self-report measure assessing 8 domains: strength, hand function, ADL/IADL, mobility, communication, emotion, memory and thinking, and participation. Demonstrated good reliability and validity, making it a comprehensive tool for evaluating stroke recovery. The tool was shown to be both reliable and valid, meaning patients could consistently and accurately express how stroke was affecting their lives.
Rothwell et al. (2001)	UK	668 patients	Systematic Sampling	Evaluated the impact of the FAST (Face, Arm, Speech, Time) public education campaign on stroke recognition and response. Found significant reductions in delays to seeking and receiving medical attention after major strokes, highlighting the effectiveness of mass-media public education. This indirectly supports PROMs because quicker treatment often leads to better outcomes that can later be captured through patient feedback tools.
Jenkinson et al. (2002)	UK	304 patients	Stratified Random Sampling	Compared the SF-36 health survey with clinician assessments in stroke patients. Found that patient-reported outcomes

				provided valuable insights into health status, emphasizing the importance of incorporating PROMs in stroke care. They found that patients often reported more emotional and quality-of-life concerns than what doctors observed, showing that PROMs can uncover important insights that might otherwise be missed in standard clinical evaluations.
Cella et al. (2010)	USA	>15,000 subjects	Multistage Sampling	Developed the Patient-Reported Outcomes Measurement Information System (PROMIS), creating item banks for self-reported health outcomes across various domains. PROMIS provides standardized measures applicable to stroke and other conditions, enhancing the assessment of patient health status. The system helps measure patients' mental, physical, and social health more efficiently. Because it's designed to be both accurate and easy to use, PROMIS tools have become popular worldwide for tracking recovery in a structured way.
Jonathan et al. (2014)	England and Wales	19 hospital sites	Cohort Sampling	Evaluated post-discharge recovery using PROM tools at 3 and 6 months. Found strong predictive value for reintegration and rehabilitation needs, supporting the use of PROMs in long-term stroke care planning. It also found that patient's responses were useful in predicting who might need further rehabilitation. This shows how PROMs can help guide long-

				term care decisions and improve post-hospital follow-up.
Chen et al. (2015)	Taiwan	126 patients	Consecutive Sampling	Examined the measurement properties of a short version of the Stroke-Specific Quality of Life Scale (SS-QoL-12). Demonstrated validity, reliability, and responsiveness, making it a practical tool for assessing quality of life in stroke patients. It also showed strong results in terms capturing meaningful changes in patients' recovery over time.
Andrew et al. (2017)	Germany	90 patients	Retrospective cohort study	Conducted a PROM-based evaluation of functional status and satisfaction 3 months post-stroke. Found a strong link between early rehabilitation engagement and better PROM scores, highlighting the importance of timely interventions. Patients shared that their overall satisfaction and recovery felt stronger when rehab started early, proving that PROMs can reflect the value of timely interventions better than some clinical measures.
Pandian et al. (2021)	Tamil Nadu, India	312 patients	Random Sampling	Adapted and validated a modified PROM tool for Indian settings. Reported gaps in rehabilitation and poor follow-up adherence affecting outcomes, highlighting the need for culturally appropriate PROMs.

Chapter 3 : Methodology

3.1 Research Questions

What is the change in the patient reported post stroke recovery and quality of life among patients discharged after stroke ?

3.2 Research Hypothesis

- **Null Hypothesis (H_0):** There is no significant association between PROM-based assessments and the recovery status of post-stroke patients.
- **Alternative Hypothesis (H_1):** PROM-based assessments show a significant association with the recovery status of post-stroke patients

3.3 Research Design

This study is an Observational Cross-sectional study. It involves observing and assessing patients at a single point in time, without influencing or altering their care in any way. The focus is on understanding patients' recovery experiences after hospital discharge, based on their own responses using a PROM (Patient-Reported Outcome Measure) tool.

3.4 Study Setting

The study was conducted at Rukmani Birla Hospital (RBH), Jaipur, a multispecialty tertiary care hospital known for its advanced stroke care and patient-centered approach. RBH is equipped with a comprehensive stroke management system, covering everything from emergency care and diagnosis to rehabilitation and post-discharge follow-up. The study focused on patients discharged from this hospital after acute stroke treatment. The hospital's robust patient documentation system and structured discharge processes also helped in identifying eligible participants for the study and reaching out to them for follow-up. Overall, RBH provided both the clinical context and patient-centered atmosphere necessary for meaningful, real-world data collection.

3.5 Study Population

Patients discharged after acute stroke treatment within the last 10 months (June 2024 to March 2025).

3.5.1 Inclusion Criteria:

- Patients aged 18 years and above.
- Diagnosed with ischemic or haemorrhagic stroke.
- Discharged from the hospital between June 2024 and March 2025.
- Gave informed consent and are reachable telephonically.

3.5.2 Exclusion Criteria:

- Patients with severe cognitive impairment or language disorders making communication impossible.
- Patients who were not reachable telephonically.

3.6 Duration of Study

The study was conducted over a period of three months, from March 2025 to May 2025.

3.7 Sample Size

A total of 80 discharged stroke patients were included in the study.

3.8 Sampling Technique

A convenience sampling method was used. Stroke patients discharged were identified from hospital records and contacted via telephone. This approach allowed the inclusion of patients who were reachable, consented to participate, and were willing to share their recovery experiences.

3.9 Study Instruments

The primary tool used in this study was a structured Patient-Reported Outcome Measure (PROM) questionnaire, designed to capture the patient's own perception of their recovery following a stroke. The questionnaire was developed using a Likert scale-based format, allowing patients to respond with graded options that reflect the degree or frequency of their experiences.

To ensure the tool was clear, practical, and suitable for telephonic interviews, the questionnaire was restructured and simplified with a focus on clarity, ease of understanding, and patient perception. During this process, I took guidance from the Review of Literature (ROL), which played a key role in shaping the structure and content of the questions. Relevant published studies and established PROM tools used in stroke recovery such as the Modified Rankin Scale (mRS), and SF-36 were reviewed and helped inform the key domains and phrasing used in the questionnaire. This ensured that the instrument was grounded in existing scientific evidence while being adapted for ease of understanding and response by post-stroke patients.

