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Integrating Rehabilitation Services at Primary Healthcare Level in Johannesburg, South Africa

Lebogang Johanna Maseko

Original published work submitted to the Faculty of Health Sciences, University of the Witwatersrand, Johannesburg, in fulfilment of the requirements for the degree of Doctor of Philosophy.

Johannesburg, 2024

Declaration

I, Lebogang Johanna Maseko, student number 9703746R, declare that this thesis is my own work. It is being submitted for the Degree of Doctor of Philosophy at the University of the Witwatersrand, Johannesburg. It has not been submitted before for any degree or examination at any other university. I confirm lead authorship of the published articles included in my thesis.

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Supervisor 2:

…Fasloen Adams……. ……28th day of October 2024_

Name

Dedication

To my Lord and Saviour Jesus Christ, all the Glory belongs to You.

To my husband, Mark, and my children, Kgaogelo, Keletso, and Keamogetswe Maseko, thank you for your patience and for allowing Mommy time to work on her PhD. I hope I have made you proud.

To my parents Charles and Elizabeth Komape and siblings Lerato Mpofu, Lesedi Komape and Lethabo Komape…my tribe… thank you for standing in the gap and filling in for me where I could not be. I love you!

To my guardian angel…Lesego Komape…I hope I have made you proud.

To my cheerleaders and prayer warriors…you know who you are…your prayers and words of encouragement carried me.

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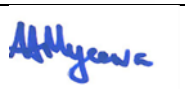
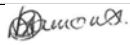
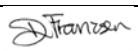
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Agreement by Co-authors

By signing this declaration, the co-authors listed below agree to the student's use of the article as part of her thesis.

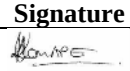
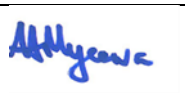
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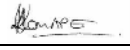
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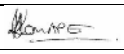
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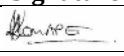
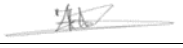
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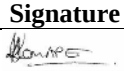
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Publications

Six peer-reviewed journal articles arose from this study, all of which are presented in this thesis.

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Paper 1: Service guidelines, models, and protocols for integrating rehabilitation services in primary healthcare in Brazil, Russia, India, China, and South Africa: a scoping review.

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Paper 6: Primary healthcare rehabilitation service users' views on activity limitations and participation in South Africa.

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Paper 3: Barriers, facilitators and the future of integrated rehabilitation services in primary health care in a South African metropolitan area.

Authors: Lebogang Maseko, Fasloen Adams, Hellen Myezwa

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Contributions of Authors to the Study

The conceptualisation of the study, the research design, and the research protocol were primarily crafted by myself under the guidance and mentoring of my supervisors. The research implementation was conducted independently, but my supervisors were available for consultation as needed.

Nomenclature

BRICS	Brazil, Russia, India, China, and South Africa
CARTA	Consortium of Advanced Research Training in Africa
CBR	Community-based Rehabilitation
CHC	Community Health Centres
CHW	Community Health Worker
CRediT	Contributor Roles Taxonomy
FSDR	Framework and Strategy for Disability and Rehabilitation Services
ICF	International Classification of Function, Disability, and Health
JBI	Joanna Briggs Institute
LMIC	Low- and Middle-income Countries
NHI	National Health Insurance
PC	Primary Care
PhD	Doctor of Philosophy
PHC	Primary Healthcare
PRISMA	Preferred Reporting Items for Systematic Reviews and Meta-Analyses
RE-AIM	Reach, Effectiveness, Adoption, Implementation, and Maintenance
REDCap	Research Electronic Data Capture
SDG	Sustainable Development Goal
UHC	Universal Health Coverage
UK	United Kingdom
UN	United Nations
UNICEF	United Nations Children's Fund
WHO	World Health Organization

Definition of Terms

Integration: Integration theory spans three levels, namely macro, meso, and micro levels, and highlight the importance of health service delivery as a continual and valued component at all levels of care.[1,2]

Primary healthcare: This is an approach to health aimed at ensuring the equitable distribution of healthcare services and the wellbeing of individuals over their lifespan. It involves empowering individuals, families, and communities to manage their health. Primary healthcare services include health promotion, disease prevention, treatment, rehabilitation, and palliative care.[3]

Primary Care: Primary care generally describes the 'family doctor-type' services provided to individuals at the first point of entry and contact with health services.[4] There are inevitabley different interpretation of primary care, however the WHO describes it as a model of care that supports first-contact, accessible, continuous, comprehensive and coordinated person-focused care. It aims to optimize population health and reduce disparities across the population by ensuring that subgroups have equal access to services. There are five core functions of primary care:

- First contact accessibility creates a strategic entry point for and improves access to health services.
- Continuity promotes the development of long-term personal relationships between a person and a health professional or a team of providers.
- Comprehensiveness ensures that a diverse range of promotive, protective, preventive, curative, rehabilitative, and palliative services are provided.
- Coordination organizes services and care across levels of the health system and over time.
- People-centred care ensures that people have the education and support needed to make decisions and participate in their own care.[3]

Rehabilitation: Rehabilitation is "a set of interventions designed to optimise functioning and reduce disability in individuals with health conditions in interaction with their environment" [5p1].

Community-based rehabilitation: This is "a strategy within community development for the rehabilitation, equalisation of opportunities, poverty reduction and social integration of people with disabilities".[10]

Rehabilitation outcomes: Rehabilitation outcomes are changes in an individual's functioning over time that can be attributed to rehabilitation interventions. This may include fewer hospital admissions, greater independence, reduced burden of care, return to roles or occupations relevant to their age, gender, and context (e.g. home care, school, work) and better quality of life[5].

Assistive devices: This is an object crafted, manufactured, or modified to aid an individual in completing specific tasks. Many individuals with disabilities find support using one or multiple assistive devices. Typical examples of such devices include mobility aids (e.g. canes, wheelchairs), prosthetic limbs, orthotic devices (e.g. hand splints), visual aids (e.g. glasses, white canes), and hearing aids.[6]

Abstract

Rehabilitation is an essential component of attaining true Health for all in South Africa. The National Health Insurance Bill of 2019 specifies primary healthcare (PHC) reengineering as one of the action plans. Similarly, the National Development Plan 2030 specifies providing care to families and communities by PHC teams as one of its action points for the transformation of the health system in South Africa to achieve universal health coverage. The provision of rehabilitation services to the broader population through a reengineered PHC can give at-risk populations greater life expectancy, wellbeing, and productivity. Despite the current provision of rehabilitation services at the primary platform, health service planning and provision in South Africa have overlooked rehabilitation as a component of PHC. The physical, social, and economic impact of many health conditions can be mitigated, resulting in a reduced burden of care, both economic and social, for the family and the state. Thus, the need for evidence for integrated rehabilitation services at a PHC level has critical relevance to ensuring inclusive service delivery. Therefore, it is important to review rehabilitation services at the PHC level to establish the current service delivery landscape and to guide the development of a rehabilitation integration framework for PHC within the proposed National Health Service.

This study used a mixed-methods approach with three studies to address the study objectives. A scoping review was conducted to map the service guidelines, models, and protocols used in low- and middle-income countries, specifically Brazil, Russia, India, China, and South Africa (BRICS) (Phase 1). The shortage of rehabilitation personnel and limited access to services, especially in remote areas, impede the integration of rehabilitation services in BRICS. Community-based rehabilitation is confirmed as the most effective approach to integrate rehabilitation in PHC, emphasising community involvement in service provision through trained community health workers and community rehabilitation workers in transdisciplinary teams. Thus, in low- and middle-income countries with limited rehabilitation service access, community health workers, community rehabilitation workers, peer support workers, collaborative care, self-management, and the community-based rehabilitation model may help integrate rehabilitation into PHC.

Using a qualitative approach, a second study was conducted with rehabilitation service providers (n = 12) to understand the extent to which rehabilitation services are integrated into PHC service delivery based on the expressed reality of rehabilitation personnel involved in service provision (Phase 2). The findings revealed a reality of structural-level suboptimal, underdeveloped, and poorly integrated rehabilitation services within the Johannesburg

Metropolitan District. Despite isolated adaptations to service delivery and the adoption of components from rehabilitation integration models, such as outreach, the service remains unintegrated. As a result, health outcomes remain unmet. Gaps in the referral system, lack of human and other resources, poor knowledge and implementation of policy, and inefficient financial systems were cited as barriers to integrated care. The proactive attitudes of rehabilitation personnel, creative thinking, and interprofessional relationships within a collaborative team dynamic were identified as facilitators and prospects for integrated rehabilitation services.

Concurrently, the findings of a retrospective record review of rehabilitation records across the nine provincially funded clinics offering rehabilitation services (Phase 2) provided a profile of the characteristics of rehabilitation users. The characteristics included aspects such as their age, prevalent disabilities, and referral sources. Insights into rehabilitation service provision, including inconsistent record-keeping practices across the various PHC facilities, were also highlighted. The study results revealed the need for a multidisciplinary rehabilitation team to address diverse rehabilitation needs, improve documentation and discharge practices, expand service delivery models, and reduce disparities in service use.

To ensure the perspectives of service users were represented, another qualitative study was conducted with rehabilitation service users. This study aimed to understand the nuanced experiences of rehabilitation services, the perceived impact on their functioning, and the factors influencing those experiences (Phase 3). The analysis showed that service users considered rehabilitation services at operational level to have a substantial positive impact on their activity outcomes and participation and rated them highly. Overall satisfaction of service users with rehabilitation services received in the Johannesburg Metropolitan District was expressed and were influenced by factors such as the actions of rehabilitation personnel, service users' own active involvement in the rehabilitation process, the organisation of the rehabilitation services, improved service accessibility, and notable functional improvements.

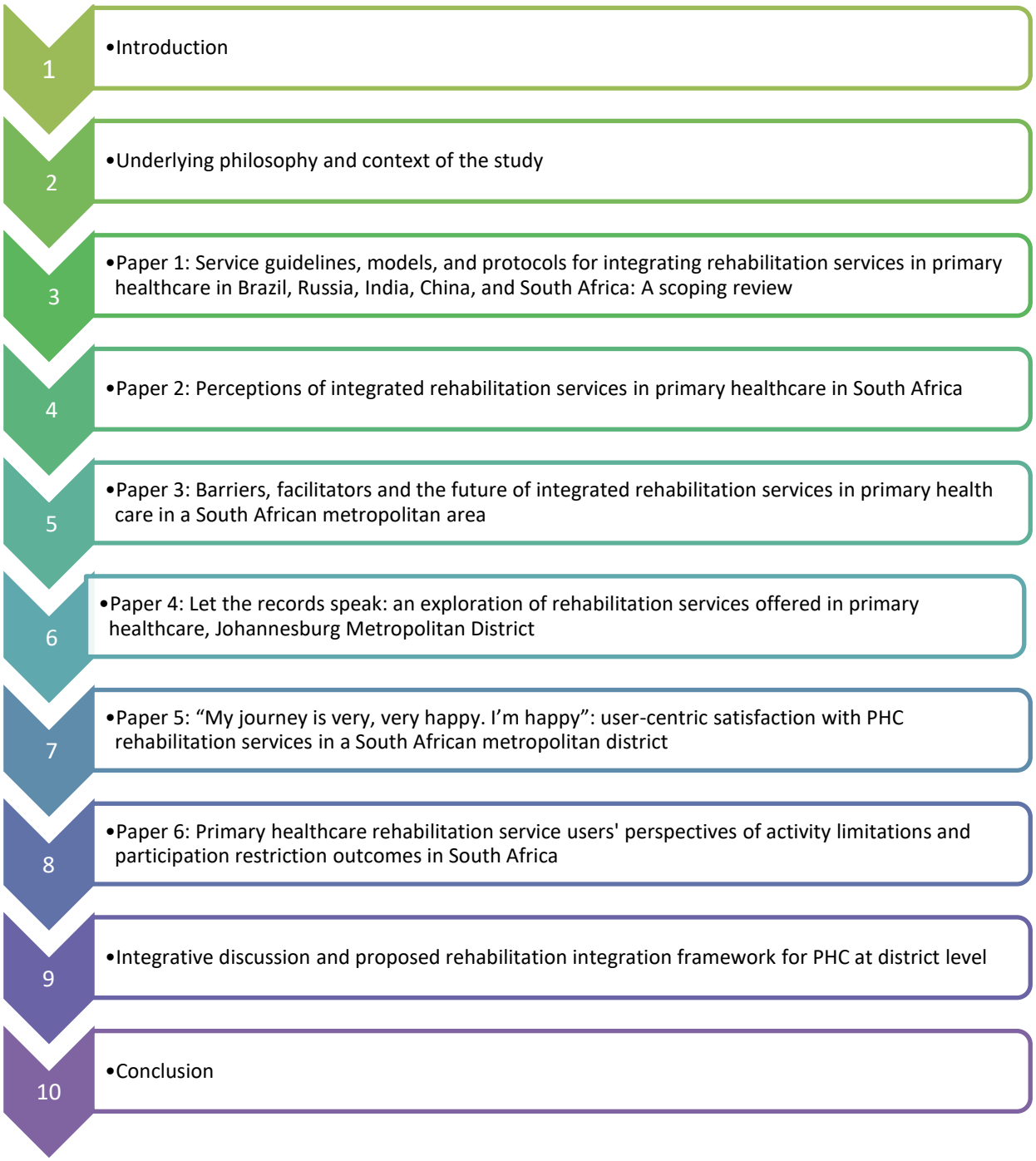
After understanding the available rehabilitation models, guidelines, protocols, and the status of rehabilitation services from both the provider and user perspectives, the study findings from phases 1-3 were triangulated. The triangulation informed the development of a patient-centred framework for integrating rehabilitation services in primary health care (PHC) at the district level, emphasising the importance of placing the patient and communities at the centre of care (Phase 4). Understanding the current state of rehabilitation services, experiences of rehabilitation service providers, and experiences of rehabilitation service users shed light on the lack of integrated rehabilitation services in PHC. Integrated rehabilitation service delivery in

PHC requires a multi-level approach at the macro, meso and micro levels. Sustainable and long-lasting solutions to accessible rehabilitation services in PHC must focus on strengthening governance and accountability, reorienting the model of care, creating an enabling environment, coordinating services within and across sectors, and engaging and empowering communities.

The originality report through Turnitin presented in Appendix A shows 12% similarity when the five published articles are excluded.

Format of the Thesis

The thesis follows the integrated format structure outlined in the University of the Witwatersrand's Faculty of Health Sciences guide for PhD thesis formats and is illustrated in the following diagram.



Chapter 1: The introduction chapter presents a background to the disability and rehabilitation landscape in South Africa in line with pertinent policy documents. This is followed by a discussion of the existing knowledge and knowledge gaps about the South African health system in relation to disability and rehabilitation services. Literature on healthcare access for

persons with disabilities, models, and approaches in rehabilitation, primary healthcare, the philosophies guiding service delivery, and the service delivery models at this level of care are also explored. The National Health Insurance as a policy and primary healthcare reengineering related to the integration of rehabilitation at primary healthcare level are also explored in detail. The chapter explores the current state of the health system in South Africa with a special focus on health policies and programs as they relate to persons with disabilities and rehabilitation in primary healthcare. The chapter ends with a short summary of the purpose and objectives of the study and the research questions.

Chapter 2: The underlying philosophy and context of the study is outlined in this chapter. The outline includes the models and conceptual framework that guided the study to determine how to integrate rehabilitation services into primary healthcare at district level in Gauteng, South Africa.

Chapter 3: Paper 1. This chapter is presented as a published paper titled "Service guidelines, models, and protocols for integrating rehabilitation services in primary healthcare in Brazil, Russia, India, China, and South Africa: a scoping review". This paper was published in *Disability and Rehabilitation*.

Chapter 4: Paper 2. This chapter is presented as a published paper titled "Perceptions of integrated rehabilitation service delivery in a metropolitan district". This paper was published in the *African Journal of Primary Healthcare and Family Medicine*.

Chapter 5: Paper 3. The chapter presents a manuscript titled "Barriers, facilitators and the future of integrated rehabilitation services in primary healthcare in a South African metropolitan area". The paper was submitted to the *International Journal of Therapy and Rehabilitation* and is currently under review.

Chapter 6: Paper 4. This chapter is presented as a published paper titled "Let the records speak: an exploration of rehabilitation services offered in primary healthcare, Johannesburg Metropolitan District". This paper was published in *BMC Health Services Research*.

Chapter 7: Paper 5. This chapter is presented as a published paper titled "User Satisfaction with Primary Health Care Rehabilitation Services in a South African Metropolitan District". The paper details the experiences of rehabilitation service users and has been published in the *Journal of Patient Experience*.

Chapter 8: Paper 6. This chapter is a published paper on the rehabilitation service outcomes, focusing on changes in activities and participation from service users' perspectives. The paper

titled “Primary healthcare rehabilitation users’ views on activity limitations and participation in South Africa” has been published in the *African Journal of Disability.*

Chapter 9: This integrative discussion chapter provides a synthesis of all the publications emanating from this study by providing the thread that runs through all of them to provide the reader with a consolidated summary of all the publications and how they speak to the objectives of the study. The framework for integrating rehabilitation services in primary healthcare at district level is presented.

Chapter 10: This chapter concludes the study and highlights its strengths and limitations. The chapter includes recommendations for further research, for policy, and for practice.

References: The reference list of texts cited in the thesis is presented. These exclude the reference lists for the published articles, in-press manuscripts, and manuscripts in review in Chapters 3–8 that contain their own reference lists.

Appendices: All the study appendices are presented in this section.

Chapter 1: Introduction

1.1 Introduction

This chapter provides a brief overview of primary healthcare (PHC) and the challenges experienced by people with disabilities in accessing rehabilitation services. The chapter seeks to critically examine the existing knowledge and knowledge gaps about the South African health system in relation to disability and rehabilitation. It presents arguments regarding the importance of rehabilitation services to achieve improved health outcomes for people with disabilities as well as the lack of clarity in the existing policies regarding the delivery of integrated rehabilitation services in PHC in South Africa. The methodological considerations in disability and rehabilitation related research and how these relate to the methodology selected for this study are outlined. The chapter provides a rationale for the study and the study aim and objectives.

1.2 Background to the Study

Universal health coverage has been recognised globally as essential to strengthening health systems and improving health outcomes. As such, health policy reform towards universal health coverage in South Africa has resulted in the introduction of a National Health Insurance (NHI). The NHI, together with the strategic plan of the National Department of Health 2015–2020, specifies PHC reengineering as one of the key health system reforms for transformation.[7,8] Similarly, the National Development Plan 2030 specifies the provision of care to families and communities by PHC teams as one of its action points.[9] PHC reengineering aims to completely revitalise the health system, to increase access to health services for the general public, and to improve the quality of health services within the district health system.[7,10] Through health system reform, a successfully reengineered PHC could be a vital step towards accessible, quality health services for all and the achievement of universal health coverage.

Improving access to and the quality of health services in South Africa is important to meet the Sustainable Development Goals, particularly Goal 3, which is aimed at addressing health and health system performance, and Goal 10, which is aimed at reducing inequalities through improving access to health services for people with disabilities and their families.[11–13] Therefore, disability is a matter that cannot be overlooked in health planning in South Africa. For instance, disability statistics suggests that globally, people are not only living longer but are also living with more functional limitations, and with longevity, people are more likely to

experience disability[5,15-18]. Furthermore, the WHO 2011 Report on Disability indicates that 80% of the one billion people living with disabilities worldwide reside in low- and middle-income countries (LMICs).[19] In line with this, 7.5% of the total population of South Africa have a disability.[20] Therefore, the planning of health services to improve health system performance should ideally also be aimed at addressing the needs of people with disabilities.[21]

With this in mind, rehabilitation services are currently provided at all levels of healthcare in South Africa.[22] However, it is through PHC that improved health outcomes can be expected at community level.[22] Comprehensive PHC includes rehabilitation alongside preventive, promotive, curative, and palliative care.[23,24] Muir,[25] Arbesman,[26] and Kingsley and Mailloux[27] all agree that it is through the provision of rehabilitation services to the broader population in PHC that greater life expectancy, wellbeing and productivity can be expected for at-risk populations, such as persons with disability. Furthermore, it is through the provision of rehabilitation services in PHC that healthcare will hopefully shift from treating people when they are ill to improving overall health and wellbeing.[25]

Despite the demonstrated benefits of providing rehabilitation services in PHC, there is a shortage of rehabilitation services in PHC, and therefore, these services must be strengthened.[16] Literature has identified the challenges that negatively impact the capacity to deliver rehabilitation services and patients' rights to access rehabilitation.[22,28–32] The challenges include bureaucratic inefficiencies,[26] lack of direction to operationalise rehabilitation services within a PHC package,[22,28,29] and differing approaches to service delivery.[26–28] Additionally, health professionals' perceptions and lack of understanding of disability were also identified as challenges.[28,29] Under these circumstances, the challenges to deliver rehabilitation services shown above compel the integration of these services to enable service delivery. It is essential to understand the policy landscape in the pursuit of integration in order to illuminate the broader macro-level factors that may influence integration (see Section 1.3).

1.3 Institutional and Policy Background

1.3.1 The Global Policy Framework

1.3.1.1 The WHO Rehabilitation 2030 Agenda

On 6 and 7 February 2017 more than 200 people, including government officials, organisations representing rehabilitation service-user groups and providers, funding bodies, international professional organisations, research institutions, NGOs, and WHO and other UN agencies,

gathered at the WHO Headquarters for the WHO "Rehabilitation 2030—A Call for Action" and the presentation of the WHO recommendations on rehabilitation in health systems.[30] The Rehabilitation 2030 Agenda draws attention to the increasing needs for rehabilitation, highlights the role of rehabilitation in achieving the Sustainable Development Goals proposed by the United Nations,[31] and calls for coordinated and concerted global action towards strengthening rehabilitation in health systems.

As the demand for rehabilitation grows, many regions worldwide lack the capability to deliver essential rehabilitation services within their healthcare systems. The Rehabilitation 2030 Agenda is in harmony with the United Nations Convention on the Rights of Persons with Disabilities by advocating for initiatives to arrange, reinforce, and expand rehabilitation services and schemes.[50] The Rehabilitation 2030 Agenda underscores the significance of integrating rehabilitation into healthcare systems to improve coordination with other healthcare services, guarantee accountability, assure quality, and ensure sustainability,[32] and this is what this study aimed to address.

1.3.2 The South African Health System and the Policy Landscape

1.3.2.1 National Health Insurance and primary healthcare reengineering

There is role ambiguity between the provinces and local authorities in the South African health system. In South Africa, the health system is organised into three main levels: the National Department of Health, nine provincial health departments, and 52 health districts. Within the country's quasi-federal political framework, policy formulation and the establishment of national frameworks occur at national level. It is the responsibility of the provincial and local governments to implement these policies. The onus of accountability for service delivery, encompassing the district health system and PHC, predominantly resides at provincial level. Moreover, local governments are charged with the delivery of certain preventive and environmental health services. In various metropolitan areas, clinic-based PHC is provided, sometimes in collaboration with provincial initiatives. A notable challenge arising from the current structure involving provincial and local governments is the duplication of services and ambiguity regarding roles.[33]

The NHI was introduced in South Africa in 2011.[7] One of the main criticisms by the rehabilitation fraternity of the NHI White Paper was its limited reference to rehabilitation;[22,34] however, many of the health system concerns identified in the NHI policy documents can be applied to rehabilitation service delivery issues.[35] These include aspects such as rehabilitation

services in the public sector providing services to the bulk of the population while carrying the greatest burden of disease.[35]

Furthermore, the NHI has undertaken to review and strengthen the PHC system, called PHC reengineering, which includes systems strengthening. Strengthening the PHC system is intended to include all services that are provided in PHC. However, PHC reengineering includes a four-streamed approach: District health specialist teams, ward-based PHC outreach teams, school health services, and contracting private practitioners into the public sector.[7] The concern with these streams is that rehabilitation services or rehabilitation personnel have not been mentioned in the description of the service providers who will constitute these teams. The effect of this lack of inclusion could potentially mean that rehabilitation staff will not be included in the constitution or budgetary planning of these teams.[22,36,37]

In keeping with the above, the piloting of the four streams of PHC reengineering was completed with limited evidence available on the likely impact of the outcome of piloting rehabilitation services in PHC. Reports from the pilot sites have been mainly focused on doctors and nurses with little mention of the other professionals who are involved in service provision in PHC.[41] The limited evidence is a concern because in the absence of evidence on the effectiveness of rehabilitation services as part of the reengineered PHC, the planning and positioning of rehabilitation services remain a challenge.

1.3.2.2 The Framework and Strategy for Disability and Rehabilitation in South Africa (2015–2020)

The Framework and Strategy for Disability and Rehabilitation Services (FSDR) in South Africa came into effect in 2015 as a response to the challenges in access to rehabilitation services for persons with disability.[10] Indeed, these challenges are due to, but not limited to, emphasis on curative intervention and the medical model as opposed to community-based rehabilitation (CBR). Correspondingly, the challenges further led to a lack of integration of rehabilitation services within major health programmes, a poor referral system, and paucity of rehabilitation units and centres at district level.[37] Forthwith, the FSDR, which is over-due for review, provides a comprehensive package of health services that cover preventive (including community outreach) and promotion services, chronic disease management service, optometry services, and rehabilitation services, including mental health services, among others.

Furthermore, the FSDR outlines the rehabilitation services to be provided at all levels of care.[10] Specifically, it mentions at home/community, school, PHC facilities (clinics, community health

centres [CHCs]) and hospital based (district, regional, tertiary, central, and specialised).[37] At PHC level, the FSDR highlights the need for improved access to rehabilitation services. By this means, it reflects the commitment of the South African government to an equitable and inclusive society to ensure "a long and healthy life for all"[38].

Nevertheless, most of the framework's eight goals remain largely unattained, particularly the first goal that seeks to comprehensively integrate disability and rehabilitation services throughout the levels of the health system and within the major health programs in the country.[37] As a result, rehabilitation services for persons with disabilities in South Africa are found to be wanting despite the presence of progressive policies on rehabilitation and PHC. Lack of integration of rehabilitation services into overall healthcare service provision, including PHC, has been shown to result in poor health outcomes for people with disabilities, particularly in BRICS countries.[22,32,39,40] With the lack of integration, users experience poor access to services, loss of continuity of care, and the failure of health services to meet their needs. To adequately respond to the rising levels of disability, rehabilitation services offered at public health facilities must be reconfigured and integrated in a way that improves access to services, particularly to PHC.

1.4 Rationale of the Study

1.4.1 Inadequate Clarity on Integration

Existing policies concerning integrated rehabilitation services continue to be implemented with insufficient clarity. National and international frameworks recognise the importance of including rehabilitation in PHC; however, these frameworks fail to provide a comprehensive outline of the structure and delivery of rehabilitation services.[7,8,41] In keeping with the most recent epidemiological trends, demographic shifts, and the expansion of healthcare access, the Rehabilitation 2030 initiative of the WHO advocates for the strengthening and integration of rehabilitation services into health systems.[42] In addition, the WHO's "Rehabilitation in Health Systems: Guide for Action"[45] encourages the integration of rehabilitation services into the domains of health governance, service planning, financing, and workforce development. Rehabilitation can be enhanced, and its policy integration can be promoted into PHC by determining and clarifying clinical service needs and prioritising practical solutions. Although rehabilitation services are being offered at PHC facilities in the Johannesburg Metropolitan District, policymakers and other PHC service providers' level of recognition regarding the essential function that rehabilitation plays in integrated PHC service delivery remains unknown.

Similarly, the FSDR in South Africa states that access to disability and rehabilitation services should be ensured through an integrated approach that cuts across all health programmes and throughout the continuum of care.[37,43] The FSDR in South Africa proposed integrating rehabilitation services for people with disabilities within healthcare programs at all levels, including PHC,[37] but the progress implementing intersectoral rehabilitation services remains limited.[44] There is a clear need to expand and provide rehabilitation services across all levels of healthcare to improve population health; however, the existing policies fail to provide any practical guidance on integration.

Part of the problem with integrating rehabilitation services is the lack of a common understanding of 'integration' as a concept in the delivery of health services[46]. The lack of understanding is mainly due to the various words that have been used interchangeably with integration in health service delivery literature[1, 46]. For example, at a programme level, targeted programmes that emphasize specific interventions have been called 'vertical', 'categorical', 'stand-alone' or 'free-standing' programmes[37]. On the other hand, programmes whose elements are integrated into health systems are known as 'horizontal programmes', 'integrated health services' or 'horizontal approaches'[37]. The conceptual ambiguity regarding integrated rehabilitation services not only hampers a systematic understanding by rehabilitation professionals, but also compromises rehabilitation service planning, delivery, and evaluation in meeting the needs of rehabilitation service users.

Therefore, if one is to have an integration of rehabilitation services into PHC, one needs to see the following: Valentijn et al. described integration theory at and spanning across three levels, namely at a macro, meso, and micro level[28]. System integration occurs at a macro level, referring to the alignment of policies and legislation within a system. This is a holistic approach to integration, that puts the people's needs at the heart of the system to meet the needs of the population served[28]. An example of system integration at macro level is the funding of rehabilitation and other health services from a common budget in the NHS in the United Kingdom, which has brought all key health- and social-care professionals to work as a team, ensuring that the service is truly client-centred[31].

Integration at meso level occurs both professionally and organizationally. Professional integration refers to the extent to which professionals form partnerships and coordinate services across various disciplines, both within and between organisations. Organisational integration, however, refers to the extent to which services are coordinated across different organisations[28]. Integration at this meso level indicates a need for all organisations and agencies involved with an individual's care to work in an integrated approach, which implies bringing together health

and other agencies, such as housing, social services and transportation[31]. The resultant inter-organisational relationships can improve quality and efficiency of healthcare services, for example, by pooling the skills and expertise of the different organisations[28]. Both organisational and professional integration are important, because when different organisations or agencies work in isolation, they may hold different views of the purpose of rehabilitation and in turn have different and conflicting aims.

At micro level, clinical integration refers to the coherence in the process of care delivery to patients and should ensure that service users experience continuous care using a person-focused perspective[28]. Ultimately, the integration of health services should take a holistic person-focused and population-based perspective linking health and social systems at the macro, meso and micro level. Both PHC as a public health philosophy and rehabilitation acknowledge the importance of this biopsychosocial approach. This approach recognises that problems in health and social sectors are often inter-related[25] and health gains are therefore better achieved when people's basic needs are met first[32,33]. Thus, ideal fully integrated care at PHC micro level refers to a case where information, decision- making, and service delivery responsibilities are shared among primary care medical and rehabilitation professionals[32,33].

Importantly, Valentijn et al also described functional and normative integration, which span the macro, meso and micro levels to ensure connectivity and continuity within a system. The connectivity is achieved through inter-sectoral collaboration, a shared mission, vision, values and culture between organisations, professional groups and individuals[28]. For example, functional integration addresses the extent to which key support functions such as financial management, human resources, strategic planning, information management and quality improvement are coordinated, whereas normative integration signifies the extent to which aspects such as mission and work values are shared within a system[28].

1.4.2 Heterogeneity in Rehabilitation Service Delivery

The lack of practical guidance on integration is coupled with the heterogeneity in the scope and extent of rehabilitation service delivery, and this creates the need to understand rehabilitation services in their current form in South Africa. The reason for this is that although rehabilitation services are provided at all levels of healthcare, they have only recently been recognised in health systems research in PHC because of the recent health policy reforms in South Africa and a heightened global focus on disability[16,37,45–47]. The FSDR's duration ended in 2020, and there is no formal reported evaluation outcome on the FSDR yet. A review of the FSDR found many barriers that influenced the framework's implementation, such as lack of resources, a shortage

of health professionals, high staff turnover, lack of political will, and lack of resource allocation to ensure the framework's implementation.[48] The results of the review allude to the extent to which implementation is aligned with policy recommendations in PHC reengineering and the integration of rehabilitation into PHC.

There are variations in the delivery of rehabilitation services in South Africa that negatively impact the capacity to deliver rehabilitation services. Among these factors is the vast difference in the approaches used by rehabilitation personnel and a lack of consensus among them on the delivery of rehabilitation services.[26] This variation in rehabilitation service delivery is confirmed by Mji et al.[49], who refer to rehabilitation as fluid and subject to the changing definitions and understanding of disability. Similarly, Iemmi et al.[50] also allude to the heterogeneity of the interventions provided in CBR. A comprehensive synthesis of the differences in the delivery of rehabilitation services is important to gain a better understanding of the current situation in rehabilitation.

The discrepancies in rehabilitation service delivery do not happen in isolation, but the differences in healthcare workers' understanding of rehabilitation have been shown to influence the variance in the delivery of rehabilitation services.[28,29,52] In theory, disability and rehabilitation have moved beyond the health and social development sector, and sectors such as education, labour, transport, justice, and housing are equally recognised as service providers in CBR and should include disability within their programmes.[15,16] Therefore, the potential collaboration of the various sectors, as well as the varying needs in the sectors, is a further reason for the differences in understanding of rehabilitation. As such, the combination of differences in the understanding of rehabilitation as well as the differences in the delivery of rehabilitation services could potentially influence each other, and thus, must be further explored, which the current study aimed to do.

Nevertheless, it remains evident that a rehabilitation integration framework in PHC is necessary to challenge the curative approach that continues to dominate rehabilitation services, linking it back to the medical model from which it has attempted to escape.[51] The current study thus aimed to determine how to integrate rehabilitation services into PHC at district level in Gauteng, South Africa.

1.4.3 Suboptimal Primary Healthcare Services

PHC plays a pivotal role in South Africa's healthcare system with a network of over 3 500 clinics and CHCs dedicated to delivering these services. Government policies, including the

NHI Bill[54] and the National Health Act,[55] underscore the significance of PHC as a cornerstone of the country's healthcare transformation.[38,52] These policies prioritise community-based, preventive, and health promotive strategies. However, despite an increase in public PHC facility visits to 1 200 000 by 2015 in South Africa, reports indicate suboptimal quality of care, limited access, and inadequate healthcare workforce.[53]

In addition to implementing mechanisms for monitoring and quality improvement, the national Ideal Clinic initiative sought to revitalise PHC by standardising infrastructure, personnel, medical records, treatment protocols, and governance.[33] Notwithstanding these efforts, the complete realisation of the tangible benefits and influence of this initiative on the integration of rehabilitation services remains to be achieved. In South Africa, concerns remain regarding the overall quality of PHC services. Access to services such as rehabilitation, oral and vision healthcare, and mental health is restricted. Furthermore, the frontline management capacity appears inadequate, and there is considerable national variability in the development of the district health system, which is essential for facilitating PHC.[33]

Research is lacking in this field, and thus, it is important to review rehabilitation services at PHC level to establish the current landscape and to enable a metasynthesis of integrated rehabilitation service provision or service delivery in under-resourced communities within the proposed National Health Service.

1.4.4 Medical Versus Social Model of Rehabilitation and Disability

Two very different models of rehabilitation are presented in rehabilitation and disability literature. In fact, most literature states that rehabilitation and disability have evolved from one model to the other, depicting a more integrated approach to health services delivery.[54] The medical model of rehabilitation is the older of the two models and operates from an epistemological standpoint that views disability primarily as a problem located within the individual. This model is reductionist and aligns with positivist epistemology, which emphasizes empirical data and objective truth. From this perspective, disability is seen as a pathology that requires medical intervention or correction. Knowledge in this model stems from biomedical research and clinical expertise, and rehabilitation is aimed at restoring or "fixing" the individual to fit within societal norms.

The medical model describes rehabilitation as a process in which people with disabilities are passively provided with the necessary tools to reach their optimal level of independence.[28,41,55] Rehabilitation personnel are viewed as experts that 'fix' people with disabilities.[56]

Epistemologically, the medical model's approach is often criticized for being narrow, as it focuses solely on the physical or psychological impairments and disregards the social, environmental, and attitudinal factors that contribute to the experience of disability. It assumes that knowledge about disability can be generated through scientific inquiry that isolates variables of impairment and treatment, excluding broader contexts that influence health outcomes. From this perspective, persons with disabilities as seen as passive recipients of curative services provided by specialist health practitioners, and excludes other sectors and persons with disabilities as informed participants.[56]

Contrary to this, the social model of rehabilitation views disability not as a personal deficit but as a construct arising from the interaction between individuals and societal barriers. This model draws on interpretivist or constructivist epistemology, where knowledge is viewed as socially constructed, and subjective experience is valued. Rehabilitation under this model focuses on altering societal structures—such as accessible infrastructure, inclusive policies, and the reduction of stigma—to improve the quality of life for individuals with disabilities. The social model positions people with disabilities as more active participants in the rehabilitation process; that is to say, there is shared expertise between persons with disabilities and service providers in the rehabilitation process.[57]

The social model not only highlights the environment as an important aspect in the achievement of optimal functioning but also introduces a very important notion of rehabilitation, which is that rehabilitation is not only aimed at people with disabilities but also at those likely to experience disability in the future.[58] Most importantly, the social model calls on rehabilitation personnel to recognise and respect the experiences and expertise of people with disabilities. [47,59] As a result, although it has been said that the approaches to rehabilitation and disability have evolved from the medical model to the social model, further exploration of this is required.

Although the social model primarily aims to eliminate barriers, some rehabilitation researchers have raised doubts about whether this approach might neglect the genuine rehabilitation requirements of individuals with disabilities, such as mobility, other holistic health needs, and specialised education.[29] Moreover, the social model fails to acknowledge the personal experiences of individuals with disabilities, including issues related to the body such as impairment, sexuality, and pain. This differentiation between the concepts of impairment and disability is considered to have triggered a substantial reconsideration of rehabilitation conceptualisation that extend beyond the confines of the medical and social models.[29]

1.4.5 The International Classification of Functioning, Disability, and Health and the Biopsychosocial Model to Rehabilitation and Disability

The shift in conceptualisation brings a third dimension into the debate, namely the biopsychosocial model. The biopsychosocial model is rooted in the International Classification of Functioning, Disability and Health (ICF). The ICF was developed by the WHO in 2002 as a way of understanding the complex interactions between features of the biological, psychological, cultural, and social factors of disability.[59–62] The difference between the biopsychosocial model and its predecessors is that disability is defined as the outcome of the interaction between a person's health condition and the context in which the person finds themselves.[59] This context includes external environmental factors (e.g. assistive devices, physical accessibility, societal attitudes), and those factors internal to the person (e.g. age, sex, coping skills, personality). The underlying mindset in this model is that as elements of the body and personal and external environmental factors change, so does the outcome.[59,62]

Therefore, further exploration of these models presented enables a better understanding of the extent to which any or even all these approaches are used in PHC to deliver rehabilitation services. The approaches inherently influence the type of service delivery models used. Moreover, an understanding that disability can be temporary, episodic, or permanent is important, and its 'evolving' nature that mirrors the context and society within which persons with disabilities live is important in the application of these approaches.[57] As such, the current study aimed to determine how to integrate rehabilitation services into PHC at district level in Gauteng, South Africa. The results of the study established the extent to which implementation is aligned with policy recommendations on PHC reengineering and the integration of rehabilitation into PHC.

1.5 Research Question

The study answered the following research question:

- How should rehabilitation services be integrated into PHC at district level in Gauteng, South Africa?

1.6 Research Aim

This study aimed to determine how to integrate rehabilitation services into PHC in the Johannesburg Metropolitan District, Gauteng, South Africa.

1.7 Research Objectives

The study had the following aims for each phase of the study

- Phase 1: Rehabilitation services in the broader context
    - Objective 1: To map the existing service delivery guidelines, models, and protocols for rehabilitation service delivery integration in PHC through a scoping review.
- Phase 2: Rehabilitation service profile
    - Objective 2: To determine the rehabilitation services currently provided at PHC level in the Johannesburg Metropolitan District, Gauteng, South Africa.
- Phase 3: The rehabilitation service user experience
    - Objective 3: To explore the experiences of rehabilitation service users at PHC level in the Johannesburg Metropolitan District, Gauteng, South Africa.
- Phase 4: Evaluation of rehabilitation services and proposed rehabilitation integration framework for PHC at district level in Gauteng, South Africa
    - Objective 4: To propose a rehabilitation integration framework for PHC at district level in Gauteng, South Africa.

1.8 Overview of Methodology

A brief overview of the study location and methodology of the study is included here to describe the context in which the study was conducted and to help contextualise the integrative narrative that is included throughout the literature review. The detailed methodology is detailed in each of the articles presented in the separate chapters.

1.8.1 Study Approach

A four-phased mixed methods approach with a convergent parallel design was used overall for the study as depicted in Figure 1.1. A mixed methods design, which is informed by a pragmatic worldview, is unique in that it accommodates both emerging and predetermined approaches. Using both qualitative and quantitative approaches, it allows the collection of various forms of data for a more comprehensive investigation and interpretation. A mixed methods approach makes allowance for both numerical and text data analysis.[63] The key value in using a convergent parallel mixed methods approach was the integration of the information in the interpretation of the overall results. Furthermore, it allowed for contradictions or incongruent findings to be explained or probed further.[64]

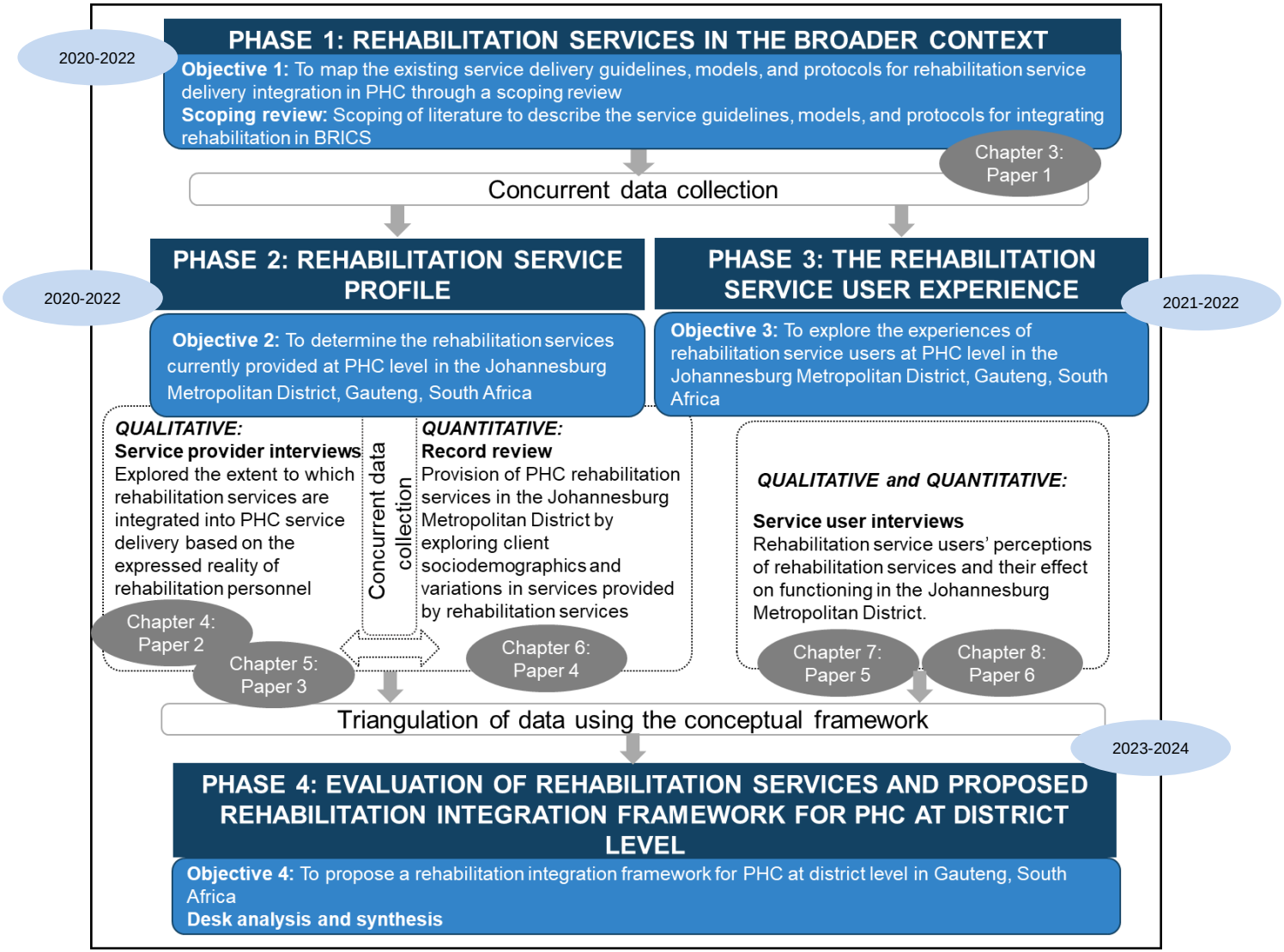


Figure 1.1: Diagrammatic representation of the overall study approach: A mixed methods approach with convergent parallel design

1.8.2 Study Setting

All three phases of the study were conducted in the Johannesburg Metropolitan District, Gauteng. According to 2011 census the City of Johannesburg Local Municipality has a total population of 4,4 million with a population growth rate of 3.18% between 2001-2011.[65] There is 1 434 856 households in the municipality with an average household size of 2,8 persons per household. Of the households, 64.7% have access to piped water, 26.9% have water in their yard and 1.4% of households do not have access to piped water. The City of Johannesburg is the most powerful commercial centre on the African continent, generating 16 percent of South Africa's GDP and employing 12 percent of the national workforce. The city is recognised as the financial capital of South Africa and is home to 74% of Corporate Headquarter. The settlement sprang up in 1886 when prospectors found gold in the area now known as the Witwatersrand. When the discovery became public, thousands flocked here in search of fortune and new opportunities. Despite the 25% unemployment rate in Johannesburg, with youth unemployment at 31.5%, Johannesburg still attracts those who want to realise their dreams and achieve success, making it one of the most densely populated and culturally diverse cities in the world.[65]

The Johannesburg Metropolitan District encompasses 125 PHC clinics and CHCs across seven regions, serving a population of 5.5 million;[65] 2.35 million of whom have monthly income that falls below the upper limit poverty line of R1 227 per person.[66] Only 81 clinics, many offering mental health services, are financed and managed by the City of Johannesburg municipality. The remaining PHC facilities, including 11 CHCs, are provincially funded and staffed by the Gauteng provincial health department. CHCs provide PHC services, 24-hour maternity services, accident and emergency services, and beds where healthcare users can be observed for a maximum of 48 hours.[67]

By definition, clinics provide a range of PHC services and operate an average of eight or more hours a day based on the needs of the community being served.[67] However, only nine of the provincially funded CHCs currently provide rehabilitation services, with a staffing total of 77 rehabilitation personnel, that include physiotherapy, occupational therapy, speech-language therapy, and audiology. These services encompass individual and group outpatient therapy, community reintegration, outreach, and home visits, as well as education and awareness campaigns, facilitated by multidisciplinary teams.[68] Gauteng is unique in that it is the only province that has rehabilitation personnel permanently stationed at CHCs in all the districts.

1.9 Study Design

1.9.1 Phase 1: Rehabilitation Services in the Broader Context

Objective 1: To map the existing service delivery guidelines, models, and protocols for rehabilitation service delivery integration in PHC through a scoping review.

Phase 1 focused on depicting rehabilitation services in the broader context and consisted of a scoping review to map the existing service guidelines, models, and protocols for integrated rehabilitation service delivery in PHC. A scoping literature review was selected for this study as it synthesises the knowledge and applicability of results of significant studies into practice.[72-75] The emergent growth and attention within the field of disability and rehabilitation, as well as the heterogeneity in the delivery of rehabilitation services, intensified the need for a review of the literature in this field. Furthermore, a scoping review allowed for the inclusion of experimental and non-experimental studies to fully understand rehabilitation service delivery.

This review followed JBI methodology for scoping reviews. The review information was gathered through structured database searches from CINAHL, MEDLINE, PubMed, Global Health, Open Dissertations, SPORTDiscus, OTseeker, PEDro, Africa-Wide Information, and Humanities International using a keyword string. Wiley Online Library was used to source conference abstracts and poster presentations. LILACS was searched to source papers from LMICs. Grey and unpublished literature was sourced from SCOPUS and ProQuest. The WHO website was searched for guidelines and protocols, and government or institutional websites were searched for policy reports and newsletters. The Preferred Reporting Items for Systematic Reviews and Meta-analysis-SCR (PRISMA) design was used to identify eligible studies. All included studies investigated guidelines, models, or protocols used in the delivery of rehabilitation services in PHC. The studies also looked at how rehabilitation services are delivered in a manner that allows them to be integrated into the overall service delivery platform. Policies that highlight the integration of rehabilitation services into PHC were also reviewed.

