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Article

# Exploring Physiotherapists' Perspectives on Gaps in Care Continuity and Their Training Needs to Address These Gaps for Patients with Stroke in Saudi Arabia: A Qualitative Study

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## Abstract

Continuity of care is critical for optimal stroke rehabilitation, yet gaps in post-stroke services in Saudi Arabia may undermine long-term patient outcomes and recovery. This study explored physiotherapists' perspectives on gaps in care continuity for stroke patients in Saudi Arabia and identified the training needs required to address these gaps. An exploratory qualitative study situated with critical realism was conducted using semi-structured individual interviews and focus groups. Twenty-six physiotherapists who were working in outpatient stroke rehabilitation participated. Data were collected through three focus groups and nine individual interviews and analysed using reflexive thematic analysis. Three major themes emerged. First, the significant gaps in post-stroke care were identified, including the lack of specialised rehabilitation centres and clinical practice guideline. Second, participants described both facilitators and barriers to implementing continuity of care approaches, such as telerehabilitation, self-management and home care. Third, physiotherapists highlighted the need for comprehensive training in stroke assessment and management, along with the development of standardised patients and caregiver education protocols to support care continuity. The study highlights the need for targeted training programmes to enhance physiotherapists' competencies in stroke care. It also calls for systemic collaboration among healthcare organisations and policymakers to develop structured post-stroke services.

**Keywords:** stroke; continuity of care; rehabilitation; physiotherapy; training; qualitative

## 1. Introduction

Stroke rehabilitation is a dynamic, goal-oriented process aimed at helping individuals achieve optimal physical, cognitive, emotional, linguistic, social and functional recovery [1]. In Saudi Arabia (SA), rehabilitation typically begins during the inpatient hospital phase and continues with supervised sessions in outpatient clinics, delivered by a multidisciplinary team, including physiotherapists. However, sustaining functional gains after discharge requires access to comprehensive long-term rehabilitation services [1]. Long-term rehabilitation is crucial in enhancing neuroplasticity [3], with evidence showing that recovery can extend beyond 12 months, and in some cases up to 24 months post-stroke [4–6]. Despite initial improvements, the risk of recurrent stroke remains approximately 5% at 6 months, 8.4% at 1 year, and nearly 20% at 4 years, along with a 9% rate of functional decline [7,8]. Accordingly, current clinical guidelines recommend continued rehabilitation as long as progress is evident [9,10], shifting the definition of recovery from a time-

based to a functional based model [11]. Engagement in long-term rehabilitation has been shown to improve physical performance in stroke survivors [12].

Continuity of care is a central concept in post-stroke rehabilitation and is closely related to care coordination, patient-centred care, connected and integrated services [13]. In this study, continuity of care refers to sustained, coordinated engagement between patients and healthcare providers across three key dimensions: informational, management, and relational continuity [14,15]. This framework provides structural way to examine the current state of care provision in SA.

Limitations in continuity of care in SA represent significant challenges for stroke patients. A major issue is the lack of community-based and post-discharge rehabilitation services [16,17]. Continued therapy is often only available only in private clinics, creating financial barriers for those with limited resources. Access to specialised stroke care is also highly centralised, with only three operational stroke units across the country [18]. As a results, many patients are required to travel long distances to receive appropriate care [19,20]. Numerous studies have called for the establishment of dedicated stroke rehabilitation centres and specialised teams to address these disparities [16,21,22].

Additional challenges include workforce shortage, high patient volumes, logistical barriers such as transportation. Between 2008 and 2012, nearly four million patients visited physiotherapy clinics, creating additional strain on available services [23]. This demand, coupled with staffing shortages, has led to limited access and reduced quality of care [24]. Furthermore, 60% of patients reportedly missed two consecutive physiotherapy appointments due to transportation difficulties [25]. Another factor is the limited involvement of national organisations, such as the Saudi Stroke Association, has limited the development of coordinated efforts to support the patients post-discharge.