The final questionnaire covered core domains such as mobility, cognitive changes, emotional well-being, quality of life, confidence in recovery, support received, follow-up attendance, and therapy participation. Each question included clear, patient-friendly response categories to allow for consistent and meaningful data collection.

The following response parameters were used across different domains:

Parameters	Options
Mobility & daily functioning	Very limited, Moderate ability, Doing day-to-day activity
Physical symptoms (weakness, numbness, pain)	Never, Occasionally, Frequently
Cognitive changes (memory, concentration, decision-making)	No change, Mild change, Moderate change
Emotional well-being (anxiety, depression, mood)	Very positive, Neutral, very negative
Confidence in recovery and independence	Very confident, not very confident

Overall quality of life and satisfaction with leisure	Excellent, Good, Fair, Poor
Support and information received (social/medical)	Completely, To some extent, Not really
Follow-up appointment attendance	Regularly, Occasionally, Rarely, Never
Therapy participation post-discharge	Physical therapy, Occupational therapy, Speech therapy, Counselling, Medication management, None

These parameters were chosen to make the questions intuitive and easy for patients to answer, even in a telephonic format.

The questionnaire was administered via telephonic interviews and focused on multiple domains essential to stroke recovery. Each question allowed patients to respond in simple, clear terms, ensuring ease of understanding and meaningful engagement.

The complete PROM (Patient-Reported Outcome Measure) questionnaire used in this study, which guided the telephonic interviews and covered multiple domains of stroke recovery, has been provided in the **Annexure** for reference. This includes the exact questions asked, response options, and remarks section used to collect patient-reported outcomes in a meaningful way.

3.10 Data Collection Procedure

Stroke patients who had been discharged from Rukmani Birla Hospital between June 2024 and March 2025 were identified using hospital discharge records. After obtaining the necessary permissions from the hospital administration and relevant authorities, their contact details were accessed securely and confidentially. Between March and May 2025, I contacted these patients or their primary caregivers exclusively via phone calls to conduct the interviews.

At the beginning of each call, the purpose of the study was clearly explained, and verbal informed consent was obtained before proceeding. A structured PROM questionnaire was used to guide the interview and collect patient-reported information related to their post-stroke recovery. All responses were manually recorded during the call and later entered into Microsoft Excel for data organization and analysis.

3.11 Operational Definitions

- **Patient-Reported Outcome Measure (PROM):** A tool that captures a patient's self-assessed health status, recovery, and functional outcomes.
- **Post-Stroke Recovery:** The degree to which stroke survivors regain physical function, emotional stability, and quality of life following discharge.

3.12 Data Analysis Plan

The data collected through the PROM-based telephonic interviews was compiled and analysed using Microsoft Excel. The primary goal of the analysis was to understand how patients perceived their recovery after stroke focusing on areas such as physical ability, emotional well-being, cognitive changes, and overall quality of life.

Descriptive Analysis:

- For categorical variables such as gender and responses to PROM questions, frequencies and percentages were calculated to show how many patients fell into each category.
- For continuous variables like age and monthly stroke admissions, percentage-based distribution was used to represent trends and highlight the most affected age groups and peak periods of hospital admissions.

PROM-Based Assessment:

- Each PROM response was grouped under relevant domains (e.g., mobility, cognition, emotional well-being, therapy participation).
- Trends were identified to see which recovery areas were most commonly affected post-discharge.
- Patient-reported confidence levels, emotional responses, and therapy engagement were closely examined to draw meaningful conclusions.

3.13 Ethical Considerations

This study is guided by ethical principles aimed at safeguarding the rights and privacy of participants:

- Verbal informed consent was obtained from each participant.

- Participation was voluntary.
- Interviews were conducted with sensitivity, especially when discussing emotional or physical challenges.
- Data was stored securely and anonymized to maintain confidentiality.
- The study was conducted solely for academic purposes and adheres to ethical research standards.

Chapter 4 : Results

4.1 Age-wise distribution of participants in percentage

This section presents the age profile of the stroke patients who participated in my study. Understanding the age distribution is important, as age is a major factor influencing stroke risk, recovery speed, and overall outcomes.

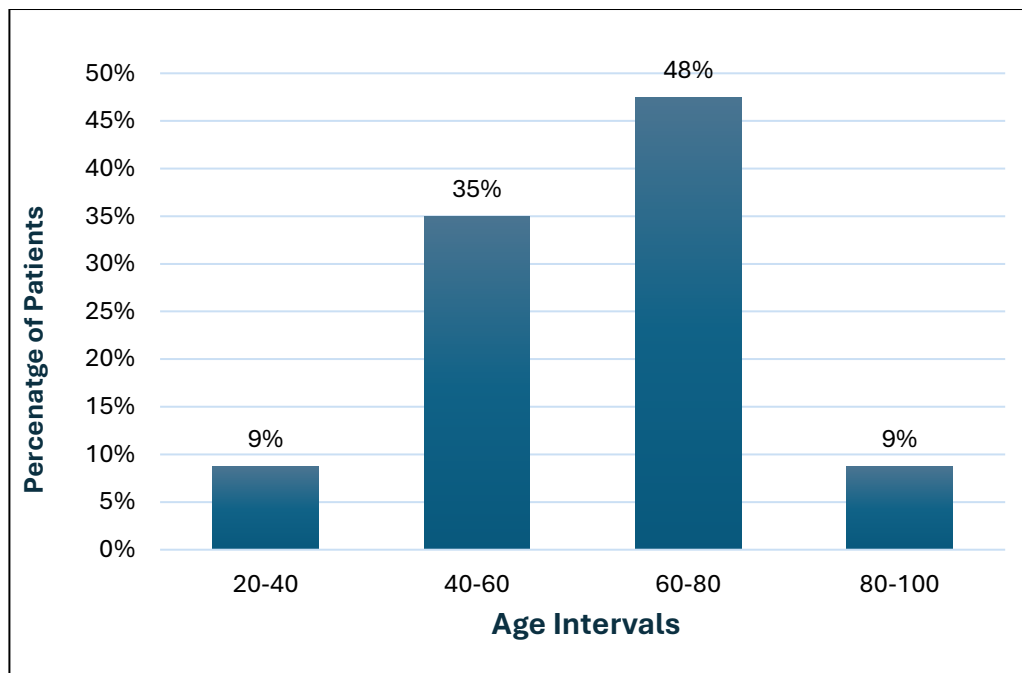


Figure 4.1 Age-wise distribution of participants in percentage (%)

The highest proportion of stroke patients (48%) were in the 60–80 age group, indicating that stroke is most prevalent among older adults. A significant number of participants (35%) fell within the 40–60 age range, highlighting that middle-aged individuals are also notably affected by stroke. In contrast, only 9% of patients were between 20–40 years and another 9% were in the 80–100 age group, suggesting a lower incidence of stroke among the very young and the very elderly in this study.