The review combined data from theoretical and empirical literature and had a wide range of purposes, such as the definition of concepts, review of theories and evidence, and analysis of integrated rehabilitation service delivery.[72–74] Rehabilitation services-related literature, policy documents, and guidelines from LMICs were included in this review to provide a synthesis of the existing guidelines, models, and protocols used for the integration of rehabilitation services in PHC in the BRICS countries. The varied sampling frame of scoping reviews in conjunction

with the multiplicity of purposes resulted in a comprehensive portrayal of complex concepts, theories, or healthcare problems of importance.[70] A colleague with a PhD, who taught research methodology at university level and has more than 20 years' experience in postgraduate research supervision, assisted in the review, and the research supervisors had an oversight role in the review. Given the need to first focus broadly and then to examine literature and evidence from a local perspective, a systematic approach to a scoping review process was followed[69,73] by applying the five phases of a scoping review described by Arksey and O'Malley (Appendix B).[76] The scoping review is described further in the published manuscript[75] in Chapter 3.

1.9.2 Phase 2: Rehabilitation Service Profile

Objective 2: To determine the rehabilitation services currently provided at PHC level in the Johannesburg Metropolitan District, Gauteng, South Africa.

Following permission from the Gauteng Department of Health (Appendix C) and relevant CHCs (Appendix D & E), a profile of the rehabilitation services in the Johannesburg Metropolitan District was carried out in Phase 2. Concurrent to the scoping review, Phase 2 used a qualitative approach in the form of in-depth interviews with rehabilitation personnel and a quantitative retrospective review of rehabilitation patient records from the nine clinics providing rehabilitation services to describe a profile of rehabilitation services in the Johannesburg Metropolitan District.

1.9.2.1 Retrospective record review

Study participants and sampling strategy

Strategies and guidelines from LMICs were included in this review to provide a synthesis of the existing guidelines, models, and protocols used for the integration of rehabilitation services in PHC for speech-language therapists and audiologists. Within each discipline, further stratification was performed based on the year of the available records. The sampling included client rehabilitation paper-based files for the years available at each facility, ranging from 2011 to 2020, inclusively. The sample size was determined using Cochran's formula,[76] setting a 95% confidence level and a 5% margin of error. There were 238 740 records spanning a 9-year period, and therefore, a review of at least 540 records was deemed necessary. A random sample was extracted from the records stratified for each rehabilitation service and year from the available records at each facility to fulfil the required sample size.

Data collection tools

Data extraction was done using a data extraction tool designed and piloted by the researcher in REDCap® (Appendix F). The tool facilitated the collection of various data points, including sociodemographic information such as age and disability related to impairment, which was classified using the classification of the ICF based on body functioning domains.[77] Additionally, data regarding the referral source and nature and duration of received rehabilitation and of services provided by rehabilitation discipline were extracted.

Data analysis

Descriptive analysis was used to analyse the collected data using means, standard deviations, and frequencies to describe the profile of the service users and the characteristics of the rehabilitation services they received. The record review is described further in a manuscript in the second stage of review with *BMC Health Service Research* that is presented in Chapter 6.

1.9.2.2 Service provider interviews

Study participants and sampling strategy

A heterogenous group of experienced rehabilitation personnel was selected using purposive sampling with stratification.[78] This approach ensured the selection of individuals from the occupational therapy, physiotherapy, speech-language therapy, and audiology professions with relevant work experience. Participants were required to have a minimum of two years' working experience in PHC at clinic level to be eligible for inclusion, ensuring their ability to provide valuable insights on rehabilitation services. Rehabilitation managers needed at least five years' experience at a managerial level. It was postulated that management needed an in-depth understanding of not just the micro context but also the macro and meso contexts, and therefore, it would take longer for them to develop this in-depth knowledge, which is why a five years' experience criterion was used for managers. Participants were contacted directly through the rehabilitation coordinators at the PHC facilities and were invited to participate in the study in their personal capacity.

Data collection tools

Data were collected through comprehensive interviews with the selected participants using the interview guide in Appendix G. The interviews were conducted at multiple clinics and at an alternative central location to accommodate participants when there was insufficient privacy at

clinic sites. These interviews sought participants' perspectives on the current state of rehabilitation services within the district. An interview guide was created to facilitate the discussions by providing structured prompts. The interviews were carried out in English, ensuring mutual comprehension among all participants.

Data analysis

The audio-recorded data from the interviews were transcribed verbatim. Reflexive thematic analysis was used for data analysis, employing NVivo v.11 software. Primary inductive coding of the data was initially conducted based on the respondents' words. Higher-order coding was then applied to consolidate the primary codes into subcategories.[79] Theme development was performed to organise the higher-order codes into categories and themes. Excerpts from the raw data were included to support the overarching themes and ensure the interpretation remained connected to the participants' words.[79]

The service provider interviews are described further in a published article[80] presented in Chapter 4 and a manuscript (Maseko et al., 2024 unpublished) in review with the *International Journal of Rehabilitation* presented in Chapter 5.

1.9.3 Phase 3: The Rehabilitation Service User Experience

Objective 3: To explore the experiences of rehabilitation service users at PHC level in the Johannesburg Metropolitan District, Gauteng, South Africa.

1.9.3.1 Study participants and sampling strategy

At the time of the study, one of the nine clinics had diverted their rehabilitation services to another clinic, and thus, only eight facilities were available for the study. Purposive sampling was used at eight of the nine provincially funded clinics and CHCs where 80 rehabilitation service users who met the inclusion criteria of receiving regular weekly or monthly services were identified and invited to participate in the study. Participants were recruited when they arrived at the clinic to attend their scheduled rehabilitation appointments and were required to have attended at least three rehabilitation sessions. Those who attended fewer than three rehabilitation sessions were excluded to ensure participants had an adequate experience of rehabilitation services when reporting outcomes. Considering a 10% margin of error, as recommended by Cochran's formula for ordinal data, the required sample size was determined to be 40.[84] The rehabilitation service users consisted of adults and caregivers of children who access occupational therapy, physiotherapy, speech-language therapy, and audiology services

at the nine provincially funded clinics and CHCs in the Johannesburg Metropolitan District. The caregivers were either parents, legal guardians, or family members who provided necessary care to adult service users, and the caregivers of children, most of whom were too young for interviews.

1.9.3.2 Data collection tools

A survey, administered by eight trained research assistants in a structured interview, were used to gather data (Appendix H). The survey included structured interview questions with open-ended prompts (Appendix I) that aimed to provide additional details about participants' experiences or their caregivers' observations of changes from pre-rehabilitation to post-rehabilitation.[81] The inclusion of open-ended questions allowed participants to provide qualitative insights into the changes experienced in activity limitations and participation restrictions. Participants were provided with an information sheet that was explained, and the information was discussed with them where necessary. Consent for study participation and audio-recording was obtained from all adult participants and caregivers of the children. Data were collected over a four-month period. The eight research assistants who conducted the interviews were trained by the principal researcher on the data collection process and had no prior knowledge of the participants or the treatment they received. Interviews were conducted with adult service users, assisted by caregivers where necessary, or with caregivers of child service users to discuss changes in their own or their child's activity limitations and participation restrictions before and after rehabilitation. These interviews occurred in a quiet room at the clinic. Interview recordings were anonymised and transcribed verbatim.

1.9.3.3 Data analysis

Demographic data, participants' self-rated levels of independence in different domains of activity limitation and participation restrictions before and after rehabilitation, feelings about oneself, and quality of life were analysed descriptively using frequencies based on the survey responses. Perceived changes in activity limitations and participation restrictions before and after rehabilitation were analysed using a chi-squared test (sig 0.05) as a non-parametric statistical method. The qualitative data collected from the transcriptions of open-ended questions in responses to changes in activity limitations and participation restrictions, feelings about oneself, and quality of life were coded and analysed using quantitative content analysis.[86]

A categorisation scheme, using survey descriptors as coding categories, was developed. The scheme and categories underwent pilot testing by the two primary coders (the researcher and a

colleague) and were revised until intercoder agreement was achieved.[86] Coding was completed using a Microsoft Excel spreadsheet. The service-user interviews are described further in two manuscripts in review (Maseko et al., 2024) with the *Journal of Patient Experience* and the other (Maseko et al., 2024) with the *African Journal of Disability*.

1.9.4 Phase 4: Evaluation of Rehabilitation Services and Proposed Rehabilitation Integration Framework for PHC at District Level in Gauteng, South Africa

Objective 4: To propose a rehabilitation integration framework for PHC at district level in Gauteng, South Africa.

In Phase 4, the data from Phases 1–3 was triangulated using the six steps described by Jabareen[82] to synthesise the information and propose a framework for integrating rehabilitation services in PHC. The RE-AIM Framework (described in Section 2.2.4) was used to evaluate and represent the findings from the previous phases according to the five dimensions of reach, effectiveness, adoption, implementation. and maintenance (Appendix J).[83] The RE-AIM Framework is used at various ecological levels, including individual, staff, and setting levels, within health systems, as well as at community and national levels. This made it suitable for evaluating rehabilitation services in the Johannesburg Metropolitan District.[83]

1.10 Ethical Considerations

The study was approved by the Human Research Ethics Committee of the University of the Witwatersrand (M190466) and the Johannesburg Health District Research Committee (GP_201905_048) (Appendix K). An information sheet about the study was given to the participants, organisations, and institutions. Written informed consent for participation in the in-depth and structured interviews and for audio-recording the interviews was obtained from the adult participants and caregivers of children (Appendices L–Q). Participation was voluntary and participants could withdraw at any stage of the study without consequence. The participants were assigned participant codes to maintain anonymity and confidentiality during the data analysis, results, and publications arising from the study. Data and consent forms were safeguarded in a locked cabinet that was only accessible to the researcher, and it will be permanently deleted after five years as per protocol. Feedback was given to participants upon request.

1.11 Trustworthiness

The following strategies for trustworthiness were applied: Transferability to ensure the findings can be applied in different contexts; credibility to ensure the truth value of the findings; dependability to ensure consistency; and confirmability to allow for external inspection and verification.[84] The use of purposive sampling to select rehabilitation service providers ensured the findings of the study can be applied to other contexts. This was achieved by providing a detailed description of the data collected, as well as the key characteristics of the participants, which can serve as fundamental information for other researchers.[85]

Two coders completed the coding to ensure credibility. They were the researcher and a colleague with experience in qualitative research who provided a sound and comprehensive interpretation of the data.[85] Intercoder agreement was established using a codebook. The two coders separately developed preliminary codes of the transcripts, and then came together to compare and agree on the coding. Codes were built around the emerging themes using a process of consensus.[86] Credibility was also assured through prolonged engagement until the scope of data was covered and data saturation on rehabilitation experiences obtained.

A complete description of the methodology is recorded in Section 1.8 to ensure dependability, and the detailed description can be used to confirm the accuracy of the process and of the derived data. A peer review process enhanced the confirmability of the research by asking an independent third reviewer, who had not been involved in the project thus far, to analyse the raw data and compare the various categories and themes. The independent reviewer crosschecked the codes to determine intercoder agreement and improve the trustworthiness of the findings. Member checking also contributed to the confirmability of the results.[87]

Chapter 2: Underlying Philosophy and Conceptual Context of the Study

2.1 Introduction

A review of studies in the field of disability rehabilitation revealed that to appreciate the extent of rehabilitation service delivery, it is necessary to have a commonly understood approach to rehabilitation and disability. Therefore, this chapter presents a critical discussion of the concepts and conceptual framework, which include approaches to disability and rehabilitation, PHC, integration, and CBR. These are the key concepts and conceptual framework that underpinned the study.

2.2 Concepts and Conceptual Framework

The concepts and conceptual framework described in this section frame the assumptions, expectations, beliefs, and theories that support and inform this research, including ideas and beliefs held about rehabilitation services in PHC. Figure 2.1 is a diagrammatic model of the tentative theory of integrated rehabilitation services in PHC that informed the research questions, objectives, and methods used in this study.[88]

The conceptual framework depicted in Figure 2.1 is framed within the working assumption that healthcare systems are examples of complex adaptive systems with constantly changing contexts.[89,90] Therefore, the relationship between the concepts in this framework can be said to be non-linear.[91] All health systems must carry out some basic functions that can be broken down into a set of six essential building blocks.[92,93] The building blocks are used as a point of departure, represented as influencing factors on integrating rehabilitation in PHC.[92,94]

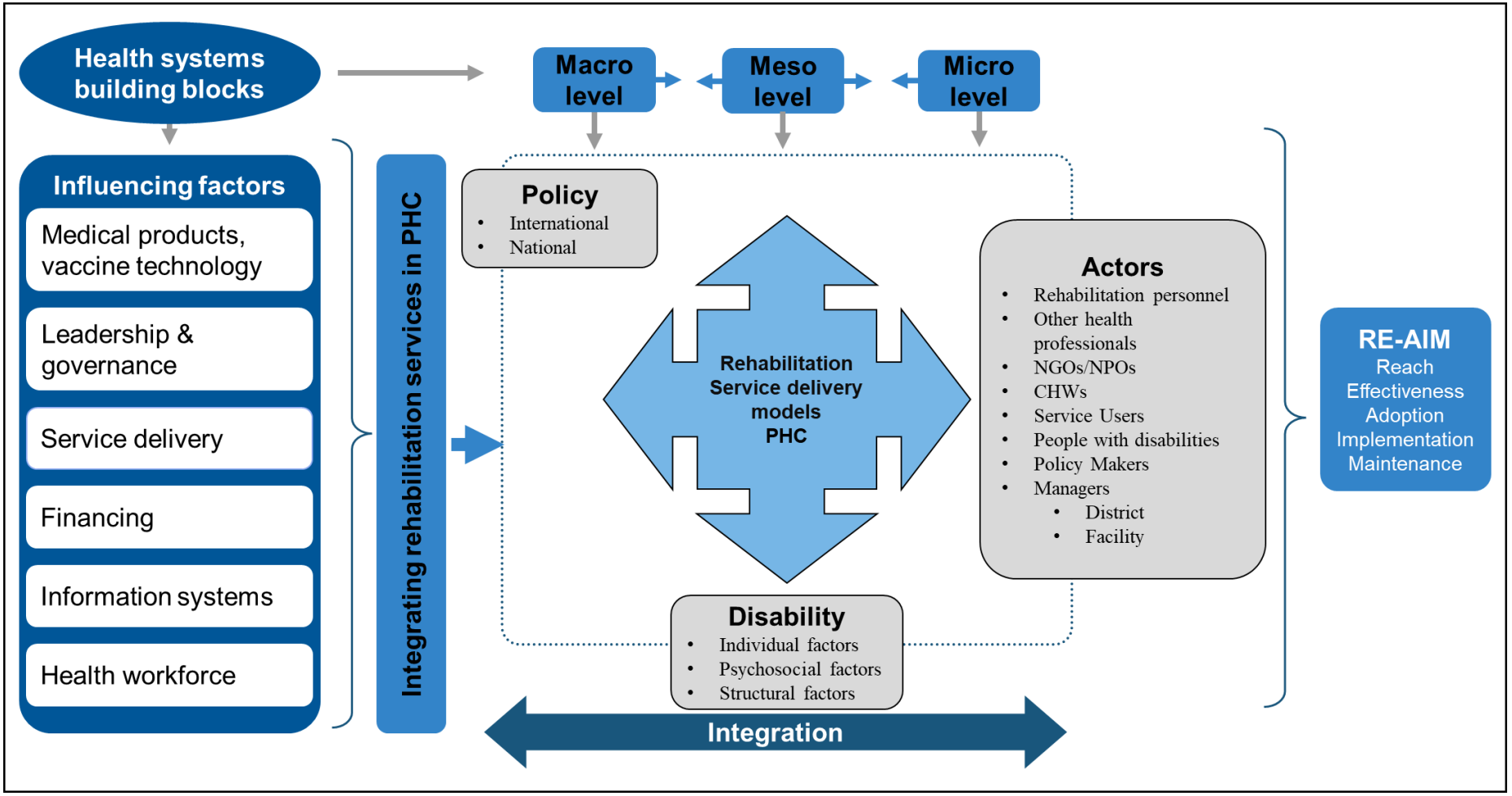


Figure 2.1 Conceptual framework using the health system building blocks from the WHO Health Systems Framework[91] *and the RE-AIM Framework*[95]

2.2.1 WHO Health System Building Blocks

WHO's health system building blocks are an important framework for understanding health systems and efforts to strengthen them. The different components of rehabilitation within the health system can be grouped under the six building blocks as follows:[42]

- Leadership and governance:
  - Existing laws, policies, plans, and strategies specific to rehabilitation services:
  - Existing health policies and guidelines in South Africa neglect rehabilitation and hinder its integration into PHC;
  - Governance continues to experience poor management that particularly affects major portfolios of health, employment, and education;[51] and
  - The required transformation and achieving universal health coverage through the NHI can only be fully realised through strong political leadership and systems of health governance, particularly in the face of South Africa's uncertain political and economic climate.[96]
- **Financing:**
  - The current health expenditure allocated to rehabilitation services and whether it meets the actual needs of the population:
  - Different health financing and payment structures that include rehabilitation services;
  - Evaluate the effectiveness of health financing and payment structures in promoting equitable access to rehabilitation; and
  - Suggest models that could better support comprehensive care.
- **Health workforce**:
  - The availability and distribution of healthcare professionals capable of delivering rehabilitation interventions, including rehabilitation therapists and mid-level workers;
  - Address any shortages or maldistribution; and
  - Recommend strategies for workforce development and optimisation.
- **Service delivery**:
  - Examine the models of service delivery for rehabilitation interventions, particularly in PHC facilities and community settings;
  - Identify best practices and barriers to effective service delivery; and
  - Propose solutions for more effectively integrating rehabilitation into the healthcare system.

- **Medical products and technology**:
  - Review the medicines and technologies, especially assistive devices, commonly used in rehabilitation;
  - Discuss the accessibility and affordability of these products for those in need; and
  - Recommend policies to improve access to essential rehabilitation technologies.
- **Information systems**:
  - Concerned with the current health information systems and record-keeping practices with respect to rehabilitation and focusing on the availability and use of data, including activity participation data and rehabilitation outcomes data; and
  - Highlights the importance of integrating rehabilitation data into national health information systems for better planning, monitoring, and evaluation of services, including research relevant to rehabilitation policy and programmes.

2.2.2 Primary Healthcare and Primary Care

PHC has undergone many changes since its historic launch in 1978. Over the years, PHC has come to be understood beyond a way of delivering healthcare, and it is now seen as a philosophy of attaining equitable health that governs all levels of care within the health system. As such, the principles of the PHC approach include equity in health service delivery, access to affordable and appropriate services, empowerment of people, and sustainability of service provision.[23,24] Furthermore, it includes other sectors responsible for delivering improvements in the social determinants of health.[24,42]

PHC is distinguishable from primary care (PC) in the literature based on the biomedical, biopsychosocial, or reformist interpretation. The reformists argue against the interchangeable use of PC and PHC, and are of the opinion that the lack of variance detracts from the strong focus on equity in PHC.[97] Similarly, the biopsychosocial view depicts PHC as a public health strategy based on the philosophy that health gains are better obtained when people's basic needs are met first.[97–99]

PHC, in contrast to PC, shows strength in its ability to respond to local needs. While communities are the unit of intervention through a comprehensive, intersectoral approach, PC is said to be orientated towards disease prevention with a focus on individuals and families.[99] Furthermore, PC has a more biomedical focus and refers to services provided as the first point of entry into the health system. As such, one of the main criticisms of PC is its focus on health risks, health education, and/or other preventive strategies rather than the social or environmental factors that influence disease progression.

Universal health coverage, disability, and rehabilitation have come to the fore in the policy sphere.[5,91] As such the importance of integrated health service delivery, and in this instance, rehabilitation services in PHC have been identified as key to the improvement of health outcomes.[25,38,91,100] Integrated rehabilitation services can be viewed at macro, meso, and micro levels.[15] For purposes of this study, the macro level provides a global and national context from an international and national policy perspective. The meso level is concerned with the professional and organisational aspects at PHC level[93], and therefore, in the current study, it focuses on rehabilitation and its potential impact on addressing the needs of people with disabilities. For example, it includes the rehabilitation service delivery models used in PHC to coordinate services across disciplines and organisations. The focus at the micro level is on factors affecting clinical integration in service delivery, and in the current study, this includes individuals and individual factors, for example, rehabilitation and other health professionals, community health workers (CHWs), and people with disabilities. In effect, through a reciprocal relationship, the concept of disability and the actors who are influential in the delivery of rehabilitation services in PHC are explored. The available service delivery models used in the delivery of integrated rehabilitation services to benchmark and guide best practice are pertinent to this discussion on service delivery.

2.2.3 Rehabilitation Service Delivery Models

The advantage of integrated rehabilitation services is the effective use of the combined expertise of a team rather than that of healthcare workers who practise individually.[101] McColl[102] identifies six models of practice for providing PHC and rehabilitation services in an integrated approach in order to better serve the health needs of people with chronic diseases and disabilities.

The model used most often for rehabilitation service delivery in PHC is the clinic model, and its key feature is a geographically defined multidisciplinary team that is co-located in the same physical place at the same time. From professionals' perspective, the clinic model is efficient and affords the opportunity for joint patient appointments if necessary;[102] and from the service users' perspective, it is familiar and allows service users to consolidate their care from various providers at a single PHC location, potentially minimising their transportation and associated costs. However, the clinic model has been criticised for failing to capitalise on its location in the community by removing patients from their social context, which is similar to what inpatient institutional services do.[102] Furthermore, the traditional hierarchical clinic model supports the vertical medical model of care, compromises flexibility, and organises demands according to

the needs of the system and the perceived importance of the services offered and not according to the needs of the patient. Consequently, patients cannot always be seen by the various healthcare professionals at similar times, often resulting in them having to return more than once to the same facility.[103] For the first time after the 2022 revision, *The Ideal Clinic Manual* from the National Department of Health included rehabilitation as a separate service to be provided in PHC clinics.[104]

Outreach is the second service delivery model in PHC that is also commonly used. Unlike the clinic model, PHC outreach services emanate from a district-level healthcare facility, and in the instance of the current study, it was CHC. Outreach services often target remote or resource-poor locations and attempt to simulate the CHC service offerings without the infrastructure provided by the facility by using mobile teams and satellite units.[102] The key benefits of outreach programmes are the specialised clinical knowledge of a professionally integrated outreach team from the CHC, and the opportunity for skills development in the community context. Outreach approaches have also been demonstrated to improve health outcomes, deliver more consistent care, and reduce the demand for secondary or tertiary inpatient institutional services by extending PHC services beyond the CHC.[102] A disadvantage of the outreach approach may be that the teams are not integrated into the community they serve, and thus, they may be perceived as visiting services.[102] Outreach services can be specialist, generalist, or comprehensive. The capitulation model that is being proposed for the NHI in South Africa outlines services to be population-based, which may influence outreach services.

In South Africa, there are insufficient rehabilitation-specific personnel or posts in clinics. Community service therapists, who account for 30% of public sector workers, are not retained after completing their one-year mandatory community service requirement, resulting in a high turnover rate and a lack of continuity and strategic service development. Consequently, the expertise that is brought to clinic-based and outreach services is transitory, the opportunity for long-term skill development is lost, and services are often not contextually appropriate and suited to community needs. The success of integrated rehabilitation services in PHC depends greatly on the community's active participation.[6] Since outreach PHC rehabilitation services rely on strong partnerships between people with disabilities and their communities, rehabilitation personnel, and community-based workers,[6] the sustainability of the service may be threatened if rehabilitation outreach services are not integrated into the community through viable skills development over a longer time period and with more experienced staff .

The other models for rehabilitation service delivery in PHC include self-management, case management, CBR, and shared care. Self-management involves the systematic provision of

education and support by the healthcare team to increase service users' knowledge, skill, and confidence in managing their own health.[102,105] Self-management emphasises patients being central to the network of health decision-making as a consumer and coordinator of their own services,[102,106] which is compatible with the rehabilitation philosophy of optimising independence,[102] making it ideal for integrating rehabilitation services in PHC. However, self-management requires a fair level of health literacy, which is low in South Africa[107] and is not acceptable to service users who do not wish to or are incapable of taking responsibility for their health and prefer to operate within a model where providers assume responsibility.[102]

Case management uses a case manager in an interdisciplinary approach to coordinate the necessary services, including rehabilitation services at the PHC facility, the patient's home, or other community locations, such as residential homes.[102,105] Effective case management reduces the number of visits to the PC physician and links the patient with more appropriate service providers who can meet many of the social and functional needs of patients with complex conditions. Case management is efficient from patients' perspective because all services are coordinated with some assurance of efficient information sharing among those who need it. Successful case management as a service delivery model for integrating rehabilitation services relies on the case manager's knowledge and understanding of rehabilitation and its value and place in patient care, and in the various health professionals involved acknowledging the case management role and cooperating by providing accurate and timely information.[102]

Another service delivery model for rehabilitation service integration is CBR, which is often used to deliver rehabilitation services in contexts where both material and human resources are scarce.[6,102,108] It is based on a community development philosophy, and uses an interdisciplinary and transdisciplinary collective approach in which the role of rehabilitation personnel is to advocate for and with people with chronic diseases and disabilities and to assist in the mobilisation of community resources and support to address the needs within a community.[6] The benefits of CBR are typically broader and more far-reaching than can be achieved on a one-to-one intervention basis. Through community development, which involves collaboration with the service users and community organisations or resources,[105] CBR enables the development of skills and capacitates service providers who are not necessarily rehabilitation personnel, people with disabilities, and their communities. Indeed, community development is a process that involves dedication, persistent energy, and a robust referral system. The development of relationships between the rehabilitation team and other members of the PC team is a key issue in the successful integration of rehabilitation services in PHC,[105] and the

absence of collaborative relationships threatens not only the sustainability of CBR but also the effective integration of rehabilitation service.

The sixth model is shared care, and in this model two providers with the same professional background, one a specialist and one a generalist, pair up in the provision of care. A specialist psychiatrist may pair with a family physician on either a case-specific or a practice-wide basis.[102] While shared care promotes networking among physicians within a community and a decreased sense of isolation for the family physician, a related model of specialist-generalist collaboration between therapists in the PC and tertiary care settings has not been found in the literature.[102] The inclusion of rehabilitation services in a shared model of integrated service delivery and its potential benefits to interprofessional teamwork and efficiency requires further examination.

In conclusion, the various rehabilitation service delivery models and understanding of rehabilitation services further highlight the need for empirical evidence into the current state of rehabilitation services in PHC. This is to inform its alignment to a reengineered PHC in South Africa and to allow adequate planning to meet the needs of the broader population.

The complexity of the relationship between the concepts can be said to be symbolic of the need to understand the integration of rehabilitation services in PHC to strengthen the health system; hence, integration is a common thread in the conceptual framework. The RE-AIM Framework serves as a theoretical framework through which the various health system influencing factors were evaluated and understood in this study to evaluate the integration of rehabilitation services in PHC.

2.2.4 The RE-AIM Framework

The existing literature suggests the absence of a comprehensive evaluation framework as a significant barrier to advancement in public health and community-based interventions.[115–117] Multi-level interventions, which encompass policy, environmental, and individual elements, necessitate assessments tailored to their specific contexts, goals, and purpose. The RE-AIM Framework conceptualises the public health impact of an intervention through the interplay of the five key factors of reach, efficacy/effectiveness, adoption, implementation, and maintenance.[95,109,110] A fundamental principle of this framework is that the overarching impact of an intervention is attributable to its combined effect across these evaluative dimensions. Despite the RE-AIM Framework's strengths, it has been criticised for a lack of clarity in nature of the relationships among the five RE-AIM dimensions and how they combine to determine

overall public health impact. On the other hand, the framework is praised for its compatibility with systems-based and social-ecological thinking as well as with community-based and public health interventions, thereby making it suitable for use in this study.[95]

In this research, the RE-AIM Framework served as the underpinning structure for evaluating the delivery and integration of rehabilitation services.[95,110–112] The RE-AIM Framework has been used in other studies to evaluate the collective impact of similar community-based public health programmes,[88] and injury prevention interventions.[113] In the current study, the evaluation of rehabilitation services encompassed the findings from Phases 1–3 articulated through the RE-AIM Framework's five dimensions. The specific application in evaluating each dimension is detailed in Appendix L and concisely summarised below.

The dimension *reach* refers to the size and characteristics of the population that benefits or is impacted by a policy or initiative. It is measured by comparing the number of programme participants to the total population or 'census' data for a specific group targeted by the intervention. In the context of evaluating rehabilitation service in PHC, reach was measured by comparing the number of people who used rehabilitation services to the total number of people who needed them.[88]

The *effectiveness* dimension assesses the outcomes of rehabilitation services, and emphasises the importance of considering both positive and negative outcomes. It is important to consider a variety of indicators, such as activity participation changes, improved quality of life, and service-user satisfaction, in addition to physiological outcomes, as was done in this study. These indicators are essential to determine the efficacy of rehabilitation service delivery models for integrating rehabilitation in PHC.[110]

Adoption, the third dimension of the RE-AIM Framework, refers to the frequency and representativeness with which rehabilitation services are implemented in settings such as communities, CHCs and clinics, health departments, and workplaces. It is also important to examine the barriers and facilitators to adoption as this provides information about how widely and effectively rehabilitation services are embraced. In the current study, adoption refers to the proportion of PHC facilities that offer rehabilitation services.[88]

The *implementation* dimension assesses the degree to with which rehabilitation services are delivered as intended. Implementation research is important for determining services that are feasible and effective in real-world scenarios. Assessing the way rehabilitation services are currently implemented at the PC level indicates the extent to which these services are integrated.

Maintenance, the final dimension in the RE-AIM Framework, assesses how well a health promotion policy or practice is integrated into an organisation's routine culture and operations. In the current study, it assessed how well rehabilitation services are a consistent, integrated, and long-lasting component of overall PHC services at organisational level or an individual's behaviour, and continuity in rehabilitation interventions at individual level.[113]

Ultimately, the RE-AIM Framework enables a balanced approach that combines an objective structure, a scientifically rigorous method of data analysis, and the incorporation of the researcher's subjective judgement in the final synthesis.[114] This approach ensures that rehabilitation services are thoroughly evaluated by considering not only their effectiveness but also their practical applicability, long-term viability, and broader public health implications.

2.3 Reflexivity

In my role as an occupational therapist, I have gained valuable insights into different healthcare systems and their impact on rehabilitation services. Working across various health systems has prompted me to question their policies and effects, particularly within the context of my experience in the National Health Service in the UK. This experience ignited my interest in researching health systems, especially considering my prior work in the public sector in South Africa. I was particularly curious about how a national health service, such as the one in the UK, would function in South Africa and how it would affect the delivery of rehabilitation services.

Upon returning to South Africa from the UK, I delved deeper into this by working in the private sector and supervising student clinical fieldwork in both rural and urban public sector settings. My aim was to better understand the social determinants of health and disability, as well as the challenges posed by fragmented rehabilitation services. My research focus stems from my strong belief in social justice, which drives me to explore equitable access to quality healthcare and the need to strengthen health systems to achieve this.

The South African healthcare system has a history of fragmentation and inequality across various sectors, levels of care, healthcare professionals, and geographical areas.[51] My perspective on health and disability aligns with the biopsychosocial approach outlined in the ICF by the WHO.[61] This approach acknowledges that health is influenced by personal and environmental factors, highlighting the importance of context to understand health and wellness[61]. PHC plays a pivotal role in this approach by advocating for equitable health for all through addressing basic needs. The principles of PHC include equitable service delivery,

affordable access, empowerment of individuals, and service sustainability.[25] My experience in rehabilitation units has underscored the significance of a multidisciplinary approach that involves patients and their families in the rehabilitation process. However, I have observed power imbalances among healthcare professionals that often result in the premature discharge of patients without proper rehabilitation input, hindering their recovery and reintegration into daily life.

In my research, I adopted a pragmatic approach and drew from constructivist assumptions shaped by exposure to various theoretical perspectives. I view reality as subjective and used an interpretive approach to understand the experiences of rehabilitation service providers and users within PHC. Using lived experiences, I explored participants' perspectives and the contextual factors influencing their experiences to seek solutions to effectively integrate rehabilitation into PHC. Despite my experience of the public health system, both from a service provider and service user perspective, I allowed the participants to express their views while also acknowledging and recognising that I am part of the social world that I am researching[196], and that this world has already been interpreted by existing social actors, some of which resonated with me. Furthermore, the supervision sessions were important in that they provided a space for me to reflect on biases during conceptualisation, data collection, and data analysis.

Chapter 3: Paper 1: Service Guidelines, Models, and Protocols for Integrating Rehabilitation Services in Primary Healthcare in Brazil, Russia, India, China, and South Africa: A Scoping Review

3.1 Introduction to Paper 1

Paper 1 is presented as a published paper. It is derived from the findings of a scoping review that mapped out the existing service guidelines, models, and protocols currently used for integrating rehabilitation services in BRICS countries.

3.2 Journal Details Paper 1

Disability and Rehabilitation is an international multidisciplinary journal published by Taylor and Francis that focus on all aspects of disability and rehabilitation. It aims to encourage a better understanding of disability and to promote rehabilitation science, practice, and policy. The journal is abstracted and indexed in Current Contents, EBSCO Online, Educational Research Abstracts online, Electronic Library For Social Care, Ergonomics Abstracts, Index Medicus/MEDLINE, PEDro, Psych Info/Psych Lit/Psych Abstracts, RECAL Bibliographic Database, Science Citation Index, SCOPUS, Social Science Citation Index, and Sociological Abstracts. Table 3.1 gives the publication specifics for Paper 1.

Table 3.1 Publication specifics Paper 1

Title of publication	Service guidelines, models, and protocols for integrating rehabilitation services in primary healthcare in Brazil, Russia, India, China, and South Africa: a scoping review
Authors	Lebogang Maseko, Hellen Myezwa, Natalie Benjamin-Damons, Denise Franzsen and Fasloen Adams
Journal name	Disability and Rehabilitation
ISSN	(Print) 0963-8288, (Online) 1464-5165
Publication date	09 December 2023
Volume	Online
DOI number	10.1080/09638288.2023.2290210
Impact factor	2.2 (2022), Department of Higher Education And Training accredited

3.3 Author Contributions Paper 1

The Contributor Roles Taxonomy (CRediT) (Appendix S) was used to outline the authors' contribution to the study and is shown in Table 3.2.[115] The full explanation of the terms is in Appendix S.

Table 3.2 Details of author contributions Paper 1

	Maseko	**Myezwa**	**Benjamin-Damons**	**Franzsen**	**Adams**
Conceptualisation					
Methodology					
Resources					
Writing: Original draft					
Writing: Review & editing					
Visualisation					
Supervision					

3.4 Copyright and Permission Paper 1

This scoping review was published by *Disability and Rehabilitation* (Open access). The article is presented as published in *Disability and Rehabilitation* with no changes to the style of the paper. According to the Creative Commons Attribution License 4.0, authors can grant permission to use the article as long as the authors are acknowledged and the article style and information is maintained.

3.5 Published Article

Taylor & Francis

Disability and Rehabilitation

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Service guidelines, models, and protocols for integrating rehabilitation services in primary healthcare in Brazil, Russia, India, China, and South Africa: a scoping review

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RESEARCH ARTICLE

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Service guidelines, models, and protocols for integrating rehabilitation services in primary healthcare in Brazil, Russia, India, China, and South Africa: a scoping review

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ABSTRACT

Purpose: The WHO emphasises that rehabilitation services must be integrated into primary healthcare as an inherent part of universal health coverage. However, there is limited research on the integration of rehabilitation services in primary healthcare in low- and middle-income countries. The purpose of this paper is to identify and describe the literature on service guidelines, models, and protocols that support the integration of rehabilitation services in primary healthcare in the BRICS countries (Brazil, Russia, India, China, and South Africa).

Methods: A scoping review guided by Arksey and O'Malley's framework was conducted. Structured database and website searches identified published and unpublished records from 2010, which were subjected to eligibility criteria. Mendeley, JBI SUMARI, and Microsoft Excel were used to extract and synthesise the data.

Results: The search strategy identified 542 records. Thirty-two records met the inclusion criteria. Shared care and community-based rehabilitation were the most reported practice models, and the implementation of the models, guidelines, and protocols was mostly described in mental health services.

Conclusion: This review discusses BRICS countries' rehabilitation service guidelines, models, and protocols for primary healthcare integration and implementation challenges. Rehabilitation professionals should rethink, realign, and apply existing models because of the lack of primary healthcare integration directives.

> IMPLICATIONS FOR REHABILITATION

- The integration of rehabilitation services in low-resourced and remote settings can be improved by involving community health workers and community rehabilitation workers in transdisciplinary teams.
- Peer support workers and community health workers can improve rehabilitation outcomes, particularly through shared care models that emphasize peer-to-peer learning, mentoring, and coaching.
- Self-management interventions can have a positive impact on functional outcomes.
- Integrated rehabilitation services in primary healthcare can be supported through community-based rehabilitation, which emphasises community involvement and engagement.

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Integrated services; people-centred health systems; primary healthcare; rehabilitation; universal health coverage; occupational therapy; physiotherapy; speech therapy and audiology

Introduction

Changing global health trends over the last decade are placing greater demands on health and social systems, which supports the need for increased rehabilitation services for a variety of health conditions for 2.41 billion people globally [1]. Individuals with chronic diseases recognise that one of the biggest flaws of current health systems is the absence of integrated rehabilitation services at the primary healthcare (PHC) level which results in negative health outcomes [2,3]. Integrating rehabilitation into the health system at the PHC level is critical to bridge the gap in service delivery, particularly in low- and middle-income countries where health systems usually prioritise curative medical care [1].

However, despite the documented advantages of delivering rehabilitation services at PHC level, there is a dearth of evidence on how and to what extent rehabilitation services are integrated into PHC. This could be because the WHO Rehabilitation 2030 guidelines only recently highlighted rehabilitation services in PHC systems research [4]. In accordance with universal health coverage in several nations and the increased global emphasis on disability

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[5–7], these guidelines suggest rehabilitation services should be strengthened and integrated into PHC in accordance with current epidemiological trends and demographic shifts [4].

It is being argued that rehabilitation is a fluid and complex construct that requires varied levels of interdisciplinary collaboration to respond to changing socio-political discourse that influences the lives of people with disabilities [7]. The WHO operational framework for PHC provides indicators that can be used to address the integration of rehabilitation in PHC [8]. The integration of these services can be viewed from a variety of service delivery process perspectives, including practice models, service protocols, and guidelines [9–11]. To enhance the integration of rehabilitation in primary healthcare (PHC), it is important to thoroughly review and re-evaluate the current models, protocols, and guidelines. The process should consider various perspectives that carefully reflect on the specific context and the population served. Challenges that affect the integration of rehabilitation services in PHC have been identified and can be analysed in the context of the rehabilitation and health system building blocks, which include governance and leadership, finance, health workforce, technology, and information systems [12].

The literature identifies obstacles that hinder the capacity of health systems to provide rehabilitation services and address patients' rights to access rehabilitation in PHC. Included in this are international and local policies that fail to address the extent to which rehabilitation services must be organised and delivered for integration to be realised [13–15]. The lack of direction to operationalise rehabilitation services within a PHC package [16–18] is further hampered by a shortage of a rehabilitation healthcare workforce [19–22] and varying approaches to service delivery [17,23,24]. Furthermore, medical health professionals' perceptions and lack of understanding of disability, the PHC model, and a biomedical rather than biopsychosocial approach to healthcare are recognised as affecting rehabilitation services [24,25]. Limited research that specifically addresses the heterogeneity in the scope and the extent of interdisciplinary rehabilitation services, including the rehabilitation professions, namely occupational therapy, physiotherapy, and speech and language therapy (SLT), is another barrier to integrating rehabilitation services.

The limited prior research on the integration of rehabilitation services into PHC in low- and middle-income countries is based on a range of perspectives, including health system performance, service quality intervention, and health programmes [26–31]. However, there has been no systematic mapping of models, service guidelines, and protocols for integrating rehabilitation into PHC in low- and middle-income countries. Therefore, this scoping review aimed to identify and describe available models, service guidelines, and protocols for integrating rehabilitation services into PHC in Brazil, Russia, India, China, and South Africa (BRICS).

All five countries in the BRICS bloc are low- to middle-income countries with emerging economies and are individually implementing healthcare reforms to achieve universal health coverage [32]. The BRICS countries have significant pockets of poverty, marked discrepancies between income levels within their populations, and varying use of public and private health services [15]. Health challenges in these countries include an increase in the prevalence of non-communicable chronic diseases and high inequalities in health and healthcare access. In all these countries the public healthcare systems use community-based health workers with limited training to provide PHC services [33,34]. A comparative table of overall health policy, inception of PHC, rehabilitation integration, and rehabilitation professional training is presented in Table 1.

Each country interprets the national and international rehabilitation guidelines differently and follows varying approaches to integrate rehabilitation into PHC, depending on their available resources and health infrastructure [35]. The BRICS countries have distinct policy directives to guide the integration of rehabilitation services, but implementation in some remains problematic [33].

Rehabilitation infrastructure, resources, services, and personnel vary across BRICS countries. Occupational therapy, physiotherapy, and SLT training are available in all five BRICS nations. Rehabilitation training has been offered for many years and is well established in South Africa, Brazil, and India, but in China and Russia, rehabilitation programmes are underdeveloped, in their infancy, and still expanding because they were only established during the last 10 years. The lack of clear integration guidelines and the variability in rehabilitation services highlight the need to identify and describe the literature on service guidelines, models, and protocols that support the integration of rehabilitation services in primary healthcare in the BRICS countries.

Purpose of the scoping review

Arksey and O'Malley's [36] and Levac et al.'s [37,38] scoping review methodology was used. Reporting was conducted according to the Preferred Reporting Items for Systematic reviews and Meta-Analyses extension for Scoping Reviews (PRISMA-ScR) [39].

Table 1. A comparison of overall health policy, PHC inception, rehabilitation integration, and professional training in the BRICS countries.

Country	Overall health policy	Inception of PHC	Rehabilitation integration	Rehabilitation professional training
Brazil	Universal, free healthcare guaranteed by the 1988 Federal Constitution Primary care is one of the main pillars [1]	Family Health Strategy introduced in 1994 Community-based interdisciplinary teams provide PHC with a move away from clinics [1]	Well-advanced integration of rehabilitation in PHC with multidisciplinary teams including OT, PT, and SLT [2]	Started in the 1950s and 1960s Postgraduate courses introduced in 2010 [3]
China	Rehabilitation services included as part of health reforms since 2010 [4]	Wide network of PHC clinics and centres developed in the last 12 years [5]	Rehabilitation services mostly provided at hospitals or clinics [5]	Started in mainland China in 2010 PHC rehabilitation provided by midlevel workers trained in traditional Chinese medicine [6]
India	National Policy for Persons with Disability 2005 [7]	Public-private healthcare system [8]	Rehabilitation services still predominantly hospital-based [9]	Started in the 1950s Postgraduate courses introduced in 2000s [8]
Russia	Revenues generated from state and regional budgets, compulsory health insurance, and numerous enterprises	Federal Law on the Fundamentals of Health Protection governs PHC and rehabilitation	Rehabilitation services remain disjointed and need to be integrated into PHC [10]	Rehabilitation medicine has existed since 1917 the training of PTs OTs and SLTs started more recently [11]
SA	Framework and Strategy for Disability and Rehabilitation in South Africa 2015–2020 emphasizes need for integrated healthcare access [12]	Health services remain essentially clinic-based, curative, and siloed [13]	Rehabilitation services still predominantly hospital-based [13]	Started in the 1940s with postgraduate courses introduced in the 1970s [14]

The methodology consists of the five stages discussed in the following sections.

Stage 1: identifying the research question

The following research question guided the review: What are the existing service guidelines, practice models, and service protocols for the integration of rehabilitation services in PHC in the BRICS countries? The population, concept, and context (PCC) acronym [38] were used to define the research for this study.

Stage 2: identifying relevant studies

The search strategy was developed using an initial limited search of Medline and CINAHL. The text words and index terms from the results were used to create a comprehensive search strategy. Further relevant studies were identified through searches of various databases, including Wiley Online Library, Scopus, and ProQuest. Guidelines, protocols, policy reports, and newsletters were sourced from the WHO website and institutional websites. Additional articles were found through reference searches and database alerts. Lastly, LILACS was searched for BRICS papers using specific search terms (Table 2).

The search strategy aimed to locate both published and unpublished studies. Filters were applied for database searches and records were included according to the eligibility criteria (Table 3). The search was conducted in September 2022 and updated in October 2023. The updated search yielded 22 additional studies, but none qualified for inclusion in the review.

Stage 3: study selection

All identified citations were collated and uploaded into the Mendeley reference manager and duplicates were removed. Two independent reviewers screened the titles and abstracts against the inclusion criteria for the review. Potentially relevant studies were retrieved in full and their citation details were imported into JBI SUMARI [40]. Thereafter, the full text of selected citations was assessed in detail against the inclusion criteria. Any uncertainty that arose was resolved through discussion or with a third reviewer. Records were included in the study when there was agreement as to their suitability. The search results are presented in a PRISMA flow diagram [41].

Table 2. Search terms.

Concept 1		Concept 2		Concept 3		Concept 4
"Rehabilitation"	AND	"Brazil"	AND	"Guidelines"	AND	"Primary health care"
OR "Occupational therapy"		OR "India"		OR "Clinical guidelines"		OR "Primary care"
OR "Physiotherapy"		OR "China"		"Practice guidelines"		OR "Primary level of care"
OR "Speech and language therapy"		OR "Russia"		OR "Models"		
OR "Audiology"		OR "South Africa"		OR "Frameworks"		
OR "Community rehabilitation"		OR "BRICS"		OR "Protocols"		
OR "Physical therapy"						

Stage 4: charting the data

The researchers created a Microsoft Excel custom spreadsheet for data extraction, which was separately piloted by three reviewers and amended based on their suggestions. The final spreadsheet contained eight main headings, namely reference, country, aim of the service, methods, service providers/setting/context, participants, services described, and key findings from the source. The included studies were classified according to the National Health and Medical Research Council hierarchy of evidence [42], which grades studies from Level I (highest level) to IV (lowest level) . The studies were not critically appraised as this is not typically done for scoping reviews [36,43].

Stage 5: extracting and reporting the results

Data were extracted based on three categories of interest, namely practice models [9], service protocols [11], and service guidelines [10] (Table 4). The authors of these studies presented the most detailed description and characterisation of the concepts relevant to rehabilitation services, which were used to guide an understanding of rehabilitation integration in PHC. The data extraction included descriptions and evidence for the integration of rehabilitation services in PHC as well as the challenges to the integration of these services. Records within each category were described based on the country of origin and the manner in which the concepts were applied in the integration of rehabilitation services.

Results

Search results

The result of the database searches is reported in the PRISMA 2020 flow diagram in Figure 1. The excluded records include technical reports ($n=31$), medical device reports ($n=23$), statistical

Table 3. Eligibility criteria for selection of evidence/studies.

Eligibility criteria	Inclusion	exclusion
Population (P)	Rehabilitation services, defined as Occupational Therapy (OT), Physiotherapy (PT), Speech Therapy (ST), and Audiology (Audio)	Any other rehabilitation services, such as podiatry, biokinetics, and others
Concept (C)	Service delivery guidelines or models, or protocols used at PHC level and rehabilitation, or services specifically designed for people with chronic conditions/disabilities.	
Context (C)	Brazil, Russia, India, China, South Africa	Other low- and middle-income countries
	Published/produced from January 2010	
	Primary Healthcare services	Hospitals, In-patient facilities, acute and sub-acute facilities
Publication status	Published peer-reviewed studies, and grey literature	
	Existing policies on disability and rehabilitation	
Language	English or translated into English	
Study designs	Literature looking at primary and secondary data as well as guidelines	

reports ($n=23$), not from BRICS countries ($n=39$), does not include rehabilitation ($n=12$), not based on PHC ($n=7$), does not address concepts of interest, such as service protocol, practice model, and service guideline (service delivery related) ($n=111$), and study protocols ($n=6$).

Characteristics of included records

This scoping review did not include any Level I research, and the majority of studies are classified as Level V (expert opinion and text and opinion) and Level III [1–3] studies. There was a total of 32 records from research conducted in BRICS countries, namely Brazil (five studies), Russia (one study), India (three studies), China (four studies), and South Africa (15 studies). There were also four global records that were text and opinion pieces, and a review that included studies from BRICS countries: Brazil ($n=1$) and South Africa ($n=3$). All records were published between 2011 and 2021 (Table 5).