This limited access to long-term rehabilitation options may affect recovery and impact overall health outcomes of patients [26] as stroke survivors in SA experience lower overall quality of life [22,26], and a higher prevalence of psychological issues, including anxiety and depression, with rates approaching 28.9% [27]. Additionally, stroke patients in public hospitals report low perception across physical, emotional, social, and environmental areas, negatively impacting their overall quality of life [26].

Despite the importance of long-term care for patients with stroke, to the best of the authors knowledge, no study has yet explored physiotherapists' perspectives on continuity of care for stroke patients in Saudi Arabia. Exploring their views is essential given the significant influence of social, cultural, familial, and religious factors on rehabilitation outcomes. Moreover, to successfully introduce new physiotherapy practices, it is essential to first assess their compatibility with the local cultural context and healthcare infrastructure. Understanding physiotherapists' attitudes toward these approaches and identifying effective strategies for implementation will ensure they are properly equipped to deliver high-quality care to stroke survivors in SA. Therefore, this study aimed to investigate physiotherapists' perspectives regarding the continuity of care post discharge from inpatient for patients with stroke in SA. The objectives include exploring gaps of care continuity approaches in SA, identifying strategies and training needs to enhance continuity of care.

## 2. Materials and Methods

### 2.1. Design

This paper adheres to the Standards for Reporting Qualitative Research (SRQR) guidelines in reporting the findings of the study [28]. A qualitative exploratory approach, situated with critical realism [29] was considered the most appropriate method to investigate the study aim. This is because qualitative approaches are valuable in providing in-depth descriptions that are particularly effective for gaining insights into complex or poorly understood areas of healthcare. Additionally, critical realism focuses on understanding events by exploring the underlying processes and mechanisms that lead to their occurrence under specific conditions [30]. This approach aligns with the study's aim to uncover the factors influencing continuity of care for stroke patients post-discharge. Ethical approval was provided by the Ministry of Health ethics committee, (Jazan Health Ethics Committee, Ref: 2377)

on 31/08/2023. Additional review and approval were provided by the University of Birmingham on 25/09/2023 (Science, Technology, Engineering and Mathematics (STEM) ethics committee, Ref: ERN\_20-1836).

## 2.2. Participants

The population of interest was male and female physiotherapists working in SA who were providing therapy to patients following stroke in outpatients' clinics. Outpatient clinics were chosen because they represent a key setting for delivering long-term stroke rehabilitation. Subjects were excluded if they are not registered to practice in SA and do not work with patients with stroke.

## 2.3. Data Collection

Data was collected using both focus groups and individual interviews. An advantage of using both approaches was that this enabled methodological triangulation and validation of the data [31]. The interaction and exchange of information in the focus groups allowed similarities and differences in experiences to be discovered, while individual interview can protect privacy and address confidentiality concerns that may occur in focus groups. Further, it to allow flexibility in scheduling and thus minimised the potential risk of dropouts. Thus, participants were able to select the method that best correlated with their preferences and level of comfort. Online format was used as it cost effective and can allow reaching participants across diverse geographical locations. This was essential to link participants from different hospitals in the focus groups to discuss the variation in practice, given the busy schedules of physiotherapists. Further, virtual groups offered anonymity and camera-off options, creating a more comfortable, private environment that encouraged participation while also reducing health risks.

The development of the interview guide was based on insights from a prior review of stroke needs [32], and previous studies exploring the needs of patients with stroke in SA specifically [19] and other similar studies [33,34]. The question guide explored therapists' views and perspectives on three elements to meet the study objectives: (1) current physiotherapy practice for stroke care in SA in continuity of care, (2) strategies that can be applied in a local context to improve continuity of care and (3) skills and knowledge gaps of physiotherapists regarding delivering services that enhance the continuity of care after discharge from the hospital. In addition, demographic information, including age, gender, work setting, education level and years of clinical experience, were collected (S2 file).

To evaluate the interview questions, a cognitive interview was conducted with one participant [35]. However, it was not included in the final analysis. Additionally, to assess the interview schedule, a pilot interview was conducted with the same participant. After the pilot interview, the interview questions guide was revised for clarity and relevance. Yes/no questions were changed to open-ended ones to encourage more detailed responses, similar questions were merged, and ambiguous questions were clarified based on participant feedback. New questions were added to capture important information about patient assessment tools, goal setting and the desired training areas. The questions were rearranged to align better with the research objectives.