4.2 Distribution of patients based on self-reported mobility and daily task performance

This section explores how patients perceived their ability to move around and carry out everyday activities after being discharged. This aspect of recovery is essential in understanding

how independent patients feel in their daily lives, whether they're walking, getting dressed, or performing basic household tasks.

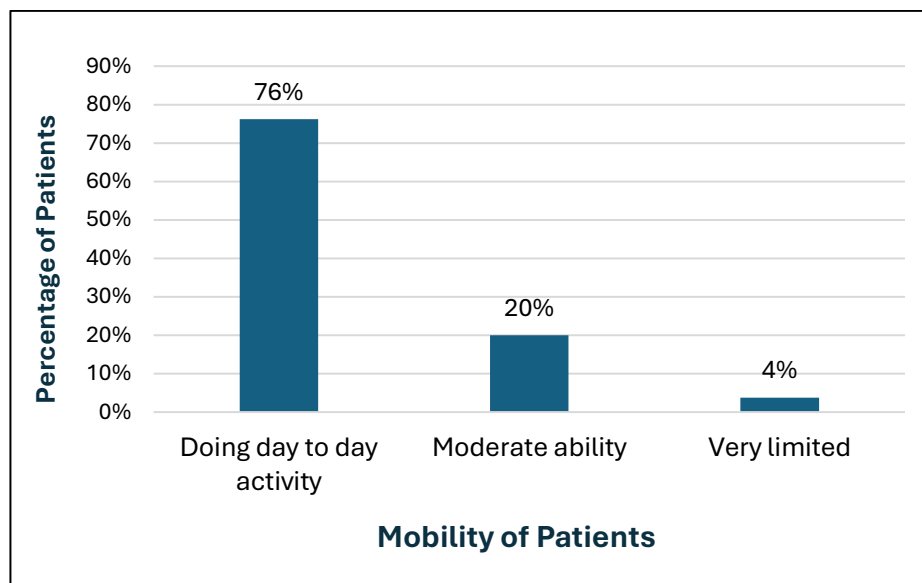


Figure 4.2 Percentage distribution of post-stroke patients based on their ability to perform daily tasks

A majority of stroke patients (76%) reported being able to perform day-to-day activities independently, indicating a strong level of recovery in functional mobility. Around 20% of patients had moderate ability, suggesting they could manage some tasks but might require occasional help or support. A small portion (4%) reported being very limited in mobility, reflecting significant challenges in daily functioning and a likely need for ongoing assistance or caregiving support.

4.3 Patient-reported frequency of post-stroke weakness, numbness, or pain

This section assesses how often patients experience physical symptoms such as weakness, numbness, or pain following their stroke. These symptoms can significantly affect comfort, mobility, and overall recovery quality, so understanding their frequency helps gauge ongoing challenges faced by patients.

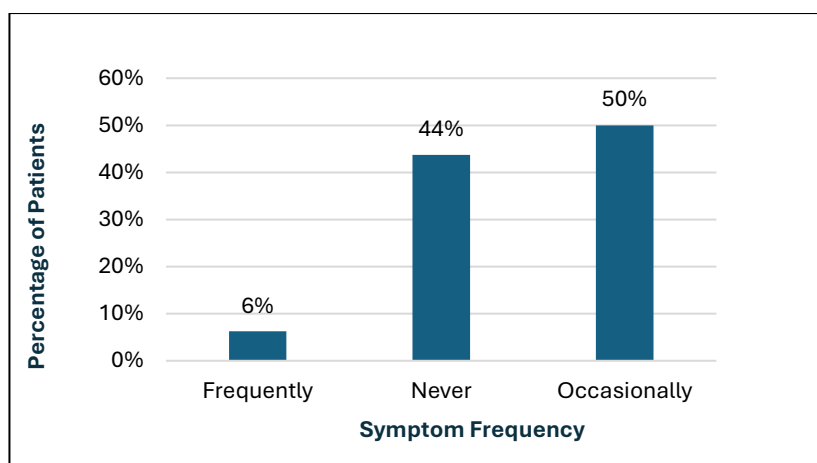


Figure 4.3 Percentage distribution of patients based on how often they experience weakness, numbness, or pain after discharge

Half of the patients (50%) reported experiencing weakness, numbness, or pain occasionally, indicating that these symptoms persist for many, though not on a daily basis. 44% of patients stated they never experienced such symptoms, reflecting a positive recovery trend in nearly half of the group. On the other hand, only 6% reported experiencing these symptoms frequently, suggesting that a small subset of patients continues to struggle with ongoing post-stroke discomfort.

4.4 Patient-reported changes in memory, concentration, and thinking ability after stroke

This section focuses on assessing how patients perceive changes in their cognitive functions such as memory, attention, thinking, and decision-making, after being discharged from the hospital. Cognitive abilities play a critical role in everyday life, affecting how well patients manage tasks, communicate, and maintain independence. Understanding the extent of cognitive changes post-stroke helps identify those who may need additional support or rehabilitation to improve their mental functioning and overall recovery experience.