Review findings

Using the WHO Framework for Action [45] and WHO Guide for Action [12], the findings concerning practice models, service protocols, and service guidelines and their application in integrating rehabilitation services into PHC are described in terms of governance and leadership, finance, service delivery, health workforce, and technology and information systems (Table 5). A detailed description of the review findings is presented in Table 7 (Online Supplementary File).

Table 4. Description of concepts mapped.

Practice models [9]	The conceptual framework and philosophy that underpin healthcare delivery. Practice models can be regarded of as a relationship between client populations' problems, the goals of healthcare practitioners, and the goals of healthcare systems [16].
• Clinic	Physicians, nurses and rehabilitation professionals are co-located, resulting in a geographically defined team.
• Outreach	Emanate from an institutional base and concentrate on providing professional services to people who could not access them in their usual institutional location.
• Case management	A case manager based on a referral and intake assessment, marshals and coordinates the necessary services, including rehabilitation services, either in the patient's home or other community location.
• Shared care	Integration model where two providers with the same professional background (usually medical), one a specialist and one a generalist pair up in the provision of care, e.g., a psychiatrist and a general practitioner.
• Self-management	Systematic provision of education and support by health care staff to increase service users' skill and confidence in managing their health. Emphasises the patient as consumer and coordinator of his/her own services.
• Community-based rehabilitation (CBR)	Based on a community development philosophy, where the role of rehabilitation professionals is to advocate for the issues of people with chronic diseases and disabilities and to assist in the mobilization of community resources and supports.
Service protocols [17]	Act as an impetus for quality teams to draw together health worker professional standards within a team: • to improve communications; • to improve the quality of service; • to meet organisational goals.
Service guidelines [18]	Refer to any aspect of rehabilitation intervention which must be carried out in a certain manner to: • adhere to organizational policies, • adhere to professional standards, • guarantee reliability of the rehabilitation process.

Practice models

Practice models are the conceptual frameworks and philosophies that underpin healthcare delivery. The transactional nature of practice models considers the relationship between client populations' problems, the goals of healthcare practitioners, and the goals of healthcare systems [46]. Of the 32 included records, 27 were charted based on models for integrating rehabilitation and primary care identified by McColl et al. [9] (Table 5).

The clinic model

The clinic model report outpatient clinics as the most common method of integrating rehabilitation in PHC described in three records [47–49] from China, Brazil, and Russia, respectively. Due to inadequate transportation, long waiting times, and poor health awareness, clinic access is difficult in all three countries. All clinics have a doctor-led hierarchical structure, and in China and Russia, there is limited access to rehabilitation professionals [47,48]. Governance, financial, and information concerns were highlighted in Russia, including delays in regulatory framework approval and limited resource access [47] (Table 6).

The outreach model

Three records [51,67,68] on telehealth and mHealth services address outreach. These services provided a virtual outreach model for integrating rehabilitation services, including psychosocial rehabilitation with PHC e-health [67], and tele-audiometry to screen hearing in South Africa [51]. In Brazil, a telehealth network connected remote and rural areas to secondary care and specialised services, including rehabilitation, at reduced costs [68]. Governance challenges include unclear health professional roles, insufficient rehabilitation services, confidentiality, and payment for services [68].

Case management

Case management is the third model in integrated rehabilitation service delivery, outlined in two reports. Lee [69] describes an integrated service where patients with chronic physical conditions receive rehabilitation and continuity of care in one setting case managed by their doctor. The second source addresses the difficulties of facility-based visits without case management, which leaves patients with no continuity of treatment, no interpersonal relationship with one multidisciplinary team member, and no choice in PHC service locations [70].

Shared care

Shared care, described in nine records is the highest evidenced model for integrating rehabilitation in PHC [49,50,52,67,68,71–74]. These records describe task-shifting and task-sharing in community-based teams, as well as telemedicine or online practice with collaboration between an interdisciplinary team of healthcare workers and others [67]. Five records emphasise task-shifting for integrating rehabilitation services, particularly in mental health services [52,67,71–73], and include rehabilitation integration into PHC involving community health workers (CHWs). Although

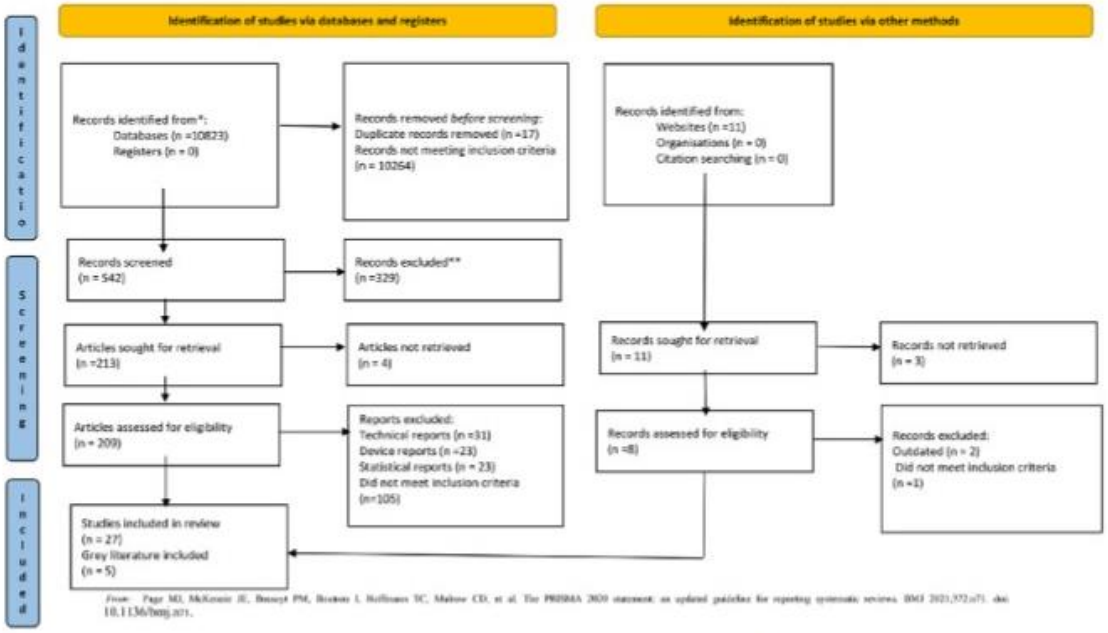


Figure 1. PRISMA 2020 flow diagram displaying the selection method of qualified studies. From Page et al. [44].

Table 5. Characteristics of included records ($n = 32$).

Type of study	No. of studies	All BRICS Included	Brazil	Russia	India	China	South Africa	Global
Case study	3		1		1		1	
Analytical cross-sectional	9	0	3		1	3	2	
RCT's	2	0			1		1	
Case control	1	0					1	
Text and opinion	14	0		1		1	9	3
SR and syntheses	1							1
Interpretive and critical research	2	0	1				1	
Total	32	0	5	1	3	4	15	4

Hanlon [71] is the first to propose this practice model, it was previously effectively applied in the Community Care for People with Schizophrenia in India experiment, providing evidence for task-shifting in mental healthcare [52].

Telehealth or online practice projects involving health professionals are another type of shared care that uses peer-to-peer sharing, learning, mentoring, and coaching [68] to promote mental healthcare in South African PHC practice. Workforce challenges related to the latter study include expensive data costs and training of mental health specialists who do not focus on community-based perspectives and understanding rural situations [67]. Moreover, in South Africa data expenses affect the feasibility of supporting telehealth and online practice services [67]. There are numerous governance challenges in terms of shared care, and in their proposed balanced care sharing model in PHC mental healthcare services, Goldberg et al. [50] fail to consider any inter- or transdisciplinary practices in rehabilitation services and focus on curative services.

Self-management

Three records emphasise self-management in PHC rehabilitation service integration [53,67,71]. Empowering patients, carers, and communities with information and support to self-manage has improved outcomes in the innovative care for chronic illnesses framework [71]. Similarly, PHC mental health services in South Africa show good evidence for functional outcomes and quality of life-based on self-management by families, carers, and patients [67]. Self-help programmes with support groups, vocational interventions, healthy lifestyle interventions, carer burden reduction, psychoeducation, and regular functional recovery reviews are suggested [67].

Community-based rehabilitation

Six records report community-based rehabilitation (CBR) as the final model for integrating rehabilitation services [51–56]. Four of the six records [51,54–56] specifically address CHWs, community rehabilitation workers (CRWs), and community involvement in CBR programmes where trained CHWs or CRWs offer rehabilitation services in the community [51,52,55,56]. Cobbing et al. [56] use a randomised control trial to evaluate mobility rehabilitation using a CBR approach for HIV-positive patients by CRWs trained and supervised by physiotherapists in South Africa. Bhutta [51] also recommends using trained CRWs in CBR to provide general or

Table 6. Summary of review findings for selected records ($n = 32$).

Concepts		Integration of rehabilitation services	Country	Health system building blocks	Challenges	No. of studies
Practice models	Clinic model ($n = 3$)	Out-patient clinics [19–21]	Russia ($n = 1$) China ($n = 1$) Brazil ($n = 1$)	Service delivery	Poor integration of rehabilitation services into communities with services offered far from home with long waiting times [21]. Lack of affordable rehabilitation services, because of poverty, inadequate transportation, and lack of health awareness [48].	27
				Leadership and governance	Delays in the regulatory framework to support the organisation and network of the clinics [19].	
				Health workforce	Inconsistency between the personnel structure and services [19]. Services do not include rehabilitation professionals, only community health workers trained by medical professionals. Lack of rehabilitation professionals [20].	
				Financing	Poor financial and economic structures to provide comprehensive medical services, including diagnostics, prevention, treatment, rehabilitation on one base [19].	
				Information systems	The backlog of the development of the information support system [19].	
	Outreach ($n = 3$)	Tele-health and mobile health as "virtual outreach" [22–24]	Brazil ($n = 1$) South Africa ($n = 3$) India ($n = 1$)	Leadership and governance	Legal clarification of the roles and responsibilities of professionals and patients. Rehabilitation professionals are under-represented. Confidentiality, the suitability for complex conditions, and legal issues are of concern [23].	
				Financing	Lack of funding to develop and support telemedicine programs [23].	
	Case management ($n = 2$)	Integrated community centres [26,27]	China ($n = 2$)	Service delivery	Patients had limited influence on the management of their case [27]. Facility-based appointment system affected the patients' preferred continuity of a relationship with the same team of HCWs and free choice in whom to consult [27].	
	Shared care ($n = 9$)	Task shifting [22,28–33]	South Africa ($n = 4$) Brazil ($n = 2$) India ($n = 1$) Global ($n = 2$)	Leadership and governance financing	No accreditation and federal funding to the Family Health Support Teams [33]. Balanced care sharing model did not support multidisciplinary practice in rehabilitation services [50]. Funding by territories or states and municipalities may result in reduced health professional involvement with a shift to the private sector [33]	
		Task sharing [28,29]		Health workforce	Training of mental health specialists is focussed mainly on individual care with little inclusion of community based perspectives and an understanding of rural contexts [22]	
		Telehealth or online practice [22,23]		Financing	High data costs for mobile phone use for telemedicine and online practice [22]	
	Self-management ($n = 3$)	Self-help interventions [22]	South Africa ($n = 2$) Global ($n = 1$)		Besides evidence, social, political, and economic contexts greatly influence the adoption and implementation processes of models [22]	
		Support groups [29]			Applying the ICCCF to fragmented PHC services is challenging [29]	
		Psychoeducation [29]				
		Healthy lifestyle interventions [22]			None reported	
		Addressing caregiver burden [22,34]				
		Vocational interventions [22]				
	Community based rehabilitation (CBR) ($n = 6$)	Community Rehabilitation Workers (CRW) [28,51–56]	South Africa ($n = 4$) India ($n = 1$) Global ($n = 1$)	Health workforce	Poor translation of CBR theory into practice, health and other professionals' poor understanding of CBR, and a lack of willingness to move away from individual treatment or the medical perspective towards the social and rights-based approach to managing health in communities [34].	
				Service delivery	Little or no evaluation of the clinical effectiveness or logistical or financial viability of audiology programmes was reported [24].	
		Community involvement [35]			Implementation of CBR requires obtaining community involvement and using available resources for CBR roll-out which is difficult to achieve [34].	
				Health workforce and service delivery	Lack of resources, continuous training for HCWs, and safety and security concerns for those working in communities [34].	

(Continued)

Table 1. Continued.

Concepts		Integration of rehabilitation services	Country	Health system building blocks	Challenges	No. of studies
Service protocols	Screening protocols ($n=2$)	Protocol for identification of problems for rehabilitation [57]	Brazil ($n=1$) SA ($n=1$)	Health workforce	Involvement of professionals who would use the protocol was advantageous to the acceptance in practice but as with all service protocols some resistance to change was encountered [57].	4
		Low-cost hearing screening tool [58]			Protocol addressed communication using virtual technology as well as quality of care, however, as a standalone project did not consider organisational goals which resulted in poor follow-up to local clinic services which were affected by a long waiting period [58].	
	Intervention protocols ($n=2$)	Task shifting in mental health services [59]	South Africa ($n=1$) China ($n=1$)	Health workforce and service delivery	Protocol provides for some limited structured and improved communication with reservations in terms of the ability of CMHWs to deliver treatment and the availability of specialist staff to provide supervision and support [59]. Lack of occupational therapists in the study even though aspects addressed fall within their scope of practice [60].	
		Peer support service [61]		Service delivery	Although the suggested intervention and staffing protocol may address the gaps in mental health service delivery in rural resource-scarce settings in South Africa and may reduce costs, the protocol did not address quality of care or organisational goals and uncertainties exist in the implementation [59].	
				Leadership and governance	Meeting organisational goals depends on the capacity and willingness of district health management who were not part of the project [59].	
Service guidelines	Organisational policies ($n=4$)	Guidelines for human resource requirements [62,63]	South Africa ($n=4$)	Service delivery	None reported	9
		Private healthcare guidelines for reimbursement [64]				
		Guidelines for a mental health CBR service [65]				
	Professional standards ($n=3$)	Professional standard guidelines for speech therapy [66]	Brazil ($n=1$) India ($n=1$) South Africa ($n=1$)	Health workforce and service delivery	Structural and organisational challenges, high patient loads, and space constraints affected practice as well as referrals [36].	
		Guidelines for community rehabilitation services for children with intellectual disabilities [37]			Lack of healthcare services and visits by physiotherapists and speech therapists mean several healthcare needs of the children were not met [37].	
		Guidelines to integrate mental healthcare into chronic care [36]		Health workforce	Professional standards guidelines for nutritionists and no other rehabilitation professionals in supporting Ward-Based Outreach Teams [36].	
	Reliability of rehabilitation process ($n=2$)	Home based rehabilitation guidelines [38]	Brazil ($n=1$) South Africa ($n=1$)	Service delivery	The service infrastructure for transportation/travel time for therapists to conduct home visits requires revision [38]	
		Guidelines for integrating rehabilitation services for children living with HIV [39]			Loss to follow-up after the initial assessment, because of financial constraints, lack of time, and transport restrictions [39]	

targeted audiology and speech therapy services in low-resource settings. Swanepoel [55] reports the successful screening of pre-schoolers in a low-resource area for hearing and visual loss using unemployed community members trained as CRWs.

Augustine [54] emphasises the importance of community involvement in CBR to identify and develop programmes to provide rehabilitation services in schools for intellectually impaired children in India. They found that community involvement increases school support and ownership, and that CRW rehabilitation services at school and home visits reduce stigma and care burden. However, gaining community access and facilitating community participation as well as the requisite resources for CBR are time consuming and difficult [53]. These challenges in conjunction with the lack of understanding of CBR by health and other professionals, and a reluctance to shift away from a curative medical perspective to recognise the social and rights-based approach to community health management impede CBR [49,71]. The safety of CHWs while providing community services is also emphasised [53] because it affects service delivery, as does the lack of CBR rehabilitation programme efficacy outcomes [51].

Description of service protocols

Service protocols are multidisciplinary and include pre-set criteria to be followed in defined situations to achieve a set of standards to support specified patient care, which motivate quality teams to improve communication and service quality within organisational goals [11]. Four records [60,75–77] describe screening or intervention service strategies to improve service quality. Both the screening protocols include rehabilitation integration in PHC. The Protocol for Identification of Issues for Rehabilitation, based on the International Classification of Functioning, Disability, and Health, was developed in Brazil in a case study. This protocol guides the screening of patients for referral and case management in an interdisciplinary team in which rehabilitation professionals, such as occupational therapists, physiotherapists, and SLTs working in family healthcare centres are included [75].

The second service protocol includes only SLT services. CRWs in South Africa were trained and implemented a low-cost preschool hearing screening routine using a mHealth point-of-care diagnostic and cloud-based data storage, surveillance, and referral system [76].

Both intervention protocols consider rehabilitation in mental health in PHC and do not mention rehabilitation professionals, such as occupational therapists. The first protocol uses task-shifting and presents a service protocol for a hypothetical interdisciplinary team needed to populate the integrated primary mental healthcare framework in South Africa. However, the protocol does include rehabilitation for adult mental healthcare users in a rural setting [77] where community mental health workers provide psychosocial CBR programmes and weekly group and individual therapy. Governance and service delivery challenges in the protocol include the lack of involvement of governmental district health management structures. Community mental health workers face limited structured communication and a lack of specialist staff to supervise and support them, which affect their service delivery and quality of care [77].

A second intervention protocol is described in a cross-sectional analytical study from China [60]. In this study, a peer support service protocol for rehabilitation services improves perceived independence in activities and the social skills of people with mental illness attending PHC community rehabilitation. The service protocol requires a high level of supervision and organisational resources, but after one year, supervision can be reduced, making the service protocol sustainable [60]. In this study, psychiatrists, community doctors, and clinical psychologists trained and supervised peer service providers online [60].

Description of service guidelines

Service guidelines refer to principles or criteria that guide action and are carried out to adhere to organisational policies and professional standards to ensure the best possible outcomes and reliable rehabilitation services [10]. Nine records from the review discuss service guidelines [78–86]. Of the nine records, four [78–80,87] report on service guidelines for human resource requirements, professional standards, and the reliability of the process in PHC rehabilitation in the public and private health sector in South Africa.

The four sources describe service guidelines for human resource requirements within the PHC re-engineering approach proposed by the Department of Health in South Africa. Daviaud and Subedar [87] consider human resource requirements for clinic and community services but exclude rehabilitaion professionals. Later guidelines, published in 2020, included criteria for ward-based PHC outreach teams in a community-orientated primary care approach [78]. This article includes the geographic delineation of teams supported by a dietician, physiotherapist, occupational therapist, pharmacist, social worker, and hospital-based specialists to improve district health services [78]. However, professional standards guidelines are only included for nutritionists to support ward-based outreach teams, despite the inclusion of all services at PHC clinics, community health centres, and environmental and school health [82]. However, the study supports the recommendations of Homer [80] who proposes guidelines for the development of a mental health CBR service in South Africa that includes occupational therapists as part of the team [80]. The private sector guidelines for rehabilitation services in South Africa include services offered in the community by rehabilitation professionals in private practice, such as physiotherapists, occupational therapists, and SLTs, which are mainly available to those with medical insurance [79].

Service guidelines for professional standards are the second component considered for the integration of rehabilitation into PHC and are reported by three records [81–83]. In Brazil, Molini-Avejonas et al. [81] analyses the professional standards guidelines from the Ministry of Health for SLTs in family health centres [81]. They found the SLTs working in a multidisciplinary team met all guidelines related to professional service. Other studies on professional standards in India [83] and South Africa identify challenges, such as a lack of an interdisciplinary approach and government interdepartmental collaboration. In India, the Health and Education Departments and local self-governments require linkage to the District Mental Health Programme to deliver community rehabilitation services of an adequate standard to children with intellectual disabilities [83]. A lack of inclusion of all rehabilitation professions is also a concern since visits by physiotherapists and SLTs are omitted from the interdisciplinary approach [83].

A study in South Africa to develop a district mental healthcare plan to integrate mental health services into chronic care proposes collaborative care packages offered by CHW outreach teams for depression, alcohol use disorders, and schizophrenia in alignment with the WHO's Mental Health Gap Action Programme. Services depend on psychoeducation provided by PHC nurses and doctors and community-based psychosocial rehabilitation groups facilitated by auxiliary social workers and lay counsellors [82]. Service delivery in terms of professional

standards is also impacted by structural and organisational challenges, high patient loads, and space constraints, which affect practice and referrals [82].

The reliability of the process, the third component of service guidelines for the integration of rehabilitation in PHC, are reported on by two records [84,86]. The first study completed an analysis of the time spent by the health interdisciplinary team in home care based on guidelines provided by the Brazilian Ministry of Health for the Better at Home Program [86]. This determined whether the process in relation to staffing and the organisation of the service met the needs of the population served. The second is a study to confirm guidelines for the reliability of rehabilitative care in South Africa for children living with HIV. The recommendations from this study include the change in the process of community screening and timely referral to decentralised rehabilitative care in the home and community [84].

Discussion

This study set out to identify and describe the practice models, service guidelines, and protocols for the integration of rehabilitation services, including those offered by rehabilitation professionals (occupational therapy, physiotherapy, and SLTs) in PHC in BRICS countries. Overall, the majority of records included in the review are classified as low level of evidence that consists mostly of opinion pieces. The highest number of records came from South Africa, and four each came from Brazil, China, and India. Only a few records from Brazil and South Africa present research completed by rehabilitation professionals. The high number of records from South Africa in comparison to the other BRICS countries may indicate that research in South Africa is routinely published in English, followed by India.

Practice models

Data extracted from the literature are discussed using McColl et al.'s [9] six practice models for integrating rehabilitation into PHC, namely the clinic, outreach, case management, shared care, self-management, and CBR models. Although these models are distinct, they may overlap, and more than one may be implemented simultaneously. The reviewed studies indicate that rehabilitation is not integrated into the described programmes, which typically involve only one or two professional groups with skills in a single discipline and no interdisciplinary rehabilitation services at the PHC level. However, research in Brazil emphasises the importance of interdisciplinary teams in the community and the integration of all practice models within PHC.

The clinic model

Outpatient clinics are the preferred model for public PHC services in both South Africa and India [88,89]. This is also the case for Russia [63] and China [57] where health reforms for integrated preventive, therapeutic, and rehabilitative services based on the International Classification of Functioning, Disability, and Health have increased the number of PHC clinics and health centres. These reforms have encouraged geographic co-location of a number of health professionals in each PHC setting, where the physical proximity has improved interactions and knowledge exchange [90]. In China, many patients are required to keep their own health records as they are referred to different facilities and health professionals, including rehabilitation services, using a centralised facility-based appointment system. However, patients reported little continuity of care and felt that their freedom to choose and remain with their healthcare team members for continuity of care was not respected [70].

Popular as the clinic model is, the rehabilitation workforce remains the greatest challenge in outpatient clinics, particularly in China and Russia, due to the low number of trained occupational therapists, physiotherapists, and SLTs [64,91]. The attempt to incorporate rehabilitation services, such as physiotherapy into PHC clinics in Russia relied on a single accountable physician trained to provide all medical and rehabilitation services in these clinics [47]. Most rehabilitation services in China continue to be physician-led and assisted by "rehabilitation therapists" who are mid-level workers trained in techniques used by occupational therapists, physiotherapists, SLTs, and traditional Chinese medicine [70]. The integration of rehabilitation services remains poor, and access to services is a challenge when the clinic model is used to provide PHC [49]. Thus, a move away from clinics to family health centres in the community in Brazil has brought integrated rehabilitation services close to patients' homes, overcoming challenges that impact service utilisation and health outcomes [92]. De Jesus Mari [93] concurs that the only way to achieve rehabilitation integration for mental health services is moving out of the hierarchical fragmented medical model services with long waiting times at PHC clinics. This model allows the interdisciplinary team to share knowledge and take co-responsibility for cases using a matrix support tool [93].

However, challenges remain, such as services being unequally distributed across Brazil and concerns about the lack of clarity in terms of the roles of the different health professionals within the system [49]. Governance challenges, resulting in delays in the regulatory framework required to support the organisation and network of the PHC services at the clinic level, are reported as a challenge, particularly in Russia [47]. These bureaucratic inefficiencies and lack of direction to operationalise services within the PHC package negatively influence the capacity to deliver services [17] and integrate rehabilitation services in PHC.

The outreach model

In contrast to the clinic model, outreach services emanate from a PHC facility to people who cannot access them in their usual facility setting. The integrated community-based services offered in Brazil reflect an outreach model that includes home visits, which is not described in other countries [49,93]. Outreach has also been achieved in the form of telehealth, e-health, and mobile Health (mHealth) [51,67,68]. The main advantage of these services, reported in Brazil and South Africa, is the reduced cost of providing services. In South Africa there is high evidence for telehealth [94], which also overcomes geographical boundaries and the need for travel to provide rehabilitation in mental health and audiometry screening, promoting universal health coverage [51,67]. In Brazil, the telehealth network achieved similar goals by providing access to specialised services, including rehabilitation [68]. Many of the leadership and governance challenges in the legal clarification of the roles and responsibilities of service providers and users of telehealth reported previously [51,67,68] may have been resolved during the COVID-19 pandemic when telehealth services became a necessity. Due to data costs and connectivity in middle lower-income countries, the question arises of whether telehealth is an efficient and effective method to integrate rehabilitation services into PHC [67].

The shared care model

Both the clinic model and outreach model suggest the use of shared care to integrate rehabilitation services in PHC, either through task-shifting (the delegation of components of care) or through task-sharing (a collaboration with shared responsibility for care when specific tasks are assigned to different HCWs) [71]. This supports the health workforce challenges to rehabilitation service integration in PHC, where a lack of trained rehabilitation professionals remains a concern, particularly in the BRICS and other low- and middle-income countries [34]. Shared care involving trained CHWs or mid-level workers is recommended, but this form of transdisciplinary working requires comprehensive training by appropriate health professionals working in interdisciplinary contexts [95].

While a shared care model has been proposed for low-income South African communities [50], specific rehabilitation professionals, such as occupational therapists and physiotherapists are not included, particularly for mental health. In this instance, the lack of doctors in a rural setting resulted in task-shifting of all training and supervision of mental health CHWs to mental health nurses [73]. CHW training should be completed by practitioners in the relevant specific rehabilitation discipline [80], particularly when the goals of the service include establishing self-help and support groups and livelihood and income-generating opportunities, which fall within the scope of occupational therapy [71]. Furthermore, having only nurses and medical specialists train CHWs negates the transdisciplinary approach, undermines the role of rehabilitation professionals, jeopardises the contribution of specific disciplines within rehabilitation [47], and fails to recognise their unique competencies, skills, and knowledge as essential components of PHC [96]. Lack of supervision of CHWs by qualified rehabilitation professionals may reduce the effectiveness and perceived need for rehabilitation in the long term [97]. Evidence for the effectiveness of task-shifting and -sharing strategies in South African PHC for rehabilitation is lacking [67]. However, studies report effective rehabilitation services in PHC for children living with HIV [72], and the potential benefits of transdisciplinary mental health management in Brazil, including communication and recognition between healthcare workers and strengthened team bonds to provide more comprehensive, integrated care [49].

The self-management model

The self-management model advocates for increased empowerment of patients and the community in the ownership of their health and wellbeing and is applicable within any of the models described above. The literature emphasises these services that should prioritise the transfer of knowledge and skills to individuals, families, and the community in collaboration with mental healthcare users to promote mental health and prevent mental illness [80]. Self-management can be supported by online or telehealth services to reduce healthcare professionals' workload while capturing a larger audience [67]; however using self-management in fragmented PHC services is challenging [71], and therefore integrated PHC services are necessary.

The community-based rehabilitation model

Training CHWs to provide rehabilitation services is an effective CBR model for integrating rehabilitation in PHC and includes the delivery of home-based community care. Data extracted on CBR emphasise improved functional and quality of life outcomes, the significance of continued education and training, appropriate supervision of CHWs, and the involvement of the community in achieving health goals [51,53,98]. According to Augustine [54], training community members as CHWs helps overcome community stigma and opposition to community involvement, but the safety of CHWs and the time needed for developing community involvement remain concerns [53]. A rehabilitation programme for intellectually impaired children in India, which included interdisciplinary collaboration, report that positioning the community at the core of identifying needs and developing programmes to deliver rehabilitation services enhanced CBR's success as a model for integrating rehabilitation in PHC [54]. Success in CBR programmes in South Africa is reported and includes improved functional mobility in people with HIV where CHWs were trained in physiotherapy skills [56] and CHWs trained by SLTs to effectively screen children for hearing loss [51,55].

Service protocols

Service protocols facilitate service delivery within multi- and interdisciplinary teams and this review found protocols for screening and intervention. These protocols should allow health professionals to apply clinical judgement to implement them [99].

The collaborative development of a screening protocol involving all team members, including occupational therapists, physiotherapists, and SLTs, was successful in guiding patient referral and management within the interdisciplinary community-based teams in Brazil. Implementation was facilitated by team involvement and increased protocol acceptability in practice [75]. Similarly, a low-cost hearing screening protocol for preschool children was developed and implemented in South Africa, which supported the transfer of SLT skills through CHW training [76]. While the protocol was successful for screening, it lacked organisational goals. This resulted in poor follow up and long waiting periods for hearing assessments and intervention at local clinics [76], impacting the integration of rehabilitation services.

A service protocol for intervention was proposed for the assessment and treatment of adult mental healthcare users by a hypothetical multidisciplinary team in a rural South African setting. The protocol involves task-shifting to CHWs for delivering psychosocial rehabilitation and interpersonal therapy groups but does not include rehabilitation professions, such as occupation therapists, which is concerning. Moreover, the absence of consideration for district health management goals resulted in uncertainties during project implementation [77]. In China, a peer support programme was approved for individuals with severe mental illness in which mental healthcare users provide support under the supervision of community doctors and clinical psychologists. However, the lack of involvement of occupation therapists and physiotherapists in training may have affected the quality of care for specific interventions related to daily living skills, social skills, and fine motor skill practice [87].

Service guidelines

Rehabilitation service guidelines are essential in PHC to ensure equal distribution, affordability, and accessibility while adhering to organisational policy and professional standards to make the service acceptable to healthcare workers and consumers [80].

Organisational policies

South Africa implemented guidelines for ward-based outreach teams in a community-orientated primary care approach to

improve district health services and save costs [78]. These guidelines specify the geographic delineation and composition of PHC teams, conditions of employment, and managerial oversight for supervision and accountability [78]. Furthermore, the guidelines stipulate that a hospital or district-based dietician, physiotherapist, occupational therapist, pharmacist, medical specialist, and social worker must support the team; however, the training and supervision of the CHWs within the ward-based outreach teams exclude rehabilitation services [78]. In the private healthcare sector, guidelines for rehabilitation services are limited to identifying codes for prescribed minimum benefits that cover individual health and rehabilitation services for those with medical insurance or paying out of pocket [79].

Professional standards

Professional standards guidelines are crucial to ensure standards of care are achieved by healthcare workers [87]; however, non-adherence to these guidelines remains a threat to the integration of rehabilitation services in PHC. Studies from Brazil [81] and India [83] show that weak guidelines affect care standards. A study from South Africa indicates that non-compliance with guidelines results in poor referral rates by PHC nurses to community healthcare workers [88]. A crucial aspect of the successful integration of rehabilitation services into PHC is the development of clear comprehensive guidelines. Nonetheless, it is equally important for the individuals responsible for implementing such guidelines to ensure their appropriate execution [35].

Guarantee reliability of the rehabilitation process

Bôas and Shimizu [86] analysed the time spent by the multidisciplinary health team in home care to ensure the reliability of the rehabilitation process in Brazilian services for the "Better at Home Program" domiciliary care [86]. They found differences within the interdisciplinary PHC team for procedures in the home, with physiotherapists following the community home visit guidelines for intervention and assessment of patient safety, resulting in sustained improvements in patients' compliance [86]. Similarly, Maddocks et al. [84] suggest that service guidelines for integrated rehabilitation for children living with HIV should consider the context in which they live since home programmes provided by hospital-based rehabilitation professionals are found to be unsustainable due to the limited availability of trained professionals, financial constraints, lack of time, and transport restrictions. They also suggest that the guidelines should include community screening and simple home-based treatment strategies by CHWs to improve the reliability of the rehabilitative process [84].

Limitations

As only data published or translated to English were included in this review, unknown valuable data from studies published in other languages may exist.

Conclusion

The integration of rehabilitation services in BRICS countries is impeded by a shortage of rehabilitation professionals and limited access to services, especially in remote areas. To address this challenge, the involvement of CHWs and CRWs in transdisciplinary teams has been proposed. Recruiting and training unemployed community members as CRWs can improve access to rehabilitation services, especially in areas where healthcare professionals are scarce. Peer support workers have been identified as a potential model for improving rehabilitation outcomes and integrating rehabilitation in PHC through shared care and self-management. The CBR model is confirmed as the most effective approach to integrate rehabilitation in PHC, emphasising community involvement in service provision through trained CHWs and CRWs. Implementing CBR programmes can improve rehabilitation outcomes, ensure effective service delivery, and promote community-based inclusive development. Therefore, in low- and middle-income countries with limited access to rehabilitation services, the use of CHWs, CRWs, peer support workers, shared care, self-management, and the CBR model present promising approaches to integrate rehabilitation in PHC.

Author contributions

Mrs. Maseko conceptualised and designed the study; collected data; carried out the initial and secondary analysis; and drafted, reviewed, and revised the manuscript. Dr. Benjamin-Damons collected data and carried out the initial and secondary analysis. Dr. Franzsen carried out the secondary analysis, and reviewed and revised the manuscript. Prof. Myezwa and Dr. Adams coordinated and supervised the study, including conceptualisation, and critically reviewed the manuscript for important intellectual content. All authors approved the final manuscript submitted and agreed to be accountable for all aspects of the work.

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No potential conflict of interest was reported by the author(s).

Disclaimer

The authors hereby declare that the views expressed in the submitted article are their own and not an official position of the University of the Witwatersrand.

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Data availability statement

The data that support the findings of this study are available from the corresponding author, Lebogang Maseko, upon reasonable request.

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Chapter 4: Paper 2: Perceptions of Integrated Rehabilitation Service Delivery in a Metropolitan District

4.1 Introduction to Paper 2

Paper 2 is presented as a published paper from Objective 2, which was to determine the rehabilitation services currently provided at PHC level in the Johannesburg Metropolitan District, Gauteng, South Africa. The paper emanated from the findings of in-depth interviews with rehabilitation personnel employed at the nine CHCs offering rehabilitation services in the Johannesburg Metropolitan District. The in-depth interviews explored the extent to which rehabilitation services are integrated into PHC service delivery based on the expressed reality of rehabilitation personnel. This paper describes the first theme from the findings by looking at how the rehabilitation personnel perceive the current state of rehabilitation services.

4.2 Journal Details Paper 2

The *African Journal of Primary Health Care & Family Medicine* is the official journal of WONCA (World Organization of Family Doctors) Africa Region and the PRIMAFAMED (Primary Care and Family Medicine) network, published by AOSIS. It provides a platform for scholarly exchange between family medicine and PHC researchers and practitioners across Africa. All articles published in the journal are included in African Index Medicus, Cabells Journalytics, Directory of Open Access Journals, EBSCO Host, Embase, GALE, CENGAGE Learning, Google Scholar, Hinari, Norwegian Register for Scientific Journals Series and Publishers Level 1, ProQuest, PubMed / MEDLINE, PubMed Central, SciELO SA, SCOPUS, Web of Science Other Coverage, Emerging Sources Citation Index, Emerging Sources Citation Index (ESCI). Table 4.1 gives the publication specifics for Paper 2.

Table 4.1 Publication specifics Paper 2

Title of publication	Perceptions of integrated rehabilitation service delivery in a metropolitan district
Authors	Lebogang J. Maseko, Fasloen Adams, Hellen Myezwa
Journal name	African Journal of Primary Health Care & Family Medicine
ISSN	(Online) 2071-2936, (Print) 2071-2928
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4.3 Author Contributions Paper 2

The CRediT was used to outline the authors' contribution to the study and is shown in Table 4.2.[115] The full explanation of the terms is in Appendix S.

Table 4.2 Details of author contributions Paper 2

	Maseko	**Myezwa**	**Adams**
Conceptualisation			
Methodology			
Resources			
Writing: Original draft			
Writing: Review & editing			
Visualisation			
Supervision			

4.4 Copyright and Permission Paper 2

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4.5 Published Article

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Perceptions of integrated rehabilitation service delivery in a metropolitan district

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Background: There is a recognised need for rehabilitation services at primary health care (PHC) level. In addition, there are clear policies (international and national) and guidelines for use by healthcare planners in South Africa to implement rehabilitation services. Although rehabilitation services are provided on the primary platform, its operationalisation has not been in an integrated manner. Clarity on the level of integration within existing PHC rehabilitation service delivery is required for its inclusion in a reengineered PHC.

Aim: The study explored the extent to which rehabilitation services are integrated into PHC service delivery based on the expressed reality of rehabilitation professionals.

Setting: The Johannesburg Metropolitan District of Gauteng, South Africa.

Methods: In-depth interviews with 12 PHC rehabilitation professionals were completed to elicit their experiences with PHC rehabilitation services.

Results: The theme *the current state of rehabilitation services – 'this is the reality; you need to do what you need to do'* along with its two subcategories, was generated from this study. The theme describes the expressed reality of suboptimal, underdeveloped and poorly integrated rehabilitation services within the Johannesburg Metropolitan District. Rehabilitation service providers have adapted service delivery by including isolated components of rehabilitation integration models, but this has not yielded an integrated service.

Conclusion: Rehabilitation services although recognised as a crucial service in PHC must be critically analysed and adapted to develop integrated service delivery models. There should be a shift from selected coping mechanisms to targeted, integrated services.

Contribution: The study describes PHC rehabilitation services and explores best practice models for integrated service planning and delivery.

Keywords: occupational therapy; physiotherapy; speech therapy; audiology; universal health coverage; service delivery; disability.

Introduction

As the global health community strives for universal health coverage (UHC) and health equity in line with the 2030 Agenda for Sustainable Development,[1] there is renewed interest in primary health care (PHC) informed by evidence from research.[2] Providing a continuum of healthcare services at the community level improves mortality (maternal, newborn and neonatal), life expectancy, mental health outcomes and reduces hospitalisations.[3] The principles of PHC include equity, access, affordability and appropriateness of health services, empowerment of people and sustainability of service provision.[4,5] The strength of PHC lies in its adaptability to local needs where communities are the unit of intervention through a comprehensive intersectoral approach,[4] making it particularly relevant for integrating healthcare services.

Although existing international and national policies and guidelines recognise the need for multidisciplinary PHC, which includes rehabilitation services, they fail to address the extent to which rehabilitation services should be integrated, organised and delivered.[6,7] There is a misperception that rehabilitation is a luxury and not essential care.[8] According to the World Health Organization (WHO) global disability action plan, rehabilitation must be addressed as a necessary service rather than a luxury supplement to promote the integration of rehabilitation into PHC.[9] However, services delivered within a vertical medical model of care based on diagnosis

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act as a barrier to the effective integration of all services including rehabilitation at a PHC level.[10] A biopsychosocial approach considering context-related problems as well as the functional outcomes in relation to health[11] that places the needs of the people at the centre of the system[12] is required to support integration of services.

The need to scale up rehabilitation services at the PHC level to achieve UHC for persons with disabilities or at risk of disability is articulated clearly in the second objective of the WHO Global Disability Action Plan 2014–2021 'Better health for all people'.[9] In South Africa, the public health system is largely inadequate in the provision and integration of PHC rehabilitation services.[13] Inadequate service provision in South Africa results in a higher rate of unmet health and community integration needs,[14] confounded by geographical,[15] infrastructural,[16] attitudinal[17] and financial barriers[18] that continue to affect access to healthcare. In addition, participation in daily life as an important outcome to facilitate independence, social inclusion and quality of life for those with functional limitations is lacking in service provision.

Conceptual ambiguity of integrated rehabilitation might be another hindrance to rehabilitation professionals' holistic understanding of the suitability of the service at the PHC level.[19] Consequently, rehabilitation professionals rely on their own experiences and conceptual understanding of the situation to guide their practice.[19] To explore and clarify integration of rehabilitation in PHC, systems and services should be considered over three levels, namely macro, meso and micro levels.[12] Integration takes place at the macro level and refers to the alignment of policies and laws within a system, including legal frameworks or national instruments, such as the Framework and Strategy for Disability and Rehabilitation Services in South Africa.[7] Integration at the meso level occurs both professionally and organisationally with partnerships or teams coordinating services across various disciplines, both within and between organisations.[12] Integration at this level implies bringing together health with other agencies such as housing, social services and transportation.[20] The micro level refers to clinical integration in providing care to individual patients and communities.[12] The need for comprehensive care is greatest at the micro level where information, decision-making and service delivery responsibilities are shared by all health professionals[21] specific to the person's individual requirements. Micro-level integration supported by connectivity is achieved through intersectoral collaboration and a shared mission, vision, values and culture between organisations, professional groups and individuals.[12]

The advantage of integrated services in PHC including rehabilitation is the effective use of the combined expertise of the team rather than healthcare workers practising individually.[20]

Table 1 provides a summary of the six models of practice for providing rehabilitation services in an integrated approach in PHC as described by McColl et al.[22] It describes the key features of the model, its advantages and disadvantages.[22] While the literature was derived mainly from the global north, one can argue that the models are or could be implemented in varying degrees in global south countries too.

In South Africa, the lack of rehabilitation personnel and the employment of newly qualified rehabilitation professionals, completing a year of community service, in clinic and

TABLE 1: The six models for integrated rehabilitation services delivery in primary health care.

Model	Key features	Advantages	Disadvantages
Clinic model	Family physicians or GPs, PHC nurses, and rehabilitation professionals are co-located (in the same physical place), resulting in a geographically defined team.	Efficient from the professional's perspective and affords the opportunity for joint appointments if necessary[22]	Removes patients from their social context, limiting the biopsychosocial approach
Outreach model	Emanate from an institutional base and concentrate on providing professional services to people who could not access them in their usual institutional location.	Often target remote or resource-poor locations and attempts to simulate service offerings without the infrastructure provided by the facility by using mobile teams and satellite units	If the outreach teams are not integrated into the community they serve, they may be perceived as visiting services
Self-management model	Systematic provision of education and support by health care staff to increase patients' skill and confidence in managing their health problems	Involves the service users' in managing their own health and is compatible with the rehabilitation philosophy of optimising independence	While compatible with the rehabilitation philosophy of optimising independence,[23] self-management requires health literacy, which is low in South Africa and other low- and middle-income countries[24]
Case management model	A case manager, on the basis of a referral and intake assessment, marshals and coordinates the necessary services, including family medicine and rehabilitation services, either in the patient's home or other community location	Coordinates services, including rehabilitation services at the PHC facility, the patient's home or other community locations, such as residential homes	Effective case management relies on an understanding of rehabilitation, its value and place in patient care and cooperation from other professionals involved in the patients' care
Community-based rehabilitation (CBR) model	Based on a community development philosophy, the CBR model uses an interdisciplinary and transdisciplinary collective approach. The role of rehabilitation professionals in using this model is to advocate with people with chronic diseases and disabilities to mobilise community resources and address community needs.[22]	Typically results in broader, more far-reaching effects than could be achieved on a one-to-one basis. The development of relationships between the rehabilitation team and other members of the primary care team is a key issue.[22]	Typically, community development is a process that requires a commitment of time and energy over a sustained period. The absence of collaborative relationships threatens not only the sustainability of CBR but the effective integration of rehabilitation services.
Shared care model	Occurs when specialist professionals pair with a generalist or novice practitioner to collaborate on patient management.	Inclusion of rehabilitation services in an integrated shared model of service delivery has potential benefits for interprofessional teamwork.	No analogous model found of specialist-generalist collaboration between rehabilitation personnel in the primary care and tertiary care settings. Thus, the efficiency of a shared care model requires further examination.

Source: McColl MA, Shortt S, Godwin M, Smith K, Rowe K, O'Brien P, Donnelly C. Models for integrating rehabilitation and primary care: A scoping study. Arch Phys Med Rehabil. 2009;90(9):1523–1531. https://doi.org/10.1016/j.apmr.2009.03.017.

PHC, primary health care; GP, general physician.

outreach services results in high staff turnover and little opportunity for long-term skill development. Services are often contextually inappropriate, unsuited to community needs and lack experienced staff who have the skills to integrate services into the community.

Interprofessional trust is central to the success of collaborative relationships within the medical workforce[26] and requires knowledge of the role, competencies, strengths and limitations of other health workers in the team. As outlined in many of the PHC rehabilitation integration models, interprofessional trust is essential for multidisciplinary teamwork and takes time, professional maturity and patience to develop. Contrasting professional values could potentially affect the development of relationships between health professionals and negatively influence the delivery of integrated rehabilitation services in PHC. While rehabilitation is team-orientated in theory,[18] not all healthcare professionals apply it in practice, therefore, limiting interprofessional referral and collaborative partnerships that could benefit patient care.[26]

In South Africa, national policies and guidelines[6,27,28] prescribe the integration of rehabilitation services in PHC but are silent on how to achieve integration. At present, this gap in policies and the absence of research that reports on the extent of integration of rehabilitation services has contributed to the lack of knowledge in rehabilitation service integration in South Africa. To be successful within PHC, rehabilitation must be collaborative, comprehensive, efficient, cost effective and justified by evidence.[29] Using integration as a core PHC principle is a means to investigate the inclusion of accessible public health for all to achieve the Sustainable Development Goals (SDGs) 2030.[30] The WHO *Rehabilitation in Health Systems: Guide for Action (2019)*[8] emphasises the need for research to ensure the provision of rehabilitation services integrated into health governance, services planning, financing and health workforce initiatives. Identifying and clarifying the needs of the clinical service and setting priorities for action are suggested as the first steps to strengthen rehabilitation and enact policies for integration into PHC. Rehabilitation services are currently delivered at the PHC facilities in the Johannesburg Metropolitan District. The extent to which rehabilitation is recognised by policy makers and other PHC service providers as an essential component of integrated PHC service delivery is unknown. The study aimed to explore the extent of integration of rehabilitation services in healthcare provision at the PHC level according to the expressed realities of rehabilitation professionals in a specific setting, the Johannesburg Metropolitan District.

Research methods and design

Study design

To explore the realities of the integration of rehabilitation services in PHC from the perspective of the rehabilitation service providers, a descriptive exploratory qualitative approach was followed.[31]

Study setting

The study was conducted in the Johannesburg Metropolitan District, which comprises 125 primary health care clinics and community health centers (CHCs) across seven regions.[32] The district serves a population of 5.5 million, with a significant portion falling below the upper limit of the poverty datum line.[32] The 81 clinics including 11 CHCs are provincially funded and staffed by the Gauteng Health Department. Nine of these provincial facilities provide rehabilitation services.[33] Community health centers provide PHC services, 24-h maternity services, accident and emergency services and beds where healthcare users can be observed for a maximum of 48 h. By definition, clinics provide a range of PHC services and operate an average of eight or more hours a day based on the needs of the community being served.[34]

Study population and sampling strategy

Rehabilitation professionals, including managers, employed in the various PHC facilities in the Johannesburg Metropolitan District, were included in the study. Purposive sampling with stratification was used to recruit a heterogeneous sample of experienced rehabilitation professionals.[35] The sample included participants from the occupational therapy, physiotherapy, speech therapy and audiology professions with work experience that they could draw on. Participants were required to have a minimum of 2 years' working experience in PHC at the clinic level to ensure that participants had sufficient rehabilitation service provision experience, allowing them to comment on these services. Rehabilitation managers needed at least 5 years' experience at a managerial level. It was postulated that management needed an in-depth understanding of not just the micro context but also the macro and meso contexts. Therefore, it would take longer for this knowledge to develop in an in-depth way and thus the use of a five-year experience criterion for managers. Participants were contacted directly through the rehabilitation coordinators at the PHC facilities and were invited to participate in the study in their personal capacity.

Data collection

In-depth interviews were conducted with the selected participants to gather data. The interviews were carried out at the various clinics as well as a central venue convenient for the participants, when privacy at the clinics was not adequate. The participants were asked to share their views on the current state of rehabilitation services in the district. An interview guide was developed to serve as prompts for the discussion points. The interviews were conducted in English, a common language among the participants.