## 2.4. Procedure

The project was carried out in SA. Convenience sampling was used, the head of the department in seven hospitals was informed of the study requirements and requested to provide the principal investigator (PI) with a list of physiotherapists who worked with stroke patients. Physiotherapists were selected randomly from the list and contacted by the first author. They were given a participation information sheet if they were interested and eligible, which explained the aim of the study, and who is conducting it.

Potential participants had 2 days to consider whether to participate, during which they had the opportunity to ask questions. If they decided to participate, the PI obtained informed consent. Informed consents were signed and sent by email or WhatsApp by participants themselves.

Physiotherapists were invited to participate in semi-structured online interviews or focus groups. The interviews took place between October to December 2023. All focus groups and individual interviews were conducted online via zoom. Physiotherapists were able to choose their desired times for the interviews and focus groups. While the physiotherapists were proficient in English, the researchers preferred to conduct the study in Arabic, the participants' native language. This choice was intended to reduce potential limitations and communication barriers, facilitating a more effective and accurate exchange of information. In addition, it ensured that all participants could fully comprehend the instructions and questions presented to them. Subjects were also told about of their right to ask questions and take breaks anytime they liked.

The interviews were recorded (with the participants' permission), transcribed verbatim and translated into English, and the participants' anonymity and confidentiality were ensured [36]. Pseudonyms were used in the study, and participants were instructed to change their names before joining the online platform. Additionally, any personally identifiable information, such as the participant's organisation, was not to be mentioned. Data protection was ensured through adherence to the Data Protection Act [37].

### 2.5. Sample Size

Braun and Clarke [38] argued that data saturation is not a valid approach for reflexive thematic analysis. Thus, the exact size was informed by information power [39]. For the focus group, as it suggested to conduct at least two focus groups for each defining demographic characteristic [40]. Each focus group could include six to 10 participants [41]. However, a smaller number of participants can work as well [42]. Five items were identified as required to reach the power goals: study aim, sample specificity, use of established theory, quality of dialogue, and analysis strategy. The aim of this study was clear and narrow. The targeted participants, physiotherapists who worked with patients with stroke, directly addressed the study's aim. A well-structured interview guide was also developed that encouraged the collection of detailed responses. Non-direct prompts, such as, "tell me more", "keep talking", and "can you elaborate on that?", were used to gather more detailed information as required. The researcher's familiarity with the topic, gained through conducting two prior connected stages of research, also provided a strong foundation for interpreting the findings effectively.

### 2.6. Data Analysis

The interview transcripts were written in Arabic and sent to an authorised translation services to be translated into English. The PI reviewed all English transcripts with the Arabic to confirm the accuracy of the translation. Additionally, the researcher verified whether the translated transcripts accurately represented the original spoken language phrases. Then, a reflexive thematic analysis of the qualitative data was undertaken on English transcripts [43]. The thematic analysis involves six stages: (1) Becoming familiar with the data: The researcher adopted an active reading approach that involved engaging deeply with the data itself, being observant, identifying patterns, raising questions, and analysing the information rather than passively absorbing it. (2) Generate initial codes: inductive line-by-line coding for the English transcripts were developed. Additionally, the findings were subjected to a blind open coding process by two authors and the PI. The PI was required to present a defensible case for each stage of the analysis. (3) Searching for themes: the PI analysed the codes and the related data, then merged and grouped the codes into larger patterns, and then clustered them into groups using tables and maps. (4) Reviewing potential themes: The PI reviewed the themes to confirm they aligned with the coded data, the overall dataset, and the research question. (5) Defining and naming themes: The PI provided a brief definition of the major themes that capture the central concept of each theme. (6) Producing the report: The PI moved from the analysis point to writing a summary of the findings. An example of the analysis can be found in S3.