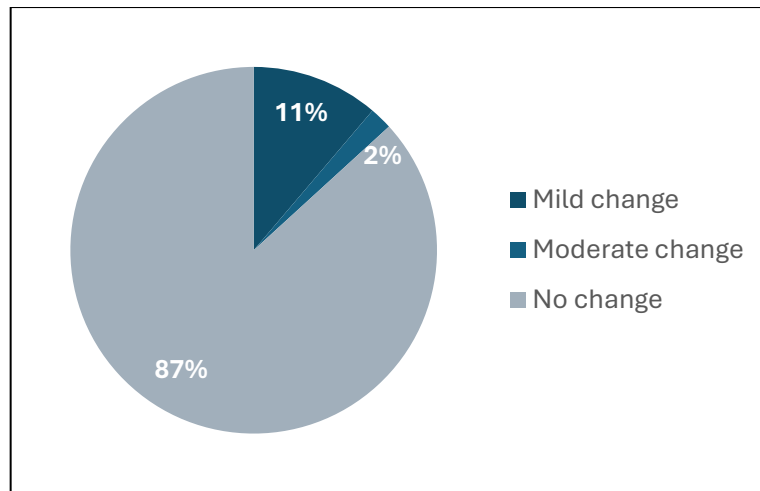


Figure 4.4 Percentage distribution of patients based on self-reported cognitive change

The analysis showed that most post-stroke patients (87%) experienced no significant cognitive decline, maintaining memory, attention, and overall cognitive function. About 11% had mild cognitive changes, causing minor, non-disruptive difficulties, while only 2% faced moderate impairments. These findings indicate that while most recover well cognitively, a small portion may need continued support.

4.5 Emotional Well-being Status Among Post-Stroke Patients

Many patients go through a range of emotions, from hope and determination to worry and low mood. This section explores how stroke survivors felt emotionally after being discharged, based on what they shared during their follow-up calls. By listening to their own words and experiences, we gain a better understanding of the emotional impact of stroke and the importance of offering support that cares for both body and mind.

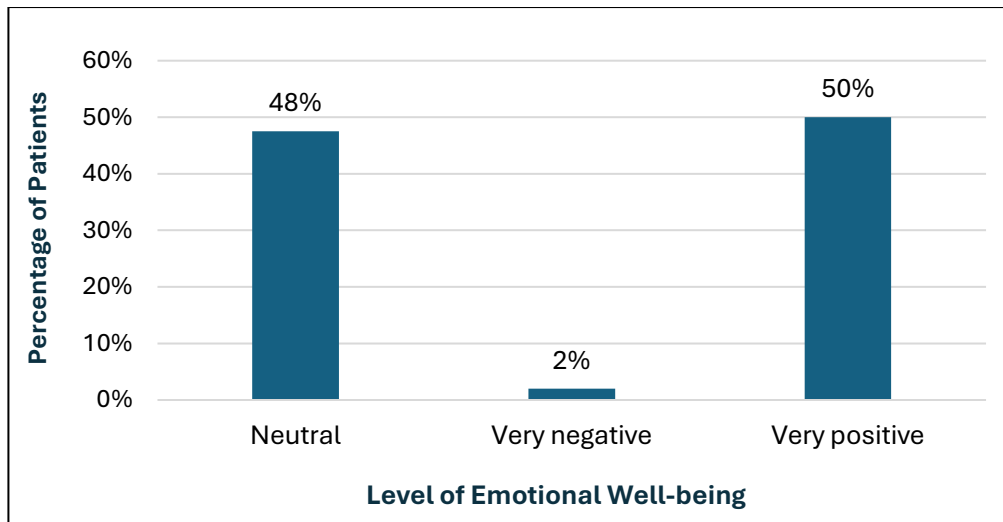


Figure 4.5 Percentage Distribution of Emotional Well-being in Post-Stroke Patients

50% of patients reported a very positive emotional state, indicating a strong level of emotional recovery and resilience after their stroke. Meanwhile, 48% felt emotionally neutral, suggesting a sense of stability, though not marked by strong positive or negative emotions. Only 2% of patients experienced a very negative emotional state, showing that significant emotional distress was rare among the respondents.

4.6 Patient-reported confidence in recovery, returning to work, and regaining independence

This section explores how confident patients felt about their ability to recover after stroke, including returning to work or daily responsibilities and regaining independence. The question focused on their belief in returning to normal routines, regaining independence, and moving forward with life post-stroke. Understanding patient confidence helps highlight their emotional readiness and perceived control over their recovery journey.

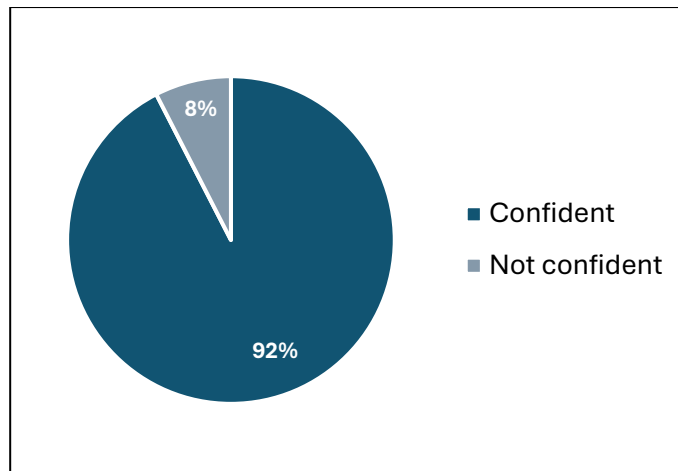


Figure 4.6 Percentage distribution of stroke patients based on their confidence in recovery and independence

Majority of respondents (92%) expressed confidence in their recovery. This suggests that most patients felt optimistic and trusted the care and rehabilitation they received after discharge. It reflects positively on both the treatment process and the emotional support patients may have experienced. However, 8% of the participants reported a lack of confidence in their recovery. Based on their responses, this may be due to the severity of their condition, previous negative health experiences, or possibly gaps in post-discharge information or support. These insights highlight the importance of not only medical care but also the emotional and informational support patients need during their recovery journey.

4.7 Patient-reported levels of overall quality of life post-discharge

This section focuses on how patients rated their overall quality of life following hospital discharge. I asked them to reflect on their ability to enjoy everyday activities, engage in hobbies, and feel satisfied with life in general. Quality of life is a key outcome in stroke recovery, as it goes beyond physical health and considers emotional well-being, social interaction, and overall life satisfaction.