Data analysis

The audio-recorded data from the interviews were transcribed verbatim. An inductive approach was used for data analysis, employing NVivo software version 11 (Lumivero). Primary inductive coding of the data was

initially conducted based on the respondents' words. Higher-order coding was then applied to consolidate the primary codes into subcategories.[36] Thematic development was performed to organise the higher-order codes into categories and themes. Excerpts from the raw data were included to support the overarching themes and ensure that the interpretation remained connected to the participants' words.[37]

Ethical considerations

Ethical approval for the study was obtained from the University of the Witwatersrand Committee on Human Research Ethics (Medical) as well as the Johannesburg Health District Research Committee (M190466). Purposive sampling of the rehabilitation service providers aimed to ensure transferability of the findings.[36] Two coders were involved in the coding process, the researcher and an experienced qualitative researcher. Inter-coder agreement was established using a codebook. The coders developed preliminary codes of the transcripts separately and then compared and agreed on the coding. Prolonged engagement and data saturation were achieved to enhance credibility.[36] Themes were built around the identified codes using a process of consensus.[38] In addition, the analysed transcriptions were discussed with an experienced researcher, and the transcripts were availed to an independent researcher not involved in the study who conducted independent analysis and coding to improve the trustworthiness of the findings.[39] The researcher maintained a reflexive diary to reflect on her own role and minimise biases. Member checking was performed by sending transcribed notes to the participants for verification.[39]

Results

The majority of the 12 participants were female (n = 10), occupational therapists (n = 5), in clinical roles (n = 6), rather than managerial ones and had between 6 and 10 years of experience (Table 2). The participants worked in 9 of the 81 provincially funded PHC facilities in the Johannesburg Metropolitan District and 8 of these facilities are CHCs and 1 is a clinic. The nine facilities are distributed across the five sub-districts in the Johannesburg Metropolitan District.

TABLE 2: Demographic information and characteristics of the participants according to their profession, position, years of experience, sex and highest professional qualification achieved (n = 12).

Participant characteristics	Rehabilitation professions			
	OT (n= 5)	PT (n = 4)	ST&A (n = 2)	SLT (n = 1)
Position				
Clinical	2	2	1	1
Management	1	1	0	0
Both	2	1	1	0
Years of experience				
2–5	1	0	2	2
6–10	3	3	1	1
11+	1	1	0	0
Sex				
Male	0	2	0	0
Female	5	2	2	1
Highest qualification				
Bachelors	4	1	2	2
Masters	1	3	0	0

OT, occupational therapy; PT, physiotherapy; ST&A, speech therapy and audiology; SLT, speech and language therapy.

A theme of *the current state of rehabilitation services – 'this is the reality; you need to do what you need to do'* was generated from the data on the participants' perception and experiences of the integration and comprehensiveness of rehabilitation services in PHC in the Johannesburg Metropolitan District. The theme expressed various suboptimal aspects in the delivery of rehabilitation services in the Johannesburg Metropolitan District and shows the creative and adaptable strategies used to mitigate the contextual challenges in meeting service users' needs.

The participants' descriptions within this theme expressed the lived reality, perceptions and experiences of the rehabilitation service at the coalface: the state of integration of rehabilitation services into the health service in PHC and the comprehensiveness of the service. The participants expressed having to do their best pragmatically (Figure 1).

Category 1: Rehabilitation services are not what they should be

This category speaks to the lack of comprehensive and holistic services. According to the participants, rehabilitation services in the Johannesburg Metropolitan District are suboptimal. Services are characterised by differences between physical and mental health services and a role mismatch between hospital and community-based services.

Subcategory 1.1: More progress in physical than mental health services

The first subcategory described the discrepancies between the physical and mental healthcare services. The former was described to be more established than the latter in the Johannesburg Metropolitan District:

> 'In terms of physical rehabilitation … we have made lots of strides.' (KI 1, female, OT)

In fact, they felt that mental health services are practically non-existent in the district and that the odd activity that takes place is mainly forced by regulations. For example, were it not for the regulations, the mental health audits performed by the rehabilitation professionals at the mental health non-governmental organisations (NGOs) would not take place.

> '… [I]n terms of mental rehabilitation, I think it's close to non-existent … it's mainly activities that we are forced by regulations that are taking place.' (KI 1, female, OT)

Participants also felt that the mental health teams lacked the complete complement of the psychosocial multi- and interdisciplinary team that was present in the physical rehabilitation teams:

> '… [F]or the mental health teams, they never had the full team. There is always one, you know, this one not there and that one not there.' (KI 3, female, ST&A)

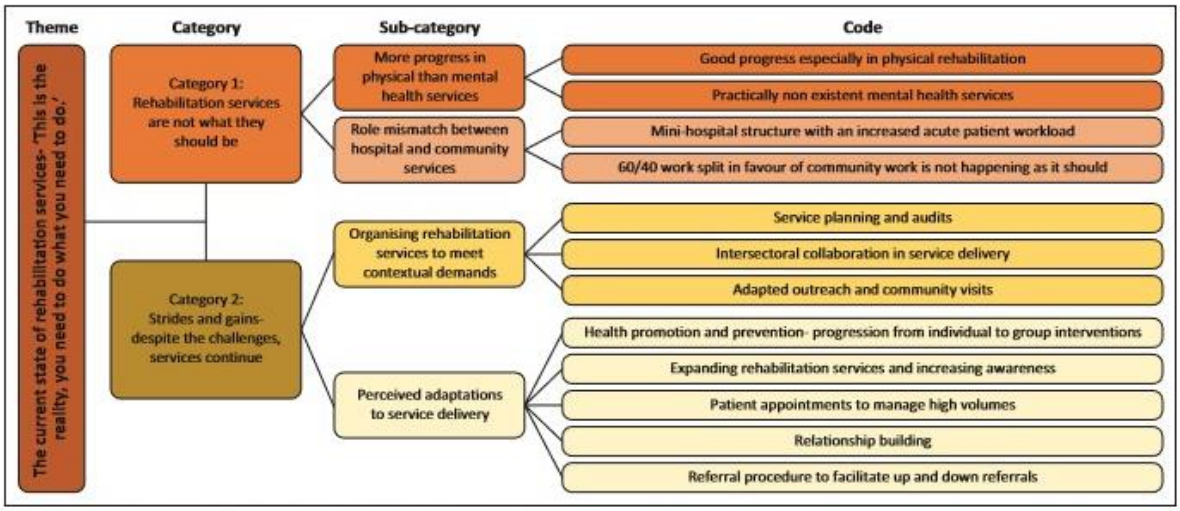


FIGURE 1: The theme *current state of rehabilitation services – 'this is the reality; you need to do what you need to do'*, with its corresponding categories, sub-categories, and codes depicting the perceived sub-optimal state of rehabilitation services in PHC in the Johannesburg Metropolitan District.

Subcategory 1.2: Role mismatch: between prescribed community health centre services and current community health centre services

Subcategory 1.2 refers to the participants' views that rehabilitation services in the CHCs duplicated the medical model of hospitals to the point of operating as mini hospitals and that this is exacerbated by an increased caseload of patients with acute conditions or phases of illness:

> '… [W]hat it shouldn't be is a mini-hospital department … You should not want to duplicate what you do in a hospital … at a clinic …' (KI 2, female, PT)

The mini-hospital concept includes the manner in which services are delivered, and participants emphasised that they see more acute clients who require curative, institution-based, hospital-type services when the participants believed rehabilitation services on the PHC level should be conducting integrated health promotion and prevention of disability campaigns in collaboration with all stakeholders, among other aspects. The increasing referrals of acute patients from hospitals were attributed to the workload pressures and staff shortages in the secondary and tertiary hospitals. Consequently, the 60/40 work split in favour of community work is not happening as it should, because of the influx of acute patients. Therefore, the rehabilitation professionals felt they are forced to focus more on clinic-based work instead of community outreach as intended:

> 'So, 60% is supposed to be out in the community, and 40% supposed to be like in the clinic, outpatients. It actually does not always work out that way because we get a lot of acute referrals.' (KI 3, female, ST&A)

Category 2: Strides and gains – Despite the challenges, services continue

The second category highlights the persistent nature of rehabilitation professionals who continue to render services despite the challenges in the Johannesburg Metropolitan District. In this district, rehabilitation professionals perceived themselves as adaptable and creative in ensuring service delivery. Despite the participants' perception that rehabilitation services are suboptimal, they remain committed to assuring rehabilitation service delivery. Their creativity and adaptability allow them to compensate for resource limitations by organising and executing rehabilitation services in accordance with the contextual demands. They also emphasised their perceptions of specific areas of service delivery that have been modified to assure service delivery.

Subcategory 2.1: Organising rehabilitation services to meet contextual demands

Rehabilitation professionals reported that they use monthly multidisciplinary timetables and peer audits of services as strategies to mitigate the demands that the increased patient numbers place on them and ensure that services continue to meet the patients' needs. These strategies include monthly planning within the rehabilitation team where activities such as outreach, community visits and health campaigns are captured on a shared calendar to manage the patient load and staff distribution:

> 'So monthly we do a timetable, so we have a plan … of when we are in clinic, when we are out of clinic … on outreach, then … our managers audit those.' (KI 4, female, OT)

There is also reciprocal peer auditing of aspects such as patient reports and intersectoral collaboration with the Department of Education, for example, in health promotion and prevention campaigns. However, it is not possible for rehabilitation professionals to conduct community visits for at least 60% of their work time as stipulated in their job description. Consequently, outreach and community visits have decreased in frequency:

> 'We do it [the audit] as a department … the OT will … grab a couple of the physio's files … audit ourselves, get our scores, … hand them over to our supervisor.' (KI 8, female OT)

'… Department of Education started coming in … who fulfils what roles … a meeting was held with the Department of Education … & Health to … come to this agreement.' (KI 9, female, OT)

Health campaigns are organised on a much larger scale to reach the target population, and they recognised that close collaboration with various governmental departments, such as social development, extends their reach:

'So, we run a lot of campaigns … So, we'll do a three day workshop … getting them to take over a bit of our services … there's more carryover because those community workers will see the patients more often.' (KI 10, female, OT)

The expressed mitigation strategies are used as planning and organisation tools to ensure that health promotion and prevention rehabilitation services are delivered despite the constraints of the current contextual challenges.

Subcategory 2.2: Perceived adaptations to service delivery

This subcategory describes the activities that the participants felt they have adapted to facilitate the efficient delivery of rehabilitation services in PHC facilities. Included in this is a method to assign patients to receive either individual or group therapy to ensure that services are person centred. Once a patient has received one-on-one therapy for a time period, they are progressed to group therapy where patient-directed models of service delivery such as peer learning and support are used:

'… [T]he patients get seen for a specific number of individual treatments … After they've been seen for those required individual sessions, they get put into a group setting.' (KI 2, female, SLT)

The PHC facilities and referring hospitals have built good working relationships, and they also hold cluster meetings to enhance better communication and a more effective referral process:

'… [P]atients are being referred well … the referral routes are good … the communication has improved so much and has improved the referral system so much.' (KI 6, male, PT)

On the basis of common responses to community needs, the rehabilitation professionals have formed relationships with other hospitals to develop standard operating procedures within various working groups to enhance interdisciplinary work efforts for integrated service delivery:

'… [C]ollaborating with other hospitals … we … tried to formulate our own SOP [*standard operating procedures*] … within different task or work groups …' (KI 6, male, PT)

Discussion

Based on the articulated reality experienced by rehabilitation service providers, this study investigated perceptions regarding rehabilitation service integration at the PHC level.

Rehabilitation services are not what they should be

Rehabilitation professionals at the coalface in the Johannesburg Metropolitan District in South Africa perceived the rehabilitation services as suboptimal and underdeveloped.[2] Services lack comprehensiveness and fail to align with macro level health and PHC policies and guidelines. Policies and guidelines speak to the principles of access, equity and availability of comprehensive integrated rehabilitation services,[40,41,42] which are not evident in the rehabilitation services in the Johannesburg Metropolitan District. Currently, the services are organised based on vertical programmes that focus on specific patient diagnoses, resulting in fragmented physical and mental health services.[10,19] This lack of integration hinders effective service delivery and collaboration.[12] Additionally, there is a disconnect between hospital referrals and the available resources in PHC, affecting the integration of rehabilitation services. The disparity in service availability, including human resources, greatly affects the continuum of care for service users.[30] Notably, while physical rehabilitation is relatively advanced, mental health rehabilitation is severely lacking. The fragmentation of mental health and physical rehabilitation is evident not only at an operational level in terms of clinical management but also in the siloed approach to management, which indicates poor policy implementation of comprehensive rehabilitation services. A systematic review by Wakida et al. confirms the poor integration of rehabilitation services, particularly mental health, in PHC is a common occurance.[43] The rehabilitation philosophy emphasises a comprehensive approach to patient care, through a clear and continuous person-centred approach.[43] The process of being person centred implies the need to respond to patient needs and in this case mental health services are underrepresented.

In the current study, the clinic model prevailed in the CHCs in the Johannesburg Metropolitan District. According to McColl et al.,[22] the clinic model is the most commonly observed PHC rehabilitation integration model in multi-provider PHC organisations. Despite bringing together various rehabilitation healthcare providers in one location, the clinic model, referred to as the mini-hospital structure by the participants, remains deeply ingrained in institutional-based medical practice patterns and culture. The clinic model primarily focusses on the acute phase of care for patients seen in CHCs, emphasising the intensive rehabilitation input and frequent intervention compared to the chronic phase, thus requires more time from rehabilitation professionals.[20] Consequently, rehabilitation services are inadvertently confined within the CHC rather than out in the community,[44] compromising health promotion and secondary preventive services as curative, institution-based medical model interventions take precedence.[20,44] A skewed focus on curative services may reflect the burden of disease in South Africa. Within the clinic model, health professionals tend to deliver rehabilitation services within their usual scope of practice, often in a condition-specific and isolated manner. Such an

approach has the potential to perpetuate siloed service provision, hindering the integration of rehabilitation in PHC.[22] In a siloed approach inefficiency may manifest as patients are managed individually based on their diagnosis, resulting in lengthy waiting lists and treatment delays. Financial and geographical barriers may exacerbate healthcare inaccessibility.[15,45]

Unless specific measures are taken, locating services in the clinic setting may negatively affect the philosophy of integrated service delivery. An integrated service promotes the use of trans-, inter- and multidisciplinary approaches, which involves various interconnected health, social and environmental organisations to address patients' and communities' health care needs holistically.[25] In a clinic setting, the patient as shown in this study is seen by individual therapists and data are captured separately with no clear system to integrate patient outcomes and interventions. Another criticism of the clinic model is that it removes patients from their social context, similar to institutional-based inpatient services.[22] The services are often located far from patients' homes and have long waiting times, leading to patients spending the entire day at the clinic waiting to be seen.[12]

It is necessary to select models that are tailored to specific services.[20] Modifying or combining PHC rehabilitation integration models to foster interprofessional collaboration and effectively meet the needs of service users during the rehabilitation process can greatly enhance outcomes and enable rehabilitation professionals to adopt a holistic approach. One potential adaptation for integrated services is the outreach model, through task shifting and sharing to community rehabilitation workers, which offers notable advantages. Task shifting and task sharing in community-based teams were previously effectively applied in mental health services in India.[46] The task shifting and task sharing model brings services closer to individuals, resulting in improved health outcomes, consistent care provision and reduced hospital admissions.[22] The outreach model as mainly applied through rehabilitation professionals going out from the clinics into the community, while having its benefits, does not address the challenges faced by rehabilitation personnel in terms of costs, travel and accessibility in South Africa. Despite these obstacles, the participants demonstrated pragmatism and outlined measures to ensure the continuity of services.

Despite the challenges, service delivery continues

Rehabilitation professionals in the Johannesburg Metropolitan District acknowledge the challenges they face in delivering effective services because of limited resources and contextual demands. Despite these obstacles, they remain optimistic and committed to service delivery, employing various strategies to mitigate these difficulties. Research suggests that health system actors, including rehabilitation personnel, utilise absorptive, adaptive and transformative strategies in response to the challenges they encounter.[47]

In the Johannesburg Metropolitan District, rehabilitation professionals have adapted their outreach strategies to suit their context. Although they face obstacles such as the cost and availability of transport,[44] they collaborate with other sectors, such as the Department of Social Development, to conduct outreach campaigns and take advantage of the economies of scale. Intersectoral collaborations allow for the best possible use of resources and integration of public health rehabilitation models. In this case, they use intersectoral collaboration as outlined in the Community-based rehabilitation (CBR) model to rehabilitation integration.[48] Intersectoral collaboration requires integrative cooperation of different health professionals and blending complementary competences and skills,[49] which lead to service integration beyond the health sector.[22] While the rehabilitation professionals may not have explicitly reviewed the components of CBR for a holistic approach, their commitment to intersectoral collaboration is a step in the right direction for adapting a PHC rehabilitation integration model and improving inter-organisational relationships and service delivery.[12,49]

Another mitigation strategy against limited resources and competing contextual demands used by rehabilitation professionals in this study is health promotion and prevention. The rehabilitation professionals interpreted the move to health promotion as part of the process of progressing patients from individual to group therapy and from health provider to patient focussed self-management and empowerment as seen in the use of peer support groups. The use of self-management as a model for integrated rehabilitation into PHC is effective because it embodies health promotion in which service users are the masters and drivers of their own healthcare.[22] Self-management imparts new skills and information to patients, making them more confident and self-efficacious.[22] The self-management model is compatible with the rehabilitation philosophy as it optimises independence, productivity and health-promoting social and economic life choices. Self-management alleviates the demand on service delivery because of high patient volumes, strengthens transdisciplinary working and consequently rehabilitation integration in PHC.[22]

The cooperation between the PHC, secondary and tertiary level hospitals is a commendable step towards integrated rehabilitation services. A functioning referral system connects clients and their families to community resources to enable effective rehabilitation.[50] Promoting awareness of the rehabilitation service, expanding the services and building relationships with other professionals are additional adaptation strategies employed by rehabilitation professionals in this study. Examples of this include collaborations with other hospitals and formulation of standard operation procedural procedures within working groups. Valentijn et al.[12] show that professional integration creates shared responsibility for

service commissioning and fosters shared accountability, problem solving and decision-making to achieve optimal health and well-being.

One of the barriers to integrated service delivery is the lack of definition, awareness and recognition of the role of each professional within a multidisciplinary team. In support, Supper et al.[49] indicate that the roles of each professional in collaborative relationships are often loosely defined, relying on trust and professional integration in the team. Indeed, there is common professional knowledge used by all healthcare professionals, and this knowledge is important for developing shared frames of reference and service delivery outcomes. Ultimately, integrated rehabilitation services are based on conceptual models that recognise that each profession has their own role to play in the rehabilitation process.[20] Therefore, the concerted efforts by the rehabilitation professionals in the Johannesburg Metropolitan District to achieve integrated service delivery through awareness and professional relationship building must be supported and sustained by providing the necessary resources including adequate staffing. Awareness building and relationship building initiatives are fundamental to fostering interprofessional trust, health workforce efficiency[51] and meso-level professional and organisational integration.[12] Members of the healthcare team are more inclined to include rehabilitation in service delivery if they understand the services and outcomes that can be achieved.[52]

Recommendations

The influx of acute patients in PHC facilities is influenced by the push for shorter hospital stays. Therefore, it is crucial to advocate for measures that strengthen the community level as a catchment area. Short-term solutions, such as adapted outreach campaigns, used to cope with the demands of treating patients in the acute phase of care must give way to more concrete and viable service delivery models and techniques. The outreach model through task shifting of rehabilitation service provision to community health workers, combined with the self-management model through community empowerment and peer support, needs to be explored and implemented through a well-informed strategy. The strategy should include adequate training and appropriate utilisation of community health workers.

Intersectoral collaboration, as indicated in the CBR model, between various governmental departments, along with advocacy for rehabilitation posts in other governmental departments, is needed. Furthermore, the shortage of rehabilitation personnel posts in PHC can be mitigated through the public-private partnerships proposed by the National Health Insurance (NHI). For example, 75% of occupational therapists work in the private sector, and similar figures may apply to other rehabilitation services. This presents an opportunity for rehabilitation professionals in private practice to be contracted into the public sector. The intersectoral nature of integrated service delivery and PHC requires a comprehensive multi-pronged approach that is contextually relevant and applicable across multiple settings. Existing rehabilitation service delivery models, such as the clinic model, need to be critically analysed and new models, which may involve a combination of the clinic model, outreach, self-management, case management, shared care and CBR, should be developed.

Conclusion

The expressed reality is that rehabilitation services are not what they should be in the Johannesburg Metropolitan District and remain underdeveloped and poorly integrated into PHC, with suboptimal service provision and rooted in the medical model. We need to examine the factors that contribute to the difference in development and availability between physical and mental health services. Generalists at the PHC level are usually junior staff members who are overwhelmed with their responsibilities. They need to have access to real-time expertise, as is provided in a shared care model of service delivery, where they would be paired with more experienced personnel within the PHC team to promote collaboration that is more horizontal.

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Competing interests

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Authors' contributions

L.J.M. conceptualised and designed the study, collected data, carried out the initial analysis, secondary analysis, drafted, reviewed and revised the manuscript. H.M. and F.A. coordinated and supervised the study including conceptualisation and critically reviewed the manuscript for important intellectual content.

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Data availability

The data that support the findings of this study are available from the corresponding author, L.J.M., upon reasonable request.

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Chapter 5: Barriers, Facilitators, and the Future of Integrated Rehabilitation Services in Primary Health Care in a Metropolitan District

5.1 Introduction to Paper 3

Paper 3 is presented as a manuscript from Objective 2, which was to determine the rehabilitation services currently provided at PHC level in the Johannesburg Metropolitan District, Gauteng, South Africa. The manuscript is structured according to the journal guideline and is under review. Paper 3 emanated from the findings of in-depth interviews with rehabilitation personnel employed at the nine CHCs offering rehabilitation services in the Johannesburg Metropolitan District. The in-depth interviews explored the extent to which rehabilitation services are integrated into PHC service delivery based on the expressed reality of rehabilitation personnel. This manuscript captures the second and third themes from the study that describe the barriers and facilitators to integrated rehabilitation service delivery and how the rehabilitation personnel perceive the future of rehabilitation services.

5.2 Journal Details Paper 3

The *International Journal of Therapy and Rehabilitation*, published by Mark Allen Publishing Ltd., provides a platform for interdisciplinary approaches to therapy and rehabilitation. The *International Journal of Therapy and Rehabilitation* is indexed on AMED, CINAHL, OT Seeker, RECAL, SCOPUS, and Web of Science. Table 5.1 gives the publication specifics for Paper 3.

Table 5.1 Publication specifics Paper 3

Title of publication	Barriers, facilitators, and the future of integrated rehabilitation services in primary health care in a metropolitan district
Authors	Lebogang Maseko, Fasloen Adams, Hellen Myezwa
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5.3 Author Contributions Paper 3

The CRediT was used to outline the authors' contribution to the study and is shown in Table 5.2.[115] The full explanation of the terms is in Appendix S.

Table 5.2 Details of author contributions Paper 3

	Maseko	Myezwa	Adams
Conceptualisation			
Methodology			
Resources			
Writing: Original draft			
Writing: Review & editing			
Visualisation			
Supervision			

5.4 Manuscript in Review

Barriers, facilitators, and the future of integrated rehabilitation services in primary health care in a South African metropolitan area.

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Abstract

Background/Aims: The WHO's Rehabilitation 2030 initiative emphasizes the need for integrated rehabilitation services in primary healthcare (PHC), particularly in low and middle-income countries (LMICs) to address the global shortfall in access to rehabilitation. This study aimed to explore the realities and expectations of rehabilitation personnel regarding the integration of these services within PHC in the Johannesburg Metropolitan District, reflecting specifically on the barriers, facilitators and future direction for the integration of rehabilitation services.

Methods: An exploratory qualitative approach was employed, involving in-depth interviews with 12 rehabilitation professionals selected through purposive convenient sampling. Participants were drawn from nine PHC facilities in the Johannesburg Metropolitan District.

Data were analyzed thematically using NVivo v.11 to identify emergent themes and sub-themes.

Findings: Two themes, *Barriers to integrated Rehabilitation* and *Facilitators and Future Directions* were generated from the study. The themes described significant barriers to integration, including flawed referral systems, human resource shortages, inadequate infrastructure, and gaps between policy and practice. Conversely, facilitators identified included the potential for proactive attitudes, interprofessional collaboration, and partnerships with local communities and private providers. The importance of employing discipline-specific mid-level workers and enhancing student training for community-level work was also emphasised.

Conclusions: While substantial barriers exist, opportunities for improving the integration of rehabilitation services into PHC are evident. Recommendations focus on enhancing referral systems, equitable resource allocation, policy implementation, financial management improvements, fostering interprofessional collaboration, and strengthening community partnerships. These steps are crucial for aligning with the WHO's vision for integrated rehabilitation services and improving access and quality of care within PHC settings.

Key words

Occupational Therapy, Physiotherapy, Speech Therapy, Audiology, Person-centred care

INTRODUCTION

The WHO Rehabilitation 2030 initiative calls for strengthening rehabilitation governance and workforce to integrate rehabilitation into primary healthcare (PHC), especially in low and middle-income countries (LMICs). The call emphasises strong intersectoral links to meet future needs associated with universal health coverage, while establishing robust intersectoral connections (World Health Organisation, 2017). However, less than 50% of individuals in LMICs who require rehabilitation currently have access to these services (World Health Organization, 2019).

Neill et al., (2022) identified barriers to the prioritization and integration of rehabilitation in LMICs, largely attributable to issues surrounding definitions, governance, and structural factors. Additionally Cieza, (2019) highlighted the lack of a universal understanding of rehabilitation and the challenge of a dominant biomedical rather than biopsychosocial approach to improving human functioning.

Many primary healthcare systems primarily follow a narrow biomedical model, focusing on disability and epidemiological diagnoses associated with non-communicable diseases and aging. This approach often overlooks the broader psychosocial factors that affect activity participation (Word Health Organzation, 2001). Intersectoral cooperation, community engagement, attitudinal factors, and physical access are rarely emphasized in the provision of primary healthcare services using the biomedical model (Neill et al., 2022). Where rehabilitation services are available, there is little interdisciplinary care, which if applied well would reduce duplication of services and provide more cost effective care (Mlenzana & Frantz, 2017)

To address these challenges, there is a need to advocate for the integration of a unified multidisciplinary rehabilitation service in PHC. This integration would involve professionals such as occupational therapists, physiotherapists, speech and language therapists, and

audiologists working together to optimise functioning (Cieza, 2019). However, in LMICs, including South Africa, the justification of disability as a population health threat remains a challenge.

A literature search revealed that rehabilitation services, particularly in the public sectors of LMICs, face substantial limitations. Healthcare policies in LMICs often prioritize mortality over primary healthcare and rehabilitation leading to a lack of awareness and evidence for the benefits of rehabilitation (Krug & Cieza, 2017; World Health Organisation, 2017). This evidence gap has implications for policy development and implementation in LMICs (Africa et al., 2022).

Where policy exists, the implementation by rehabilitation professionals involved in service provision is complex. Senior rehabilitation managers who are expected to implement existing polices have little opportunity to actively participate in important decisions concerning service planning, organisation, and delivery. The implementation of these policies is therefore hindered by lack of awareness and knowledge among rehabilitation professionals affecting the understanding of their roles within the healthcare system (Razavi et al., 2019). Improving policy awareness and knowledge among rehabilitation professionals can lead to more successful policy implementation and better understanding of their roles within the healthcare system (Africa et al., 2022).

Other than policy issues, in LMICs including regions like sub-Saharan Africa, Asia, and Latin America, there are significant obstacles stemming from a shortage of well-trained rehabilitation service providers, resulting in inadequate service delivery (Agho & John, 2017; Jesus et al., 2016; Naicker et al., 2019). These constraints encompass not only the scarcity of qualified professionals but also the lack of appropriate infrastructure to support service provision (Naicker et al., 2019). Furthermore, gaps persist in the availability of essential supplies and assistive technology in countries such as Nepal (Dhakal & Groves, 2019).

In South Africa, there is a shortage of rehabilitation services in PHC. According to the National Health Facilities Audit in 2013, only a small percentage of PHC facilities (less than 20%) offer rehabilitation services, and just 2% of these facilities have dedicated space for such services. (National Department of Health, 2013). The shortage of rehabilitation staff has led to restricted access to rehabilitation services and inefficiencies in aspects such as providing assistive devices (Magaqa et al., 2021). The limited service delivery may be attributed to reduced job opportunities in the public sector, and underfunding of rehabilitation services in South Africa, where these services are not given the same priority as medical curative services, resulting in a declining workforce (Morris et al., 2021).

Previous research in South Africa which focused on the integration of rehabilitation into PHC, included therapists' perceptions of existing gaps in service delivery(Morris et al., 2021; Ned et al., 2017) and the lack of clarity on the role and implementation of rehabilitation in PHC (Africa et al., 2022; Naidoo et al., 2016). Their experience and recommendations for rehabilitation in PHC encompasses the clinic model when considering the integration of these services (McColl et al., 2009). The medical model is a barrier to integration at the clinic level (Africa et al., 2022) because it focuses primarily on impairments. Interventions within this model are individualised within each rehabilitation service, with little to no case management (Naidoo et al., 2016).

Outreach and task-shifting models to integrate rehabilitation into PHC in South Africa have not been fully utilised (McColl et al., 2009) and there is a lack of health promotion and disease prevention services. Multidisciplinary teamwork and community-based rehabilitation models, which involve communities in identifying health needs and planning interventions, are also underutilized. However, services such as caregiver training and support groups for people with disabilities and their caregivers have been identified as important (Naidoo et al., 2016).

This situation exists despite Section 27 of the South African Constitution, which guarantees the right to comprehensive healthcare (Department of Justice and Constitutional Development,

1996). Achieving comprehensive healthcare requires an effective and efficient healthcare delivery system, spanning from PHC to tertiary care, as outlined in various policies, including the National Rehabilitation Policy (National Department of Health, 2000), National Health Act (National Department of Health, 2011) and the Framework and Strategy for Disability and Rehabilitation Services in South Africa 2015-2020 (FSDRSA) (National Department of Health, 2015).

The National Health Insurance (NHI) aims to introduce universal health coverage (UHC) in South Africa (National Department of Health, 2020). However, strategic documents on UHC from the National Department of Health in 2020 indicate limited services at the clinic level and none at the community level. The absence of rehabilitation in these key policy documents reflects a lack of understanding of the importance of these services in the community. This lack of emphasis on rehabilitation services in South Africa has led to inadequate planning and implementation, exacerbating the shortage of rehabilitation personnel, insufficient infrastructure and resources, and inadequate referral pathways between healthcare levels, all of which affect clients' access to PHC rehabilitation (Magaqa et al., 2021; Ned et al., 2017).

Considering these challenges and complexities, the aim of this study was to determine the realities and expectations of rehabilitation personnel concerning the integration of rehabilitation services within PHC. By exploring the barriers and facilitators to this integration, this research seeks to guide the future direction of rehabilitation services in PHC, ultimately improving access and quality integrated care.

METHODS

Study design

To assess the expectations and realities of rehabilitation personnel on the integration of rehabilitation services, an exploratory qualitative approach was followed. In-depth interviews were carried out with rehabilitation personnel.

Sampling

Purposive convenient sampling was used to identify and recruit participants knowledgeable about and experienced in delivering services at the PHC level. Therefore, the study included participants with at least two years working experience in PHC at a clinical level or at least five years at a managerial level. The participants were approached in their individual capacity to participate in the interviews lasting one to one and a half hours. The study included 12 participants, all of whom were rehabilitation professionals meeting the inclusion criteria. Written consent was obtained from all 12 participants, and the interviews were audio-recorded.

Study setting

The research was conducted within the Johannesburg Metropolitan District, which comprises 125 primary health care clinics and community health centers (CHCs) across seven regions (City of Johannesburg, 2018). Rehabilitation services were available only in nine of the provincial clinics, spatially distributed across the district.

Research procedure

Data collection took place either at the PHC facilities offering rehabilitation services or at the researchers' workplace when participants preferred a more private setting. An interview guide with prompts was used to facilitate discussion points. Interviews were conducted in English and audio-recorded by the primary researcher and two trained research assistants. Ethical approval was obtained from both the Human Research Ethics Committee (Medical) of the Faculty of Health Sciences at the University of the Witwatersrand (M190466) and the Johannesburg Health District Research Committee (GP _201905_048).

Data Analysis

The audio-recorded data were transcribed verbatim and analysed thematically using NVivo v.11 to explore the themes that emerged inductively from the interviews. Primary coding and

thematic analysis were used to identify and develop themes and sub-themes from the data (Creswell & Poth, 2016).

To ensure trustworthiness, two coders reviewed the codes, and consensus was reached. The primary researcher maintained a reflexive diary to ensure dependability and confirmability of the findings (Rettke et al., 2018).). Credibility was established through prolonged engagement until data saturation was reached after the ninth interview (Creswell & Poth, 2016).

FINDINGS

The majority of the 12 participants were female (n=10), occupational therapists (n=5), in clinical roles (n=6), rather than managerial ones, and had between 6 and 10 years of experience (Table 2). The participants worked in nine of the 81 provincially funded PHC facilities in the Johannesburg Metropolitan District, and eight of these facilities are CHCs and one a clinic. The nine facilities are distributed across the five sub districts in the Johannesburg Metropolitan District. The demographic profiles for the twelve participants are detailed in Table 1.

Table1: Participant demographic information and characteristics (n=12)

	Rehabilitation profession	Position	Years of experience	Gender	Highest qualification
P 1	Occupational Therapy	Managerial	14	F	MSc (OT)
P 2	Physiotherapy	Managerial	9	F	BSc (PT)
P 3	Speech Therapy and Audiology	Clinical	5	F	BA (Audio)
P 4	Occupational Therapy	Clinical	4	F	BSc (OT)
P 5	Occupational Therapy	Clinical	8	F	(BSc OT)
P 6	Physiotherapy	Clinical	6	M	BSc (PT)
P7	Physiotherapy	Clinical and managerial	6	M	MSc (PT)
P8	Occupational Therapy	Clinical and managerial	8	F	BSc OT
P9	Occupational Therapy	Clinical and managerial	14	F	MPH
P10	Physiotherapy	Clinical	4	F	BSc (PT)
P11	Speech Therapy and Audiology	Clinical and managerial	7	M	BA (Audio)
P12	Speech and Language Therapy	Clinical	4	F	BA (SLP)

Two themes, *barriers to integrated rehabilitation and future directions* were generated from the data on the participants' realities and expectations on the integration of rehabilitation services in PHC in the Johannesburg Metropolitan District. These themes shed light on both the barriers and future direction associated with the integration of rehabilitation services within PHC in the district, as perceived by the rehabilitation personnel.

Within the theme of *barriers to Integrated Rehabilitation*, participants articulated their reality of a range of issues that reflect the current shortcomings in the system in proving client care. These issues include a flawed system, inadequate resources, a disconnect between policy and practical implementation, and financial constraints that compromise the delivery of services (Table 2).

Table 2: Theme: Barriers to integrated Rehabilitation

CATEGORY	SUBCATERGORY	CODE
1. The flawed system	Inadequate referral system	Gaps in the referral pipeline
	Gaps in the level of care between quaternary and academic hospitals and PHC	Inadequate number of district hospitals and staffing at PHC level
2. Lack of resources compromises patient care	Human Resources and staffing shortages	Inequity in posts between the levels of care
		Inequity in posts between the metros in the Gauteng Province
		Inequity in posts between the facilities in JHB Metro
	Inadequate Infrastructure	Limited storage space for assistive devices
		Limited treatment space and equipment
		Government vehicle shortage
3. Policy is only good on paper	Poor knowledge and implementation of policy	Poor knowledge of policy
		Poor implementation of policy
4. Financial systems	Procurement processes, waiting lists and budget	Waiting lists and delays in issuing equipment and assistive devices

Category 1: The flawed System

When discussing the barriers to integrated rehabilitation services, participants identified a system that they perceived as flawed, particularly due to the inadequacy of the referral system. They felt that patients get lost in the system, where some never present themselves at the PHC facility to which they have been referred. Additionally, they observed a notable gap in rehabilitation services between the levels of care, where services are available at the one quaternary and four academic hospitals, then hardly any district hospital services, followed by services at the PHC level in Gauteng.

> *There is a gap in the referral pipeline (P 5)*
>
> *Because of the gap in the levels of care ... in [name of Province] we're sitting with quaternary and academic hospitals and then almost nothing in between ... there's only [name of district hospital] ... and then primary health care. P 2*

Category 2: Lack of resources compromises patient care

Another significant challenge perceived by participants was the shortage of human resources in PHC clinics, which they believed compromised client care. Participants described inconsistencies where tertiary and rehabilitation hospitals received preferential allocation of staff posts, leaving just one or two rehabilitation professionals in a single PHC clinic responsible for accommodating all the patients referred from larger hospital departments with more extensive staff.

> *All the staff are sitting at the tertiary and the rehab hospitals ... I'll just give you an example – [name of Tertiary Hospital] physio, OT, sitting with 30 staff members alone, and then they're sending all of those patients they get, down to a clinic that has - one OT, one Physio and those loads that they're seeing as an entire department need to be seen then by one. So there's no consistency there" (P1)*

Furthermore, disparities in the allocation of rehabilitation posts across different regions within the metropolitan district resulted in variations in the services offered at each clinic, affecting the accessibility of services for clients throughout the metropole.

> *There is no equity. [name of region] has got more therapists posts than [name of region]. There is no equity in how posts are distributed. (P1)*

> *If we had a full comprehensive team of professionals, it would make it easier even for the patients ... they would not have to travel to one clinic for OT, physio and speech therapy ... and then they would need to travel to a different clinic or a hospital for that [another]service ... if we had all the relevant professionals in each clinic ... that would be ideal. (P4)*

Inadequate infrastructure, encompassing practice spaces, resources within those spaces, and transportation for outreach activities such as home visits, also hindered the ability to provide sufficient services. Participants noted their limited capacity to effect change and improve this situation, despite multiple attempts to do so.

> *Storage space as well ... we issue a lot of wheelchairs and buggies ... and we don't have enough storage space. (P9)*

> *Infrastructure - there is departments that are nice, but they aren't always conducive to the services that we have to give. We are talking temperature regulation ... treatment spaces ... simple things like availability of water ...keep on logging calls, keep logging emails. Nothing has been done. (P5)*

> *There are government cars available ... not all the time ... it is sometimes a huge nightmare logistically ... you book the transport, you arrive to get the transport and then they tell you there's no car for you. (P3)*

Category 3: Policy is only good on paper

The challenge of not being able to affect change was further exacerbated by the rehabilitation personnel's limited understanding of policy and the overall lack of policy implementation.

> *With early childhood intervention (ECI) ... because ... [name of person] is above us, she does tell us that we need to do these things ... that's how we get the policies. But I don't think everything is told to us and we don't know all the policies that are going on. (P8)*

> *We do use guidelines ... to guide our operational and strategic things. But it doesn't carry and filter down as well as it should. (P10)*

Category 4: Financial systems

The financial systems are affecting procurement processes. Long waiting times for goods to be procured and inadequate budgets were common.

> *Budget, [for] assistive devices ... because we do usually have quite long waiting lists for wheelchairs etc. (P8)*

Conversely, the theme *facilitators and future directions* captures the participants' insights into potential facilitators that could enhance the integration of rehabilitation services in PHC. Additionally, they provided their perspective on the future directions of rehabilitation within the context of PHC in the Johannesburg Metropolitan District (Table 3).

Table 3: Theme: Facilitators and Future Directions

CATEGORY	SUBCATERGORY	CODE
1. Facilitators to integrated PHC rehabilitation services.	Rehabilitation personnel attitudes	Positive, proactive, creative, go getter staff who are team players and think out of the box
	Developing an array of skills	Becoming a holistic therapist
	Interprofessional relationships	Being seen, known, and understood
	Golden moments	Positive feedback, appreciation, and satisfaction from patients
2. The future fit of rehabilitation in PHC	Better visibility and presence in the district	Partnerships with other service providers
		Partnerships with the community- CBR approach
		Employing more discipline-specific mid-level workers
		Student training and preparing community service therapists for PHC work

Category 1: Facilitators to integrated PHC rehabilitation services

Participants shared their expectations and vision for the future of rehabilitation in PHC by highlighting facilitators that contribute to improved service delivery. They believed that proactive and creative attitudes among rehabilitation personnel fostered a collaborative team dynamic and encouraged innovative thinking.

> *Another positive is our therapists … I know they often go-getters. I saw some WhatsApp photos a year ago… where all of them were building ramps at people's houses and they … just all go your speech therapist or a podiatrist, that day we all building ramps (P1)*

Participants perceived they were developing a range of specific skills in clinical practice within PHC and they all had an understanding of their environment and context. This meant they were able to view clients as holistically and have a good sense of the contribution of each discipline and referred clients for other rehabilitation needs when clients presented with these.

> *All of us that are working in the clinic and the [rehab] community are there for the patients… we are looking at the patient more holistically … even if a patient comes to me for audio … I know my OT is there if I feel like the patient needs a [vocational]*

assessment ... that is where we know what everyone's role is ... we know how to include everyone into our sessions. I think that is how it works so far. (P11)

Interprofessional relationships within an interdisciplinary team where there was a common understanding of the role, and benefits of rehabilitation was experienced as positive and rewarding. This facilitated appropriate interprofessional referrals and effective intervention. Participants described this as being seen, known, and understood.

The doctors in the clinic, you have those that actually respect rehab(ilitation) services and will refer the patients .... that helps ... with them actually understanding our scope and where we fit in (P4)

Positive feedback, appreciation and satisfaction with services provided from clients were perceived as the golden moments of the job and provided motivation to persevere irrespective of barriers and challenges.

Those golden moments keep you there ... I am happy doing this because it's those golden moments ... they outweigh the bad stuff. (P6)

Category 2: The future fit of rehabilitation in PHC

The participants' perceptions of the future fit of rehabilitation in PHC revolve primarily around better visibility and presence in the district. Establishing partnerships with both public and private service providers was highlighted as an important strategy to integrate rehabilitation in PHC. While a few participants have already explored such collaborations, it is evident that these opportunities can be fully realised through close engagement with the local community served by the clinic. These partnerships offer access to valuable resources that can support rehabilitation efforts, resources that may not be readily accessible within the confines of the clinic system. This, in turn, has the potential to benefit all clients in need of rehabilitation services.

We develop relationships with private-public partnerships ... we've got a hydrotherapy program, running for the patients at an organization that has a private swimming pool ... we have lots of private-public partnerships and lots of people in the community who are willing to assist. (P2)

Partnerships with the community using a CBR approach to upskill and create community health worker posts was seen as a project to provide better rehabilitation services and employment opportunities.

They open up opportunities to people in the community ... we are job creating. And we are going to be fighting the whole staff shortages ... there is a lot of young people sitting at home ... that could be doing good jobs. There is a lot of people who are taking care of their disabled family members. Why not then get them into jobs and title them [community health workers] ... they have got the experience ... we need to teach them the technical skills behind all of it now. (P1)

Employing more discipline-specific mid-level workers was another aspect that participants perceived as an avenue that rehabilitation services ought to explore for the future fit of rehabilitation in PHC because they felt that each discipline would benefit from their specific mid-level worker to ensure rehabilitation service delivery.

Discipline specific to keep it in order ... there is a few things that could be generic OT and physio. But speech [therapy] themselves they need their own...I think that should be a consideration, midlevel assistant work. (P7)

The participants identified student training and preparing community service therapists for PHC work as the future fit for rehabilitation services in PHC. They felt that universities should prepare the students better for community-level work.

A lot of the other universities don't do public health blocks. So, these ComServes [community service therapists] come in with no idea that they're not going to be sitting in a room treating patients day in and day out... they actually have to go out and do home visits...it's a lot of other things also. (P2)

DISCUSSION

Based on the articulated barriers and facilitators experienced by rehabilitation service providers, this study investigated the realities and expectations of rehabilitation personnel concerning the integration of rehabilitation services within PHC. Rehabilitation personnel in the Johannesburg Metropolitan District feel the effects of limitations rehabilitation described in the literature when providing service to clients.

Barriers to integrated Rehabilitation

Rehabilitation professionals in the clinics and CHCs in the Johannesburg Metropolitan District in South Africa voiced concerns about the inadequacies of the referral system, and gaps in the level of care between hospitals and PHC, which they perceived as flawed. This gap in the referral pipeline occurs when patients who are referred down to the PHC level do not attend the PHC facility to which they have been referred and the facility is not informed of the referral. This 'loss of follow up' means that patients do not receive the care they need and are likely to develop secondary complications. Furthermore, the gap in rehabilitation services between the different levels of care raises significant challenges for patients seeking rehabilitation (Kredo et al., 2017). The absence of district hospitals as a stopgap before the PHC facilities means that patients are referred directly from the acute settings at the tertiary or secondary levels of care to the PHC level. With the pressure for hospital beds and premature discharges from the quaternary and tertiary levels, patients should ideally be going to step-down facilities or district hospitals to receive further inpatient rehabilitation before referral to the community level to maximise their functional outcomes (Morris et al., 2021). Patients are therefore lost to follow

up or they are referred to the clinics while still requiring acute intensive rehabilitation input. Addressing this issue is crucial for ensuring that rehabilitation services are accessible and equitable across all levels of care.

Even when referrals are appropriate the shortage of human resources in PHC clinics, with preferential allocation of rehabilitation professionals to tertiary and rehabilitation hospitals, is a substantial challenge (Mlenzana & Frantz, 2017; Visser et al., 2012). The staffing disparity affects client care within PHC clinics and the unequal allocation of rehabilitation posts, where some rehabilitation professionals are not available at the community health centres and others being underutilised for rehabilitation services across different regions within the Metropolitan District results in variations in service accessibility (Mlenzana & Frantz, 2017). Inadequate infrastructure, including practice spaces and resources, also hinders the ability to provide comprehensive rehabilitation services (Ned et al., 2017). Patients experience a marked contrast between the services offered in hospitals and the limited offerings at the PHC level (Scheffler et al., 2015). Addressing these resource gaps is essential to improve the quality of care delivered within the PHC system.

Conradie et al. (2022) suggest that change required to integrate rehabilitation into PHC in South Africa requires providing input on policy documents, but this was rarely done as a combined effort by rehabilitation professions (Conradie et al., 2022). The lack of input to effect adjustment to policy appears as revealed in our study to the challenges faced by rehabilitation professionals working in clinics in understanding and implementing policies effectively. This hampers the practical implementation of existing policy in terms of duties and service delivery as well as their ability to effect policy change (Cockcroft et al., 2011). Clearer communication and training on policy guidelines could improve policy implementation and support advocacy for policies that integrate rehabilitation into PHC. The lack of policy implementation has resulted in financial constraints at PHC facilities, including long procurement times and

inadequate budgets, pervasive issues affecting the procurement of necessary resources (Mlenzana & Frantz, 2017). These challenges hinder the timely delivery of rehabilitation services. Streamlining financial processes and ensuring sufficient budgets for rehabilitation services can mitigate these obstacles.

Facilitators and Future Directions

The importance of proactive attitudes, creative thinking, and interprofessional relationships within a collaborative team dynamic were highlighted as facilitators and future prospects for rehabilitation services. This demonstrates the value of an interdisciplinary team and collaboration between rehabilitation professionals and medical professionals, particularly when the latter understand the role of rehabilitation through witnessing the positive effects it has on clients (Campbell et al., 2012). Through a holistic approach to client care, valuing the contributions of each discipline and facilitating appropriate interprofessional referrals. These facilitators fostered improved service delivery and enhanced interdisciplinary models of rehabilitation service delivery, ultimately benefiting service users. Encouraging these positive attributes among rehabilitation personnel can enhance the quality and effectiveness of rehabilitation services (White et al., 2013).

Positive feedback, client appreciation, and satisfaction with services provided were identified as key motivators for rehabilitation professionals. This confirmed the relative importance of intrinsic incentives over extrinsic incentives in providing job satisfaction - worthwhile accomplishment and opportunities for growth and recognition (Campbell et al., 2012) Acknowledging and celebrating these "golden moments" can help maintain motivation and resilience among professionals, despite the barriers and challenges they face.

Our findings, supported by a study in Ethiopia indicate that partnerships with public and private service providers, particularly when utilizing a Community-Based Rehabilitation (CBR) approach, hold great promise for the future of rehabilitation within PHC (Ayalew et al., 2020).