### 2.7. Rigor and Trustworthiness

All interviews were carried out by the principal investigator (BT), a female PhD student at the time of the study and a registered physiotherapist in SA. There were no pre-existing relationships between the interviewer and the interviewees. The rigor of this study was maintained via various approaches. The researcher engaged in thorough note-taking during interviews to facilitate comprehensive data documentation and analysis. Furthermore, the analysis was conducted by the PI concurrently with the data collection stage, which enabled immediate feedback to inform the next interviews and the in-depth exploration of themes. The credibility of the study was ensured via triangulation, as the analysis was conducted by three analysts (BT, AS and SR). The three focus groups were independently coded by AS, and five individual interviews were coded by SR. Their coding and interpretations were compared with those of the primary analyst (BT). The master table of the themes were sent to senior researchers for peer examination. Further, three participants reviewed their interview transcripts to confirm their accuracy as part of the member-checking process. The maintenance of an audit trail throughout the research process ensured transparency. An example of analysis is given in S3 file and a completed COREQ checklist is attached in S4 file.

## 3. Findings

### 3.1. Description of Participants

Overall, 26 physiotherapists participated in this study, 14 females and 12 males, with five, six and six participants in the three focus groups. Nine physiotherapists declined participation primarily due to time limitations, while seven either did not respond or initially consented but did not complete the interview process. There were nine individual interviews. The mean age of the participants was 32.4 years (SD: 1.18), and the mean years of clinical experience was 9 years (SD: 1.08). 12 participants held bachelor's degrees, while 14 had Master's degrees. The interviews and focus groups time ranged from 18 minutes to 1:05 hour. Participants characteristics are given in supplementary file (S1).

### 3.2. Synthesis

Three major themes were identified (1) Gaps in stroke rehabilitation (2) Gaps in continuity of care approaches (3) Training needs. Table 1 provides details of the thematic structure. Details of each theme are provided below.

**Table 1.** Summary of the themes.

Major theme	Sub-themes	Codes	Definition	
Gaps in stroke rehabilitation	Limited post-discharge support	Lack of a post-discharge plan	This theme illustrates the lack of structured and organised post-discharge support for stroke patients.	
		Therapists neglecting post-discharge factors		
		Limited social support		
		Insufficient home assessment		
	Overarching limitations of care	Absence of specialised rehabilitation centres		The limitations of rehabilitation care in SA are described in this theme.
		Lack of standardised clinical practice guidelines		
		Insufficient sessions and high workload.		
		Absence of follow-ups		

Gaps in continuity of care approaches	Perceptions of telerehabilitation	Uses of virtual clinics	In this theme, the current uses of virtual clinics and the facilitators of and barriers to telerehabilitation were described.	
		Barriers to the successful implementation of virtual clinics		
		The need to establish trained telerehabilitation teams		
	Perceptions of self-management and home exercises	Lack of patient commitment to home-based rehabilitation programmes		In this theme, the facilitators, limitations, and absence of a standardised protocol regarding self-management education for both patients and caregivers have been identified.
		Self-management facilitators and barriers		
		The need for patient education approaches		
Training needs	Training on stroke assessment and management	Limited training in stroke rehabilitation	This theme demonstrates the training needs regarding stroke assessment and management.	
		Need for comprehensive training in neuro assessment and outcome measures		
		Need for training on psychological interventions		
		Need for training on social support		
		Limited awareness of goal-setting process		
	Improvements in training and education for patients and carer	Lack of standardised guidance for patient education		This theme illustrates the need for standardised patients' and caregivers' education and training.
		Need for structured caregiver training		

### Major Theme One: Gaps in Stroke Rehabilitation

This theme provides an overview of the post-discharge support and limitation rehabilitation care provided to stroke patients in SA. This theme contains two subthemes: 1) limited post-discharge support, 2) overarching limitations of care.