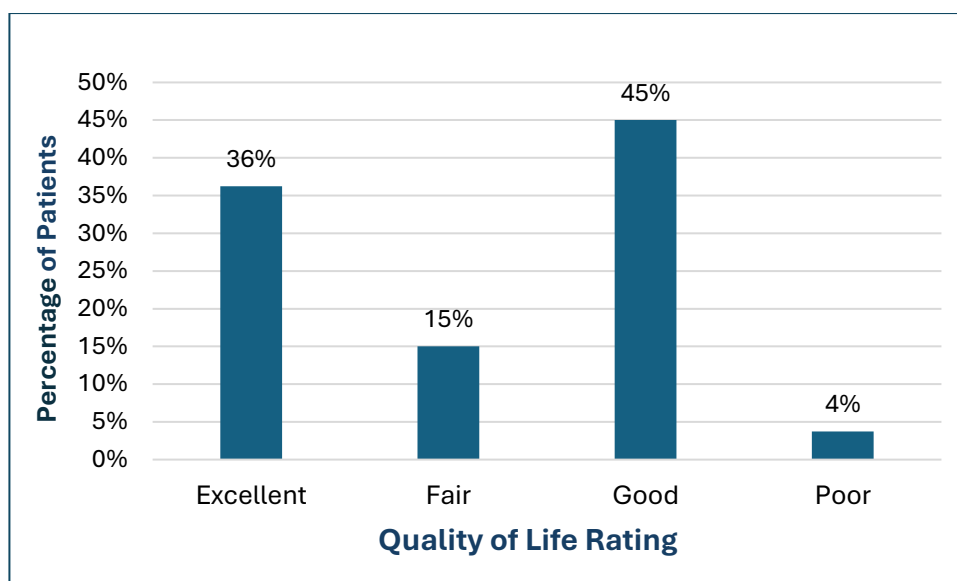


Figure 4.7 Percentage distribution of patients based on their self-rated quality of life

45% of patients rated their quality of life as Good, suggesting that nearly half of the participants felt they were living comfortably with manageable challenges following their stroke. A significant 36% described their quality of life as Excellent, which reflects strong health outcomes, satisfaction with their care, and a positive overall sense of well-being. Meanwhile, 15% rated their quality of life as Fair, indicating that although they may not be in distress, they are likely facing ongoing limitations that affect their daily living. Only 4% of patients reported a Poor quality of life, a small but important group whose feedback highlights the need for closer follow-up and potentially more tailored support services.

4.8 Patient-reported level of support and information received

This section explores how patients perceived the level of support and information they received regarding their recovery after leaving the hospital. Being well-informed about follow-up care, therapy options, medication management, and recovery plans plays a vital role in helping patients feel confident and empowered to take charge of their health. Likewise, ongoing support from healthcare providers, family, and caregivers is essential for addressing concerns, encouraging adherence to treatment, and promoting a smoother recovery process. Understanding patients' perspectives on these aspects helps identify strengths and areas where additional resources or communication may be needed.

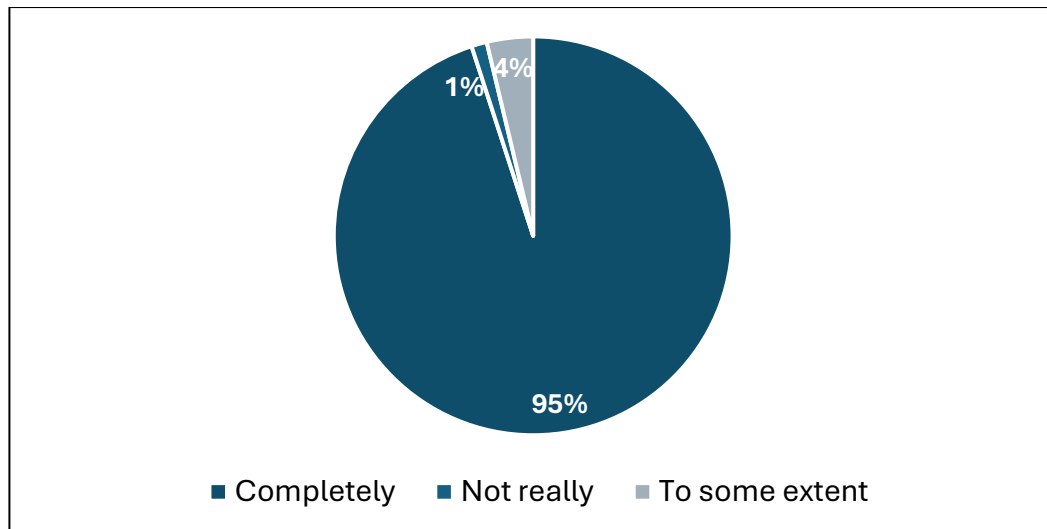


Figure 4.8 Percentage Distribution of patient responses regarding support and recovery information

A very high percentage of patients (95%) felt they were completely supported and well-informed about their recovery, reflecting effective communication and care coordination from the healthcare team. About 4% felt supported to some extent, indicating some gaps in information or assistance for a small number of patients. Only 1% reported not really feeling supported, suggesting that very few patients experienced a lack of guidance or help after discharge. These results highlight the importance of ongoing communication and support in helping patients feel confident and engaged in their recovery journey.

4.9 Frequency of follow-up appointment attendance among post-stroke patients

This section looks at how often patients attended their scheduled follow-up appointments after being discharged. Regular follow-up is an important part of post-stroke care, allowing healthcare providers to monitor progress, adjust treatments, and offer ongoing support. Understanding patients' attendance patterns can help identify barriers to care and improve strategies to ensure consistent medical supervision during recovery.