This approach aligns with the vision of enhancing rehabilitation services and creating employment opportunities (Ayalew et al., 2020). Collaborations with the local community served by the clinic offer access to valuable resources not readily available within the clinic system. Strengthening these partnerships and engaging the community can be a transformative step toward improving rehabilitation services and promoting community health (Ayalew et al., 2020). This comprehensive perspective on patient care aligns with the principles of integrated rehabilitation services within PHC and should be promoted and further developed.

Moreover, the employment of more discipline-specific mid-level workers stands as an important strategy. The approach aims to address the shortage of skilled personnel in PHC settings by filling gaps in service provision and ensuring a more contextually responsive and efficient delivery of rehabilitation services (van Rensburg, 2014).

Additionally, there is an emphasis on student training and the preparation of community service therapists specifically for work in PHC contexts. By focusing on practical, context-relevant training, new graduates can be better equipped to meet the demands of PHC, thereby enhancing the capacity of rehabilitation services to address the needs of the community effectively (Naidoo et al., 2014).

CONCLUSION

Rehabilitation personnel feel the effects of the limitations of rehabilitation services in PHC described in the literature, but this article includes facilitators at the primary care level within the context of this study. This study highlights the value of a multidisciplinary team and collaboration between rehabilitation personnel and other PHC professionals, such as doctors and nurses, particularly when they understand the role of rehabilitation, evidenced in the positive service user outcomes. The value of the service to the users is a motivating factor for the rehabilitation personnel as is their personal growth and development as therapists. The rehabilitation personnel's positive expectations and ability to extend services into the

community irrespective of barriers are qualities to be protected and encouraged. However, gaps such as primary prevention and intersectoral collaboration in service delivery remain. Therefore, the following recommendations for policy and practice are provided:

Enhance Referral Systems and foster interprofessional collaboration: Implement an efficient and transparent referral system to ensure seamless communication between tertiary, secondary, and primary care levels. This system should include mechanisms for tracking patient referrals to prevent loss to follow-up and ensure continuity of care. Continue to build and strengthen interdisciplinary teams within PHC settings, emphasising the importance of understanding and valuing the contributions of rehabilitation services. Encourage mutual referrals and collaborative care plans that involve all relevant healthcare professionals.

Promote Primary Prevention and Intersectoral Collaboration: Work towards integrating primary prevention strategies into rehabilitation services and encourage intersectoral collaboration. This involves working closely with other sectors (e.g., education, social services) to address the social determinants of health and prevent conditions that may require rehabilitation.

Resource Allocation: Advocate for equitable distribution of rehabilitation personnel across all levels of care, including PHC clinics. This includes lobbying for increased funding to recruit more staff and to improve infrastructure and resources necessary for comprehensive rehabilitation services at the PHC level.

Policy Implementation and Development: Facilitate more active involvement of rehabilitation personnel in the formulation and review of policies related to PHC services. Offer regular training and clear communication on policy guidelines to ensure their effective implementation at the ground level.

Improve Financial Management Systems: Streamline financial processes within PHC facilities to ensure adequate budgets are allocated and utilised efficiently for rehabilitation

services. This includes simplifying procurement processes to allow for timely access to necessary resources.

Community Engagement and Partnerships: Expand and strengthen partnerships with both public and private sectors, utilising a CBR approach. Engage local communities to access additional resources and foster a supportive environment for rehabilitation services.

Mid-Level Worker Employment: Support the training and recruitment of more discipline-specific mid-level workers to address the shortage of skilled personnel in PHC settings. This strategy can help fill service provision gaps and enhance the efficiency and responsiveness of rehabilitation services.

Contextually relevant rehabilitation training programmes: Focus on the development and implementation of practical, context-relevant training programs for students and community service therapists. Ensure these programs prepare new graduates for the unique challenges and opportunities within PHC settings.

Rehabilitation Monitoring and Evaluation: Implement a robust system for monitoring and evaluating the outcomes of rehabilitation services within PHC. Use these data to continuously improve integrated service delivery, patient outcomes, and to justify the allocation of resources to rehabilitation services.

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COMPETING INTERESTS

The authors declare that they have no financial or personal relationships that may have inappropriately influenced them in writing this article.

AUTHORS' CONTRIBUTIONS

LM conceptualised and designed the study, collected data, carried out the initial analysis, secondary analysis, drafted, reviewed and revised the manuscript.

HM and FA coordinated and supervised the study including conceptualisation and critically reviewed the manuscript for important intellectual content.

All authors approved the final manuscript submitted and agreed to be accountable for all aspects of the work.

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DATA AVAILABILITY

The data that support the findings of this study are available from the corresponding author, LM, upon reasonable request.

DISCLAIMER

The authors hereby declare that the views expressed in the submitted article are their own and not an official position of the University of the Witwatersrand.

DECLARATION OF INTEREST STATEMENT

There are no competing interests to disclose.

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Chapter 6: Paper 4: Let the Records Speak: An Exploration of Rehabilitation Services Offered in Primary Healthcare, Johannesburg Metropolitan District

6.1 Introduction to Paper 4

Paper 4 is presented as a published paper from Objective 2, which was to determine the rehabilitation services currently provided at PHC level in the Johannesburg Metropolitan District, Gauteng, South Africa. The paper emanated from the findings of a retrospective review of clinic rehabilitation records from 2011 to 2020 at the nine CHCs offering rehabilitation services in the Johannesburg Metropolitan District. This paper captures the provision of PHC rehabilitation services in the Johannesburg Metropolitan District and describes the service users' sociodemographic information and variations in the rehabilitation services provided.

6.2 Journal Details Paper 4

BMC Health Services Research is an open access, peer-reviewed journal, and is part of Springer Nature. The journal considers articles on all aspects of health services research. Health services research is a unique and multidisciplinary field of research that examines how different factors, behaviours, and technologies impact population's access to healthcare, and the quality and cost of the care they receive. The journal has a special focus on digital health, governance, health policy, health system quality and safety, healthcare delivery and access to healthcare, healthcare financing and economics, implementing reform, and the health workforce. *BMC Health Services Research* is abstracted and indexed in CAS, BIOSIS, Embase, MEDLINE, PubMed Central, Science Citation Index Expanded, and SCOPUS. Table 6.1 gives the publication specifics for Paper 4.

Table 6.1 Publication specifics Paper 4

Title of publication	Let the records speak: An exploration of rehabilitation services offered in primary healthcare, Johannesburg Metropolitan District
Authors	Lebogang Maseko, Fasloen Adams, Hellen Myezwa
Journal name	BMC Health Services Research
ISSN	1472-6963
Publication date	N/A
Volume	N/A
DOI number	N/A
Impact factor	2.8 (2022); Department of Higher Education and Training accredited

6.3 Author Contributions Paper 4

The CRediT was used to outline the authors' contribution to the study and is shown in Table 6.2.[115] The full explanation of the terms is in Appendix S.

Table 6.2 Details of author contributions Paper 4

	Maseko	**Myezwa**	**Adams**
Conceptualisation			
Methodology			
Resources			
Writing: Original draft			
Writing: Review & editing			
Visualisation			
Supervision			

6.4 Published article

Maseko et al. BMC Health Services Research (2024) 24:501
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BMC Health Services Research

RESEARCH Open Access

Let the records speak: an exploration of rehabilitation services offered in primary healthcare, Johannesburg metropolitan district

Lebogang Maseko[1*], Fasloen Adams[2] and Hellen Myezwa[3]

Abstract

Background Primary healthcare in South Africa aims to transform the national health system by emphasising community-based care and preventive strategies. However, rehabilitation services, particularly for individuals with disabilities and chronic non-communicable diseases, are often overlooked in primary healthcare. This study aimed to investigate the provision of primary healthcare rehabilitation services in the Johannesburg Metropolitan District by exploring client sociodemographics and variations in services provided by rehabilitation professionals.

Methods A retrospective review of clinic rehabilitation records from 2011 to 2020 was conducted at nine provincially funded community health centres (CHCs) offering rehabilitation services. Stratified sampling facilitated record selection based on rehabilitation service type and year. A specifically designed data extraction tool captured demographics, disabilities, rehabilitation received, and referral sources. Descriptive analysis used means, standard deviations, and frequencies.

Results The findings show a diverse client population with a wide age range, with a significant proportion falling into the < 5 years and 30–49 years age groups. Neuromusculoskeletal and movement-related disabilities were most prevalent, affecting approximately two-thirds of clients. Referral sources were often undocumented, and inconsistent discharge information with no record of patient follow up, highlighted the need for improved documentation practices. Clinic visits were the primary service delivery mode, followed by limited home visits and outreach services. Occupational therapy and physiotherapy were the most used services. Speech and language therapy services were underused, and some CHCs lacked audiology services. There were variations in the number of individual and group sessions provided by the different rehabilitation services, and there were age- and disability-specific differences in service use.

Conclusion This study offers insights into rehabilitation service provision in the Johannesburg Metropolitan District and enhances our understanding of rehabilitation services in primary healthcare settings. It underscores the importance of a multidisciplinary rehabilitation team to address diverse rehabilitation needs, improving

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documentation and discharge practices, expanding service delivery models, and reducing disparities in service use. The findings inform strategies for optimising service delivery, workforce, resource allocation, and intersectoral collaboration to ultimately enhance the quality and accessibility of integrated rehabilitation services.

Keywords Rehabilitation, Delivery of health care, Integrated services, Speech therapy, Occupational therapy, physiotherapy, audiology, Community health centres, Patient-centred care, Health services for persons with disabilities

Background

International studies consistently show that increased investment in a broad range of rehabilitation services yields substantial health, social, and economic benefits [1]. Ensuring the provision of rehabilitation services to the entire population is considered a crucial aspect of achieving universal health coverage (UHC) [2]. The rehabilitation services contribute to community participation and wellbeing by improving capacity, functioning, and modifying the environment of people suffering from a wide range of health conditions [3]. Moreover, the provision of services using a primary healthcare (PHC) approach for optimal health, is achieved through meeting people's health needs and preferences as close as possible to their everyday environment. This encompasses a range of healthcare activities, along the continuum of health care including promotion, prevention, treatment, rehabilitation, and palliative care. The PHC approach has been shown to reduce hospital admissions, healthcare costs, and promote community development [4].

There is international recognition of the importance of rehabilitation in health systems supporting first-contact and providing accessible, continued, comprehensive and coordinated patient-focused primary health care. However, the integration of rehabilitation services into health systems has progressed slowly in low- and middle-income countries [5]. A mere 25% of countries in the West Pacific region of the World Health Organisation (WHO) have sustainable PC rehabilitation services [6]. Fragmented healthcare and inadequate integration of rehabilitation into comprehensive health services are also reported in Iran and Nigeria in the African region [7, 8]. Consequently, individuals with disabilities, the ageing population, and those burdened with chronic communicable and non-communicable diseases face inadequate access to rehabilitation services at PC level [5]. Recognising the need for solutions and practical guidance on integrating rehabilitation in PHC is highlighted by the WHO in their Rehabilitation 2030 initiative [9], and the Astana declaration on PHC and rehabilitation [10].

The Joint Learning Network for Universal Health Coverage emphasises the significance of raising awareness, capacity-building, and providing adequate data about services [11]. This action is supported, in the context of the WHO vision for primary care which also recognises the importance of functioning as a third health indicator [2]. Therefore, the data collected for our study incorporated the concept of function defined by the body functioning domains of the International Classification of Functioning, Disability and Health (ICF) [12].

In South Africa, PHC plays a pivotal role in the healthcare system as proposed by government policies, including the White Paper for the Transformation of the Health System [13] and the National Health Act of 2003 [14], which underscore the significance of the PHC approach as the cornerstone of the country's healthcare transformation. Although the commitment to the PHC approach is reinforced by the National Health Insurance (NHI) Bill of July 2019, adopted in November 2023 [15], the current recognition of PC in South Africa is predominantly rooted in a medical model philosophy. The medical model emphasises nurse-driven services with support from doctors, pharmacists, and dentists, while rehabilitation services and person-centred care are not adequately encompassed or prioritised [16, 17]. Efforts to address deficiencies in PHC facilities in South Africa are outlined in the 'Ideal Clinic' programme. However, the programme does not explicitly address the staffing or resource allocation for rehabilitation services, apart from a general acknowledgment of the significance of providing access to rehabilitation services for patients [18, 19]..

The provision of multidisciplinary rehabilitation depends on the availability of skilled personnel, and these professions include occupational therapy, physiotherapy, physical and rehabilitation medicine, prosthetics and orthotics, psychology, social work and speech and language therapy [20]. In South Africa, PC rehabilitation services are only offered by rehabilitation professionals such as occupational therapists, physiotherapist, speech and language therapist and audiologists as professionally designated by the Health Professionals Council of South Africa (HPCSA). The rehabilitation services are far from optimal in that they are mainly hospital based with little consideration of broad multi-, inter-and transdisciplinary teams [21] that can contribute to health care in conjunction with those registered as allied health services [22]. Other health professionals in shortage at the primary care level include nurses, psychologists, prosthetists and orthotists, social workers, and doctors. Therefore, the implementation of intersectoral rehabilitation services in PHC facilities remains limited in South Africa with less than a quarter of facilities currently providing such services [23, 24].

In contrast, PHC rehabilitation research in high-income countries indicates that occupational therapy, physiotherapy and speech and language therapy services are well established. Studies show that these services primarily focus on chronic disease, self-management and improving physical functioning, which is often supplemented with online support for clients [25]. In Sweden, PC physiotherapists predominantly provide physical activity programmes to middle-aged and older adults with conditions such as musculoskeletal disorders, obesity, hypertension, and diabetes [26]. Occupational therapists practicing in PC settings in Norway report that over 80% of their clients are adults and 44% are old age pensioners. The study reported that the conditions treated by occupational therapists included neurological diseases, particularly stroke, as well as musculoskeletal and mental illnesses, which accounted for 13–20% of referrals. Notably, 96% of clients presented with movement impairments, and 94% of them experience challenges in activities and participation related to education, work, and leisure [27]. In the UK, the duration of physiotherapy intervention and referral patterns in PC indicate that services may be offered for less than a month. However, most clients receive supportive treatment over a two-year period, with many referrals originating from triage at the clinic reception or through self-referral [28]. A Norwegian study indicates physiotherapy services for smaller numbers of children in PHC clinics where most clients present with motor development impairments and lower limb orthopaedic diagnoses [27]. Additionally, clients with prematurity and heart or lung disease also receive PC rehabilitation services [29].

In low to middle income countries such as Brazil, referrals for speech and language therapy PC services are mainly for children. They treat learning disorders, poor language development, Attention Deficit Hyperactivity Disorder, stuttering, mutism, and hearing issues [30]. A study from Indonesia noted a higher percentage of patients with neurological conditions receiving treatment [31]. A study conducted in South Africa highlights that clients who receive physiotherapy services at PHC clinics most commonly present with back pain, stroke, and upper and lower limb injuries [32]. However, despite this information, there is a critical lack of supporting evidence in South Africa regarding the use of rehabilitation services at a PC level and the extent to which they are integrated into PHC [24].

In South Africa sociodemographic data concerning the individuals who use PC rehabilitation services, the specific rehabilitation professionals who provide these services, and the services provided are scarce. The WHO Rehabilitation Programme [33] acknowledges the importance of gathering information on existing services and the sociodemographic information of the people accessing these services to inform the development of comprehensive rehabilitation interventions at both national and sub-national levels to effectively meet the individual needs of diverse populations and boost rehabilitation planning efforts [24, 33].

Therefore, the objective of the current study was to investigate the extent and nature of rehabilitation services provided in the Johannesburg Metropolitan District. The study specifically focussed on examining the structure, accessibility, delivery, and use of these services to address this knowledge gap.

Methods

A retrospective review of clinic rehabilitation records was conducted in an urban setting to investigate the rehabilitation services provided between 2011 and 2020. The research setting was the Johannesburg Metropolitan District, which encompasses 125 PC clinics and CHCs across seven regions, serving a population of 5.5 million [34]. Of the 5.5 million, 2.35 million have a monthly income that falls below the upper limit poverty line of ZAR 1227 (estimated $61) per person [35]. Only nine of the 125 PC clinics and CHCs in the Johannesburg Metropolitan District are managed by the provincial rather than municipal health services. These nine facilities provide rehabilitation services and were selected for our study. The rehabilitation services encompass individual and group outpatient therapy, community reintegration as a focus, outreach and home visits, as well as education and awareness campaigns facilitated by multidisciplinary teams [36].

Stratified sampling was used to select rehabilitation service paper-based records according to the only rehabilitation service providers employed at the clinics: occupational therapists, physiotherapists, speech and language therapists and audiologists. Within each discipline, further stratification was performed based on the year of the records available. The sample size was determined using Cochran's formula [37], setting a 95% confidence level and a 5% margin of error. There were 238 740 records spanning a 9-year period, and therefore, a review of at least 540 records was deemed necessary. Although the period 2011–2020 was initially identified for the record review, not all facilities had rehabilitation service user records for those years because of varying record storage practices. Therefore, the sampling included client rehabilitation paper-based records for the years available at each facility ranging from 2011 to 2020, inclusively. A random sample was extracted from the records stratified for each rehabilitation service and year from the available records at each facility to fulfil the required sample size.

Data extraction was done using a data extraction tool designed and piloted by the first author in Microsoft Excel. The tool facilitated the collection of various data

Table 1 Distribution of records extracted at each clinic or CHC (N = 630)

Clinic	n	%
Alexandra CHC	81	12.9
Hillbrow CHC	44	7.0
Stretford CHC	54	8.6
Lenasia CHC	85	13.5
Lenasia South CHC	79	12.5
Mofolo CHC	69	11.0
Zola CHC	63	10.0
Discoverers CHC	77	12.2
Chiawelo CHC	78	12.3
Total	630	100

Table 2 Age of clients (N = 630)

Age at assessment (years)	n	%
<5	144	22.9
5–14	94	14.9
15–29	54	8.6
30–49	152	24.1
50–64	117	18.6
65 and above	69	11.0

points, including sociodemographic information such as age and disability related to impairment, which was classified using the classification of the ICF based on body functioning domains [12]. Additionally, data regarding the referral source and nature and duration of received rehabilitation and of services provided by rehabilitation discipline, were extracted. Permission to conduct the study was obtained from the Gauteng Department of Health and the Human Research Ethics Committee (Medical) of the Faculty of Health Sciences at the University of the Witwatersrand (M190466). Descriptive analysis was used to analyse the collected data using means, standard deviations, and frequencies to describe the profile of the service users and the characteristics of the rehabilitation services they received.

Results

A total of 630 paper-based records were reviewed. The number of records extracted varied across the clinics due to the differences in the availability of records; Lenasia Clinic had the highest availability (13.5%) of records, and the Hillbrow CHC had the lowest (7.0%) (Table 1).

Sociodemographic profile of clients

The analysis of client sociodemographics revealed that the mean age at the time of assessment was 32 years (SD = 35.2) and ranged from 0 to 102 years. Most clients fell into the age groups < 5 years (22.9%) and 30–49 years (24.1%). Older participants constituted only 11% of the sample (Table 2).

Table 3 Distribution of types of impairments (ICF body function and codes) (N = 630)

ICF body function and codes	n	%*
Neuromusculoskeletal and movement-related functions (b7)	417	66.2
Mental functions (b1)	98	15.6
Voice and speech functions (b3)	57	9.1
Sensory functions and pain (b2)	65	10.3
Functions of the cardiovascular, haematological, immunological, and respiratory systems (b4)	10	1.6
Genitourinary and reproductive functions (b6)	1	0.2
Functions of the digestive, metabolic, and endocrine systems (b5)	2	0.3
Functions of the skin and related structures (b8)	5	0.8
Number of impairments		
Single	602	95.6
Multiple	28	4.4

*Percentages do not add up to 100 because some clients had multiple impairments

Table 4 Source of referral (N = 630)

Source of referral	n	%
Hospital	164	26.0
Self	39	6.2
Teacher	14	2.2
Unknown	387	61.4
Other	26	4.1

Disability related to impairments (ICF body function)

Regarding affected functioning categorized by the WHO ICF domains of body function, neuromusculoskeletal and movement-related functions (b7) were the most common and occurred in approximately two-thirds of clients (66.2%), followed by mental function impairments (b1) (15.6%).

However, only 4.4% of clients were recorded as having multiple impairments although most clients had multiple functioning domains affected (Table 3).

Rehabilitation services received

Source of referral

Clients were referred to the PC facility from various sources. However, the referral source for most clients (61.4%) was not recorded. Among the recorded source of referrals, most were down referrals from secondary and tertiary hospitals. Referrals from other sources include NGOs, private doctors, and other services at the PC level (Table 4).

Reasons for discontinued therapy

Discharge information was inadequately reported in the records, but most clients were lost to follow-up (64.1%), and 15.1% were referred elsewhere. (Table 5).

Table 5 Reasons for discontinued therapy (N = 630)

Reasons for discontinued therapy	n	%
Loss to follow-up	404	64.1
Deceased	2	0.3
Referred elsewhere	95	15.1
Unknown	46	7.3
Discharged	83	13.2

Table 6 Number and types of visits for all rehabilitation services (N = 630)

Number and type of visit (n = 630)	n	%
Number of clinic visits by clients		
1	307	48.7
2–3	214	34.0
4–5	68	10.8
6+	41	6.5
	Mean (SD)	**Range**
	2.3 (2.1)	1–15
Number of home visits to clients		
1	6	1.0
Number of outreach visits to clients		
1	4	0.6
2	1	0.2
3	1	0.2
5	2	0.3

Table 7 Distribution of rehabilitation services received and frequency of sessions (N = 630)

Rehabilitation services received	n	%*
Occupational therapy	261	41.4
Physiotherapy	253	40.2
Speech and language therapy	151	24.0
Audiology	45	7.1

*Percentages do not add up to 100 because clients attended multiple therapies

Table 8 Individual and group sessions received (N = 630)

Individual sessions	n	%	Group Sessions	n	%
No. of occupational therapy sessions	204		No. of occupational therapy sessions	28	
1	87	43.0	1	18	64.3
2–3	76	37.2	2	7	25
4–5	26	13.0	3	1	3.6
6–13	15	7.4	5	2	7.1
	Mean (SD)	Range		Mean (SD)	Range
	2.5 (2.1)	1–13		7.00 (7.78)	18–1
No. of physiotherapy sessions	212		No. of physiotherapy sessions	23	
1	116	55.0	1	19	82.6
2–3	75	35.4	2	3	13.0
4–5	14	6.6	3	1	4.3
6–12	7	3.3			
	Mean (SD)	Range		Mean (SD)	Range
	1.9 (1.6)	1–12		5.75 (8.98)	19–1
No. of speech and language therapy sessions	123		No. of speech and language therapy sessions	12	
1	58	47.2	1	8	66.7
2–3	34	27.6	2	3	25
4–5	21	17.1	5	1	8.3
6–12	10	8.1			
	Mean (SD)	Range		Mean (SD)	Range
	2.5 (2.2)	1–12		1.33 (1.52)	8–1
No. of audiology sessions	41		No. of audiology sessions	39	
0–1	27	65.9	1	39	100
2–3	10	24.0			
4–5	3	7.3			
6+	1	2.4			
	Mean (SD)	Range		Mean (SD)	Range
	1.7 (1.3)	1–6		n/a	n/a

Number and types of visits for all rehabilitation services

Clinic visits, where clients attend outpatient rehabilitation services, accounted for the largest number of visits, ranging from one to six or more, with most clients only seen once (48.7%). Six home visits to clients, and eight outreach visits were recorded where clients were at school or a community group. (Table 6).

Rehabilitation services received and frequency of sessions

Occupational therapy and physiotherapy were the most frequently provided rehabilitation services across the nine facilities at more than 40%, while audiology had the lowest use (7.1%). It is important to note that many clients attended multiple therapies (Table 7).

Individual and group sessions received

The records indicated that most clients received at least one individual or group session from specific rehabilitation services (ranging from 87 to 100%). The mean number of individual sessions varied across services, with occupational therapy and speech and language therapy averaging 2.5 sessions and audiology averaging 1.7 sessions. The number of individual sessions ranged from 1 to 13 for occupational therapy, 1 to 12 for physiotherapy and speech and language therapy, and 1 to 6 for audiology (Table 8).

Rehabilitation provided per clinic

No significant difference was found between occupational therapy and physiotherapy services across the nine

Table 9 Rehabilitation sessions per discipline received by clinic (N = 630)

Clinic	Occupational therapy	Physiotherapy	Speech and language therapy	Audiology		
	n (%) *				Chi squared	P value
Alexandra CHC (n = 99)	31 (31.9)	29 (29.9)	23 (21.6)	16 (16.4)	8.51	0.121
Hillbrow CHC (n = 51)	22 (43.1)	12 (23.5)	16 (31.4)	1 (2.0)	16.37	0.001
Stretford CHC (n = 54)	21 (38.9)	23 (42.6)	10 (18.5)	0 (0.0)	9.81	0.007
Lenasia CHC (n = 94)	30 (31.9)	30 (31.9)	25 (26.6)	9 (9.6)	12.94	0.004
Lenasia South CHC (n = 83)	31 (37.3)	28 (33.7)	10 (12.0)	14 (16.9)	18.32	0.004
Mofolo CHC (n = 93)	37 (39.8)	30 (32.3)	26 (28.0)	0 (0.0)	2.24	0.326
Zola CHC (n = 67)	33 (49.3)	33 (49.3)	1 (1.5)	0 (0.0)	45.17	0.000
Discoverers CHC (n = 88)	32 (36.4)	35 (39.8)	16 (18.2)	5 (5.7)	26.78	0.000
Chiawelo CHC (n = 81)	24 (29.6)	33 (40.7)	24 (29.6)	0 (0.0)	2.39	0.301

*n for sessions is greater than the number of sessions as some patients were seen in individual and group sessions

Table 10 Rehabilitation received per discipline by disability (ICF body function and codes) (N = 630)

Disability (ICF body function)*	Occupational therapy	Physiotherapy	Speech and language therapy	Audiology		
	n (%)				Chi square	P value
Neuromusculoskeletal and movement-related functions (n = 469) (b7)	169 (40.5)	241 (57.8)	58 (14.0)	1(0.2)	26.14	0.001
Mental functions (n = 118) (b1)	86 (87.8)	9 (9.2)	22 (22.5)	1 (1.0)	155.19	0.001
Voice and speech functions (n = 67) (b3)	9 (15.8)	3 (5.3)	51 (89.5)	0 (0.0)	115.51	0.001
Sensory functions and pain (n = 79) (b 2)	9 (14.0)	3 (4.6)	23 (35.3)	44 (67.7)	77.01	0.001
Multiple disabilities (n = 41)	25 (89.3)	9 (32.1)	6 (21.4)	1 (3.6)	112.09	0.001

*n for disability (body function) is greater than the number of cases as some patients were seen by more than one discipline

Table 11 Rehabilitation received per discipline by age at assessment

Age at assessment*	Occupational therapy	Physiotherapy	Speech and language therapy	Audiology	Chi square	P value
	n (%)					
<5 (n = 175)	91 (63.2)	23 (15.97)	60 (41.7)	1 (0.7)	74.27	0.001
5–14 (n = 106)	50 (53.2)	11 (11.7)	43 (45.7)	2 (2.1)	48.36	0.001
15–29 (n = 57)	24 (44.4)	27 (50.0)	3 (5.6)	3 (5.6)	35.84	0.001
30–49 (n = 163)	44 (29.0)	88 (57.89)	17 (11.2)	14 (9.2)	55.81	0.001
50–64 (n = 163)	33 (28.2)	68 (58.12)	15 (12.8)	13 (11.1)	55.20	0.001
65+ (n = 80)	19 (27.5)	36 (52.17)	13 (18.8)	12 (17.4)	18.50	0.003

*n for age at assessment is greater than the number of patients as some patients were seen by more than one discipline

clinics. However, speech and language therapy was provided to less than 20% of total clients at only four of the nine CHCs. Four CHCs did not offer audiology services (Table 9).

Rehabilitation received per discipline by disability related to body function

The analysis of client demographics and disabilities in relation to rehabilitation services revealed that clients with mental function disabilities were predominantly seen by occupational therapists. Physiotherapists primarily worked with clients with movement-related dysfunction while speech and language therapists treated those with voice and speech impairments associated with neuromusculoskeletal disabilities.

As expected, audiologists saw a higher proportion of clients with sensory function and pain-related disabilities (Table 10).

Rehabilitation received per discipline by age at assessment

A significant difference was observed in the percentage of clients seen in different age groups across all four rehabilitation services. A significantly greater percentage of younger age groups, including children and adolescents, received occupational therapy and speech and language therapy, while young, middle, and older adults received services from physiotherapy and audiology services (Table 11).

Discussion

The review of client records across the nine PC facilities providing rehabilitation services in the Johannesburg Metropolitan District revealed the sociodemographic profile of clients accessing rehabilitation services, and indicated a wide age range, with a mean age of 32 years. The high proportion of clients in the <5 years and 30–49 years age groups suggests that rehabilitation services are used by both children and adults within the district, while the older adults constituted a smaller portion of the sample. The wide age range of rehabilitation service users is encouraging, thus rehabilitation PC services should be available across the life course of service users, along the continuum of care, and reflective of all types of care required in the healthcare system in trying to achieve UHC [4]. The age distribution is different to trends in Europe and the UK where most clients are older adults [27–29]. The age distribution aligns with the diverse population demographics of the Johannesburg Metropolitan District [38] where, services for children under the age of 5 years and the older adults are free of charge in South African clinics, which may contribute to the observed age distribution.

Both the Department of Education and the Department of Health share responsibilities for children over the age of six, with the Department of Education specifically accountable for learning and developmental interventions [39]. Furthermore, the high proportion of children under 5 years is aligned with population-based data that shows that the proportion of children with disabilities in low- and middle-income countries is high [40, 41]. It would further explain the high proportion of paediatric neuromusculoskeletal, and movement-related functions (b7) seen in the CHCs in this study. The records reviewed in our study indicate that over 33% of clients receiving services were children and adolescents, compared to 20% reported in a high income country such as Norway [27]. The findings are congruent with the South African statistics indicating nearly 30% of the population is under the age of 15 years [42].

Thus, services must be configured to optimise outcomes for clients across different life stages according to the specific national context to ensure that age-specific rehabilitation needs are adequately addressed in the planning and delivery of services.

Among the clients accessing rehabilitation services, neuromusculoskeletal and movement-related functions were the most prevalent disabilities, followed by mental function (b1) disabilities. These findings are consistent with global trends, emphasising the high prevalence of musculoskeletal and neurological conditions and the importance of addressing mental health within rehabilitation services [26, 43, 44]. This aligns with international studies where physiotherapists and occupational therapists treating adults confirmed they most frequently provide interventions for clients with these conditions using a PHC approach [45]. Mental health, which is rarely mentioned in relation to PC rehabilitation, can be considered in two categories, namely individuals with mental health conditions as a diagnosis, and those with physical impairments who experience associated mental health concerns [2]. The presence of multiple impairments in a subset of clients further highlights the complexities present in rehabilitation service users and underscores the need for comprehensive and interdisciplinary approaches to rehabilitation [46–48] that excel in a wide range of generalist competencies rather than specialised or narrow competencies.

Our study indicated poor recording of the referral sources for most clients which represents a substantial data gap. It hinders the understanding and formalising of the referral pathways through which clients access rehabilitation services and impedes efforts to improve coordination and continuity of care required to provide integrated rehabilitation services in PHC [49]. Enhancing data collection practices to capture this information uniformly and accurately would provide valuable insights into care coordination and identify potential areas for intervention. The prevalence of hospital down referrals suggests that collaboration between PC facilities and higher-level healthcare institutions is essential in facilitating access to rehabilitation services [49]. It could be, however, that overstretched hospital based services may account for an influx of patients referred to PC rehabilitation services who still require acute in-hospital care, but are down-referred due to high patient numbers in hospitals and increased demand for in-patient beds [50].

Discharge information was inadequately reported in the records, with most clients being lost to follow-up. While hospitals are identified as the primary source of down referrals, the absence of documented discharge information at the PC level raises concerns regarding the extent of collaborative referrals and feedback on referrals, particularly for clients with complex diseases. This finding highlights a gap in record-keeping practices and long-term follow-up of clients. It emphasises the need for strategies to improve accessible record keeping, post-rehabilitation support, and long-term management in PC. Understanding the reasons for discharge and lack of treatment continuity is essential. Ways to enhance patient engagement and adherence to rehabilitation programmes are essential for achieving optimal outcomes and should be explored[51]. Addressing accessible and comprehensive record keeping and long-term follow-up is important for evaluating the effectiveness of interventions and providing appropriate support to clients throughout their rehabilitation journey.

Clinic visits were found to be the most common mode of service delivery, with limited home visits and outreach visits to NGOs. This suggests that the current focus of rehabilitation services primarily revolves around clinic-based care, with limited attention given to delivering services in clients' homes, care institutions or reaching out to underserved communities [52]. The literature highlights alternative models of care, such as community-based rehabilitation and the use of community health workers in areas with limited access to PC rehabilitation services [53]. Expanding service delivery beyond PHC clinic settings through outreach services and home-based rehabilitation programmes could enhance accessibility for vulnerable populations and ensure a more comprehensive approach to rehabilitation. Although tele-rehabilitation may be an option this is impacted by high data costs and lack of constant electricity supply in South Africa [54].

Increasing investment in rehabilitation is important for expanding the workforce and capacity in South Africa. The investment includes funding human resources for primary care rehabilitation services. Such services should be integrated into multidisciplinary ward-based outreach teams located in primary care facilities. These teams would provide a range of services—outreach, preventive, promotive, curative, rehabilitative, and palliative—to individuals, groups, and communities. Additionally, fostering partnerships between government and NGOs is essential to enhance these efforts. [55, 56]. Moreover, alternative service delivery models have the potential to improve the reach and effectiveness of rehabilitation services and enhance their integration into PHC. Community-based rehabilitation with an emphasis on community participation and empowerment has been shown to improve health outcomes [53]. Trained community health workers can serve as liaisons between the healthcare system and the community by building trust and establishing open communication channels between rehabilitation providers and users [57].

The frequency of clinic visits and the number of group sessions also varied slightly between the different rehabilitation services, with a small percentage of clients receiving six to 13 individual sessions or more than five group sessions. This is a concern considering the chronic nature of some conditions receiving intervention at clinics. Research in the UK indicates that most PC physiotherapy clients are seen for at least two years for initial rehabilitative and later supportive care [28]. The poor records, loss to follow-up with limited resources in the clinics, and clients experiencing barriers in terms of transport and finances to access clinics may play a role in the shorter intervention periods and fewer sessions of rehabilitation [58].

The Gauteng Health Strategic Plan 2019/2021–2024/25 highlights the insufficient number of audiologists available to assess patients with chronic illnesses and provide universal hearing diagnostic services for babies as a gap in planning of adequate rehabilitation services, technologies and required hearing devices [39]. It is concerning, yet unsurprising, that audiologists primarily provide services to older adults. A study by Swanepoel et al., which used mobile phone diagnosis for children in the community in South Africa, found a low referral rate of 24.9% for further assessment in preschool children [59]. Additionally, a low follow-up return rate of 39.4% was discovered, primarily due to extended waiting periods before follow-up appointments at PHC clinics. The effective implementation of ear and hearing services at the PHC level requires careful planning, clear programme goals, and defined care pathways [60]. It is important to explore strategies, such as including audiology services into the School Health Programme of the reengineered PHC approach, to enhance the provision of audiology services and increase awareness of their importance. Given the shortage of available services at a limited number of clinics and a national shortage of rehabilitation personnel, especially at PC level a task-sharing approach for a limited set of basic interventions should also be considered to improve access [61].

The number of individual sessions varied across the rehabilitation services, with occupational therapy and speech and language therapy having higher average session numbers compared to physiotherapy and audiology. These variations may reflect differences in treatment protocols, severity of conditions, complexity of the functional outcome or resource allocation. Further research is needed to determine the optimal frequency and duration of rehabilitation sessions to maximise outcomes and patient satisfaction. This research would also inform the packages of care to be funded under the NHI in South Africa.

The findings highlight significant differences in the distribution of rehabilitation services across impairments and age groups [62]. Our study provides an indication of differences in PC rehabilitation services in an urban South African context, considering five rehabilitation services rather than focusing on a single service. This information is valuable for planning rehabilitation services based on disability needs and age-specific patterns. Tailoring rehabilitation services to the unique requirements of people with different disabilities and age groups has the potential to enhance their effectiveness and relevance within UHC provision [2].

An important limitation impacting PC in South Africa is the lack of planning and monitoring, which is essential to inform further development of rehabilitation. The inability to monitor rehabilitation services is due in part

to the absence of national agreed minimum data sets for rehabilitation services as well as rehabilitation records and health records in South Africa not being in electronic format. Indeed, the WHO emphasises the functionality of shared electronic health records linked to other health facilities and services to support two-way referrals, multidisciplinary teamwork, and continuity of treatment along clinical pathways [2]. In the current study, the record review was compounded by the variations in record availability and storage among the CHCs and rehabilitation services. Some of the CHCs store their records at a central storage facility while others keep them on-site. The cause of these differences is unknown, but it could be due to a lack of clear record-management policy and storage guidelines, as well as insufficient implementation or resources by rehabilitation professionals to implement existing guidelines. According to the HPCSA, records should be specific, include important information, and should be stored for a minimum of six years from the date of the patient's last treatment by a healthcare practitioner [63], but the life cycle [64]for other medical records varies for hospitals, health funders and different categories of patients. These discrepancies in record-keeping practicesunderscore the need for a consistent and standardised single record-keeping system across PHC facilities [56]. Additionally, the fact that each rehabilitation service is required to maintain separate records, even during combined sessions for financial and legal/litigation purposes, suggests a lack of integration and siloed service delivery, which affects integration and multidisciplinary teamwork.

Given that the CHCs included in the study serve densely populated and overcrowded townships, where 95% of the population resides, it is crucial to implement integrated and coordinated approaches to rehabilitation service record keeping to ensure continuity of care and integrated service delivery [38].

Strengthening the Routine Health Information System for rehabilitation in the country is needed to allow for regular, easy accessibility and analysis of -real time data compared with population needs, -user profile data, -referral practices and -completion of rehabilitation episodes. This monitoring is essential to plan and evaluate rehabilitation to appreciate the impact of improvement and outcomes [65].

While our study provides valuable insights into the provision of rehabilitation services in the Johannesburg Metropolitan District, it is important to acknowledge some limitations. The retrospective nature of the study and its reliance on the accessibility and accuracy of CHC records may have introduced bias. Moreover, the study's focus on provided services overlooks those that are not provided and the reasons behind it. Additionally, the study focussed on the nine CHCs offering rehabilitation services, and the findings may not be generalisable to other regions or healthcare settings. Future research should address these limitations and further explore the identified gaps in rehabilitation services to inform policy and practice in a broader context.

Conclusion

The results from our study outline data available on the rehabilitation services in PHC clinics in the Johannesburg Metropolitan District. The analysis of clinical rehabilitation records from nine provincially funded CHCs between 2011 and 2020 revealed valuable insights into the demographics of clients, types of disabilities, referral sources, service use, and variations in rehabilitation services across the nine CHCs. The findings underscore the diverse rehabilitation needs across different age groups and disabilities and the differences in services offered by different rehabilitation disciplines. Rehabilitation services should be tailored to meet the needs of individuals with a diverse age range, from children to older adults. This includes ensuring services are reflective of all types of care required at different life stages. Missing data revealed the need to improve documentation practices, enhance coordination between healthcare facilities, and expand service delivery models. Future research should explore the alignment of the South African PHC approach with the WHO Package of interventions for rehabilitation [66], the effectiveness of rehabilitation interventions, the impact on patient outcomes, and the factors influencing service provision and access, including the lacking healthcare professions. Strategies to improve the provision and awareness of audiology services should be implemented, especially in the context of the School Health Programme and other community-based initiatives. By addressing these issues, we can strive towards delivering inclusive, person-centred, and integrated rehabilitation services that maximise independence, functioning, and quality of life for individuals in need. Further research using qualitative and mixed method studies are recommended as well as research to develop an agreed minimum rehabilitation dataset for rehabilitation services at the PC level.

Abbreviations

CHC	Community health centres
NGO	non-governmental organisations
NHI	national health insurance
PC	primary care
PHC	primary healthcare
UHC	Universal Health Coverage
UK	United Kingdom
WHO	World Health Organization

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Author contributions
LM conceptualised and designed the study, collected data, carried out the initial and secondary analysis, and drafted, reviewed, and revised the manuscript. HM and FA supervised the study, including conceptualisation and critically reviewing the manuscript for important intellectual content. All authors approved the final manuscript submitted and agreed to be accountable for all aspects of the work.

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Data availability
The data that support the findings of this study are available from the corresponding author, LM, upon reasonable request.

Declarations

Ethics approval and consent to participate
Ethics approval was obtained from the Human Research Ethics Committee (Medical) of the Faculty of Health Sciences at the University of the Witwatersrand (M190466). The study was in accordance with the Helsinki Declaration of 1975 as revised in 2008. The need for Informed Consent was waived by the Human Research Ethics Committee (Medical) of the Faculty of Health Sciences at the University of the Witwatersrand due to the retrospective nature of the study.

Consent for publication
Not applicable.

Statement of human and animal rights
All procedures in this study were conducted in accordance with the Helsinki Declaration of 1975 as revised in 2008.

Competing interests
The authors declare that they have no financial or personal relationships that may have inappropriately influenced them in writing this article.

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Chapter 7: Paper 5: User Satisfaction with Primary Healthcare rehabilitation services in a South African metropolitan district

7.1 Introduction to Paper 5

Paper 5 is presented as a published article from Objective 3, which was to explore the experiences of rehabilitation service users at PHC level in the Johannesburg Metropolitan District, Gauteng, South Africa. The paper emanated from the qualitative findings of the semi-structured interviews with rehabilitation service users at the nine CHCs offering rehabilitation services in the Johannesburg Metropolitan District. This paper captures the rehabilitation service users' experiences of rehabilitation services in the CHCs and the factors that influence their experiences. As stakeholders in the health system, rehabilitation service users' and caregivers' involvement in various aspects of health system strengthening is important for healthcare planning and evaluation.

7.2 Journal Details Paper 5

The *Journal of Patient Experience* is a peer-reviewed, open access journal aimed at capturing the user's perspective. The journal views patient experience to include several aspects of health care delivery that consumers value highly when they seek and receive care, such as getting timely appointments, easy access to information, and good communication with healthcare providers, making it suitable for this manuscript. The *Journal of Patient Experience* is indexed in PubMed Central (PMC), SCOPUS, Clarivate Analytics: Emerging Sources Citation Index (ESCI), and ProQuest. Table 7.1 gives the publication specifics for Paper 5.

Table 7.1 Publication specifics Paper 5

Title of publication	User satisfaction with Primary Healthcare rehabilitation services in a South African metropolitan district
Authors	Lebogang Maseko, Hellen Myezwa, Fasloen Adams
Journal name	Journal of Patient Experience
ISSN	
Publication date	N/A
Volume	N/A
DOI number	N/A
Impact Factor	

7.3 Author Contributions paper 5

The CRediT was used to outline the authors' contribution to the study and is shown in Table 7.2.[115] The full explanation of the terms is in Appendix S.

Table 7.2 Details of author contributions paper 5

	Maseko	**Myezwa**	**Adams**
Conceptualisation			
Methodology			
Resources			
Writing: Original draft			
Writing: Review & editing			
Visualisation			
Supervision			

7.4 Published article

Research Article

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User Satisfaction with Primary Health Care Rehabilitation Services in a South African Metropolitan District

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Abstract

Rehabilitation services are critical to improve health outcomes, particularly at community level within primary healthcare settings. As groups with an interest in the health system, rehabilitation service users' and caregivers' involvement in various aspects of health system strengthening is important for healthcare planning and evaluation. This study aimed to explore rehabilitation service users' perceptions of the rehabilitation services and their effect on their functioning in the Johannesburg Metropolitan District. A qualitative study was conducted using purposive sampling of participants attending rehabilitation at nine provincially funded clinics. Semi-structured interviews were conducted, and data were analysed using reflexive thematic analysis. The findings revealed the theme of *happy with rehabilitation services* and five associated categories, namely (1) service provider actions, (2) service organisation, (3) service user actions, (4) service access, and (5) service outcomes. The participants expressed overall satisfaction with their experiences of rehabilitation services, highlighting the importance of effective communication, patient-centred care, strong therapeutic relationships, and active patient engagement to achieve positive outcomes. This study provides the evidence for maintaining and extending rehabilitation at the PHC level in support of the health policy changes proposed for South Africa.

Keywords

patient experience, audiology, occupational therapy, physiotherapy, speech therapy

Introduction

Rehabilitation services are an essential component of healthcare systems worldwide, particularly within primary healthcare (PHC).[1] The potential for improved health outcomes at community level is most promising in PHC.[2] The integration of rehabilitation services into PHC has gained considerable attention as a means to strengthen access to care and enhance patient outcomes.[3] The World Health Assembly endorsed the resolution to strengthen rehabilitation within health systems, and the endorsement has been recognised by many countries for expanding and integrating these services in health systems as part of universal health coverage.[4] With the move in South Africa to universal health care funded by a National Health Insurance, PHC has been highlighted as well as the inclusion of rehabilitation services at the PHC level.[5]

The transition to universal health care has emphasised the need for empirical evidence and understanding of rehabilitation integration into PHC in South Africa. How service users perceive rehabilitation services in this context is crucial to appropriately target services to satisfy their needs[6] in providing access to the full range of accessible, affordable health services.[7] However research considering

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the insights from service users and their families, as key interest groups in this process, to improve service planning, delivery, and evaluation, is limited. Creating empowering opportunities for individuals and communities is at the core of integrated healthcare services.[8]

A service user approach should be used to tailor PHC rehabilitation services to the unique needs and expectations of individual service users within their respective contexts, making services effective. This approach aligns with the main objective of PHC to include user voices in patient-centred interventions. User satisfaction, a vital measure in today's consumer-oriented healthcare markets, may provide patient and family feedback, with useful insights to guide healthcare improvements.[9] Moreover, satisfied service users tend to comply with prescribed interventions, resulting in improved health outcomes, and are more likely to advocate for the service among their peers.[10]

When measuring patient experience of rehabilitation services, satisfaction with the health care system, the level of engagement in the service and the quality of relationships between rehabilitation professionals and service users as well as outcomes need to be considered.[11] Studies exploring satisfaction with rehabilitation services in South Africa have not comprehensively covered these aspects at the PHC level and are mostly limited to a single age or diagnostic group and do not report on outcomes. Factors affecting patient experience with rehabilitation reported in the studies include stereotypes and cultural values related to the aetiology of disability such as the belief that disability is imposed by outside entities such as ancestors due to wrongdoing. Discrimination against persons with disabilities and lack of finances affect their ability to use public transport to access rehabilitation services impacting continuity of care, have been reported to influence satisfaction with the service.[12]

Over seventy percent of people with disabilities access rehabilitation in the public health sector in South Africa. They are frequently more economically disadvantaged with financial constraints which do allow them to subscribe to health insurance[13] and private healthcare. Although the public health sector provides free health care to children under six years, those over 60 years and those receiving social grants and pensions, overcrowding, staff shortages, long waiting times of up to eight hours, negative staff attitudes and lack of resources and complex referral pathways affect service user experiences.[14–16] South Africa is a multicultural society as evidenced by the 12 official languages legislated in the country. Patients as service users receiving rehabilitation, represent various ethnic and cultural groups with service providers having divergent beliefs about health care and home languages, necessitating that the service providers be culturally competent[17,18]

In this study, we explored a comprehensive service user perspective of PHC rehabilitation services within a South African metropolitan district. The study encompassed factors influencing service user satisfaction, including healthcare provider and user behaviour, the service organisation, accessibility, affordability, and the extent to which services achieve desired health outcomes. Delving into these aspects can inform rehabilitation service planning and evaluation, ultimately contributing to accessible, and quality patient-centred services being integrated into PHC.[9,19–24]

Methods

Study Setting

The study was conducted in the Johannesburg Metropolitan District, which comprises 81 PHC clinics and community health centres (CHCs) distributed across seven regions. Due to financial constraints within the health service only nine of the provincially funded PHC clinics and CHCs offer rehabilitation services that include physiotherapy, occupational therapy, speech-language therapy, and audiology.[25] Some of these services are provided at the CHCs and clinics daily while others are only available a few days in the week, fortnightly or once a month. The clinics and CHCs are situated in low socioeconomic, overcrowded urban suburbs of the Metro where taxis are the most affordable form of transport. Contrary to the WHO recommendations as supported by research in SA, this means that services are not available within the 5 km distance radius, and 3 min travel time from a patients home.[26,27]

Study Design

A descriptive qualitative study was conducted to explore the experiences of rehabilitation services among service users.