#### Subtheme 1: Limited Post-Discharge Support

This theme illustrates the lack of structured and organised post-discharge support for stroke patients. According to the participants, the time that elapsed before outpatient rehabilitation began varied widely, ranging from one week to two months, with some experiencing a gap in rehabilitation services between inpatient and outpatient care. This was illustrated by Participant 17: *"The gap between inpatients and outpatients was usually from 1 to 3 weeks or up to a month. It depends. I mean, where did they come from? Was it from the same hospital or not?"* Participant 2 said, *"they might leave the hospital, and then, after a month or even 2 months, they start as outpatients because of the appointment availability. Yes, it's because of the availability; there might not be any available slots initially"*. Participants noted a lack of attention to post-discharge life, with many feeling that patients were left to navigate recovery independently after being discharged. Participant 2 said, *"In some instances, it appears that physiotherapists may not give sufficient attention to the patient's life post-discharge, leaving them to navigate their recovery largely on their own"*. Participant 7 stated that *"Once the patient is discharged, whether with*

a wheelchair, cane or anything else, they're discharged. There's not much emphasis on these issues like how they manage at home, how they walk around their home and how they handle things at home. To be honest, there isn't much attention given to this aspect". Another notable gap was highlighted in the assessment of the patients' home environment. Participant 26 stated that "therapists should pay attention to the social aspects, such as assessing the patient's home environment for accessibility". Participant 9 stressed the importance of therapists expanding their attention beyond functional issues and taking into account the social dimensions of a patient's life: "But from a social perspective, there isn't much support, most of them do not have access to social services".

## Subtheme 2: Overarching Limitations of Care

The limitations of rehabilitation care in SA were described in this theme. Participants expressed the critical inadequacy of the current infrastructure. They noted that hospitals are ill-equipped to handle the large number of patients, resulting in insufficient sessions and a high workload for physiotherapists. Participant 14 stated, "It could be due to limitations in infrastructure and a lack of sufficient staff, equipment or rehabilitation protocols to optimise the service". Participant 17 added, "The number of patients in our department is larger than the capacity of the facility". The absence of specialised rehabilitation centres and therapy teams compounds the problem. The participants believed that having a specialised team could result in more time being dedicated to patients and their needs being addressed more effectively. Participant 1 stated, "There should be a specialised rehabilitation centre for the entire region, one equipped with the necessary devices and resources." She added, "The issue in hospitals is that there is no specialisation, we don't have dedicated teams or groups for specific conditions". Additionally, participants highlighted a lack of standardised clinical practice guidelines, which leads to inconsistencies in therapy quality, depending on the training and expertise of individual physiotherapists. Participant 14 illustrated this by stating, "There are some shortcomings in terms of the service not being standardised across all hospitals and Ministry of Health centres. This leads to variations in the quality of the service provided in different locations. Some patients receive appropriate or excellent therapy based on the expertise and training of the physiotherapist". They highlighted the absence of follow-ups, which creates a gap in terms of addressing long-term patient needs. Participant 8 stated, "Once they are discharged, they typically do not have follow-up at the clinic". Addressing these limitations is paramount in enhancing the quality of rehabilitation services.

## Major Theme Two: Gaps in Continuity of Care Approaches

This theme illustrates the facilitator and barriers to approaches can be used to ensure continuity of care. The theme consisted of two subthemes: 1) perceptions of telerehabilitation, 2) perceptions of self-management and home exercises.

### Subtheme 1: Perceptions of Telerehabilitation

In this theme, the current uses of virtual clinics, as well as the facilitators of and barriers to telerehabilitation, were described. The physiotherapists' perspectives on the benefits of using virtual clinics varied. While majority of them find telerehabilitation beneficial if implemented in the correct way, some consider it ineffective. Participant 17 claimed that "They can be effective in some cases when needed, but as a substitute for in-person sessions, I don't see them as effective for therapeutic sessions. However, as a form of consultation, they might have some benefits". According to the physiotherapists, virtual clinics currently primarily act as platforms for patient consultations and communication, rather than being utilised for the delivery of rehabilitation services. This is mainly because physiotherapists are required to keep certain records of virtual sessions for annual evaluations, which are crucial for their promotion, rather than focusing on delivering rehabilitation services in more efficient way. Only one physiotherapist had employed virtual clinics to deliver therapy and was not a stroke patient. Participant 24 stated, "It's more about maintaining communication, when it comes to physical exercises and telling the patient to do a certain exercise, it is quite challenging".