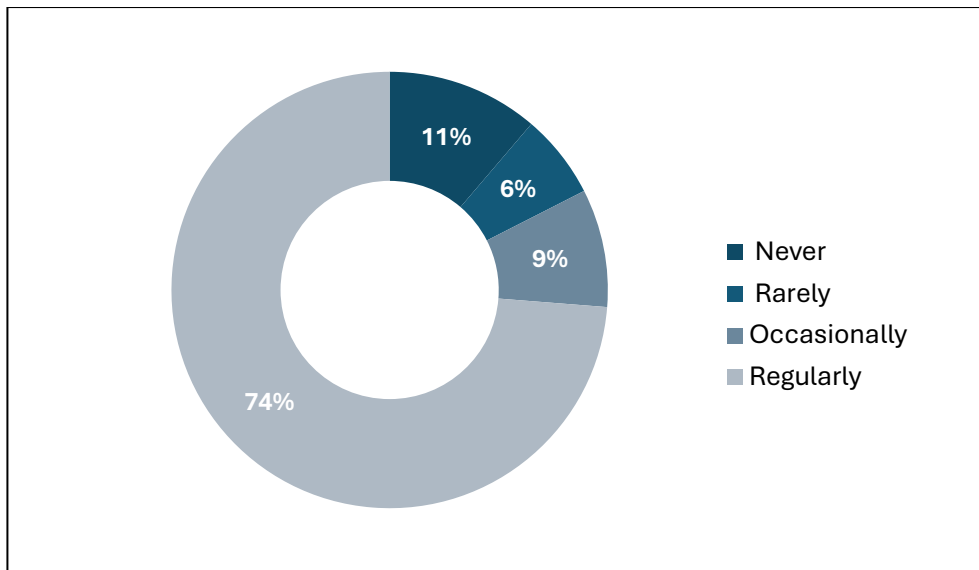


Figure 4.9 Percentage Distribution of follow-up attendance rates post-discharge

Majority of patients (74%) reported attending their follow-up appointments regularly, which is an encouraging sign. It suggests that these patients remained actively involved in their recovery process and likely received continued guidance, therapy adjustments, and reassurance from their healthcare providers. About 9% of the patients attended occasionally, and 6% said they attended rarely, indicating some level of inconsistency or possible barriers such as transportation issues, financial constraints, or lack of awareness about the importance of follow-up care. Alarming, 11% of patients never attended any follow-up appointments after discharge, which may put them at risk of undetected complications or delayed recovery.

4.10 Type of therapies received by stroke patients post-discharge

This section looks into the types of therapies stroke patients received after their hospital discharge. Engaging in post-stroke therapies such as physical therapy, speech therapy, or counselling plays a critical role in helping patients regain lost functions, improve mobility and communication, and cope emotionally. Understanding which therapies patients accessed gives valuable insight into both their recovery journey and the reach of post-discharge rehabilitation services. It also helps highlight any gaps in care or areas where patient support can be improved.

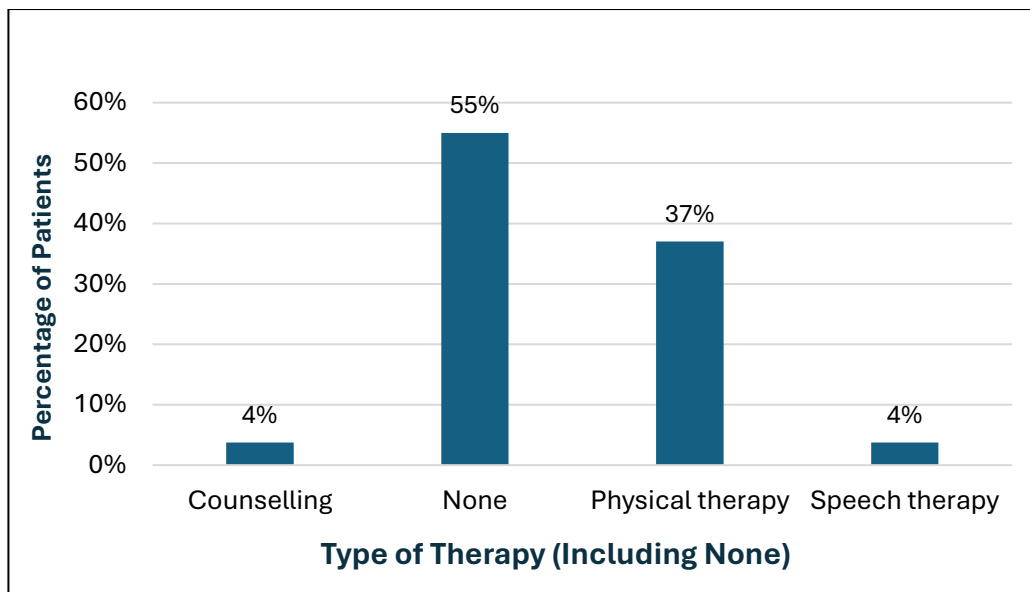


Figure 4.10 Percentage Distribution of patients based on therapy participation

A significant 55% of patients did not undergo any form of therapy after their stroke. Among them, many were assessed to be clinically stable and did not require additional rehabilitation, while others had limited awareness of the benefits that therapies could offer in improving recovery outcomes. Physical therapy was utilized by 37% of patients, showing a strong focus on regaining mobility and physical strength post-stroke. However, only 4% received counselling and another 4% underwent speech therapy, indicating minimal engagement in these specific services, despite their known value in supporting emotional and communicative recovery. This highlights a gap in holistic rehabilitation approaches for some patients.

4.11 Monthly Trend of Stroke Patient Admissions between June 2024 to March 2025

This section looks at how many stroke patients were admitted each month between June 2024 and March 2025. Tracking these monthly numbers helps us understand if there are certain times when more people experience strokes and need hospital care. Knowing this pattern help the hospital prepare better making sure enough staff and resources are available when patient numbers go up. It also gives clues about possible factors that might influence when strokes happen more often. It also helps identify any fluctuations that may be linked to environmental, lifestyle, or healthcare access factors affecting stroke incidence. Overall, this data contributes to more effective planning for stroke care services and supports continuous improvement in patient management strategies.