Participant Recruitment

Purposive sampling was used to select 38 participants from nine clinics and CHCs that offer rehabilitation services. Potential participants were identified by clinicians at the clinics, and recruited into the study by research assistants trained to conduct the interviews. The sample included service users of occupational therapy, physiotherapy, speech-language therapy, and audiology services who had attended at least three rehabilitation sessions at the time of the interview. Both adults and caregivers of children receiving rehabilitation and attending these services, were included in the study. Participants were recruited when they arrived at the clinic to attend their scheduled rehabilitation appointments over the data collection period. Caregivers were invited to participate if the service users were children or had communication impairments.

Data Collection

Semi-structured interviews with open ended questions were used to collect data due to the variable education level of service users at the clinics and CHCs. In South Africa this may range from no formal education with many individuals

not achieving secondary school qualifications. Research assistants who were rehabilitation professionals were trained by the first author to conduct the interviews. which were conducted at the nine clinics.

The semi-structured interviews were audio-recorded and conducted in English using a specially designed interview guide that collected demographic information, such as age, gender, type of disability, clinic attended, and frequency of rehabilitation attendance, to gain a comprehensive understanding of the participants. Twelve open ended questions about daily activities, mobility, employment, and schooling required participants to describe satisfaction with the services, their access to the services, their role in the rehabilitation process and the outcomes achieved by indicating their engagement in activities and daily life before they started receiving rehabilitation and after receiving rehabilitation at the clinic.

Ethical Considerations

Ethics approval was obtained from the Human Research Ethics Committee (Medical) of the Faculty of Health Sciences at the University of the Witwatersrand (M190466). Permission to conduct the study was also obtained from the Gauteng Department of Health. Participants provided signed informed consent for the interviews and audio recording.

Data Analysis

Demographic data were analysed descriptively. Audio-recorded data were transcribed verbatim and analysed using NVivo v.11. Confidentiality was maintained by assigning unique codes to each participant to ensure protection of personal data. The transcriptions of the service users' responses to open ended questions were reviewed by two of the researchers. These responses were analysed to rate the overall perceived effectiveness of the rehabilitation services they received at the clinic to identify the percentage of patients who were highly satisfied, moderately satisfied or minimally satisfied.[28]

The six steps in reflexive thematic analysis, using experimental analysis, following the approach of Braun and Clarke, was used.[29] LM and a colleague experienced in qualitative research coded the data inductively, allowing categories and themes to emerge from the participants' own words.[29] Extracts from the data were included to support the main theme, ensuring the interpretation remained directly tied to the participants' words.[30]

Results

A total of 38 participants, 21 adults and 17 caregivers of children attending rehabilitation services, were included in the study. Caregivers represented children, all below the age of seven, in the interviews. The highest presenting impairment in both adults (100%) and children (64.7%) was related to neuromusculoskeletal and movement functions. Most participants attended rehabilitation services once a month. See Table 1 for detailed demographic information.

A substantial proportion of adult (85.7%) and child (70.6%) participants perceived the rehabilitation services they received at the PHC facilities as satisfactory and as having a positive impact. (Table 2). The factors influencing these perceptions are discussed in the central theme.

Central Theme: Happy with Rehabilitation Services—'My Journey is Very, Very Happy. I'm Happy'

This study explored the perceptions of service users attending rehabilitation services in the Johannesburg Metropolitan District. Notably, most respondents expressed satisfaction with rehabilitation services, complimenting the effectiveness and timeliness of services, as well as the compassion and professionalism of staff generating a central theme reflecting the overall satisfaction with the rehabilitation services they receive in the Johannesburg Metropolitan District. This theme: happy with rehabilitation services— 'My journey is very, very happy. I'm happy'—encapsulated the positive experiences and perceived effect of the services on the participants' wellbeing. The central theme had five associated categories: service provider actions, organisation of service, service user actions, service access, and service outcomes (Figure 1).

Category 1: Service Provider Actions

Perceptions of service provider actions by the participants emphasised the positive impact of the interaction with the rehabilitation personnel and the quality of care they provided. This included the way the rehabilitation personnel made the service users feel, the client-centred care provided to service users, good interpersonal relationships (IPRs) between service users and rehabilitation personnel, constructive clinical actions of the rehabilitation personnel, and their strong work ethic. The participants expressed that the rehabilitation personnel gave them confidence and were invested equally in their progress, as two participants explained:

> I saw the actions; I saw everything, the reaction to care for us, for everybody in community … I found people who can help me, and they helped me to get life … I'm happy … they sat down with me and … show me to get life. (Male, 64 yrs.)

> They make me more confident about myself, and I can manage on my own. (Male, 54 yrs.)

Service users commented that they felt respected, listened to, and supported, which they associated with feeling like being part of a family and understood by the rehabilitation personnel. The participants highlighted the partnership and collaborative nature of the user-provider relationship. As seen in the following comments, the service users consistently described

Table 1. Personal Factors of Rehabilitation Service Users in PHC Facilities in the Johannesburg Metropolitan District (n = 38).

Variable	Description	Adults (n = 21) n (%)	Children represented by caregivers (n = 17) n (%)
Sex	Male	9 (42.86)	12 (70.59)
	Female	11 (52.38)	5 (29.41)
	Other	1 (4.76)	0 (0.00)
Age at assessment (years)	< 3	N/A	4 (23.53)
	3–7	N/A	13 (76.47)
	11–20	1 (4.76)	0
	21–40	6 (28.57)	N/A
	41–60	10 (47.62)	N/A
	61–70	4 (19.05)	N/A
Occupation status	Unemployed	9 (42.86)	N/A
	Employed	7 (33.33)	N/A
	Retired	5 (23.81)	N/A
Social grant	Yes	8 (38.10)	10 (58.82)
	No	13 (61.90)	7 (41.18)
Impairments	Neuromusculoskeletal and movement-related functions	21 (100.00)	11 (64.71)
	Voice and speech functions	0 (0.00)	1 (5.88)
	Sensory functions and pain	0 (0.00)	2 (11.76)
	Mental functions	0 (0.00)	3 (17.65)
Referral source (level of care)	Quaternary	0 (0.00)	1 (5.88)
	Tertiary	7 (33.33)	9 (52.95)
	Secondary	4 (19.05)	1 (5.88)
	Primary/clinic	8 (38.10)	4 (23.53)
	Other	2 (9.52)	2 (11.76)
Rehabilitation attendance	Weekly (1x a week)	1 (4.76))	1 (5.88)
	Monthly (1x a month)	20 (95.24)	16 (94.12)

Table 2. Overall Satisfaction with Rehabilitation Services (n = 38).

	Adults (n = 21)		Children represented by caregivers (n = 17)	
Category	N	%	N	%
Highly satisfied	18	85.71	12	70.58
Moderately satisfied	3	14.28	5	29.41
Minimally satisfied	0	0.00	0	0.00
Missing	3	0.00	0	0.00

the rehabilitation personnel as empathetic in their approach, indicating person-centredness in rehabilitation service delivery.

> I'm satisfied with it … when I need to come for appointment, you inform me, I inform you … for me sometimes it's like a big family … you become one big family. (Caregiver, representing a male child, 4yrs)

> My overall impression is … they treat us [as if] they were in our shoes. (Male, 37yrs)

One participant perceived the rehabilitation personnel at the clinic as more caring because they issued a walking stick, which the referring tertiary hospital did not do:

> You know at [name of hospital] they didn't even give me that walking stick … I only came here for six or seven months … then they give me that walking stick … I felt that they [therapists at clinic] were very more caring. (Female, 67)

The participants appreciated the positive and effective IPRs between themselves and the rehabilitation personnel and the encouragement from the personnel throughout their rehabilitation journey. Furthermore, the rehabilitation personnel inform service users about rehabilitation interventions. The following comments represented participants' experiences:

> I got such good services from them… African people [caregiver referring to her own culture] they come to me they say what does she [therapist from another culture] understand about my culture? But when they leave there, they can truly say thank you. (Caregiver, representing a male child, 4yrs)

> They try to reach out to you as much as they can so that you get informed. (Female, 41)

Good work ethic, professionalism, and comprehensive knowledge were evident among the rehabilitation personnel, as shown in the following comments:

> Like they're professional actually. (Male, 37yrs)

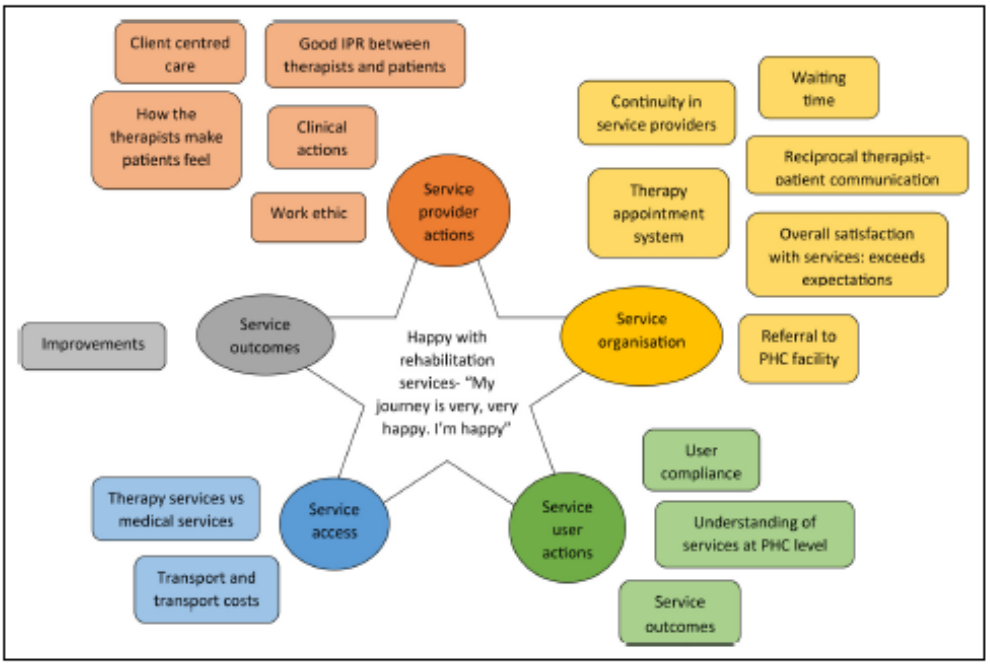


Figure 1. Schematic representation of the thematic analysis of interviews with rehabilitation service users.

> Therapists know what they are doing, not doing guesswork. (Female, 55yrs)

Category 2: Service Organisation

In terms of the organisation of the rehabilitation services most service users perceived that referral pathways between services, appointment systems, and short waiting times contributed to their positive experience and satisfaction with the service. Participants indicated that therapists scheduled appointments for them to attend all of their rehabilitation services on the same day to save money on transportation, and that the appointment system prioritised those with more severe disabilities, resulting in shorter waiting times for therapy. This was stated:

> I just walk and then she saw me with the crutches … I gave her a letter that they refer me … she put me under appointment and … said … "I will give you the next appointment". (Female, 45 yrs.)

> When you go somewhere they want to leave you for 30 min go and drink tea and do what they want to do … but here, when they book you for nine, make sure that you're there … they will help you nicely … without any complaints… I do see them [rehabilitation services on] the same day … it's very helpful (Caregiver, representing a male child, 4yrs.)

Category 3: Service User Actions

Participants perceived it was their own responsibility to be compliant with their prescribed home programme and therapy appointments. They mentioned the importance of their actions contributing to the positive outcomes of rehabilitation and how they willingly sacrifice their personal needs to attend therapy sessions, as seen in the following comments:

> I did everything that they told me to do, like not to let him watch TV a lot. (Caregiver, representing a male child, 3yrs)

> I didn't eat if I come here … just because I know what I'm here for … I dedicate myself … and I want to be better. I want to do what I have to do. (Male, 37)

Category 4: Service Access

Participants said they used public transport, specifically taxis. Nearby residents walked to the clinic/CHC. The expense of a single visit using public transport to access various rehabilitation services in one day influenced service accessibility. Although participants used rehabilitation services at PHC clinics and CHCs, they collected their medication from tertiary hospitals. They described it as follows:

.. because we are using public transport to come to the clinic …, it's better for me and it saves me a lot of money. (Caregiver, representing a male child, 4yrs.)

I don't get medication from you guys [referring to the PHC facility] … I am only coming here for the audiologist and then for the physio … I go to [name of tertiary hospital] … I have 3 or 4 appointments a week at [name of tertiary hospital]. (Female, 55)

Category 5: Service Outcomes

The participants reported noticeable improvements in their functional performance and activity participation from attending rehabilitation services, as shown in the following comment:

I couldn't walk. I couldn't do anything for myself … they take step-by-step showing me love and then give me exercises … now I'm doing it and … I'm standing myself. I don't have a pain anymore … I'm not crippled anymore … I'm working … I'm fine. (Male, 37)

Discussion

This study aimed to comprehensively explore the perceptions of rehabilitation service users in the nine clinics/CHCs offering rehabilitation services in the Johannesburg Metropolitan District. Overall, participants had positive perceptions of the rehabilitation services and expressed high satisfaction, describing their journey as 'very happy'. This reflects the findings from other studies on rehabilitation services offered in urban hospital-based settings in South Africa.[14,16,31] Positive perceptions of rehabilitation services provided at a PHC level were reported for all variables researched including the actions of rehabilitation professionals, streamlined services, improved accessibility, the patients' own active involvement in the process, and notable functional improvements. This differs somewhat from a study which only considered children with cerebral palsy and their caregivers in rural areas, who were dissatisfied with the quality of access to PHC services.[15] It would appear that the context and availability of rehabilitation services in urban areas may be more satisfactory.

In terms of the service provider actions the attentive care provided by rehabilitation personnel significantly contributed to positive perceptions among rehabilitation service users. Addressing participants as equals in the rehabilitation journey rather than just as patients receiving the service made them feel respected and valued. This user-centred approach translated into their opinions being considered when addressing their care needs, resulting in a sense of empowerment and active involvement in their rehabilitation process. Moreover, the participants valued the effective communication established with rehabilitation personnel, ensuring not only their active involvement but also fostering a sense of being genuinely cared for and supported[9] particularly in view of the stigma often experienced by disabled individuals in South Africa.[18] Thus, continuous and meaningful interactions between healthcare providers and service users should be emphasised in delivering integrated PHC rehabilitation services to ensure satisfaction and engagement in rehabilitation services.[32] This aligns with the National Core Standards for Health Establishments in South Africa,[33] which emphasises the rights of patients must be upheld, including access to needed care and respectful, informed, and dignified attention from healthcare professionals.[23] Building strong IPRs and trust between service providers and users are important for successful rehabilitation interventions, with trust between service providers and users essential in fostering collaborative user-provider interactions in the health care context.[34] Surprisingly, this study did not uncover concerns related to service continuity, where rehabilitation service users consistently see the same healthcare professional.[35] Participants highlighted frequent interactions with different rehabilitation personnel, yet they still perceived they received consistent, high-quality care. Previous research suggests that continuity of services is important.[16] However, the findings of this study suggest that issues with service fragmentation can be overcome by effective communication, keeping patients informed. Rehabilitation outcomes are attainable even when multiple therapists are involved in a service users' care, if a consistent and high standard of care is upheld. This finding is contrary to a previous study where clinical skills were found to be inadequate.[16]

Attentive listening is important for effective therapeutic relationships in rehabilitation. Allocating ample time for attentive listening was identified as a prerequisite for service satisfaction and leads to reduced stress, increased engagement, and overall well-adjustment.[9] The emotional impact of how rehabilitation providers made service users feel throughout the rehabilitation process was found to significantly influence the overall service user experience. Additionally, providing rehabilitation service users with access to relevant information and explaining treatment options further enhanced the overall patient experience.[23,32]

Cultural competence, which allowed rehabilitation personnel to connect with and respect people from other cultures, had a positive influence on IPRs. Within this context, encouraging patient agency and providing culturally competent services is supported by Majumdar et al,[36] and highlighted effective therapeutic relationships between rehabilitation personnel and service users in the current study even though the cultures and home languages of the personnel providing the service and patients who were receiving the service differed.[18] Cultural competence that respects diverse values, languages, and beliefs about health and disease is particularly important in South Africa,[37] where service providers may rely on translators to assist with communicating effectively with patients.[18]

When considering the service organisation the profound impact of patient-centred care on the health outcomes and

agency of service users was evident. Service users trust that PHC rehabilitation services will meet their expectations in terms of organised service delivery with set appointments, duration of treatment sessions and reduced waiting times, which have been a reported cause for service user dissatisfaction in other South African studies.[14,16] Trust extends beyond the physical safety conditions of the environment and includes organisation of the service to foster the belief that healthcare providers are competent in their knowledge and skills to deliver the care needed, instilling confidence in vulnerable clients that they are in capable hands.[23] Kloppers et al indicate the importance of enhanced confidence in rehabilitation services through emotional support and encouragement, fostering a sense of hope and courage for the future,[32] making patients more likely to actively engage in their rehabilitation journey as demonstrated in the current study. These findings were in contrast to other studies where service users reported dissatisfaction with the rehabilitation professionals' knowledge and skill for some conditions.[16] The dissatisfaction may be due to many PHC rehabilitation services being provided by novice therapists completing a year of compulsory community service directly after graduating,[38] whereas the clinics and CHCs in this study had permanent post community service posts, where services were delivered by more experienced therapists who may be more skilled in addressing different conditions.[39]

Active service user behaviour or engagement not only correlates with the factors discussed above, but with better rehabilitation outcomes, and facilitates more service user control, reciprocal sharing of emotional responses, and increased exchange of information.[23] Participants in the study displayed a strong sense of agency and active engagement in their rehabilitation journey, with dedication and commitment to following instructions and completing home programmes, even sacrificing personal needs to attend rehabilitation sessions, and taking full responsibility for their progress. Active service user engagement appears to have been supported by the effective communication with rehabilitation personnel resulting in treatment compliance and positive service user perceptions. Patients as service users who have poor communication with healthcare providers are more likely to struggle with treatment compliance since they are likely to lack understanding of the relevance of the rehabilitation programme.[40]

In view of the socioeconomic status of the service users attending the clinics/CHC participants highlighted their appreciation of the service providers understanding of their financial constraints in accessing the clinics/CHCs. The convenience of multiple rehabilitation appointments on the same day as was organised within the clinic/CHCs, reduced transportation costs and minimised disruptions to their daily lives.[19] Addressing the challenges posed by transportation barriers is crucial as high levels of unemployment make frequent visits to clinics financially burdensome. Public transport minibus drivers may discriminate people with disabilities, refusing them access to the vehicle or charging extra for assistive device transport.[41] The relatively new and accessible Rea Vaya bus service in the Johannesburg Metropolitan where the study was conducted is more affordable, however it only has stops at three of the nine clinics, still limiting access using this method of public transport.[42] Implementing service delivery models closer to patients' homes, such as community-based services and task shifting to community-based rehabilitation workers, may significantly improve accessibility and affordability.[24]

Participants were satisfied with the outcomes of their rehabilitation and it is important to note that participants' positive outlook and high satisfaction may have been influenced by the functional improvements they were experiencing at the time of the interviews.[37] The positive improvements in functional performance and activity participation validated the effectiveness of the rehabilitation interventions provided in the clinics and CHCs.[11] This finding is supported by another South African study on children with cerebral palsy receiving PHC rehabilitation services, where satisfaction with services was related to definitive functional outcomes achieved.[15]

Ensuring that the perspectives of service users shape decisions regarding rehabilitation service delivery can result in services that are more tailored and responsive to individual needs.[37] Future research should examine the extent of service delivery reach and coverage, particularly considering the positive outcomes for those receiving services.

Limitations

A limitation of this study was that the data were gathered from individuals already receiving rehabilitation services who spoke English, and who may have perceived services in a positive way resulting in them reporting high satisfaction. The use of rehabilitation professionals in conducting the interviews may have also influenced participants in reporting their negative perceptions. Future research should include the experiences of those who are lost to follow-up and those who were referred but do not access the service, to gain a more comprehensive understanding of factors influencing satisfaction and service discontinuation. Although at least five participants were recruited in each clinic the data from nine clinics and the small sample cannot be generalised to other PHC rehabilitation services. Additionally, further investigation into other areas related to user experiences, such as barriers to access and affordability, would provide valuable insights.

Conclusion

The study provides evidence for the importance of retaining rehabilitation services at a PHC level in urban contexts in South Africa. It highlights the first contact status of PHC, and the need for continuity of rehabilitation services which are more accessible to service users who require longer term interventions at a lower cost, based on rehabilitation

service users' overall satisfaction and the positive impact of services received. The findings indicate a comprehensive view of rehabilitation services including the importance of rehabilitation personnel behaviour in people-centred care, cultural competence, and strong IPRs. Participants perceived the service organisation within the clinics provided adequate, experienced rehabilitation personnel with expertise and participants felt empowered to actively participate in their own or their child's healthcare decisions which resulted in positive service user behaviours in engaging and complying with the rehabilitation programme. The services were structured to accommodate access particularly in view of financial constraints and outcomes achieved were perceived in a positive light ultimately enhancing service user satisfaction.

Recommendations

1. **Prioritise patient-centred care, cultural competence, and communication skills:** Rehabilitation service providers in PHC should ensure that rehabilitation services are centred on service users' needs, preferences, and values, culturally competent services that respect diverse values, language, and beliefs about health and disease and establishing effective therapeutic relationships, including attentive listening.
2. **Service organisation:** ensure adequate rehabilitation service provision with the required skill and expertise is available in the clinics and CHCs by ensuring senior posts are available at this level of care for service provision and oversight of community service cadres.
3. **Empower patients**: allow patients to actively participate in their treatment decisions to facilitate control and sense of agency for compliance and engagement in their rehabilitation journey.
4. **Improve service accessibility:** Address barriers to access by implementing service delivery models that bring rehabilitation services closer to patients' homes, such as community-based services and task shifting to community-based rehabilitation workers trained to provide rehabilitation services.
5. **Monitor patient outcomes:** Regularly assess and monitor patient outcomes from the patients' perspective to gauge the effectiveness of rehabilitation interventions and inform improvements in rehabilitation service delivery in PHC.
6. **Future research** should include individuals who have discontinued rehabilitation services to understand the factors influencing the discontinuation and identify areas for intervention. In a multicultural society such as that in South Africa, key actions or behaviour of service providers in demonstrating cultural sensitivity should also be considered. Evidence generated will assist rehabilitation professionals in advocating for rehabilitation services to be prioritized at the PHC level in view of new legislation and policies supporting universal health coverage in South Africa.

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Authors' Contributions

LM conceptualised and designed the study, collected data, carried out the initial and secondary analysis, and drafted, reviewed, and revised the manuscript. HM and FA coordinated and supervised the study, including conceptualisation, and critically reviewed the manuscript for important intellectual content. All authors approved the final manuscript submitted and agreed to be accountable for all aspects of the work.

Data Availability

The data that support the findings of this study are available from the corresponding author, LM, upon reasonable request.

Disclaimer

The authors hereby declare that the views expressed in the submitted article are their own and not an official position of the University of the Witwatersrand.

Ethical Approval

Ethics approval was obtained from the Human Research Ethics Committee (Medical) of the Faculty of Health Sciences at the University of the Witwatersrand (M190466). Permission to conduct the study was also obtained from the Gauteng Department of Health.

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Statement of Human and Animal Rights

All procedures in this study were conducted in accordance with the Human Research Ethics Committee (Medical) of the Faculty of Health Sciences at the University of the Witwatersrand (M190466) approved protocols.

Statement of Informed Consent

Written informed consent was obtained from the participant(s) for their anonymised information to be published in this article.

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Chapter 8: Paper 6: Primary Healthcare Rehabilitation Service Users views on Activity Limitations and Participation in South Africa

8.1 Introduction to Paper 6

Paper 6 is presented as a published article from Objective 3, which was to explore the experiences of rehabilitation service users at PHC level in the Johannesburg Metropolitan District, Gauteng, South Africa. The paper emanated from the quantitative findings of the semi-structured interviews with rehabilitation service users at the nine CHCs offering rehabilitation services in the Johannesburg Metropolitan District. This paper captures the rehabilitation service users' self-rated change in activity limitations and participation restrictions after receiving rehabilitation intervention.

8.2 Journal Details Paper 6

The *African Journal of Disability* is the official journal of CRS, AfriNEAD and CEDRES, published by AOSIS. The journal introduces and discusses issues and experiences relating to and supporting a better understanding of the interfaces between disability, poverty, and practices of exclusion and marginalisation. It aims to yield new insight into established human development practices, evaluate new educational techniques and disability research, examine current cultural and social discrimination, and bring serious critical analysis to bear on problems shared across the African continent. The emphasis is on all aspects of disability particularity in the developing African context. The *African Journal of Disability* is Department of Higher Education and Training accredited and listed on the Directory of Open Access Journals, SciELO SA, and SCOPUS. Table 8.1 gives the publication specifics for Paper 6.

Table 8.1 Publication specifics Paper 6

Title of publication	Primary healthcare rehabilitation service users views on activity limitations and participation in South Africa
Authors	Lebogang Maseko, Hellen Myezwa, and Fasloen Adams
Journal name	African Journal of Disability
ISSN	2223-9170 (Print); 2226-7220 (Online)
Publication date	N/A
Volume	N/A
DOI number	N/A
Impact Factor	(2022)

8.3 Author Contributions Paper 6

The CRediT was used to outline the authors' contribution to the study and is shown in Table 8.2.[115] The full explanation of the terms is in Appendix S.

Table 8.2 Details of author contributions Paper 6

	Maseko	**Myezwa**	**Adams**
Conceptualisation			
Methodology			
Resources			
Writing: Original draft			
Writing: Review & editing			
Visualisation			
Supervision			

8.4 Published article

African Journal of Disability
ISSN: (Online) 2226-7220, (Print) 2223-9170

Primary healthcare rehabilitation users' views on activity limitations and participation in South Africa

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Background: Increasing functional limitations and disabilities have raised the need for comprehensive rehabilitation services at the primary healthcare (PHC) level, particularly in low- and middle-income countries. To support the integration of these services into PHC in South Africa, assessing outcomes from the service users' perspectives is essential.

Objectives: This study examined service users' views on their PHC rehabilitation outcomes in a Metropolitan District of Gauteng, South Africa. The aim was to understand perceived changes in activity limitations and participation restrictions following the rehabilitation intervention.

Method: A quantitative survey design, including self-rating measurements and structured interviews, was employed. Thirty-eight rehabilitation service users from eight clinics and community health centres were purposively sampled. Participants rated their pre- and post-rehabilitation levels of difficulty in activity limitations and participation restrictions, with open-ended questions providing additional insights. Data analysis used descriptive statistics, quantitative content analysis, and non-parametric tests.

Results: Significant improvements in mobility, self-perception, and quality of life were reported by both adult and child service users. Caregivers of child service users also noted positive experiences ($p = 0.019$) in community, social, and civic life.

Conclusion: This study highlights the perceived positive changes experienced by PHC rehabilitation service users in addressing functional limitations and disabilities. It underscores the effectiveness of integrated rehabilitation service delivery in improving user outcomes.

Contribution: The findings offer valuable insights into how rehabilitation interventions enhance functional abilities, social participation, and overall well-being. By focusing on activity limitations and participation restrictions from service users' perspectives, this study supports the priority of providing person-centred rehabilitation services at the PHC level.

Keywords: rehabilitation service users; person-centred approach; integrated rehabilitation services, rehabilitation outcomes; Primary Healthcare; functional limitations; occupational therapy; physiotherapy, speech and language therapy; audiology.

Introduction

The global increase in non-communicable diseases, neurological disorders, and traumatic injuries has led to a rise in functional limitations and disabilities, particularly in low and middle-income countries such as South Africa. Consequently, there is a growing demand for comprehensive rehabilitation services (Stucki et al. 2017; World Health Organization 2019) to address this need. The WHO and the United Nations Children's Fund (2018) advocate for the provision of rehabilitation services at the primary healthcare (PHC) level for individuals of all ages using a whole-society approach to address the determinants of health, and by bringing services closer to communities. However, despite the known importance of rehabilitation services, their integration at the PHC level has been hindered globally by a lack of recognition by policy makers and service planners (Joint Learning Network 2023).

One potential reason for this limited integration may be the lack of consideration of rehabilitation in health systems planning and an insufficient understanding of the benefits of rehabilitation outcomes on health, disability and quality of life (QoL) as defined by the WHO (2002). Contrary to the medical model that underpins most health systems and focuses primarily on body structures and functions, rehabilitation adopts a biopsychosocial spiritual approach to health as defined in

the International Classification of Functioning, Disability and Health (ICF). This approach considers activity limitations, and participation restrictions as well as personal and environmental factors (Stucki & Höök 2016; WHO 2002). Rehabilitation services aim to enhance not only physical and mental functioning but also to support the purposeful engagement in daily life, including the domains of self-care, communication, social, leisure, work and/or education (WHO 2019).

Therefore, it is important to establish the outcomes of rehabilitation services, based on the ICF, determined by the individuals' capacity or intrinsic ability to carry out actions in everyday activities across various domains in their physical, cultural, social, and economic environments (Huus et al. 2021; Stucki & Höök 2016). The outcomes are further quantified through measures of QoL and well-being (Donnelly et al. 2023). It is essential to provide evidence of these outcomes to enhance the understanding and promotion of the integration of rehabilitation services in PHC. To provide the best value to their users, health systems must first understand what is important to patients and carers, how to capture this information, and most importantly, how to use this information to improve the quality of care provided by healthcare systems (Cadel et al. 2022).

The South African health system shows apathy in integrating rehabilitation service delivery into their implementation of a re-engineered PHC, a strategy aimed at achieving universal health coverage in preparation for the National Health Insurance (NHI) (Louw et al. 2023). This is despite advocacy for the integration of rehabilitation into standard treatment guidelines for PHC being in the Framework and Strategy for Disability and Rehabilitation Services in South Africa (FSDRSA) (National Department of Health 2015). The proposed PHC multidisciplinary teams for the NHI primarily include nurses, community health workers, and doctors (Mash et al. 2020), with limited mention of rehabilitation services. Consequently, individuals with functional limitations and disabilities, or those at risk of disability could face limited access to rehabilitation services at the PHC level in the proposed NHI, a single healthcare system financed by the government (Morris et al. 2021).

To support the integration of rehabilitation into PHC, it is essential to provide evidence on the effectiveness of PHC rehabilitation services delivered by interprofessional teams comprising personnel from physiotherapy, occupational therapy, speech and language therapy, and audiology, among others (WHO 2019). Such evidence should support specific person-centred rehabilitation interventions delivered by rehabilitation professionals, which incorporate goal-setting to address impairments and compensate for disability, and provide environmental assessment, adaptation, as well as the prescription of specialised equipment (Brown et al. 2021). The evidence should emphasise the inclusion of client experiences in the evaluation of services aimed at restoring, reclaiming, or maintaining function (Meyer et al. 2014). Measuring patient experience provides a more comprehensive picture of healthcare quality and can highlight areas for improvement (Cadel et al. 2022). Patient experience encompasses the range of interactions patients have with the healthcare system, which may include several aspects of care delivery such as patient-provider communication and appointment wait times, to name a few. Additionally, emphasising community participation and health outcome evaluation are vital for providing clinical evidence, particularly in sub-Saharan Africa (Mash et al. 2020).

Literature on the effectiveness of PHC-level rehabilitation often focuses on specific diagnostic groups treated by a single rehabilitation discipline in high-income countries (Gell, Mroz & Patel 2017). Consequently, there is limited evidence regarding the effectiveness of such services on activity limitations and participation restrictions (Abdel-Malek, Rosenbaum & Gorter 2020). Notable improvements in social activity, work productivity, and reduced healthcare admissions have only been reported following interdisciplinary PHC rehabilitation interventions for chronic pain (Stein & Miclescu 2013).

In profession-specific publications in Sweden (Matérne et al. 2022) and Nigeria, physiotherapy interventions at the PHC level for elderly clients and stroke survivors show positive changes in mobility, health-related QoL, and reintegration into daily life (Olaleye, Hamzat & Owolabi 2014). Occupational therapy services in PHC show promising results in countries such as Sweden, the Netherlands, and the USA. Studies from these countries report improved occupational performance, return to work, and enhanced QoL for individuals with conditions such as depression, stress-related ill-health, dementia, frailty, and Parkinson's disease (De Coninck et al. 2017; Eklund, Erlandsson & Wästberg 2015; Erlandsson 2013; Kjerstad & Tuntland 2016; Sturkenboom et al. 2014). Donnelly et al. (2023) also report improved participation in work, and functional and community mobility, including driving and engaging in social activities for adults of various ages. In the Netherlands, an online programme supporting adults with attention deficit hyperactivity disorder and autism has been successful in improving instrumental activities of daily living (Bolt et al. 2019a).

Research on outcomes in paediatric PHC rehabilitation services traditionally focuses on body functioning, but there is evidence of positive effects on activity limitations and participation restriction (Tveten et al. 2020). Although somewhat outdated, physiotherapy research indicates improvements in mobility and functional ability in children with cerebral palsy (Smetana 2012). Similarly, occupational therapy interventions for children with cerebral palsy show enhancements in occupational performance, self-care, play, and education, as assessed by caregivers (Imms et al. 2010; Kolit & Ekici 2023) Telehealth in paediatric PHC occupational therapy also demonstrates benefits in communication, school participation, and self-care for daily activities (Önal et al.

2021). However, no recent research reporting improvements in activity limitation and participation restrictions through speech and language therapy or audiology in PHC was found, indicative of the shortage of these services at the primary level. Despite the available literature, the evidence on the effectiveness of PHC-level rehabilitation services remains inadequate, particularly for functional outcomes related to activity limitations and participation restrictions based on the ICF framework. There is a significant gap in understanding the activity limitation and participation restriction changes experienced by PHC rehabilitation service users, particularly in low- and middle-income countries. This study aimed to address this gap by exploring the change in activity limitations and participation restriction outcomes of PHC rehabilitation services at eight PHC clinics funded by the provincial health department in a Metropolitan District in Gauteng, South Africa.

Research methods and design

Study design

The study used a quantitative survey design with a subjective, self-rating measurement accompanied by open-ended questions where data were collected during structured interviews. The inclusion of open-ended questions allowed participants to provide qualitative insights into the changes experienced in activity limitations and participation restrictions (Zhao & Kwok 1999).

Study setting

The study was conducted in a Metropolitan Health District in Gauteng, South Africa, which comprises 125 PHC clinics and community health centres across seven regions (Massyn et al. 2020). The facilities provide services to over 100000 people (Gauteng Province Co-operative Governance and Traditional Affairs 2021). Of these facilities, only nine offer rehabilitation services, including physiotherapy (22 staff members), occupational therapy (20 staff members), speech and language therapy (4 staff members), and audiology (2 staff members) (Jhb Metro Rehab 2023). At the time of the study, one of the nine clinics had diverted their rehabilitation services to another clinic, thus only eight facilities were available for the study.

Study population and sampling strategy

Rehabilitation service users attending the clinics and community health centres in a Metropolitan District that offer rehabilitation services were recruited for the study. Purposive sampling was used at eight of nine provincial clinics and community health centres, where 80 rehabilitation service users, who met the inclusion criteria of receiving regular weekly or monthly services and being able to speak and understand English, were identified. Those who attended fewer than three rehabilitation sessions were excluded to ensure participants had an adequate experience of rehabilitation services when reporting outcomes (Maseko, Myezwa & Adams 2024). Considering a 10% margin of error, as recommended by Cochran's formula for ordinal data, based on the 80 potential participants identified, 38 participants were included in the study (Oribhabor & Anyanwu 2020). The study collected data on the perceived outcomes for both adult and child service users from adults or their caregivers. These caregivers were either parents, legal guardians, or family members who provided the necessary care to adult service users. Adults or the caregivers of children, most of whom were too young for interviews, reported on the changes in activity limitations and participation restrictions before and after rehabilitation. Additionally, caregivers, with consent from adult service users with communication disorders, assisted or facilitated their participation in the interviews using strategies implemented in rehabilitation sessions. Data were collected over a 4-month period between March and June 2021. The eight research assistants, who were rehabilitation professionals, conducted the interviews. They were trained by the principal researcher on the data collection process and had no prior knowledge of the participants or the treatment they received.

Data collection

A researcher-developed survey, administered by research assistants in a structured interview, was used to gather data. The survey included structured interview questions with open-ended prompts that aimed to provide additional details about participants' experiences or their caregivers' observations of changes from pre- to post-rehabilitation. Interviews were conducted in English and the interviewer and/or adult caregiver assisted participants when required. To ensure content validity, three rehabilitation professionals, one occupational therapist, one physiotherapist, and one speech and language therapist and audiologist with a dual qualification recognised as experts with over 30 years' experience in public and private health systems in the field of rehabilitation, reviewed the survey questions. They assessed each question for relevance, clarity, ambiguity, and simplicity, rating them on a scale from 1 to 4 (Polit & Beck 2006). The final survey incorporated all relevant suggestions from their feedback.

The survey consisted of three sections. Section 1 included sociodemographic questions, medical history, and clinic visit information. Section 2 consisted of 12 basic self-rated items aligned with the ICF classification to assess difficulties in daily activities, mobility, employment, and schooling (Zhao & Kwok 1999). In section 2, participants were asked to rate their pre- and post-rehabilitation performance as *independent with full participation*, *independent with some help*, or *limited participation* verbally in reply to the questions. Answers provided in this section were confirmed in open-ended structured interview questions, and patients were also asked to describe their own or their child's feelings about themselves and their QoL to gather more detailed information about changes experienced during rehabilitation. Section 3 of the survey included questions that asked participants to rate their self-perception, including their physical, mental, or

social attributes, and quality of life (QoL) as 'good,' 'neither good nor bad,' or 'bad'. This approach is based on the integrative theory of QoL, as suggested by Lindholt, Ventegodt, and Henneberg (2002), which considers both objective and subjective components.

Eight research assistants who were rehabilitation professionals employed at the clinics received training from the principal researcher in the survey administration and structured interview procedures. The rehabilitation professionals at the community health centres and clinics identified 80 eligible service users not previously treated by them, of which 38 were included in the study. Participants were provided with an information sheet, which was explained, and the information discussed with them where necessary. Written informed consent for study participation and audio recording was obtained from all adult participants and caregivers of the children. Interviews were conducted with adult service users, assisted by caregivers where necessary, or with caregivers of child service users, to discuss changes in their own or their child's activity limitations and participation restrictions before and after rehabilitation. These interviews occurred in a quiet room within the clinic and were audio recorded using a tablet. Interview recordings were anonymised and transcribed verbatim.

Data analysis

Demographic data, participants' self-rated levels of independence in different domains of activity limitation and participation restrictions before and after rehabilitation, feelings about oneself, and QoL were analysed descriptively using frequencies based on the survey responses. Perceived changes in activity limitations and participation restrictions before and after rehabilitation were analysed using a chi-squared test (sig 0.05) as a non-parametric statistical method.

The qualitative data collected from the transcriptions of open-ended questions in responses to changes in activity limitations and participation restrictions, feelings about oneself, and QoL were coded and analysed using quantitative content analysis (Züll 2016). A categorisation scheme, using survey descriptors as coding categories, was developed. The scheme and categories underwent pilot testing by the two primary coders (the researcher and a colleague) and were revised until intercoder agreement was achieved (Züll 2016). Coding was completed using a Microsoft Excel spreadsheet. To confirm the quality of the coding, a third coder independently coded a sample of the responses (10% of all open-ended responses) for reliability. The findings were peer reviewed by two independent academic rehabilitation professionals with experience in PHC and research to establish agreement on all scores. To ensure validity of the participants' or their caregivers' ratings of performance in the domains of activity limitations and participation restrictions, the descriptive ratings were triangulated with the coded data to confirm consistency for each domain (Züll 2016). Data pertaining to adult service users and information provided by caregivers regarding their children, who were also service users, were analysed separately. This approach was employed to accommodate age-related differences in activities and participation, utilising distinct spreadsheets and codebooks for each group.

Ethical considerations

Ethical clearance to conduct this study was obtained from the University of the Witwatersrand, Human Research Ethics Committee (Medical) (No. M190466). Participants, adult service users and caregivers gave written informed consent to participate in the study and be audio recorded following explanation and discussion about the study, and understood that participation was voluntary, and they could withdraw at any stage in the research process. Confidentiality during the data analysis, results and publication that would arise from the study was ensured through assigning participants a participant code and only the first author having access to the audio recordings of transcription.

Results

Sociodemographic information

Thirty-eight participants, including 21 adults and caregivers of 17 children, completed the survey (Table 1). Most adult participants were female (52.38%), and most children were boys (70.59%). The age distribution showed that most participants fell within middle childhood (3–7 years) and middle adulthood (41–60 years) age ranges. Nearly half of the participants receive a social grant. Additionally, 42.86% of adult participants had completed 12 years or more of education, but only one-third were employed and nearly a quarter were retired. Physiotherapy had the highest attendance rate among adults (62.50%), but the lowest among children (26.67%). Speech therapy had the lowest attendance among adults (12.50%), and audiology services were not routinely available at the Community Health Centres (CHCs) during the time of data collection, and were therefore referred to the higher level of care.

Factors related to attendance at rehabilitation services

Most participants attended Clinic D in the Metropolitan District (Table 2). Based on the WHO impairments (body function) codes (WHO 2002), all the adult participants presented with neuromusculoskeletal and movement-related functions disorders (b7). Among the children, a small percentage had disorders in voice and speech function (b3) (5.9%), sensory function (b2) (11.8%), and mental function (b1) (17.7%). Most adult participants were referred for rehabilitation at the PHC level (38.1%), and most children were down referred from the tertiary level (53%). The majority of both adult and children service users attended rehabilitation sessions monthly (71.4% and 64.7%, respectively).

TABLE 1: Sociodemographic information of rehabilitation service users in primary healthcare facilities in a metropolitan district ($N = 38$).

Variable	Description	Adults ($n = 21$)		Children ($n = 17$)	
		n	%	n	%
Sex	Male	9	42.86	12	70.59
	Female	11	52.38	5	29.41
	Not recorded	1	4.76	0	0.00
Age at assessment (years)	< 3	N/A	N/A	3	17.65
	3–7	N/A	N/A	12	70.59
	11–20	1	4.76	N/A	N/A
	21–40	6	28.57	N/A	N/A
	41–60	10	47.62	N/A	N/A
	61–70	4	19.05	N/A	N/A
	Not recorded	0	0.00	2	11.76
Education level	None	3	14.29	9	52.94
	Pre-primary (Crèche–Gr R)	0	0.00	5	29.41
	Primary (Grade 1–7)	9	42.85	3	17.65
	Secondary (Grade 8–12)	6	28.57	0	0.00
	Post-secondary (Post Matric)	3	14.29	N/A	N/A
	Not recorded	9	0.00	0	0.00
Occupation status	Unemployed	9	42.86	N/A	N/A
	Employed	7	33.33	N/A	N/A
	Retired	5	23.81	N/A	N/A
Social grant	Yes	8	38.10	10	58.82
	No	13	61.90	7	41.18
	Not recorded	9	0.00	0	0.00
Specific rehabilitation services attended	Physiotherapy	20	62.50	8	26.67
	Occupational therapy	8	25.00	11	36.67
	Speech therapy	4	12.50	11	36.67

TABLE 2: Factors related to attending rehabilitation in primary healthcare facilities in a metropolitan district ($N = 38$).

Variable	Description	Adults ($n = 21$)		Children ($n = 17$)	
		n	%	n	%
CHC or Clinic	A	4	19.05	1	5.88
	B	2	9.52	1	5.88
	C	3	14.29	3	17.65
	D	1	4.76	6	35.29
	E	5	23.81	0	0.00
	F	4	19.05	0	0.00
	G	0	0.00	3	17.65
	H	2	9.52	3	17.65
Impairment- ICF body function and codes (WHO 2002)	Neuromusculoskeletal and movement-related functions (b7)	21	100.00	11	64.71
	Voice and speech functions (b3)	0	0.00	1	5.88
	Sensory functions and pain (b2)	0	0.00	2	11.76
	Mental functions (b1)	0	0.00	3	17.65
Referral source (level of care)	Quaternary	0	0.00	1	5.88
	Tertiary	7	33.33	9	52.95
	Secondary	4	19.05	1	5.88
	Primary/clinic	8	38.10	4	23.53
	Other	2	9.52	1	5.88
	Missing	0	0.00	1	5.88
Rehabilitation attendance	Weekly (1x a week)	6	28.67	6	35.39
	Monthly (1x a month)	15	71.43	11	64.71

ICF, International Classification of Functioning, Disability and Health; CHC, Community Health Centre.

Change in activities and participation before and after rehabilitation in adults

For adults, the activity limitations and participation restriction areas assessed included self-care, domestic life, mobility, community, social and civic life, and major life areas related to work (Table 3).

Notable changes were observed in two domains elaborated in the following subsections.

Self-care (eating, washing, dressing)

Participants showed a significant improvement ($p = 0.032$) in their independence in eating, dressing, and bathing after rehabilitation. Some participants (28.57%) still required assistance with dressing and bathing, but overall, self-care abilities improved, as shown in the following comments:

> 'After seeing [*therapist X*] … I was doing exercise that [*therapist X*] gave me … it … helps me … I was doing some of the things myself … not … helped by anyone.' (P38, Male, 37 years)

TABLE 3: Change in activities and participation before and after rehabilitation for adult participants (N = 21).

Variable	Before		After		P
	n	%	n	%	
Self-care (eating, washing, dressing)					0.032*
No difficulty or independent	5	23.80	12	57.14	
Mild or moderate difficulty (May need some assistance, or slow and effortful)	10	47.61	6	28.57	
Severe or complete difficulty or not at all (Needs maximal assistance)	3	14.28	0	0.00	
Not specified	3	14.28	3	14.28	
Domestic life (cooking, cleaning)					0.652
No difficulty or independent	4	19.04	6	48.57	
Mild or moderate difficulty (May need some assistance, or slow and effortful)	1	4.76	-	-	
Severe or complete difficulty or not at all (Needs maximal assistance)	5	23.80	4	19.04	
Not specified	11	52.38	11	52.38	
Mobility					0.006*
No difficulty or independent in community	2	9.53	10	47.61	
Mild or moderate difficulty (inside and outside house)	9	42.85	5	23.60	
Severe or complete difficulty (Needs assistance)	6	48.57	1	4.76	
Not specified	4	19.04	5	23.80	
Community, social and civic life (socialise, visiting, church)					0.426
No difficulty (independent or often need assistance)	7	33.33	10	47.61	
Mild or moderate difficulty (sometimes with a familiar person only)	6	28.57	3	14.28	
Severe or complete difficulty (not at all or limited communication)	3	14.28	2	9.52	
Not specified	5	23.80	6	28.57	
Major life areas (work)					0.228
No difficulty or employed	1	4.76	5	23.80	
Able to work with difficulty or adapted work tasks	3	14.28	2	9.53	
Unable to work	8	38.09	3	14.28	
Retired or unemployed prior to disability	3	14.28	3	14.28	
Not specified	6	28.57	8	38.09	

Note: *Significant ≤ 0.050.