The identified barriers to the successful implementation of virtual clinics included the need for education among both physiotherapists and patients, the need to ensure access to the internet and concerns related to the elderly population's limited awareness of technology. Moreover, the sense of security patients feel with their physiotherapists plays a crucial role in this regard. The participants emphasised the importance of providing training in telerehabilitation, and they recommended the establishment of dedicated telerehabilitation teams to enhance telerehabilitation implementation. Participant 24 stated, *"I think there are studies, as you know, that show the service can be provided if you train physiotherapists specifically for it. I don't think physiotherapists here have been trained or solely dedicated to telerehabilitation"*.

#### Subtheme 2: Perceptions of Self-Management and Home Exercises

The limitations and absence of a standardised protocol for self-management education for both patients and caregivers have been identified in this theme. Physiotherapists expressed a common concern regarding patients' lack of commitment to home-based rehabilitation programmes. Participant 6 stated, *"After 10 years of experience, the majority, around 80%, of patients, don't adhere to the instructions or exercises you give them"*. Several self-management facilitators and limitations have been identified in this context. Psychological factors, such as depression and anxiety; patient motivation and family cooperation and support, or the absence thereof, play pivotal roles in determining the success of home programmes. Moreover, a few physiotherapists noted that patients may not always follow caregiver instructions. Additionally, challenges from the patients' perspective, such as resource constraints, busy schedules and the fear of exercising without supervision further complicate home-based exercises. Participant 24 highlighted that *"Sometimes, patients may not have enough education, some resources are not available to them at home or they might lack assistance"*. Participant 8 stated, *"We try to involve the patient's family, sometimes, the patient may be in a state of depression and doesn't want to come or do exercises. The patient lacks internal motivation. In such cases, the family plays a crucial role"*. In some cases, caregivers were not supportive enough during the process of rehabilitation. This was illustrated by Participant 26, who stated that *"Caregivers are often busy, so the patient may not have anyone to assist them, social support may be lacking"*.

To address these limitations, physiotherapists emphasise the need for mandatory patient education approaches, highlighting the absence of a standardised protocol for self-management education for both patients and caregivers. Participant 4 stated, *"I personally give them guidance and instructions that they should adhere to. There's no specific model, and if they need something else, we tell them to come back"*. The participants stressed the importance of providing ongoing support, such as proper patient education, involving caregivers in the educational process and educating patients about the significance of adhering to home rehabilitation programmes. Participant 8 emphasised that *"They need to show interest, ensure the patient attends their sessions and emphasise the importance of treatment and the current phase of recovery"*. Participant 17 stated, *"We're also working on raising awareness among patients about the importance of the home programme and completing sessions regularly and educating them about their condition"* Participant 17. In essence, physiotherapists emphasise a comprehensive approach to enhancing self-management perspectives and outcomes for patients.

#### Major Theme Three: Training Needs

This theme highlights the crucial need for comprehensive training and education in stroke assessment, management and rehabilitation. This theme involved two subthemes: 1) training in stroke assessment and management and 2) improvements in training and education for patients and caregivers.

##### Subtheme 1: Training on Stroke Assessment and Management

This theme demonstrates the training needs of physiotherapists regarding stroke assessment and management. The physiotherapists perceived a lack of a specialised training for stroke

rehabilitation after qualification. It should be noted that physiotherapists in SA receive 1 year of training pre-qualification, which covers general aspects of various specialisations, including orthopaedics, neurology and paediatrics. They said that while some training occurs post qualification, it is often driven by physiotherapist motivation, and courses are very limited. Participant 24 stated, *“the training for neurological cases is insufficient, there are limited courses that address the specific needs of practitioners”*. Participant 26 added, *“For stroke and neurological cases, the training is relatively limited”*. The physiotherapists emphasised the importance of establishing regular and comprehensive training courses that focus on various aspects of stroke rehabilitation. Firstly, there is a recognised need for training in neurological assessment and outcome measures. Participant 24 stated, *“I believe they should focus on the basics, including assessment, evaluation, tailoring exercises and setting goals based on the patient’s needs”*. She added, *“I believe if there’s someone specialised in neurology, qualified for neurology cases, and they start offering courses, particularly in assessment—the foundation—and, then, they proceed with the treatment procedure, these things would be better because most physiotherapists are not specialised”*. The physiotherapists also stressed the importance of specialised training to support patients psychologically and socially. Participant 26 said, *“One of the key areas we could improve on is the psychological aspect, we are not particularly strong in this area”*.