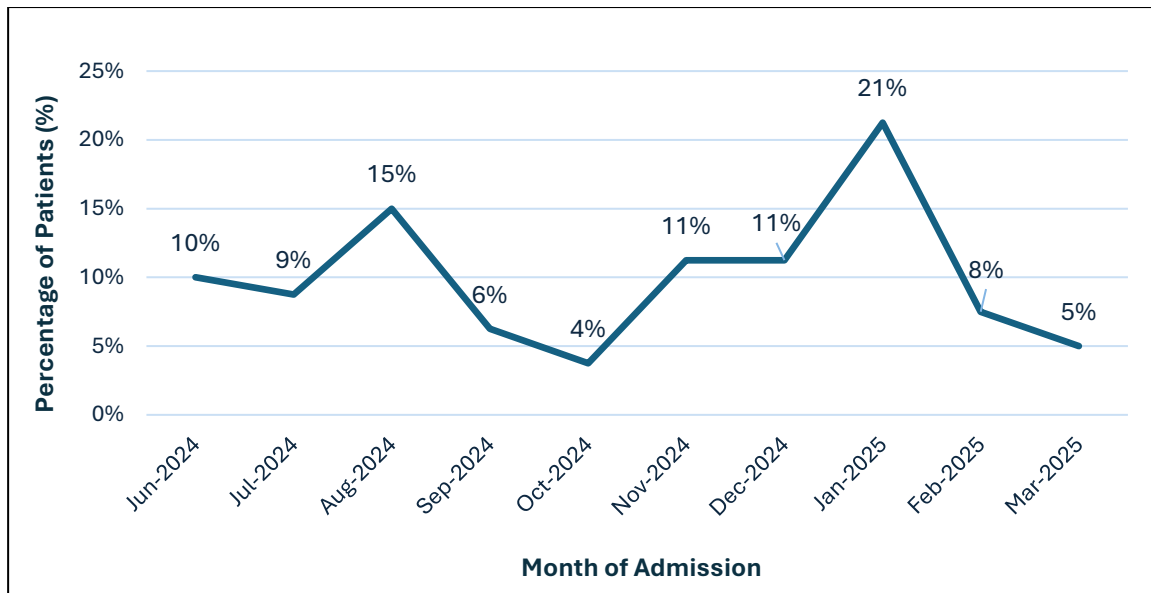


Figure 4.11 Line graph showing monthly admission trend of stroke patients (in %)

The data shows that January 2025 had the highest number of stroke patient admissions, accounting for 21% of total cases. This peak was followed by August 2024 at 15%, while both November and December 2024 recorded 11% each. The lowest admission rates were observed in October (4%) and March (5%). Overall, the trend indicates fluctuating admission rates across the months, with a noticeable spike in the winter months, particularly January, which reflect seasonal or health-related factors influencing stroke occurrences.

Chapter 5 : Discussions

5.1 Summary of Key Findings

Through this study, I was able to explore the post-discharge recovery experience of 80 stroke patients using a structured, patient-centered PROM questionnaire. The findings provided valuable insight into how patients themselves perceive their progress not only in physical terms but also emotionally, cognitively, and socially. One of the most important findings was that a large proportion of participants (48%) were aged between 60–80 years, which reflects the established trend that stroke predominantly affects older adults. Encouragingly, 76% of the patients reported being able to perform their daily tasks independently, indicating substantial recovery in functional mobility.

Another major finding was that 87% of patients reported no cognitive changes, suggesting preserved mental function in the majority an essential factor for independent living and self-care. Emotional well-being was also notably positive, with 50% of participants feeling emotionally strong and only 2% reporting emotional distress. This highlights the emotional resilience of patients, possibly supported by family, faith, or quality care. A particularly uplifting result was that 92% of patients felt confident in their recovery, suggesting that most individuals left the hospital with a sense of hope and trust in their treatment plan.

Additionally, 81% of patients rated their quality of life as either good or excellent, further supporting the idea that recovery was not just physical, but also meaningful in terms of life satisfaction. Another strong point was that 95% of patients felt well-supported and informed, which reflects well on the hospital's discharge education and continuity of care practices. However, despite these strengths, one of the most significant gaps identified was therapy participation 55% of patients reported not undergoing any form of post-discharge therapy. This is concerning, as therapies such as physiotherapy, counselling, and speech therapy play a crucial role in holistic stroke recovery. The findings also showed that 11% of patients did not attend any follow-up appointments, which could delay recognition of complications or unmet needs.

Finally, stroke admissions peaked in January 2025, indicating a possible seasonal pattern. This aligns with existing research that colder months may see increased stroke cases due to physiological factors like raised blood pressure. Together, these findings paint a realistic and

layered picture of recovery highlighting areas of strong patient outcomes, while also identifying specific gaps where stroke rehabilitation efforts can be further improved.

5.2 Comparative Analysis with Existing Literature

The findings of this study resonate strongly with global literature on post-stroke recovery using PROMs (Patient-Reported Outcome Measures). Duncan et al. (1999) developed the Stroke Impact Scale (SIS), a PROM tool that assessed recovery across multiple domains including mobility, ADLs, communication, and emotion. Similarly, this study captured a broad view of recovery by assessing physical functioning, cognitive changes, emotional well-being, and overall quality of life. The high proportion (76%) of patients reporting independence in daily tasks and 92% expressing confidence in their recovery supports the effectiveness of multidimensional PROM-based assessments, affirming their practical value in real-world hospital settings.

Jenkinson et al. (2002) emphasized that PROMs often uncover emotional and quality-of-life concerns that clinical assessments tend to overlook. In alignment, this study found that while half of the participants felt emotionally positive, a significant 48% reported feeling neutral, an emotional grey zone that may not surface during routine clinical evaluations. Such findings underscore the unique value of PROMs in enhancing emotional surveillance post-discharge, which is particularly relevant for quality improvement teams in ensuring holistic recovery support.

Further, the study by Jonathan et al. (2014) in England and Wales demonstrated that PROM tools used at 3 and 6 months post-discharge could predict patients' rehabilitation needs and social reintegration challenges. My study similarly identified that 55% of patients did not receive any form of therapy after discharge, despite some reporting moderate limitations or low confidence in recovery. This gap signals an opportunity to use PROM data not only for evaluation but also to flag patients for targeted follow-up and rehabilitation, enhancing care continuity.

Andrew et al. (2017) showed that early rehabilitation post-stroke was associated with better PROM scores. This aligns with my findings where patients receiving physical therapy (37%) reported better functional recovery. However, the very low utilization of speech therapy and counselling (4% each) suggests a service delivery gap that, if addressed, could enhance

outcomes in communication and emotional resilience, critical but often under-attended aspects of stroke recovery.

Lastly, the study by Pandian et al. (2021) in Tamil Nadu highlighted the importance of using culturally adapted PROM tools in Indian populations. The use of a telephonic, easy-to-understand PROM format reflects this principle, ensuring patients from diverse backgrounds could meaningfully engage and share their experiences. This localized, patient-centered approach is vital for accurate outcome tracking in Indian tertiary care settings, where cultural and language diversity can impact communication.