> 'A lot of change because … I can dress by myself, and I can bath by myself, and I can eat by myself.' (P05, Male, 25 years)

Domestic life (cooking, cleaning)

Participants reported improved independence in household tasks, such as washing dishes and cleaning cupboards. Cooking and cleaning were not differentiated, except by one participant who is unable to walk but could independently wash dishes. One participant indicated that she could cook and clean but was unable to do laundry. One participant described his experience, saying:

> 'I always bring dishes to wash them sitting down. Cleaning my cupboard, dishes inside, clean inside there … sitting down.' (P30, Male, 64 years)

Mobility

A significant improvement (p = 0.006) in mobility was observed and participants reported increased ability to move around, walk, and perform activities. Six participants indicated that they were unable to move around without help before rehabilitation. One participant described her experience as follows:

> 'And for me it was very difficult to move and to do any type of activity. And my brother helped me to move at home, and without his help it was very difficult.' (P25, Female, 49 years)

Those using wheelchairs and crutches reported mild to moderate difficulty after rehabilitation, but one participant required assistance to push the wheelchair to move around. All the participants reported they had started to walk after intervention, even if only indoors. Some continued to rely on a wheelchair for long distances. They described their situations as follows:

> 'I can't walk. I just started now … my house is too little … but I walk by myself … in the yard … not in the street.' (P32, Female, 67 years)

> 'Now she can walk around … she walks with a walker in the house, in the yard … but street is too far … we fetch the wheelchair.' (P14, Female, 56 years)

Community, social, and civic life

Most participants did not have trouble with socialising, visiting, or attending church after rehabilitation. One participant's communication skills improved after intervention:

> 'She's much better … she can communicate with me … she talks to them [*family members*] … they obviously don't understand her … family … she talks to them.' (P24, Female, 55 years)

Major life areas (work)

A small percentage of participants were employed after rehabilitation and nearly 20% successfully returned to work. Only two participants were not ready to return to work. The participants described their situation as follows:

> 'Not yet [*ready to go back to work*] … applied for a DG [*disability grant*].' (P08, Male, 37 years)

'I'm working … I do everything at work … I'm back … at where I worked [*before rehabilitation*] … everything is fine … I'm getting my own income.' (P29, Female, 41 years)

Feelings about oneself (self-perception) and quality of life in adults

Participants reported a marked improvement in self-perception (47.61%) and QoL after rehabilitation. Many participants developed a more positive sense of self, and statistically significant positive changes were observed in their QoL (42.85%; Table 4).

The following quotes are examples of the participants' experiences before rehabilitation:

'I was feeling negative about myself because of the way I was … I thought … that's the end of the story with me because … I couldn't walk. I couldn't do anything. I was crippled.' (P07, Male, 38 years)

'Poor … I couldn't do anything for myself … even to take a bath for myself.' (P38, Male, 37 years)

The following quotes are examples of the participants' experiences after rehabilitation:

'It's very good … because I'm able to do some things … to wash, to go to the shop by myself, not asking somebody.' (P30, Male, 64 years)

'Positive … I'm moving better, and I can do the things that I was not able to do before.' (P28, Female, 42 years)

Change in activities and participation before and after rehabilitation in children

For children, the activity limitations and participation restriction areas assessed included self-care, play, recreation and leisure, mobility, community, social and civic life, and major life areas related to school/education (Table 5).

Notable changes were observed in several domains that are elaborated in the following subsections.

Self-care (eating, washing, dressing)

Three caregivers noticed that their children showed improved independence in self-care such as eating and feeding themselves with some assistance or independently. However, they still require assistance with tasks such as dressing and bathing. While there was a statistically significant improvement ($p = 0.011$) in self-care after rehabilitation, most of the children still need some support from their caregivers as they were young. The following comments are examples of the participants' experiences:

'I just take the pyjamas and put it on the bed … he can take off … clothes … and wear … pyjamas.' (Caregiver, male child, 5 years)

'I am bathing him … the head and the face. He can bath the body … I wipe him … give him the cloth … to wash himself … every day.' (Caregiver, female child, 6 years)

Rehabilitation services trained a mother on how to assist her child with feeding, and she said:

'It's helping a lot … some of things that I don't know. They tell me that if you go home you can do like this.' (Caregiver, male child, 2 years)

TABLE 4: Changes in feelings about self and quality of life before and after rehabilitation for adult participants ($N = 21$).

Variable	Before		After		*P*
	n	%	*n*	%	
Feelings about self					0.014*
Good	4	19.04	10	47.61	
Neither good nor bad	8	38.09	2	9.53	
Bad	5	23.80	1	4.76	
Not specified	4	19.04	8	38.09	
QoL					0.017*
Good	2	9.53	9	42.85	
Neither good nor bad	8	38.09	7	33.33	
Bad	6	28.57	1	4.76	
Not specified	5	23.80	5	23.80	

Note: *Significant ≤ 0.050.
QoL, quality of life.

Play, recreation, and leisure

Just over half of the participants mentioned playing. Most children were able to play, but some limitations were reported in playing with others before rehabilitation. One participant said:

'She was playing a little bit … but she likes sitting at home.' (Caregiver, female child, 3 years)

Most children (11.76%) play with others in different settings after rehabilitation, but three children still found it mildly difficult. Only one child has severe to moderate difficulty while playing after rehabilitation and his caregiver described the situation as follows:

'He seemed to be very angry. Instead of getting a toy and play with a toy, he gets a toy and throw it away.' (Caregiver, male child, 5 years)

Mobility

A statistically significant improvement in mobility was observed ($p = 0.033$), and most children achieved independence in moving within their homes after rehabilitation. Prior to receiving rehabilitation, only 17.64% of children were able to move without difficulty, and 70.58% had mild to severe problems with mobility. The youngest child falling into this category was 21 months old. Two caregivers explained it as follows:

'He was still improving. He could move on his buttocks. He did it on that time when I was not coming here.' (Caregiver, male child, 5 years)

'No balance [*to enable walking*]. She was only sitting.' (Caregiver, female child, 3 years)

A statistically significant improvement ($p = 0.033$) was reported for mobility in the children after rehabilitation. None of the children were reported to have severe or complete difficulty in mobility after rehabilitation. Even though some children had not reached the developmental

TABLE 5: Changes in activities and participation before and after rehabilitation for child participants ($N = 17$).

Variable	Before		After		P
	n	%	n	%	
Self-care (eating, washing, dressing)					0.011*
No difficulty or independent	1	5.88	2	11.76	
Mild or moderate difficulty (needs some assistance or slow and effortful)	5	29.41	1	52.38	
Severe or complete difficulty (someone else completes most or all of activity)	9	52.94	1	5.88	
Not specified	2	11.76	2	11.76	
Play, recreation and leisure					0.476
No difficulty or independent	4	23.52	6	35.29	
Mild or moderate difficulty	4	23.52	6	35.29	
Severe or complete difficulty	1	5.88	-	-	
Not specified	8	52.38	5	29.41	
Mobility					0.033*
No difficulty or independent in community	3	17.64	7	41.17	
Mild or moderate difficulty (inside and outside house)	7	41.17	9	52.94	
Severe or complete difficulty (Needs assistance)	5	29.41	0	0.00	
Not specified	2	11.76	2	11.76	
Community, social, and civic life (socialise, visiting)					0.019*
No difficulty (independent or often)	3	17.64	10	58.85	
Mild or moderate difficulty (sometimes or with a familiar person only)	9	52.94	5	29.41	
Severe or complete difficulty (limited communication)	3	17.64	0	0.00	
Not specified	2	11.76	2	11.76	
Major life areas (school or education)					0.169
No difficulty (mainstream school)	3	17.64	7	41.17	
Mild or moderate difficulty (special school)	3	17.64	1	5.88	
Severe or complete difficulty (full-time care)	1	5.88	0	0.00	
Not at crèche	5	29.41	3	17.64	
Not specified	5	29.41	6	35.29	

Note: *Significant ≤ 0.050.

milestone of walking, most were walking inside and outside the house. This was expressed as follows:

> 'He's improved … [*he is*] moving around everywhere … the movement started to improve, like kicking. He didn't know how to use his leg.' (Caregiver, male child, 2 years)

> 'He's moving around. He can sit … in the chair …. He is able to move. He can get out of the chair and crawl.' (Caregiver, male child, 4 years)

Community, social, and civic life

Social participation was affected for most children (70.58%) because of inability to use language. Many children showed statistically significant improvement ($p = 0.019$) in socialising and communicating with others, enabling them to participate more fully in social activities. Visiting was rarely mentioned, but improvement after therapy was indicated for four children who were now able to communicate and whose behaviour improved, thus allowing them to socialise, as seen in the following comments:

> 'He can communicate … can now say words … knows [*his*] sibling's names … He can hear the song that he loves, he can sing, but not the lyrics.' (Caregiver, male child, 3 years)

> 'He is … comfortable talking to others. He … participates. The behaviour started to change since I attended [*rehabilitation*].' (Caregiver, male child, 2 years)

Major life areas (school and education)

Some children faced difficulties with schooling because of communication difficulties and challenging behaviour, but improvements were observed in these two areas after rehabilitation. Thirty-five per cent of the children were attending or had previously attended a crèche or school before rehabilitation. One child faced severe difficulties with schooling because of communication difficulties and challenging behaviour. His caregiver explained that:

> 'He has problems at crèche, behaviour and can't communicate. It was difficult because … he gets agitated and become angry … maybe he is crying … you grab him, he bites you.' (Caregiver, male child, 3 years)

Positive change after rehabilitation was noticed for all school-going children. All children at mainstream schools were reported to have no difficulty with learning, and an improvement in communication abilities allowed another to successfully attend school after rehabilitation. This was expressed as follows:

> 'After … the help that we got from the rehab, she was able to go back to school and started writing again. She even got an award for being the first one in her grade, you know.' (Caregiver, female child, 6 years)

> 'He is in school now. He is speaking with everybody … so people understand him … he understands them … his schooling days … it's easier for him.' (Caregiver, male child, 2 years)

Feeling about self (self-perception) and quality of life in children

Overall, caregivers reported more positive self-perception and improved QoL in children after receiving rehabilitation

services. Statistically significant improvements were observed in both aspects ($p = 0.008$ and $p = 0.017$, respectively), although some caregivers attributed these improvements to their own acceptance and adaptations to the issues rather than changes in function (Table 6).

The following comments are examples of the different participants' perceptions of their child's experiences before rehabilitation:

> 'I don't know how to put this into perspective … some of his attitude or emotions … it's only now that we can see it coming up.' (Caregiver, female child, 3 years)

> 'His quality of life … I think … he's in between … he is going to be fine … it's difficult for me … his life is bad.' (Caregiver, male child, 4 years)

The following comments are examples of the participants' experiences after rehabilitation:

> 'So now, she's a very happy, playful child.' (Caregiver, female child, 6 years).

> 'He is going to have a nice life.' (Caregiver, male child, 4 years)

Discussion

The findings of this study provided valuable insights into the outcomes of rehabilitation services provided by an interprofessional team including physiotherapists, occupational therapists and speech and language therapists at the PHC level. The study explored the perceived changes in activity limitations, participation restrictions, well-being and QoL from the perspectives of service users. The results indicated that both adult and caregivers of child service users experienced statistically significant improvements in activity participation-specific domains.

For adult participants, significant improvements were observed in the domains of self-care and mobility. Over half of the adults achieved full independence in self-care, while others still required some assistance, leading to a reduced burden on half of the caregivers. Similarly, with the exception of one adult, all participants reported improved mobility within their homes and yards, with over 40% being able to mobilise in the community. This change was also reported in another study on outcomes of PHC rehabilitation in clients living with human immunodeficiency virus (HIV) in South Africa (Cobbing, Hanass-Hancock & Myezwa 2017). These positive changes reflect the impact of rehabilitation services on individuals' functional abilities and overall satisfaction with their participation. Similarly, for children, significant improvements were found in self-care and mobility. While only a few children achieved complete independence, the assistance they required became more age-appropriate after receiving rehabilitation, leading to improved participation in daily activities. Notably, communication improvements in children facilitated socialisation within the family and community, and some children were able to attend school successfully.

TABLE 6: Change in feeling about self and quality of life before and after rehabilitation perceived by caregivers for child participants ($N = 21$).

Variable	Before		After		*P*
	n	%	*n*	%	
Feeling about self (self-perception)					
Good	3	17.64	13	35.29	0.008*
Neither good nor bad	6	35.29	2	11.76	
Bad	6	35.29	0	0.00	
Not specified	2	11.76	2	11.76	
QoL					
Good	1	5.88	7	41.17	0.017*
Neither good nor bad	7	41.17	8	47.05	
Bad	8	47.05	1	5.88	
Not specified	1	5.88	1	5.88	

Note: *Significant ≤ 0.050.
QoL, quality of life.

The positive outcomes reported in this study align with previous research results that demonstrated the positive impact of rehabilitation interventions on functional outcomes and QoL. Global studies report similar improvements in mobility, self-care, and social participation following PHC rehabilitation interventions (Bolt et al. 2019b; De Coninck et al. 2017; Eklund et al. 2015; Kjerstad & Tuntland 2016; Meisingset et al. 2021). These findings support the WHO's (2019) emphasis on the provision of rehabilitation services at the PHC level for individuals of all ages.

However, it is essential to acknowledge that some domains, such as domestic, community, social, and civic life; major life areas related to work for adult participants; play, recreation, and leisure; and school/education for child participants did not show statistically significant positive changes. Activity limitations in these domains are not easily addressed in the clinic environment. A possible explanation is that providing rehabilitation requires a more comprehensive approach and consideration of the specific environment in which the activities occur. Addressing these activity limitations may involve incorporating service delivery models that move services out of the CHCs, such as outreach through home visits and task shifting to community rehabilitation workers, to better integrate rehabilitation at the PHC level (Larsson-Lund & Nyman 2017).

The study also reflected the perceptions of the users to realistically evaluate the outcomes of rehabilitation interventions. When the perceptions of service users are probed, it is important to consider a person-centred approach that is user-friendly and not influenced by power-dynamics. Tailoring assessment tools to the specific population being assessed is crucial to obtain accurate and relevant information (Dronavalli & Thompson 2015). In this study, simple scales and structured interviews allowed participants to express their views on changes in activities and participation and considered caregivers' feelings and QoL in relation to caring for their child and the impact of rehabilitation on them (Irwin et al. 2012).

Although the findings in this study showed that rehabilitation intervention has a positive effect, the authors are aware that the participants are the cohort who utilised rehabilitation

services and that assessment and comparison with participants who did not engage in rehabilitation would be more reflective of the effect of rehabilitation. The sustainability of the positive rehabilitation outcomes is an important factor to consider, especially at PHC level. Outcomes can be enhanced by including other models, providing support for caregivers of children with disabilities, and creating community-based groups for adults with neuromusculoskeletal impairments (Scheffler & Mash 2019).

Limitations of the study

The study sample was not heterogeneous in terms of disability because the participants presented predominantly with neuromusculoskeletal impairments, which may not fully represent the broader range of rehabilitation needs in the district. Only participants who were able to access the clinics for rehabilitation over three sessions were included, and thus, the results cannot be generalised to those who had limited or no access to these services. The measure of QoL in children was more of a representation of the caregivers' perceptions than of the children themselves.

Conclusion

The interprofessional PHC rehabilitation services showed positive improvements in activities and participation, self-perception, and QoL from the perspectives of service users. This study provides valuable insights into the outcomes of PHC rehabilitation services and emphasises the importance of considering person-centred approaches and service-user perspectives when evaluating rehabilitation interventions.

The following recommendations are proposed for future research and policy implementation:

- Adapting services to varying environments: While clinic-based services or the clinic model proved effective in certain domains, it is important to explore alternative service delivery models beyond the clinic setting. For instance, home visits and task shifting should be considered to address domains such as domestic life, which may be better attended to in patients' homes.
- Addressing gaps in service provision: Community-based support groups and self-help groups should be incorporated into interventions to address social activities and work-related challenges for adults. The self-help groups should explore self-employment opportunities in contexts with limited employment opportunities.
- Exploring barriers to access: Future research should focus on understanding the barriers that prevent individuals with disabilities from accessing rehabilitation services, particularly those who require rehabilitation but are not accessing these services. Identifying these barriers will enable targeted strategies to improve access and inclusivity in rehabilitation service delivery.
- Patient evaluation of service: Longitudinal studies should be conducted to assess the sustainability of positive rehabilitation outcomes over an extended period. Long-term evaluations will provide valuable insights into the lasting impact of PHC-level rehabilitation interventions and guide efforts to integrate rehabilitation services into PHC.
- Strengthen service-user participation and involvement: The voice of the service user is important and must be incorporated when evaluating the effectiveness of PHC rehabilitation in activity limitations, participation restrictions, and service planning. Such evaluation measures should consider not only the functional abilities of service users but also the impact of rehabilitation on their caregivers and their QoL.
- Person-centred measures: Develop and implement person-centred evaluation tools tailored to the specific population being assessed. Service providers should routinely report on outcomes related to body functioning, activities, and participation based on standardised tools for each patient to support the effectiveness of rehabilitation.
- Advocacy for education and employment opportunities: Collaborative strategies between the health, disability, and education sectors to strengthen advocacy efforts are necessary to ensure children have access to inclusive and quality education in alignment with the Sustainable Development Goals.

By implementing these recommendations, rehabilitation services can become more effective, inclusive, and responsive to the needs of service users. Furthermore, rehabilitation service providers can work collaboratively to influence policy through tangible outputs to demonstrate the impact of rehabilitation interventions and promote the overall well-being and social inclusion of individuals with disabilities. These measures can achieve recognition of rehabilitation services and effective integration of these services into PHC.

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Competing interests

The authors declare that they have no financial or personal relationships that may have inappropriately influenced them in writing this article.

Authors' contributions

L.J.M. conceptualised and designed the study, collected data, carried out the initial analysis, secondary analysis,

drafted, reviewed and revised the article. H.M. and F.A. coordinated and supervised the study including conceptualisation and critically reviewed the article for important intellectual content.

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Data availability

The data that support the findings of this study are available from the corresponding author, L.J.M. upon reasonable request.

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Chapter 9: Integrative Discussion and Proposed Rehabilitation Integration Framework for Primary Health Care at District Level in Gauteng, South Africa

9.1 Introduction

Chapter nine outlines the final phase and objective of the study. Objective 4 was to propose a rehabilitation integration framework for PHC at district level in Gauteng, South Africa. In this chapter an integrative discussion drawn from the findings of the first three phases because the study's overall aim was to examine the integration of rehabilitation services into PHC is included. The PHC rehabilitation integration framework was developed by triangulating of the findings from Phases 1–3 using conceptual framework analysis.[82] Furthermore, the chapter undertakes a comparative analysis of the main findings using the WHO Health System Building Blocks[91] and the WHO Framework on Integrated People-centred Health Services.[116]

9.2 Conceptual Considerations

The concepts underpinning the first three phases of this study are described in Figure 9.1, which is the original conceptual framework outlined and described in Section 2.2, Figure 2.1. The concepts captured in the original conceptual framework identify healthcare systems as complex adaptive systems with evolving contexts and non-linear interactions.[90,117] The conceptual framework outlines six health system building blocks essential for integrating rehabilitation services into PHC, a key focus of the study.[91] This current research study focused on service delivery and addressed the important issues influencing integrated rehabilitation service delivery across macro, meso, and micro levels. At the macro level, the significance of universal health coverage, disability, and rehabilitation is increasingly acknowledged in global and national policies, highlighting the importance of rehabilitation in PHC to improve health outcomes. The meso level concentrates on the organisational and local aspects, specifically how rehabilitation services are delivered within PHC. At the micro level, this study explored the dynamic between disability concepts and the providers of rehabilitation services in PHC by looking at individuals and their specific attributes.[2,92]

Integration was a central theme of this study, and underlined the complex dynamics involved in embedding rehabilitation services into PHC to improve the overall health outcomes of rehabilitation service users. A principal characteristic of the concept of integrated care is

bringing together key aspects in the design and delivery of disjointed healthcare systems.[118] The RE-AIM Framework was considered particularly relevant for this study because it has a multi-level focus tailored to each project, and includes the individual, service delivery personnel, and the setting.[83] The framework emphasises the reach and representativeness of both participants and settings in characterising the public health effect of an intervention, and addresses how well a programme works in the world of busy, under-staffed public health clinics, large health systems, or community settings.[95,109,110] The RE-AIM Framework is suited to research interventions that address whole populations and are sustained over time, such as rehabilitation services in PHC. Its use at various ecological levels, including individual, staff, and setting levels within health systems, as well as at community and national levels, made it suitable for evaluating rehabilitation services in the Johannesburg Metropolitan District.[83] Using the RE-AIM Framework allows the public health impact of rehabilitation services to be conceptualised as a function of the five factors of reach, efficacy/effectiveness, adoption, implementation, and maintenance.

Using the outlined concepts, the data triangulation process was completed using the findings from the first three phases of this study and is discussed further in section 9.3 below.

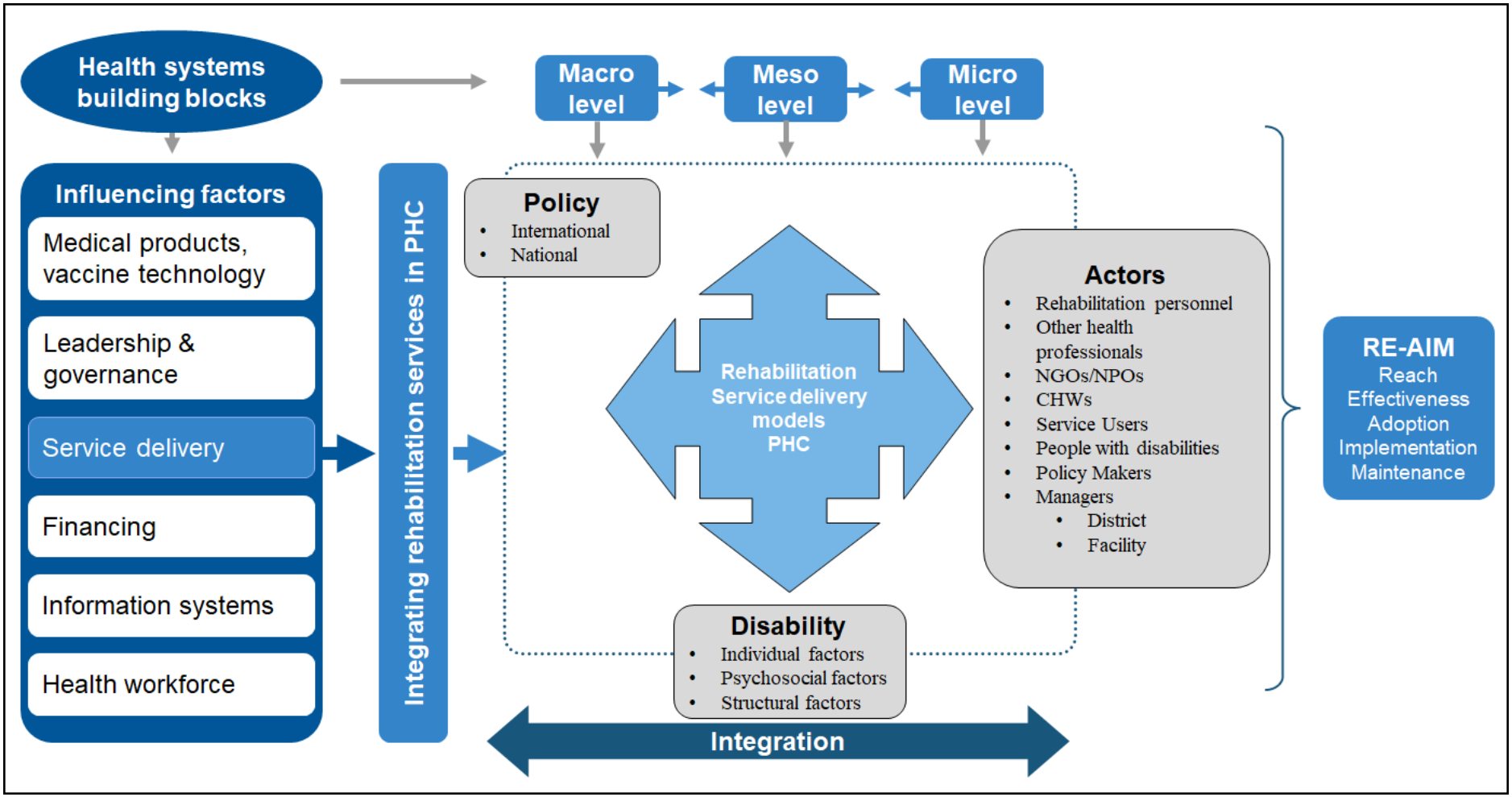


Figure 9.1 The original conceptual framework that guided Phases 1–3 of the study using the health system building blocks from the WHO Health Systems Framework[91] *and the RE-AIM Framework*[95]

9.3 Data Triangulation

During the data triangulation stage, the researcher combined the data generated from multiple sources to answer the following research question:[125, 126] How should rehabilitation services be integrated into PHC at district level in Gauteng, South Africa? The data triangulation process used Jabareen's[82] conceptual framework analysis and allowed for the corroboration of findings from the various data sources used in Phases 1–3.

In the first phase, existing literature from a scoping review was used to address Objective 1, which was to map the existing service delivery guidelines, models, and protocols for rehabilitation service delivery integration in PHC through a scoping review.[75] Phase 2 provided a profile of rehabilitation services in the Johannesburg Metropolitan District and addressed the second objective, which was to determine the rehabilitation services currently provided at PHC level in the Johannesburg Metropolitan District, Gauteng, South Africa . Objective 2 was addressed in two ways: Firstly, through in-depth interviews with rehabilitation service providers from the nine provincially funded CHCs offering rehabilitation services;[80,121] and secondly, by conducting an analysis of rehabilitation patient records from 2011 to 2020 at the same nine clinics to describe the rehabilitation service-user characteristics, the types of disabilities represented, referral sources, service use, and variations in rehabilitation services in the district.[122] Semi-structured interviews with rehabilitation service users in eight of the nine facilities were conducted in Phase 3 to address Objective 3, which explored the experiences of rehabilitation service users at PHC level in the Johannesburg Metropolitan District, Gauteng, South Africa.[123,124] Figure 9.2 summarises the studies conducted in each phase and the objectives that were addressed to achieve the overall aim of the study.

As shown in Figure 9.2, the final phase of this study (Phase 4) involved a desk analysis and synthesis that was achieved through data triangulation to address Objective 4, which was to propose a rehabilitation integration framework for PHC at district level in Gauteng, South Africa. The steps involved in the development of a rehabilitation framework in PHC are described in the following subsections.

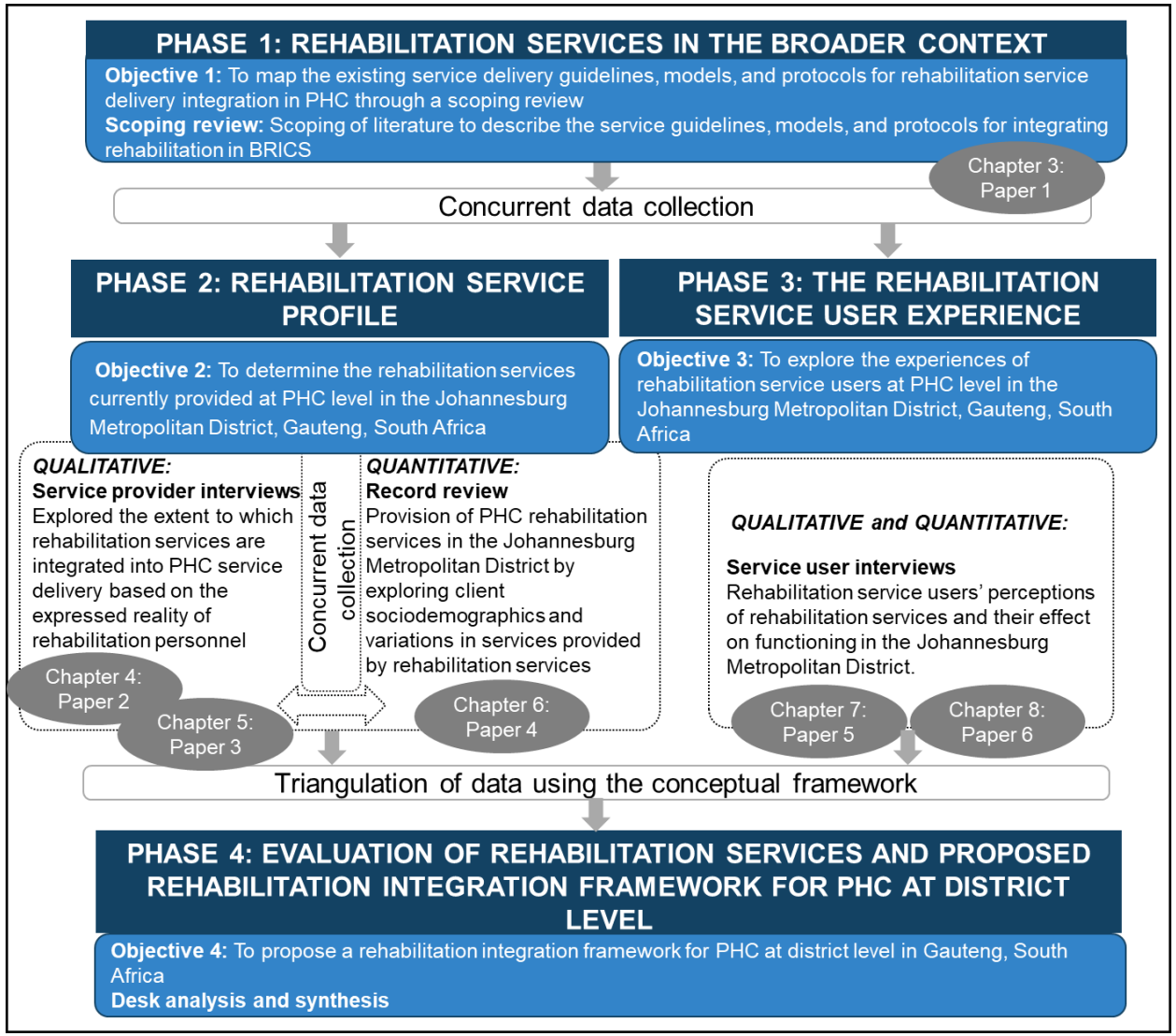


Figure 9.2 Studies conducted in Phases 1–3 to address the overall research aim of this study

9.3.1 The Six Steps of the Data Triangulation Process

The data triangulation process in Phase 4 of this study was used to develop a framework for integrating rehabilitation services into the PHC level in Gauteng, South Africa, and the researcher achieved this by following the first six steps of Jabareen's[82] eight-step method for building conceptual frameworks. The six-step approach outlined in Figure 9.3 informed the proposal of a framework to integrate rehabilitation services into PHC. Jabareen's[82] eight-step conceptual framework analysis method uses a qualitative process for building a conceptual framework to better understand multidisciplinary phenomena linked to multiple bodies of knowledge. Jabareen's[82] conceptual framework analysis was selected for the data triangulation in this study because it recognises that conceptual frameworks are based on flexible terms that can be reconceptualised and modified according to the evolution of the phenomena in question. Rehabilitation service delivery is evolutionary and not static, making this approach suitable.

For this current study, only Steps 1–6 of Jabareen's[82] 8-step approach were followed, and they involve mapping the data sources from the first three phases, categorising the data, identifying and naming concepts, deconstructing and categorising concepts, integrating concepts, and lastly, synthesising and resynthesizing to make it all make sense. Steps 7 and 8 involve validating the conceptual framework and rethinking the conceptual framework, which falls outside the aim of this study. The team involved in consolidating the findings and identifying the components for the framework consisted of a group of rehabilitation experts, including the primary investigator, three research experts, and two supervisors. The three research experts have over 30 years of experience in public and private health systems and extensive research experience in quantitative and qualitative methodologies. The process started with an inductive approach to collate the study findings according to the study objectives and aligning them with the RE-AIM Framework dimensions. Thereafter, the findings were initially categorised according to the WHO Health System Building Blocks, and subsequently, further organised into the macro, meso, and micro levels.[2] The contents of these steps are described in Figure 9.3 under process.

STEP	PROCESS	KEY OUTCOME
Step 1: Mapping the selected data sources from Phases 1-3	• Inductive process of identifying key findings from the conducted studies • Analysis of key findings against the RE-AIM Framework	Consolidated study findings according to the objectives across the various phases, and the RE-AIM Framework dimensions
Step 2: Categorising the data	• Deductive categorisation of the data according to the WHO Health System Building Block to determine influencing factors on rehabilitation service delivery, which are leadership and governance, finance, health workforce, information and technology, medical products and assistive devices, and service delivery	Consolidated service delivery influencing factors categorised according to the WHO Health System Building Blocks
Step 3: Identifying and naming concepts	• Secondary categorisation of influencing factors at the macro, meso, and micro levels	Macro-, meso-, and micro-level service delivery influencing factors
Step 4: Deconstructing and categorising concepts	• Constant comparison, re-identification, and mapping of categories according to the WHO People-centred Integrated Health Systems Framework, which resulted in strengthen governance and accountability, reorient the model of care, create an enabling environment, coordinate services within and across sectors, and engage and empower people and communities.	Macro-, meso-, and micro-level influencing factors categorised according to the WHO People-centred Integrated Health Systems Framework.
Step 5: Integrating concepts	• Integrate and group together concepts that have similarities to reduce the number of concepts. • Identify and consolidate the rehabilitation integration concepts informed by the WHO People-centred Integrated Health Systems Framework and literature	Grouped concepts according to the WHO People-centred Integrated Health Systems Framework
Step 6: Synthesising, re-synthesising, and making it all make sense	• Synthesize concepts into a theoretical framework • Further consolidation of the rehabilitation integration framework informed by the WHO People-centred Integrated Health Systems Framework and literature	Consolidated PHC rehabilitation integration framework

Figure 9.3 The six steps followed to develop the framework for integrating rehabilitation in PHC[82]

9.3.2 Using the Six Steps to Develop the PHC Rehabilitation Integration Framework

The following subsections outline the process used to implement the first six steps of Jabareen's[82] conceptual framework analysis that was used to construct the final framework for integrating rehabilitation services in PHC. Each step is thoroughly described in this section, as depicted in Figure 9.3, which showcases the process of triangulating data from various sources.[82] Figure 9.4 shows the process followed to further analyse and categorise the data using Jabareen's[82] six steps.

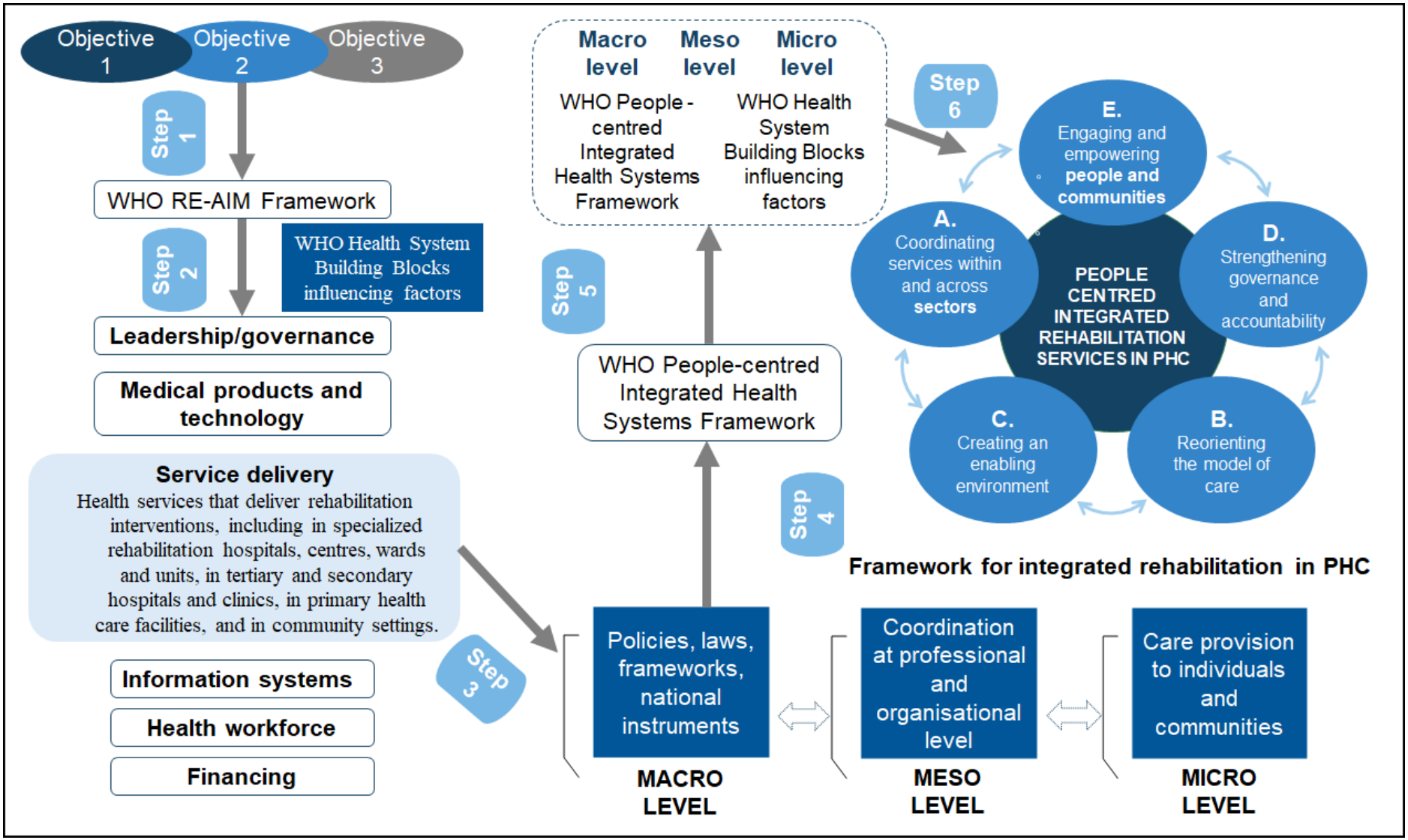


Figure 9.4 The process followed to further analyse and categorise the data using Jabareen's[82] six steps

9.3.2.1 *Step 1: Mapping the selected data sources from Phases 1–3*

STEP	PROCESS	KEY OUTCOME
Step 1: Mapping the selected data sources from Phases 1-3	• Inductive process of identifying key findings from the conducted studies • Analysis of key findings against the RE-AIM Framework	Consolidated study findings according to the objectives across the various phases, and the RE-AIM Framework dimensions

Figure 9.5 Step 1: Mapping the selected data sources from Phases 1–3

As indicated in Figure 9.5, the first step in developing the PHC integrated rehabilitation framework involved categorising the results emanating from the previous three phases based on the study objectives. These results were compared against the original conceptual framework components that guided the study (as illustrated in Figure 9.1) and the RE-AIM Framework. The rationale behind this comparison was to assess how well the data aligned with the chosen frameworks, models, and existing literature. This process was crucial to coherently organise the data from the original conceptual framework studies relevant to integration, as portrayed in Figure 9.6.

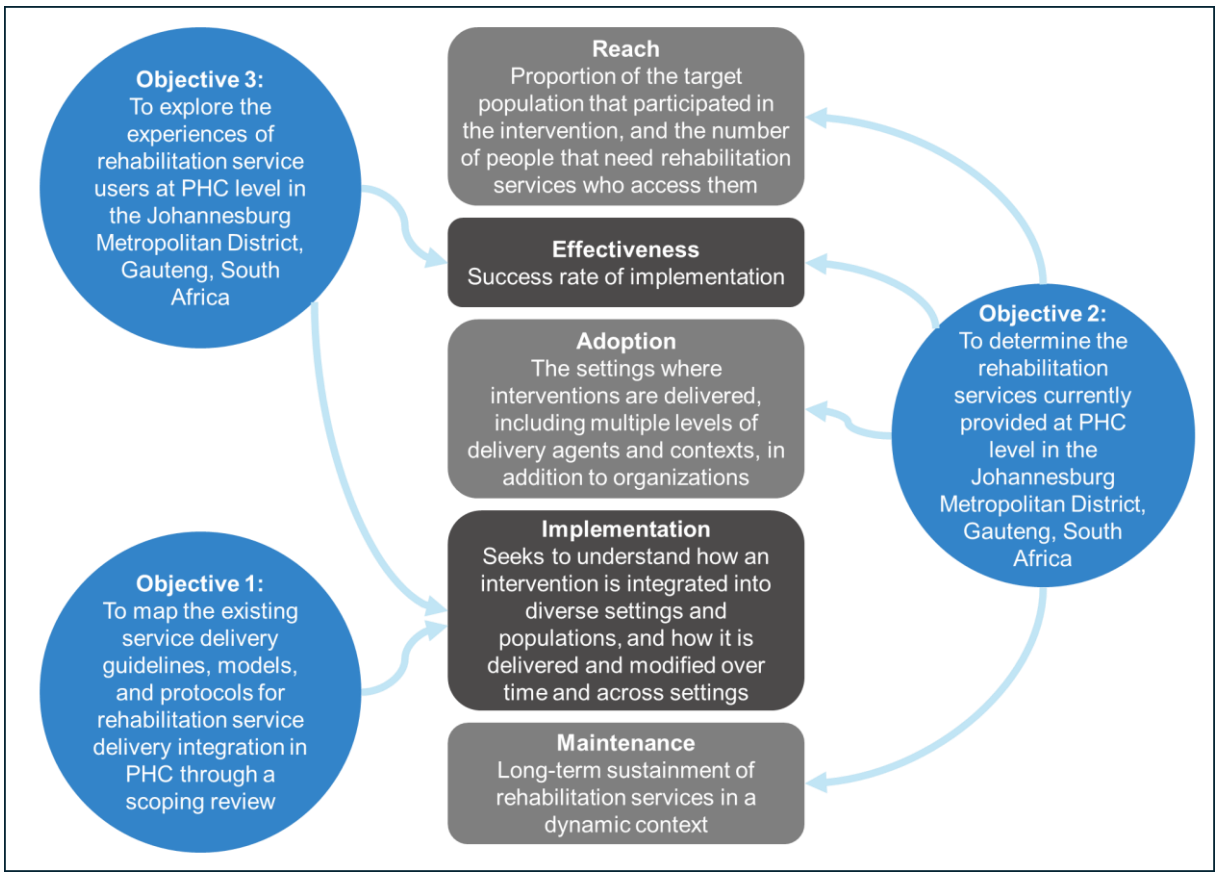


Figure 9.6 Study objectives categorised using the RE-AIM Framework[95]

When evaluating the relevance of the findings to the RE-AIM Framework's different dimensions of reach, effectiveness, adoption, implementation, and maintenance, it was noted that Objectives 2 and 3 applied to more than one dimension of the RE-AIM Framework, and that Objective 1 only applied to implementation (Figure 9.6). The overlap between the dimensions was unsurprising because it confirms the interconnectedness of rehabilitation service delivery,[51] underscoring the complexity of integrating any service. The outcome of Step 1 of Jabareen's conceptual framework analysis was a presentation of consolidated findings according to the objectives across the various phases and RE-AIM dimensions, and is discussed in detail in the following subsections.

Description of the study findings categorised in the RE-AIM Framework dimensions

Objective 1: To map the existing service delivery guidelines, models, and protocols for rehabilitation service delivery integration in PHC through a scoping review (Phase1)

Objective 1 only addressed the implementation dimension of the RE-AIM Framework (see Figure 9.6). The implementation dimension assesses how closely services follow their intended design in practice. Furthermore, implementation seeks to understand how rehabilitation services are integrated into PHC settings and populations, and how they are delivered and modified over time and across these settings.[125] In Objective 1, the scoping review sought to map the existing service delivery guidelines, models, and protocols for rehabilitation service delivery integration in PHC in the BRICS nations.[75] The scoping review revealed a diversity of service delivery models, protocols, and guidelines that each has distinct advantages and challenges (Table 9.1).

The RE-AIM Framework dimensions were tested against the study findings from the scoping review (Objective 1) and were found to align with the implementation dimension of the RE-AIM Framework because the scoping review findings described how the service guidelines, models, and protocols are implemented by the BRICS countries (Table 9.1). Understanding how the identified models, guidelines, and protocols are implemented is important to integration because it shows how various aspects of health service delivery overlap and intersect.[126] Furthermore, it provides a platform to review the service guidelines, models, and protocols currently in use in South Africa and how these can be adapted or reconfigured to enable contextually responsive implementation that enhances integration through patient satisfaction, increased perceived quality of care, and access to services.[127]

Table 9.1 Alignment of study findings from Phase 1 (Objective 1) in relation to the study aim and RE-AIM Framework

<table>
<tr><th colspan="2">PHASE 1: REHABILITATION SERVICES IN THE BROADER CONTEXT</th></tr>
<tr><td colspan="2">Objective 1: To map the existing service delivery guidelines, models, and protocols for rehabilitation service delivery integration in PHC through a scoping review</td></tr>
<tr><td colspan="2">RE-AIM Dimension:
Implementation: Seeks to understand how an intervention is integrated into diverse settings and populations, as well as how it is delivered and modified over time and across settings</td></tr>
<tr><td>SERVICE DELIVERY MODELS: Implementation</td><td rowspan="4">SERVICE DELIVERY PROTOCOLS: Implementation
• Identified for screening and intervention
• Should allow health professionals to apply clinical judgement to implement
• Implementation is facilitated by team involvement and increased protocol acceptability in practice

SERVICE GUIDELINES: Implementation
• Organisational policies
• Guidelines for ward-based PHC outreach teams in South Africa
• Specify geographic delineation and composition of PHC teams, conditions of employment, managerial oversight for supervision, and accountability
• Stipulate hospital or district-based members of rehabilitation personnel must support the team
• However, training of CHWs within Ward Based Primary Health Care Outreach Teams excludes rehabilitation services

Professional Standards
• Ensure standards of care are achieved by healthcare workers
• Non-adherence to these guidelines remains the biggest threat to rehabilitation service integration</td></tr>
<tr><td>Clinic model
• Outpatient clinics are most common
• Integration of rehabilitation services and access is a challenge in this model
Advantages: Geographic co-location of health professionals leads to physical proximity, which leads to improved interactions and knowledge exchange
Disadvantages: Rehabilitation workforce is the greatest challenge</td></tr>
<tr><td>Outreach model
• Includes home visits, telehealth, e-health, and mobile health
Advantages: Reduced cost to provide services
Good evidence that telehealth can overcome geographical boundaries and the need for travel
Disadvantages: Data costs and connectivity in LMICs</td></tr>
<tr><td>Shared care model
• Suggested in both the outreach and clinic model through task shifting and task sharing
Advantages: Supports health workforce challenges
Shared care involving trained CHWs or mid-level workers is recommended</td></tr>
<tr><td>Self-management model
• Increased empowerment of patients and community in ownership of their health and wellbeing
Advantages: Applicable within any of the models
Can be supported by online or telehealth services to reduce rehabilitation personnels' workload
Can capture a larger audience
Disadvantages: Can be challenging to use in fragmented PHC services</td></tr>
</table>

PHASE 1: REHABILITATION SERVICES IN THE BROADER CONTEXT	
CBR model • Training CHWs to provide rehabilitation services is an effective CBR model • Includes delivery of home-based community care *Advantages*: Improved functional and quality of life outcomes Continued education and training, appropriate supervision of CHWs, and community involvement are important to achieve health goals Success enhanced by positioning the community at the core of identifying needs and developing programmes to deliver rehabilitation services	

As part of the study to elucidate the guidelines, models, and protocols used within the South African context, Objective 2 sought to determine the rehabilitation services currently provided at the PHC level in the Johannesburg Metropolitan District, and these are discussed next.

Objective 2: To determine the rehabilitation services currently provided at PHC level in the Johannesburg Metropolitan District, Gauteng, South Africa (Phase 2)

In this study, Objective 2 addressed the dimensions of reach, adoption, implementation, and maintenance of the RE-AIM Framework (see Figure 9.6). Reach refers to the extent to which the target population participates in an intervention. In the context of this study, reach refers specifically to rehabilitation service coverage, which is defined as the number of people in need of rehabilitation services who access those services.[88] The adoption dimension considered the settings where interventions are delivered, in addition to the organisation of services, and more specifically, the proportion of facilities offering rehabilitation services in the Johannesburg Metropolitan District. Implementation looked at how rehabilitation services are delivered, and the rehabilitation personnel involved. The findings were categorised under maintenance and related to the sustainability and institutionalisation of rehabilitation services over time and the long-term effects of the services.[128] Reach, adoption, implementation, and maintenance were determined within the rehabilitation services currently provided at the PHC level in the Johannesburg Metropolitan District through a retrospective review of rehabilitation patient records and in-depth interviews with rehabilitation service providers in the nine PHC facilities offering rehabilitation services in the district (Table 9.2).