It seemed that there was a lack of standardised tools for setting goals. Physiotherapists individually establish goals for patients based on their conditions, as there are no formal tools used. Additionally, physiotherapists often overlooked patient involvement in the goal-setting process, citing patients’ limited knowledge of goal setting as a barrier. Participant 25 stated, *“Goals are mostly determined by the physiotherapist alone, and they proceed according to their treatment plan, if there is no initiation from the patient, it’s rare for a physiotherapist to ask about the patient’s goals, wishes or aspirations. They assess the patient and start working on the existing impairments”*. Participant 1 stated, *“I mean, we ask them what they want, but they don’t even understand physiotherapy”*. Patients’ goals are often perceived as illogical, highlighting a potential misalignment between patient expectations and physiotherapists’ objectives. Participant 17 stated, *“Honestly, I always ask this question, and in the majority, they answer unreasonable answers, and they usually say, “Yes.” Like, “I want to return to normal. I want to be like before.”’* He added, *“The patient’s initial goal is something that is not logical or difficult”*. Training in goal setting was noted as an important area for improvement. Participant 17 stated, *“Perhaps improving in setting plans and explaining to caregivers would be helpful, as well as using the outcome measures”*. Addressing these gaps in training physiotherapists is essential in enhancing the quality of care for stroke patients.

## Subtheme 2: Improvements in Training and Education for Patients and Caregivers

This theme illustrates the need for standardised patient and caregiver education and training. The participants emphasised the critical need for patients to receive comprehensive education regarding their medical conditions. Participant 17 stated, *“The medical education provided for the patient and their companions may not be sufficient”*. However, the physiotherapists highlighted a lack of standardised guidance and resources for educating both patients and their families effectively. This gap results in physiotherapists lacking essential information about how to provide inpatient care and prepare patients and families for their transition to home. Participant 25 stated, *“Some (physiotherapists) don’t provide proper education for home programmes; instead, they instruct patients to perform the exercises covered in the session at home”*. Participant 4 stated, *“I personally give them guidance and instructions that they should adhere to, there’s no specific plan, and if they need something else, we tell them to come back”*. Moreover, the training of caregivers to support their relatives lacked organisation and structure. Participant 1 stated, *“Families need to be educated, there should be an educational programme for the families of stroke patients, it’s not about the rehabilitation of the patient; it’s about educating the patient’s family on how to take care of them”*. Participant 7 added, *“But this idea isn’t really implemented, to be honest, it’s not implemented at all, but the concept of involving the caregiver in the treatment plan is great”*. These findings collectively emphasise the critical need for the development of standardised and organised patient education protocols, equipping both physiotherapists and caregivers with the

necessary tools to enhance patient understanding, facilitate smoother transitions and optimise overall care outcomes.

#### 4. Discussion

This study explored the perspectives of physiotherapists on continuity of care for stroke survivors in SA, demonstrating critical gaps in service delivery, implementation challenges, and training deficiencies.

Langhorne and Baylan [44], showed that most stroke survivors in developing countries lack access to inpatient rehabilitation services, making home-based exercises the primary rehabilitation intervention. While such services play a crucial role in meeting the healthcare needs of individuals seeking rehabilitation, Western evidence indicates that post-stroke self-management enhances functional outcomes [45,46], and reduces reliance on healthcare providers, thereby lowering costs [46].

Nonetheless, our study revealed a common concern about patient adherence to home-based exercises, consistent with previous findings by Mahmood et al. [45] that identified barriers including limited professional emphasis, low stroke-related knowledge, and insufficient access to resources, support, and facilities. Moreover, a lack of standardised services, patient education, and physiotherapist training in SA may further hinder effective implementation of home-based programmes.