5.3 The Limitations of the Study

- The study used a convenience sampling method, meaning only those patients who were available and willing to participate via telephone were included. This may have introduced selection bias, as individuals with more severe impairments or limited access to communication may have been unintentionally excluded.
- Data collection was conducted exclusively through telephonic interviews. This limited the ability to observe non-verbal cues, emotional expressions, or physical discomfort factors that could provide deeper insight into a patient's true condition and recovery experience.
- Being a cross-sectional study, the findings represent a snapshot of the patient's condition at one point in time. Stroke recovery is an evolving process, and a longitudinal study design would have allowed for the assessment of changes and trends over time.
- The sample size was relatively small which limits the statistical power and generalizability of the study findings. A larger sample might have offered more diverse insights across different patient subgroups.
- The study was conducted at a single tertiary care center, Rukmani Birla Hospital, Jaipur. While the hospital provides comprehensive stroke care, the findings may not reflect patient experiences in other healthcare settings, especially in rural or resource-constrained areas.

- Some important domains related to stroke recovery such as speech rehabilitation, social participation, return to work, and caregiver burden were not explored in depth. These areas are crucial to achieving a complete picture of post-stroke quality of life.

5.4 The Strengths of the Study

- The study adopted a patient-centered approach using PROMs, placing the patient's voice at the center of post-stroke recovery assessment. This is especially valuable in a clinical landscape that often relies heavily on physician-reported outcomes and clinical imaging.
- It addressed important recovery domains such as mobility, cognitive function, emotional well-being, and overall quality of life, offering a holistic view of the post-stroke experience beyond just physical health.
- The study was conducted in a real-world hospital setting (Rukmani Birla Hospital, Jaipur), adding practical relevance to the findings. The setting provided a structured environment for identifying patients, tracking discharges, and ensuring consistent follow-up.
- The PROM questionnaire was adapted to be simple, culturally appropriate, and easy to administer via phone calls, allowing broad participation and reducing communication barriers often faced in complex survey tools.
- Despite the resource limitations of telephonic data collection, the study successfully achieved a good response rate, demonstrating the feasibility and acceptability of using PROMs for follow-up in Indian healthcare settings.
- Ethical standards were carefully maintained, including obtaining verbal informed consent and ensuring confidentiality, reinforcing the academic integrity and respect for patient dignity throughout the research process.
- The findings provide actionable insights for hospital quality departments by identifying service gaps such as limited access to post-discharge therapy and irregular follow-ups which can inform better discharge planning and continuity of care.

Chapter 6 : Conclusions

This study set out to evaluate post-stroke recovery using a patient-centered approach through the implementation of a PROM (Patient-Reported Outcome Measure) tool. The findings provided meaningful insights into patients' functional independence, emotional well-being, therapy engagement, and overall satisfaction after discharge from hospital-based acute stroke care.

A majority of patients reported good mobility, emotional stability, and confidence in their recovery. However, a significant portion experienced ongoing symptoms such as numbness or occasional pain, while more than half did not undergo any form of therapy post-discharge highlighting potential gaps in follow-up rehabilitation services.

Most patients felt supported and well-informed, yet irregular follow-up attendance and underutilization of counselling and speech therapy indicate missed opportunities for comprehensive care.

6.1 Implications of the Study

- The study demonstrates that PROMs are a valuable tool for capturing patient-centered insights that often go unrecognized in traditional clinical evaluations.
- Findings highlight the need to integrate emotional, functional, and cognitive assessments into routine follow-up care for stroke patients, ensuring a more holistic approach to recovery.
- The use of a culturally adapted, telephonic PROM tool shows that patient feedback can be collected efficiently and feasibly in Indian healthcare settings.
- The study supports the role of hospital quality teams in using PROM data to improve discharge protocols, continuity of care, and personalized rehabilitation strategies.
- Incorporating PROMs into routine quality audits can help hospitals align services more closely with what truly matters to patients, thus improving satisfaction and long-term outcomes.

6.2 Recommendations

- Incorporate PROM-based assessments into routine follow-up care to better understand patients' recovery experiences and unmet needs.
- Establish structured post-discharge rehabilitation plans that ensure timely referrals and improved access to essential therapies such as physiotherapy, counselling, and speech therapy especially for patients with emotional or communication-related needs, as identified through PROM responses
- Improve awareness among patients and families about the importance of follow-up appointments and therapy engagement for better recovery outcomes.
- Create a standard follow-up protocol that includes asking patients about their recovery using simple PROM questions during every outpatient visit or call.
- Conduct longitudinal follow-ups using PROMs to track progress over time and refine rehabilitation strategies accordingly.

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ANNEXURE

Data Collection Tool – Post-Stroke PROM Questionnaire

The PROM questionnaire included the following questions and response options:

1. How would you rate your ability to move around, perform daily tasks, and stand/walk for long periods since your discharge?
 - Very limited
 - Moderate ability
 - Doing day-to-day activity
2. How often do you experience weakness, numbness, pain, or discomfort since discharge?
 - Never
 - Occasionally
 - Frequently
3. Have you experienced any changes in thinking, memory, decision-making, or concentration since your stroke?
 - No change
 - Mild change
 - Moderate change
4. How would you describe your emotional well-being lately (anxiety, depression, overall mood)?
 - Very positive
 - Neutral
 - Very negative
5. How confident do you feel about your recovery, returning to work, and regaining independence?
 - Very confident
 - Not very confident
6. How would you rate your overall quality of life and satisfaction with hobbies or leisure activities?
 - Excellent
 - Good

- Fair
 - Poor
7. Do you feel supported (socially and medically), and well-informed about your recovery plan and follow-ups?
- Completely
 - To some extent
 - Not really
8. How often have you attended follow-up appointments or therapy since discharge?
- Regularly
 - Occasionally
 - Rarely
 - Never
9. Since your discharge, have you received or are you currently receiving any of the following therapies or treatments as part of your stroke recovery?
- Physical therapy
 - Occupational therapy
 - Speech therapy
 - Counselling
 - Medication management

Additionally, a remarks section was included at the end of the questionnaire to capture any personal feedback, concerns, or suggestions shared by the patient during the interview.

To complement the questionnaire, a data collection sheet was used to record demographic and clinical information such as the patient's age, gender, stroke type (ischemic or hemorrhagic), and discharge details.