Effective patient education plays a key role in improving adherence to home-based exercises. Ensuring that patients and families understand the condition and rehabilitation process is essential for enhancing engagement and long-term rehabilitation success [49]. However, patient satisfaction with hospital-provided education in SA remains low, with reported rates ranging from 19.3% to 50% [50], and only 20% of primary care patients receiving any form of health education [51]. Ogwumike et al. [50] recommended that exercise plans be simplified, individualised, and regularly adjusted in terms of intensity, duration, and volume to align with patient capabilities and improve effectiveness.

Goal setting, a widely endorsed strategy to support adherence [53], appeared underutilised by the participant in this study. Mahmood et al. [45] demonstrated that personalised goal-based programmes increased participation in home exercises after stroke. Establishing and reviewing specific, meaningful goals in collaboration with patients is essential to maintaining motivation and engagement throughout rehabilitation.

Additionally, in this study, several physiotherapists also expressed concerns about the practicality of telerehabilitation, citing patient preferences for in-person care. Lack of clear guidelines has been identified as one main barrier for implementing telerehabilitation in SA [17]. In addition, rehabilitation professionals in SA identified patients' privacy and security as one of the primary risks associated with implementing telerehabilitation [17]. Technical and infrastructure limitations further complicate implementation. Hospitals have limitations such as the lack of specialised rooms equipped with reliable internet connections, appropriate audio-visual equipment, and privacy considerations for patient consultations. Previous studies have shown that 75.8% of public hospitals in SA (69 out of 91) are technically inefficient [54], and only 31.7% reported being adequately equipped for telerehabilitation [55]. Additionally, a lack of skills and persistent technical issues remain major barrier for implementing telerehabilitation in SA [55–57].

To overcome these barriers, culturally tailored telerehabilitation guidelines must be developed, particularly regarding privacy and gender-specific considerations. For example, ensuring confidentiality for female patients and physiotherapists must align with religious and cultural values. Establishing specialised telerehabilitation teams could enhance service delivery through improved video and audio quality, real-time monitoring, and updated clinical records [58]. Continuous training and consistent use of telerehabilitation over six months have been shown to significantly improve healthcare professionals' confidence and acceptance of telerehabilitation [59]. Additionally, addressing operational challenges involves properly setting up devices for optimal use and visibility

and delivering rehabilitation kits to patients to improve participation and engagement [60]. Additionally, professionals must receive specific training on safe equipment use and safety procedures, with ongoing technical support to ensure devices function correctly and software remains compatible [61].

## 5. Limitations

The study is the first to explore physiotherapists' perspectives on long-term post-stroke care in SA; however, several limitations must be acknowledged. Firstly, online platforms were employed to conduct the focus groups and interviews. Generally, online focus groups can be beneficial because they enable participants to remain anonymous during discussions. Nonetheless, online interactions may not be able to capture the complexities of the topic and real-life reactions fully or accurately, which are critical in providing comprehensive insights into participant dynamics. Another limitation was encountered due to poor internet connectivity during a few of the interviews. This hindered smooth communication and may have affected the quality and depth of the data collected during those interviews. Furthermore, the sample was drawn from a single city, which may limit the generalisability of findings across the country. Therefore, the perspectives and experiences captured in the study may not fully represent the diversity of viewpoints and practices that exist across regions. Moreover, the maximum number of work experience years for the physiotherapists included in this project was 10 years, and thus, their experience may have been limited.

## 6. Conclusions

This qualitative study explored the perspectives of physiotherapists on post-stroke care in SA, revealing significant gaps in service quality and continuity following hospital discharge. The findings point to an urgent need for targeted training programmes to strengthen physiotherapists' competencies in long-term stroke management, particularly in light of limited community rehabilitation services. To address these challenges, healthcare organisations and policymakers must collaborate to develop structured, integrated post-discharge care pathways. Expanding and improving access to community-based rehabilitation services will be essential to supporting recovery and improving outcomes for stroke survivors nationwide.

**Supplementary Materials:** The following supporting information can be downloaded at the website of this paper posted on Preprints.org. **S1 file:** Participants characteristics. **S2 file:** Interview Questions. **S3 file:** An example of analysis. **S4 file:** Consolidated criteria for reporting qualitative studies (COREQ): 32-item checklist.

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