Table 9.2 Alignment of study findings from Phase 2 (Objective 2) in relation to study aim and RE-AIM Framework

PHASE 2: REHABILITATION SERVICE PROFILE	
Objective 2: To determine the rehabilitation services currently provided at PHC level in the Johannesburg Metropolitan District, Gauteng, South Africa	
RE-AIM Dimension: **Reach:** The proportion of the target population that participated in the intervention and the number of people that need rehabilitation services who access them **Adoption:** The settings where interventions are delivered, to include multiple levels of delivery agents and contexts, in addition to organisations **Implementation** **Maintenance:** Long-term sustainment of rehabilitation services in a dynamic context	
Record-keeping practices: ***Implementation***	• Number of records varied across the clinics because of differences in the availability of records • Completeness of information varied • Distribution of records: Lenasia CHC had the highest availability, and Hillbrow CHC the lowest
Profile/sociodemographic characteristics of rehabilitation service users: ***Reach & Implementation***	• Age: Most clients fell into age groups <5 years and 30–49 years • Older patients were the smallest part of the sample • Type of impairments: Neuromusculoskeletal and movement-related functions were most common, followed by mental function impairments • Referral sources: Most were down referrals from 2° and 3° hospitals • Other referral sources: NGOs, private doctors, and other PHC-level services • Discontinued therapy: Discharges, most clients lost to follow-up, others were referred elsewhere or discharged from service • Number and types of visits: Clinic visits were the largest number, some home visits, and some outreach visits
Rehabilitation services received: ***Reach & Implementation***	• Occupational therapists and physiotherapists most commonly provided rehabilitation services; audiology provided the least • Most clients received at least one individual or group session from all rehabilitation services.
Rehabilitation received per discipline by disability: ***Reach, Implementation & Adoption***	• Clients with mental health function disabilities predominantly seen by occupational therapists • Physiotherapists and speech-language therapists worked primarily with neuromusculoskeletal and movement-related function disabilities • Audiologists saw a higher proportion of clients with sensory function and pain related disabilities
Rehabilitation received per discipline by age: ***Reach & Implementation***	• Younger age groups (children and adolescents) received occupational therapy and speech-language therapy • Young, middle, and older adults received physiotherapy and audio

Table 9.2 Alignment of study findings from Phase 2 (Objective 2) in relation to study aim and RE-AIM Framework continued

PHASE 2: REHABILITATION SERVICE PROFILE	
Rehabilitation services are not what they should be: ***Implementation & Adoption***	• Suboptimal and underdeveloped • Services lack comprehensiveness • Do not align with macro-level health and PHC policies/guidelines of access, equity, availability • Organised based on vertical programmes: Focus on specific patient diagnoses>>>fragmented physical and mental health services • Operational level (clinical management) and siloed approach to management (poor policy implementation of comprehensive services) • Disconnect between hospital referrals and available resources in PHC • Disparity in service availability, including HR affects continuum of care • Clinic model prevailed in the CHCs • Mini-hospital structure • Deeply ingrained in institutional-based medical practice patterns and culture • Acute phase of care for patients seen in CHCs • Rehabilitation services are inadvertently confined to CHC rather than out in the community.
Despite the challenges, service delivery continues: ***Implementation & Adoption***	• Rehabilitation personnel acknowledge challenges but remain optimistic and committed to service delivery • Employ various strategies to mitigate these difficulties • Adapted outreach • Collaborate with other sectors>>> intersectoral collaboration • Health promotion and prevention • Self-management: Embodies health promotion where service users are the masters and drivers of their healthcare • Self-management: Compatible with rehabilitation philosophy, optimises independence, productivity, and health, and promotes social and economic life choices • Self-management: Alleviates demand on service delivery due to high patient volumes, strengthens transdisciplinary working Cooperation between PHC, secondary- and tertiary-level hospitals is a positive step • Barriers to integrated service delivery: Lack of definition, awareness, and recognition of the role of each professional within a Multidisciplinary Team • Integrated rehabilitation services based on conceptual models that recognise that each profession has a role to play in the rehabilitation process • Awareness building and relationship building initiatives: Fundamental to fostering interprofessional trust, health workforce efficiency, and meso-level professional and organisation integration

Table 9.2 Alignment of study findings from Phase 2 (Objective 2) in relation to study aim and RE-AIM Framework continued

PHASE 2: REHABILITATION SERVICE PROFILE	
Barriers to integrated rehabilitation services: ***Implementation***	• Flawed system: Inadequacy of referral system, patients get lost in the system • Gap in referral services between levels of care: Services available at the one quaternary and four academic hospitals, then hardly any district hospital services, followed by services at the PHC level in Gauteng • Shortage of human resources in PHC clinics: Inconsistencies where tertiary and rehabilitation hospitals receive preferential allocation of staff posts • Disparities in the allocation of rehabilitation posts across different regions>>>variations in services offered at each clinic, affecting the accessibility of services for clients throughout the metro • Inadequate infrastructure: Practice spaces, resources within those spaces, and transportation for outreach activities such as home visits • Limited capacity to effect change and improve this situation despite multiple attempts to do so • Limited understanding of policy and the overall lack of policy implementation • Financial systems affecting procurement processes: Long waiting times for goods to be procured and inadequate budgets
Facilitators to integrated rehabilitation services: ***Implementation***	• Proactive and creative attitudes among rehabilitation personnel: Fostered collaborative team dynamic and encouraged innovative thinking • Developing a range of specific skills in clinical practice within PHC: All understood their environment and context • Interprofessional relationships within an interdisciplinary team: Common understanding of role and benefits of rehabilitation experienced as positive and rewarding “being known and understood” • Golden moments of the job: Positive feedback, appreciation and satisfaction with services from clients>>>motivation to persevere irrespective of barriers and challenges
Future directions/fit for integrated rehabilitation services: ***Implementation & Maintenance***	• Better visibility and presence in the district • Establishing partnerships with both public and private service providers • Close engagement with the local community • Partnerships offer access to valuable resources that can support rehabilitation efforts • Employing more discipline-specific mid-level workers • Student training and preparing community service therapists for PHC work

An assessment of the findings from Objective 2 against the RE-AIM Framework dimensions revealed the rehabilitation services that have been implemented, and the gaps, difficulties, strengths, and weaknesses of the prevailing service. Examples of issues that were revealed include the variations in the record-keeping practices in PHC facilities, inadequate recording of most clients' referral sources, and the absence of documented discharge information which represents a substantial data gap in the integration of patient care. The inconsistencies in record keeping pose a challenge for management. When information is not uniformly captured across primary health care (PHC) facilities, it complicates the monitoring and evaluation of services. Rehabilitation record data is important to enable service planning and delivery in the process of integrating rehabilitation.[129]

The reach and implementation dimensions were demonstrated in the profile and sociodemographic characteristics of the rehabilitation service users, the rehabilitation services received by users, and the rehabilitation services offered by the different disciplines. Understanding the services that are delivered, how they are delivered, and to whom they are delivered is important for integrated service delivery because it enables an assessment of whether those who require rehabilitation services can access them[130] and be maintained in those services by continuing to use them when they need to and not be lost to follow-up.[131] Inadequate rehabilitation service reach is a common problem in LMICs. In China, only 13.9% of the population in need of rehabilitation can take advantage of rehabilitation services.[132] The rehabilitation services received per discipline according to disability demonstrated reach, implementation, and adoption. Knowledge of the disabilities seen by the various rehabilitation disciplines enables the development of appropriate interventions, the enactment of important operational research, and effective rehabilitation service delivery that contributes towards patient satisfaction and health outcomes.

The implementation and adoption dimensions of the RE-AIM Framework were illustrated in the suboptimal and underdeveloped rehabilitation services shown in the study findings. An example of some of the gaps, as shown the Table 9.2, is the way rehabilitation services are deeply ingrained in institutional-based medical practice patterns and culture, inadvertently resulting in rehabilitation services being confined within CHC rather than a mix that incorporates the community. Disparities in the allocation of rehabilitation posts across different regions in the district result in variations in services offered at each CHC. Maldistribution of staff affects the accessibility of services for clients throughout the district, which is not peculiar to South Africa. In India, shortages and maldistribution of rehabilitation personnel were also found.[133] A multidisciplinary rehabilitation workforce within a health system is essential to

meet the comprehensive rehabilitation needs of the population, which is an integral component of integrated healthcare services.[42]

An important aspect of implementation is the perspectives of the service users, which were explored in Objective 3 and described the following subsection.

Objective 3: To explore the experiences of rehabilitation service users at PHC level in the Johannesburg Metropolitan District, Gauteng, South Africa

Objective 3 in this study is aligned with the effectiveness and implementation dimensions of the RE-AIM Framework. Effectiveness describes the impact of an intervention or program on important outcomes, including potential positive and negative effects, quality of life, and economic outcomes.[88] In this study, effectiveness evaluated the level of satisfaction with rehabilitation services among service users, and the rehabilitation outcomes achieved through users' experiences of rehabilitation services, perceived effect through self-rated levels of independence in different domains of activities and participation before and after rehabilitation, feelings about oneself, and quality of life (Table 9.3). Therefore, in this study, effectiveness was not limited to empirical and functional outcome data but included the softer emotional aspects of satisfaction and being valued.

The findings from Objective 3 were tested against the RE-AIM Framework and revealed the positive effectiveness and implementation of rehabilitation services. Positive service-user experiences were depicted by overall satisfaction and high ratings of rehabilitation services. The satisfaction was attributed to several factors, including the professional conduct of rehabilitation personnel, active service-user involvement in the rehabilitation process, efficient organisation of services, enhanced accessibility, and significant functional improvements. Significant improvements in functional performance and activity participation among adults and children in this study validated the effectiveness of the rehabilitation interventions.[134] Demonstrating the effectiveness of rehabilitation services through patient satisfaction is a useful outcome for lobbying, obtaining resources, and influencing policy directives in an integrated rehabilitation service model.

Table 9.3 Alignment of study findings from Phase 3 (Objective 3) in relation to study aim and RE-AIM Framework

PHASE 3: THE REHABILITATION SERVICE-USER EXPERIENCE	
Objective 3: To explore the experiences of rehabilitation service users at PHC level in the Johannesburg Metropolitan District, Gauteng, South Africa	
RE-AIM dimensions: **Effectiveness** **Implementation**	
Rehabilitation service users' perceived experiences of rehabilitation services: *Effectiveness & Implementation*	*Overall satisfaction of service users with rehabilitation services received in Joburg Metro* • Considered rehabilitation services to have substantial positive impact and rated them highly • Necessary for treatment compliance and positive patient perceptions *Service provider actions: Actions of rehabilitation personnel* • Attentive care and actions of rehabilitation personnel • Addressing participants as individuals rather than patients: Feel respected and valued • Patient-centred approach: ○ Translates to their opinions being considered when addressing their care needs ○ Ensures active involvement and fosters a sense of being genuinely cared for and supported • Strong patient-provider relations (interpersonal relationships) and trust between service providers and patients results in a sense of empowerment and active involvement in the rehab process • Attentive listening is important for effective therapeutic relationships in rehabilitation • Trust between providers and patients is essential in fostering collaborative patient-provider interactions • Emotional impact of how rehabilitation personnel make service users feel throughout the rehabilitation process • Effective communication established between patients and rehabilitation personnel • Providing patients with access to relevant information and explaining treatment options • Cultural competence: An important component of effective therapeutic relationships *Service-user actions: Their active involvement in the process* • Active patient engagement: Correlates with better outcomes, facilitates more patient control, reciprocal sharing of emotional responses, increased exchange of information • Ensure perspectives of service users shape decisions regarding rehabilitation service delivery >>>more tailored services contextually responsive to individual needs *Organisation of service: Streamlined services* • Service access: Improved accessibility • Convenience of accessing multiple rehabilitation services on same day>>>reduces transportation costs, minimises disruptions to their daily lives • Successful rehabilitation outcomes attainable even when multiple therapists involved in the patient's care, provided that consistent, high-quality care is upheld

	• Trust that rehabilitation services will meet their expectations>>>more likely to participate • No concerns regarding service continuity; instead, frequent interactions with different therapists, yet continue to receive high-quality care *Service outcomes: Notable functional improvements* • Positive improvements in functional performance and activity participation: validated effectiveness of rehabilitation interventions • Trust extends beyond the physical safety conditions of the environment involves skill and knowledge of service providers delivering the care • Instil confidence in vulnerable clients that they are in capable hands
Changes in participation and quality of life from service users' perspectives: *Effectiveness*	• Both adult and child participants experienced statistically significant improvements in activity participation in specific domains • *Adults:* Improvements in domains of self-care and mobility ○ Over 50% achieved full independence in self-care, while others still required some assistance, which reduced the burden of care ○ Improved mobility within their homes and yards ○ Positive changes reflect the impact of rehabilitation services on functional abilities and overall satisfaction with their participation • *Children:* Improvements in self-care and mobility ○ Age-appropriate assistance is required to enable improved participation in daily activities ○ Notable improvements in communication facilitate socialisation within family, community, and school attendance • Domains that did not show statistically significant positive changes ○ Adults: Domestic life, community, social and civic life, and major life areas related to work ○ Children: Play, recreation and leisure, and school/education *Recommendations* • Providing rehabilitation for these activities requires a more comprehensive approach, and considering the specific environment in which they occur • Addressing these activities may involve incorporating other service delivery models, e.g. outreach through home visits and task shifting • Important to understand the perception of service users to evaluate the outcomes of rehabilitation services realistically • Consider a person-centred approach: User-friendly, not influenced by power dynamics • Assessment tool must be tailored to the specific population being assessed • Consider caregivers' feelings and quality of life in relation to caring for their family members and the impact of rehabilitation on them

Softer and personal factors contributed to the positive service-user experience, such as the emotional impact of how rehabilitation personnel make service users feel throughout the rehabilitation process, being seen and valued as a person, and the noticeable cultural competence displayed by the rehabilitation personnel. Valuing service users demonstrated by rehabilitation personnel is the essence of person-centred care because it places the user at the heart of service delivery, which is important to an integrated service delivery model. Effective communication within a person-centred approach is instrumental in ensuring active service-user engagement, which in turn is important for intervention compliance and positive service-user perceptions.[135] Furthermore, positive service-user experiences are important for community participation in rehabilitation service delivery and planning and are key contributors to integrated service delivery in PHC. Patient satisfaction is the most important indicator of quality of care, and is considered an outcome of integrated healthcare services.[136]

Following the consensus that the outcomes of Step 1 were successfully met by mapping the study's findings in relation to the three objectives, as well as their classification by the dimensions of the RE-AIM Framework, the progression to the second step of the process for the development of a PHC rehabilitation integration framework (as depicted in Figure 9.3) was initiated. This next step entailed the systematic categorisation of the data to identify factors influencing service delivery.

9.3.2.2 Step 2: Categorising the selected data

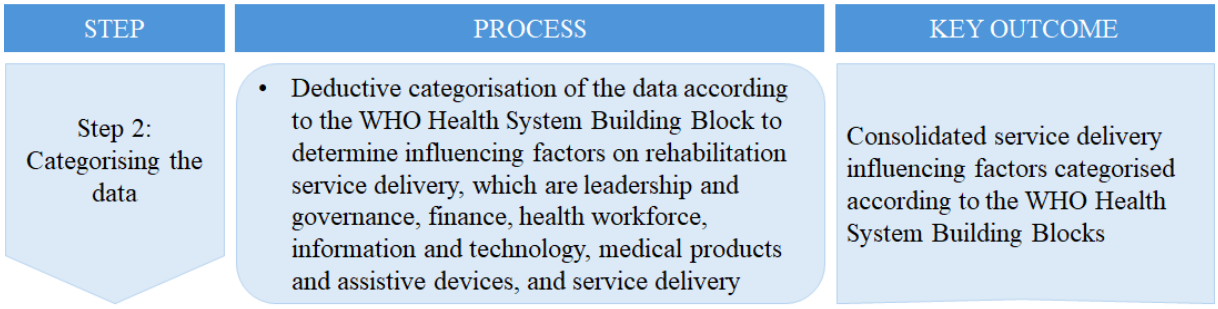


Figure 9.7 Step 2: Categorising the selected data

Using a descriptive deductive approach, Step 2, as shown in Figure 9.7, further categorised the findings from Step 1 by grouping them according to the WHO Health System Building Blocks[91]. The health system building blocks represent key health system elements, namely medical products and technology, leadership and governance, service delivery, information systems, health workforce, and financing. The WHO Building Blocks Framework is valuable because of its simplicity and ability to provide a common language and shared understanding.[137] The framework was applied to rehabilitation concepts to categorise the study findings and

outline the essential attributes and capacities necessary for effective rehabilitation service integration in PHC.

Each set of results was evaluated against its alignment with the definition of each of the six WHO Health System Building Blocks specific to rehabilitation services. In this study, the findings categorised under medical products and technology included all aspects related to assistive devices in rehabilitation service delivery. The leadership and governance category included study findings that spoke to existing laws, policies, plans, and strategies specific to rehabilitation services. Service delivery was categorised according to the service delivery models for rehabilitation interventions, including those that identify best practices and barriers to effective service delivery. The information systems category included any study findings that aligned with health information systems and record-keeping practices with respect to rehabilitation and the availability and use of data, including activity participation data and rehabilitation outcomes data. Therefore, the outcome of Step 2 was the further categorisation of the study findings from Phases 1–3 (scoping review, service provider perspectives, record review, and service user perspectives) according to the health system building blocks. These outcomes are shown in Table 9.4.

Medical products and technology in the Johannesburg Metropolitan District were characterised by inefficient procurement processes and considerable budgetary constraints in allocating sufficient funds for assistive devices. Poor procurement processes threaten the integration of rehabilitation services because it significantly impedes the prompt distribution of vital devices to the PHC facilities, leading to prolonged waiting times that delay patients' access to essential assistive devices, such as wheelchairs. Consequently, service inaccessibility impacts long-term patient outcomes.

The leadership and governance category included a lack of coherence between provincial and district policies. This lack of coherence coupled with ambiguity in the operational frameworks of the provincially funded NGOs highlight a need for better alignment and synergy across health sectors and between governmental and nongovernmental entities.[138] Policy ignorance among key stakeholders, including rehabilitation personnel and service users; the absence of a common directorate for mental health and physical rehabilitation; and the insufficient involvement of rehabilitation services in PHC reengineering efforts underscore the necessity for integrated governance, enhanced policy implementation, and increased public awareness.[118]

Table 9.4 Categorising findings from Phases1–3 (Objective 1–3) according to WHO Health System Building Blocks[91]

Influencing factors: WHO Health Systems Building Blocks (WHO)[91]	**Summary of findings from Phases 1- 3 (Objectives 1- 3)**
Medical products and technology	• Poor procurement processes for assistive devices • Waiting list for assistive devices • Inadequate budgets for assistive devices
Leadership & governance	• Provincial versus district policies • Working model of auditing provincially funded NGOs • Alignment and congruence between health and other governmental sectors • Lack of policy knowledge by stakeholders • Separate directorate for mental health and rehabilitation • No involvement of rehabilitation services in PHC reengineering streams • No intersection between rehabilitation and PHC reengineering streams
Service delivery	• *Service organisation and responsiveness* o Services respond to service-user needs according to the most prevalent services, i.e. medical services o Condition: Specific vertical services (medical model) o Mini-hospital structure with a focus on acute patients results in early discharge from hospitals to PHC facilities o Rehabilitation not included in architectural design of PHC facilities: Lack of rehabilitation treatment space at clinics o Disconnect in the referral pathway o Service organisation through an appointment system: No capacity for walk-ins o Multiple points of service, e.g. medication collected at the tertiary-level, rehabilitation accessed at the primary level o Type of work undertaken with NGO is mainly regulatory instead of health promotion and prevention • *Service delivery guidelines, models, and protocols in use* o Integration of rehabilitation services and access is a challenge in the clinic model o High evidence for telehealth: Overcomes geographical boundaries and the need for travel o Shared care model suggested in both the outreach and clinic model through task shifting and task sharing o Self-management increased empowerment of patients and community in ownership of their help and wellbeing o CBR model success is enhanced by positioning the community at the core of identifying needs and developing programmes to deliver rehabilitation services o Implementation of service delivery protocols is facilitated by team involvement and increased protocol acceptability in practice o Non-adherence to service guidelines remains the biggest threat to rehabilitation service integration • *Intersectoral collaboration and relationship building* o Intersectoral collaboration taking place to an extent through campaigns with the Department of Sport and Recreation and Department of Social Development o Interpersonal relationship building within and between stakeholders

Influencing factors: WHO Health Systems Building Blocks (WHO)[91]	Summary of findings from Phases 1- 3 (Objectives 1- 3)
Service delivery	○ Inadequate liaison between community and health sector impacting rehabilitation service delivery ○ Role clarification between the Department of Education and the Department of Health ○ Mental health services less developed; physical rehabilitation services well developed ○ Lack of consistent and standardised record-keeping across PHC facilities ○ Delays and long waiting lists for assistive devices ○ Lack of transport for community-based services, e.g. home visits • *Rehabilitation effect and outcomes* ○ Need to understand the profile (demographic characteristics) of rehabilitation service users ○ Positive functional outcomes reported in adults and children • *Patient-provider relations are important for service delivery* ○ Patient access to all necessary rehabilitation services in one day ○ Positive patient experiences: Compliant service users who are happy with the outcome of rehabilitation services ○ Personal sacrifice from patients to ensure access to rehabilitation services, e.g. sacrifice of food to enable adequate transport money
Information systems	• Lack of computers and information technology devices to enable service delivery • Inconsistent and non-standardised record-keeping practices across PHC facilities • Paper-based patient records
Health workforce	• Misdistribution of rehabilitation personnel across the levels of care and across the PHC facilities • Non-retention of rehabilitation personnel at the PHC level: ○ Lack of posts ○ International migration ○ Internal migration from the public sector to the private sector • Low rehabilitation personnel-to-patient ratio • Misdistribution of different rehabilitation disciplines in PHC facilities • Lack of appropriate rehabilitation personnel: Young, inexperienced practitioners in PHC facilities • Higher number of occupational therapists and physiotherapists than speech-language therapist and audiologists at the various CHCs • Different managerial structures across the metropolitan districts in the province with different reporting lines
Financing	• Source of funding between province and municipality • Poor procurement processes: Ordering of assistive devices is a lengthy process that often results in delays

In the service delivery building block, the organisation of services within the CHCs aligns predominantly with the prevalent medical model, which prioritises acute medical services and condition-specific vertical services.[139] Furthermore, service accessibility challenges are present in the noticeable disconnect in the referral pathway for rehabilitation services, which is further complicated by an appointment system used by rehabilitation personnel that cannot accommodate walk-in patients. Rehabilitation services could be well integrated into PHC with effective referral pathways.[118] While there is some degree of intersectoral collaboration with other public departments like the Department of Sport and Recreation and the Department of Social Development, the nature of the collaboration primarily focuses on campaigns rather than long-term service integration. Intersectoral collaboration is important for integrated rehabilitation services in PHC in order to address the social determinants of health.[118]

The ability of service users to access all required rehabilitation services in a single visit markedly improves service efficiency, user satisfaction, and the integration of service delivery. It is important to acknowledge that service users often endure significant personal sacrifices, such as skipping meals, to afford transportation to access rehabilitation services. This underscores the difficulties in accessing services and the necessity for comprehensive support systems. Such support encompasses the coordination of appointments with other medical follow-up services.[140] Therefore, using more effective multi-, inter- and transdisciplinary approaches is important for integrated rehabilitation service delivery in PHC. The findings from the previous phases of this study highlighted the value service users place on their rehabilitation in their pursuit of positive rehabilitation outcomes. An integrated, person-centred service should aim to reduce the need for these sacrifices, or at the very least, ensure they are not made in vain.

The information systems category of the WHO Building Blocks Framework captured significant operational challenges due to a notable deficiency in essential information technology infrastructure at the PHC facilities and the adherence to outdated record-keeping practices. The paper record is a poor tool for integrated patient care delivery, and a move towards electronic health records that integrate patient information across care settings and care episodes as a lifelong record is required.[138,141]

The health workforce component integrates findings from the preceding three phases concerning rehabilitation staff in CHCs, and unveiled intricate staffing challenges that impede the delivery of integrated services. There is a significant disparity in the distribution of rehabilitation personnel across various levels of care and even within PHC facilities themselves.[142] This uneven allocation results in the unavailability of certain rehabilitation services at some PHC facilities, which jeopardises the integration of services.

After categorising the service delivery influencing factors according to the WHO Health System Building Blocks, it was necessary to explore their effect on integrated rehabilitation services in PHC at the macro, meso and micro levels, as discussed in Step 3.

9.3.2.3 Step 3: Identifying and naming concepts

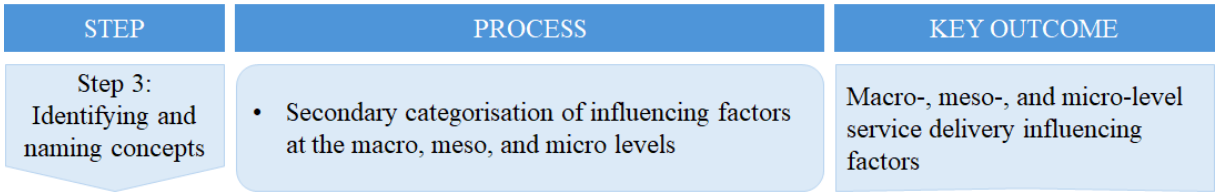


Figure 9.8 Step 3: Identifying and naming concepts

In this third step of developing a rehabilitation integration framework (Figure 9.8), the data from the previous three phases that were mapped according to the study objectives and the RE-AIM Framework (Step 1) and categorised as influencing factors according to the WHO Health System Building Blocks (step 2) were further analysed and categorised. The secondary categorising process was deductive, and specifically considered the factors that influence rehabilitation service delivery at macro, meso, and micro levels, as illustrated in Table 9.5. Macro-, meso- and micro-level categorisation was used to determine how to integrate rehabilitation services in PHC because there is need to evaluate the interconnections between influencing factors across different organisational levels.[143] Describing the study findings at multiple levels led to a comprehensive description that can guide implementation at each level.[135]

The criteria applied for categorising the study findings at the macro level included a focus on the provincial and district policy framework shaping integrated rehabilitation service delivery. This included the alignment between health and other governmental sectors as influenced by laws such as the NHI Bill, reengineering of PHC and the FSDR.[37,38] The meso level encompassed professional and organisational aspects of rehabilitation service delivery, such as coordinating services across different disciplines and within or between organisations. The micro level pertains to factors affecting clinical integration in the delivery of rehabilitation services to individual patients and communities.[2,92] Therefore, the outcome of Step 3 was categorising the findings according to the health system building blocks and their influence at a macro, meso and micro level, as shown in Table 9.5.

Table 9.5 Categorising findings from Phases 1–3 according to the WHO Health System Building Blocks[91] at a macro, meso and micro level

Influencing factors: WHO Health Systems Building Blocks (WHO)[91]	**Macro level**	**Meso level**	**Micro level**
Medical products and technology	• Inadequate budgets for assistive devices	• Poor procurement processes for assistive devices	• Waiting list for assistive devices
Leadership and governance	• Provincial versus district policies • Working model with auditing of provincially funded NGOs • Alignment and congruence between health and other governmental sectors • Lack of policy knowledge by stakeholders • No involvement from rehabilitation services in PHC reengineering streams	• No intersection between rehabilitation and PHC reengineering streams • Separate directorate for mental health and rehabilitation	• Lack of formal working procedure or involvement in PHC reengineering streams
Service delivery	• Services respond to service-user needs according to the most prevalent services, i.e. medical services	• Rehabilitation not included in architectural design of PHC facilities • Focus on acute level of care results in early discharge from hospitals to PHC facilities • Disconnect in referral pipeline • Service organisation through an appointment system: No capacity for walk-ins • Intersectoral collaboration taking place to an extent through campaigns with the Department of Sport and Recreation and the Department of Social Development • Patient-provider relations building within and between stakeholders	• Positive functional outcomes in adults and children • Mental health services less developed; physical rehabilitation services well developed • Lack of rehabilitation treatment space • Type of work undertaken by NGOs is mainly regulatory instead of health promotion and prevention • Mini-hospital structure with a focus on acute patients • Role clarification between the Department of Education and the Department of Health • Lack of consistent and standardised record-keeping across PHC facilities • Delays and long waiting lists for assistive devices • Lack of transport for community-based services, e.g. home visits • Inadequate liaison between community and health sector impacting rehabilitation service delivery

Table 9.5 Categorising findings from Phases 1–3 according to the WHO Health System Building Blocks[91] at a macro, meso and micro level continued

Influencing factors: WHO Health Systems Building Blocks (WHO)[91]	**Macro level**	**Meso level**	**Micro level**
Service delivery	• Services respond to service-user needs according to the most prevalent services, i.e. medical services	• Condition: Specific vertical services • Multiple points of service, e.g. medication collected at the tertiary-level, rehabilitation accessed at the primary level	• Patient-provider relations are important for service delivery • Provision of condition: Specific vertical services • Patient access to all necessary rehabilitation services in one day • Positive patient experiences: Compliant service users who are happy with the outcome of rehabilitation services • Personal sacrifice from patients to ensure access to rehabilitation services, e.g. sacrificing food to have adequate transport money • Need to understand the profile (demographic characteristics) of rehabilitation service users • Integration of rehabilitation services and access is a challenge in the clinic model • High evidence for telehealth: Overcomes geographical boundaries and the need for travel • Shared care model suggested in both the outreach and clinic model through task shifting and task sharing • Self-management increased empowerment of patients and community in ownership of their help and wellbeing •

Table 9.5 Categorising findings from Phases 1–3 according to the WHO Health System Building Blocks[91] at a macro, meso and micro level continued

Influencing factors: WHO Health Systems Building Blocks (WHO)[91]	**Macro level**	**Meso level**	**Micro level**
Service delivery			• CBR model success is enhanced by positioning the community at the core of identifying needs and developing programmes to deliver rehabilitation services • Implementation of service delivery protocols is facilitated by team involvement and increased protocol acceptability in practice • Non-adherence to service guidelines remains the biggest threat to rehabilitation service integration
Information systems		• Lack of computers and information technology devices to enable service delivery	• Inconsistent and non-standardised record-keeping practices across PHC facilities • All paper-based records and not electronic
Health workforce	• Misdistribution of rehabilitation personnel across the levels of care and across the PHC facilities • Non-retention of rehabilitation personnel at the PHC level: o Lack of posts o International migration o Internal migration from the public sector to the private sector • Low rehabilitation personnel-to-patient ratio	• Misdistribution of different rehabilitation disciplines in PHC facilities • Lack of appropriate rehabilitation personnel: Young, inexperienced practitioners in PHC facilities • Different managerial structures across the various metropolitan districts in Gauteng province with different reporting lines	• Higher number of occupational therapists and physiotherapist than speech-language therapists and audiologists at the various PHC facilities
Financing	• Source of funding between the province and districts in funding the CHCs and the clinics		• Poor procurement processes: Ordering of assistive devices is a lengthy process that often results in delays

Categorising the study findings from the previous three phases within the health system building blocks according to macro, meso, and micro levels (Table 9.5) revealed that numerous factors that affect the integration of rehabilitation services are widespread across all three levels, requiring solutions at all levels to integrate rehabilitation in PHC.[135] For example, deficient meso-level procurement processes and budgets for assistive devices hinder the timely provision of essential aids to the PHC facilities, resulting in long waiting lists for these devices and delaying patient recovery, patient access, and service delivery at the micro level. Implementing more efficient financial and payment structures, including rehabilitation, can help overcome these barriers and enable integrated service delivery. [144]

Similarly, meso-level lack of capacity to provide and maintain computers, network and data connectivity, and information technology devices and inconsistent, non-standardised, and outdated record-keeping practices at the micro level highlight the need for improved information systems. In order to move towards electronic records, as proposed in Step 2, it is necessary to have computers and infrastructure to support the technology.[141] Therefore, enhancing information technology requires improvements at both the meso and micro levels to facilitate integrated service delivery, patient tracking, and outcome measurement.[51]

In the leadership and governance block, discrepancies at the macro level between provincial and district policies manifest at the meso level as a division between the Directorate for Mental Health and the Directorate for Physical Rehabilitation Services. At the micro level, this discrepancy leads to a division between mental health and physical rehabilitation services, with mental health services being underdeveloped compared to well-established physical rehabilitation services. Such fragmented service delivery starkly contrasts with the objective of achieving integrated services.

The service delivery category of the WHO Health System Building Blocks framework faces challenges at both the macro and meso levels because rehabilitation services are not prioritised within a curative medical perspective, and architectural designs of PHC facilities exclude rehabilitation treatment spaces. The lack of priority given to rehabilitation services in the healthcare system and structural design considerations are a barrier to the delivery of integrated rehabilitation services.[145]

Health workforce challenges at the macro level include the non-retention of rehabilitation personnel at the PHC level because of a lack of posts, international migration, and internal migration from the public sector to the private sector.[146] At the micro level, we see a low rehabilitation personnel-to-patient ratio. These issues can only be address by implementing

strategies to improve workforce planning and retention, and the distribution of skilled personnel across the healthcare system.[147]

Overall, the challenges presented in Step 3 according to the macro-, meso-, and micro-level health system building blocks necessitate a multifaceted approach that includes policy reform, improved governance and leadership, enhanced service delivery models, investment in information systems and technology, strategic workforce development, and better financing mechanisms. However, the complexities inherent in integrated rehabilitation services requires a more holistic response.[148] The WHO Building Blocks Framework (Step 2) facilitated the organisation of the research findings by ensuring the comprehensive coverage of all crucial health system influencing factors and functions. The framework is primarily used to direct the distribution of resources within healthcare systems, and is therefore constructed based on a supply-orientated model that prioritises certain aspects of service provision while largely disregarding demand-side factors and social mobilisation endeavours such as community involvement, which are important in LMICs such as South Africa.[137] A more holistic approach acknowledges the interconnected nature of the health system components and is emphasised in the WHO Framework on Integrated People-centred Health Services.[121] Such an approach is essential for creating a more integrated, effective, and people-centred rehabilitation service within PHC and constitutes the foundation of Step 4, which was the next step in the development of a framework to integrate rehabilitation in PHC.

9.3.2.4 Step 4: Deconstruction and categorisation of concepts

STEP	PROCESS	KEY OUTCOME
Step 4: Deconstructing and categorising concepts	• Constant comparison, re-identification, and mapping of categories according to the WHO People-centred Integrated Health Systems Framework, which resulted in strengthen governance and accountability, reorient the model of care, create an enabling environment, coordinate services within and across sectors, and engage and empower people and communities.	Macro-, meso-, and micro-level influencing factors categorised according to the WHO People-centred Integrated Health Systems Framework.

Figure 9.9 Step 4: Deconstruction and categorisation of concepts

In Step 4, the identified macro-, meso-, and micro-level service delivery influencing factors from Step 3 were further deductively coded and categorised through constant comparison and deductive reasoning (Figure 9.9).[149] While the WHO Building Blocks were valuable in providing a common language and shared understanding for categorising the findings in Step 2, the building blocks did not provide the necessary framework for this step to proof what was

needed to holistically evaluate the integration of rehabilitation services in PHC. The building blocks are not suitable for analysing the impact of dynamic, complex, and interlinked systems. The mechanical segmentation of influencing factors by the WHO Building Blocks, without recognition of their interactions, hinders the understanding of their impact on integrated rehabilitation service delivery in PHC.[137]

Therefore, the WHO Framework on Integrated People-centred Health Services[121] was used to organise the findings further to enable them to ultimately be transposed into a framework for integrating rehabilitation services in PHC at a district level in Gauteng. The WHO Framework on Integrated People-centred Health Services[122] outlines five key interconnected strategies for enhancing services, which were fundamental in guiding the development of the rehabilitation PHC integration framework proposed in this study. The five strategies are coordinating services within and across sectors, reorienting the model of care, creating an enabling environment, strengthening governance and accountability, and engaging and empowering communities. Each strategy contributes to a comprehensive approach by addressing various health service delivery and system design aspects to optimise integrated people-centred healthcare. The interconnected nature of the strategies resulted in the influencing factors often falling into more than one category. The outcome of Step 4 is the macro-, meso-, and micro-level influencing factors for integrated rehabilitation services categorised according to the WHO Framework on Integrated People-centred Health Services as depicted in Table 9.6.

Table 9.6 Macro-, meso-, and micro-level influencing factors to integrated rehabilitation services categorised according to the WHO Framework on Integrated People-centred Health Services[122]

WHO Framework on Integrated People-centred Health Services[116]	**Macro level**	**Meso level**	**Micro level**
Coordinating services within and across sectors	**Leadership and governance**		
	• No involvement of rehabilitation services in PHC reengineering streams	• No intersection between rehabilitation and PHC reengineering streams	• Lack of formal working procedure or involvement in PHC reengineering streams
	Service delivery		
		• Disconnect in referral pipeline • Intersectoral collaboration taking place to an extent through campaigns with the Department of Sport and Recreation and the Department of Social Development • Patient-provider relations building within and between stakeholders • Multiple points of service, e.g. medication collected at the tertiary-level, rehabilitation accessed at the primary level	• Inconsistent and standardised record keeping across PHC facilities
Reorienting the model of care	**Medical products and technology**		
			• Long waiting list for assistive devices
	Leadership and governance		
	• Working model with provincially funded NGOs • No involvement of rehabilitation services in PHC reengineering streams	• No intersection between rehabilitation and PHC reengineering streams	• No formal working procedure or involvement in PHC reengineering streams

Table 9.6 Macro-, meso-, and micro-level influencing factors to integrated rehabilitation services categorised according to the WHO Framework on Integrated People-centred Health Services[122] continued

WHO Framework on Integrated People-centred Health Services[116]	**Macro level**	**Meso level**	**Micro level**
	Service delivery		
Reorienting the model of care	• Services respond to service-user needs according to most prevalent services, i.e. curative medical focus	• Focus on acute level of care results in early discharge from hospitals to PHC facilities • Service organisation through an appointment system: No capacity for walk-ins • Patient-provider relations building within and between stakeholders • Condition: Specific vertical services • Multiple points of service, e.g. medication collected at the tertiary-level, rehabilitation accessed at the primary level	• Positive functional outcomes in adults and children • Mental health services less developed; physical rehabilitation services well developed • Type of work undertaken by NGOs is mainly regulatory instead of health promotion and prevention • Mini-hospital structure with a focus on acute patients • Delays and long waiting lists for assistive devices • Condition: Specific vertical services • Patient access to all necessary rehabilitation services in one day • Positive patient experiences: Compliant service users who are happy with the outcome of rehabilitation services
	Leadership and Governance		
Create an enabling environment	• Lack of policy knowledge by stakeholders • No involvement of rehabilitation services in PHC reengineering streams	• No intersection between rehabilitation and PHC reengineering streams	• No formal working procedure or involvement in PHC reengineering streams

Table 9.6 Macro-, meso-, and micro-level influencing factors to integrated rehabilitation services categorised according to the WHO Framework on Integrated People-centred Health Services[122] continued

WHO Framework on Integrated People-centred Health Services[116]	**Macro level**	**Meso level**	**Micro level**
Create an enabling environment	***Service delivery***		
		• Rehabilitation not included in architectural design of PHC facilities	• Lack of rehabilitation treatment space • Lack of transport for community-based services, e.g. home visits • Patient-provider relations are important for service delivery
	Information systems		
		• Lack of computers and information technology devices to enable service delivery	• Lack of computers and information technology devices to enable service delivery
	Health workforce		

	• Misdistribution of rehabilitation personnel across the levels of care and across the PHC facilities
	• Non-retention of rehabilitation personnel at the PHC level:
	  o Lack of posts
	  o International migration
	  o Internal migration from the public sector to the private sector
	• Low rehabilitation personnel-to-patient ratio
		• Misdistribution of different rehabilitation disciplines in PHC facilities
		• Lack of appropriate rehabilitation personnel: Young, inexperienced practitioners in PHC facilities
			• Higher number of occupational therapists and physiotherapist than speech-language therapists and audiologists at the various PHC facilities

Table 9.6 Macro-, meso-, and micro-level influencing factors to integrated rehabilitation services categorised according to the WHO Framework on Integrated People-centred Health Services[122] continued

WHO Framework on Integrated People-centred Health Services[116]	**Macro level**	**Meso level**	**Micro level**
Strengthening governance and accountability	**Medical products and technology**		
		• Poor procurement processes for assistive devices	
	Leadership and governance		
	• Provincial versus district policies • Alignment and congruence between health and other governmental sectors • Lack of policy knowledge by stakeholders	• No intersection between rehabilitation and PHC reengineering streams	• No formal working procedure or involvement in PHC reengineering streams
	• Separate directorate for mental health and rehabilitation • No involvement of rehabilitation services in PHC reengineering streams		
	Financing		
	• Source of funding between province and municipality		• Poor procurement processes: Ordering of assistive devices is a lengthy process that often results in delays
Engaging and empowering people and communities	**Leadership and governance**		
	• No involvement of rehabilitation services in PHC reengineering streams	• No intersection between rehabilitation and PHC reengineering streams	• No intersection between rehabilitation and PHC reengineering streams
	Service delivery		
		• Patient-provider relations building within and between stakeholders	• Poor liaison between community and rehabilitation services • Personal sacrifice from patients to ensure access to rehabilitation services, e.g. sacrificing food to afford adequate transport money • Need to understand the profile (demographic characteristics) of rehabilitation service users

The following are descriptions of the macro-, meso- and micro-level influencing factors to integrated rehabilitation services categorised according to the five strategies of the WHO Framework on Integrated People-centred Health Services:

i. *Coordinating services within and across sectors* requires that health services be tailored and coordinated to meet individuals' unique needs and preferences.[116] This can be achieved by integrating healthcare professionals across different settings, guiding patients to the correct care levels, and linking healthcare with other sectors to address the social determinants of health.[150] In this study, leadership and, governance, and service delivery factors were categorised in this strategy. The lack of involvement and intersection of rehabilitation services with PHC reengineering streams at a macro, meso and micro level in the Johannesburg Metropolitan District was well suited for this category as it highlighted the fragmented services typical of the South African health system.[151] At the meso level, there is a disconnect in the patient referral process, and many patients are falling between the cracks. Nevertheless, intersectoral collaboration between various governmental sectors was demonstrated through initiatives that include the Department of Sport and Recreation and the Department of Social Development. However, such collaboration was restricted to specific campaigns. Additionally, rehabilitation staff was working to build interpersonal relationships among the various stakeholders. There was a discrepancy in service provision because with service users received medication at the tertiary-level and rehabilitation services at the primary level. At the micro level, there were notable inconsistencies in the quality of record keeping across PHC facilities in the Johannesburg Metropolitan District.

ii. *Reorienting the model of care* entails restructuring rehabilitation services to be both efficient and effective. This involves adopting innovative care models that emphasise primary and community care and promote patient involvement in their rehabilitation. It signifies a move from hospital-centric to outpatient and community care, shifting the focus from illness treatment to prevention. The study findings categorised under this strategy included micro-level medical products and technology, macro-, meso-, and micro-level leadership and governance, and macro-, meso-, and micro-level service delivery factors. The CHCs have long waiting lists for assistive devices at the micro level due to inadequate procurement processes. Leadership and governance influence factors at the macro level include the unclear working model between the rehabilitation personnel at the clinics and the provincially funded NGOs where rehabilitation services were limited to infrastructural audits rather than promotion and prevention interventions geared towards service users. Similarly, the lack of intersection or involvement of

rehabilitation within the PHC reengineering streams at the meso and micro level highlighted leadership and governance factors that require a reorientation of the model of care to ensure the successful implementation of the NHI and achievement of universal health coverage.[152] When looking at service delivery factors falling into the category of reorienting the model of care, macro-level influencing factors include the strong curative medical focus in the CHCs in the Johannesburg Metropolitan District. In the medical model, PHC services are found to respond to the service users' needs according to the most prevalent or dominant curative services. The dominant medical focus at the macro level translates into an influx of patients requiring an acute level of care in the CHCs at the meso level due to early discharge from hospitals to PHC-level facilities. Rehabilitation services are organised through an appointment system to cope with the high demand, leaving little capacity for walk-ins. Similarly, at the meso level, the multiple points of service access resulting from condition-specific vertical service mean that service users collect their medication at the tertiary level, yet access rehabilitation services at the PHC level. Micro-level influencing factors that speak to the need for a reorientated model of care include positive functional outcomes reported in adults and children accessing rehabilitation services. The discrepancy between underdeveloped mental health versus well-developed physical rehabilitation services and regulatory rather than health promotion work carried out by the NGOs also falls into this category. The mini-hospital structure in the CHCs focuses on acute patients, delays and long waiting lists for assistive devices, and condition-specific vertical services, which are also micro-level influencing factors to integrated rehabilitation service delivery. The ability of patients to access all the necessary rehabilitation services in one day and positive patient experiences with compliant users who are satisfied with rehabilitation outcomes are positive micro-level influencing factors that should be maintained in service delivery.[118]

iii. *Strengthening governance and accountability* requires adopting an inclusive method for policy formulation, decision-making, and performance assessment across all healthcare system levels, from policy inception to clinical implementation. Effective governance is marked by transparency, inclusivity, and the reduction of corruption by aiming to maximise resource and information use for optimal results.[153] The poor procurement processes for medical products and technology at the meso level speak to the need for strengthened governance and accountability. Macro-level challenges highlighted in the findings include disparities between provincial and district policies, the need for

alignment and congruence between health and other governmental sectors, a lack of policy knowledge among stakeholders, and separate directorates for mental health and for rehabilitation. The absence of rehabilitation services' involvement in PHC reengineering streams spans the macro, meso and micro levels as a challenge requiring improved governance and accountability.

iv. *Engaging and empowering people and communities* entails providing people with essential opportunities, skills, and resources to become effective users and advocates of health services, aiming for systemic reform.[154] This approach mobilises resources at both community and individual levels for comprehensive action. Micro-level service delivery factors falling into this category include poor liaison between the community and rehabilitation services; personal sacrifices made by patients, such as forgoing food to afford transport to rehabilitation services; and the necessity to understand the demographic characteristics of rehabilitation service users to effectively integrate rehabilitation in PHC.

v. *Creating an enabling environment* that supports collaboration among all relevant stakeholders to drive meaningful change is important for integrated rehabilitation service delivery in PHC because it is a critical requirement to successfully implement the other four strategies. This complex task necessitates various approaches to enable necessary changes in leadership and management, information systems, quality improvement techniques, workforce realignment, legislative structures, financial frameworks, and intrinsic and extrinsic incentives.[155] Micro-level service delivery challenges in this category include a lack of rehabilitation treatment space, insufficient transport for community-based services such as home visits, and the importance of patient-provider relations for effective service delivery.

9.3.2.5 Step 5: Integrating concepts

STEP	PROCESS	KEY OUTCOME
Step 5: Integrating concepts	• Integrate and group together concepts that have similarities to reduce the number of concepts. • Identify and consolidate the rehabilitation integration concepts informed by the WHO People-centred Integrated Health Systems Framework and literature	Grouped concepts according to the WHO People-centred Integrated Health Systems Framework

Figure 9.10 Step 5: Integrating concepts

The six steps used in developing a framework to integrate rehabilitation in PHC resulted in a revision of the original conceptual considerations and framework described in Figure 9.1 to identify an effective approach for integrating rehabilitation services into PHC in Gauteng. The revised guiding conceptual considerations of this study emanated from the findings that arose from Phases 1–3 of this study. In Step 1, the findings were assessed against the RE-AIM Framework to establish their alignment with the five dimensions of reach, effectiveness, adoption, implementation, and maintenance. Thereafter, the findings were further categorised according to the WHO Health System Building Blocks in Step 2 to acknowledge the pivotal role that the building blocks play as influencing factors in the delivery of rehabilitation services. Step 3 allowed us to categorise the influencing factors according to their impact at the macro (national or systemic), meso (institutional or community), and micro (individual) levels, providing a comprehensive view of the complexities and challenges faced when integrating rehabilitation services into PHC. Categorising the study findings further according to the WHO Framework on Integrated People-centred Health Services in Step 4 allowed us to holistically look at the influencing factors. In step 5, the findings were further integrated and synthesised into a theoretical framework (Figure 9.10). The theoretical framework retained the health system building blocks and their considerations at a macro, meso, and micro level but integrated them into the WHO Framework on Integrated People-centred Health Services as depicted in Figure 9.11.

The WHO Framework on Integrated People-centred Health Services strategically guided the proposal of a framework for the integration of rehabilitation services into PHC. This approach underscored the importance of a holistic, people-centred perspective that aligned with the aim of this study to propose a framework for the integration of rehabilitation services in PHC. The process involved bringing together the WHO Health System Building Blocks, with service delivery being the key focus of this study [91], the influence of the building blocks at a macro, meso and micro level, and the WHO Framework on Integrated People-centred Health Services.[122] After the findings were categorised and agreed upon according to Steps 1–5, the final step enabled us to synthesise, re-synthesise, and make it all make sense. [82] In Step 6, the concepts that have similarities were grouped, resulting in a consolidated PHC integration framework for Gauteng.

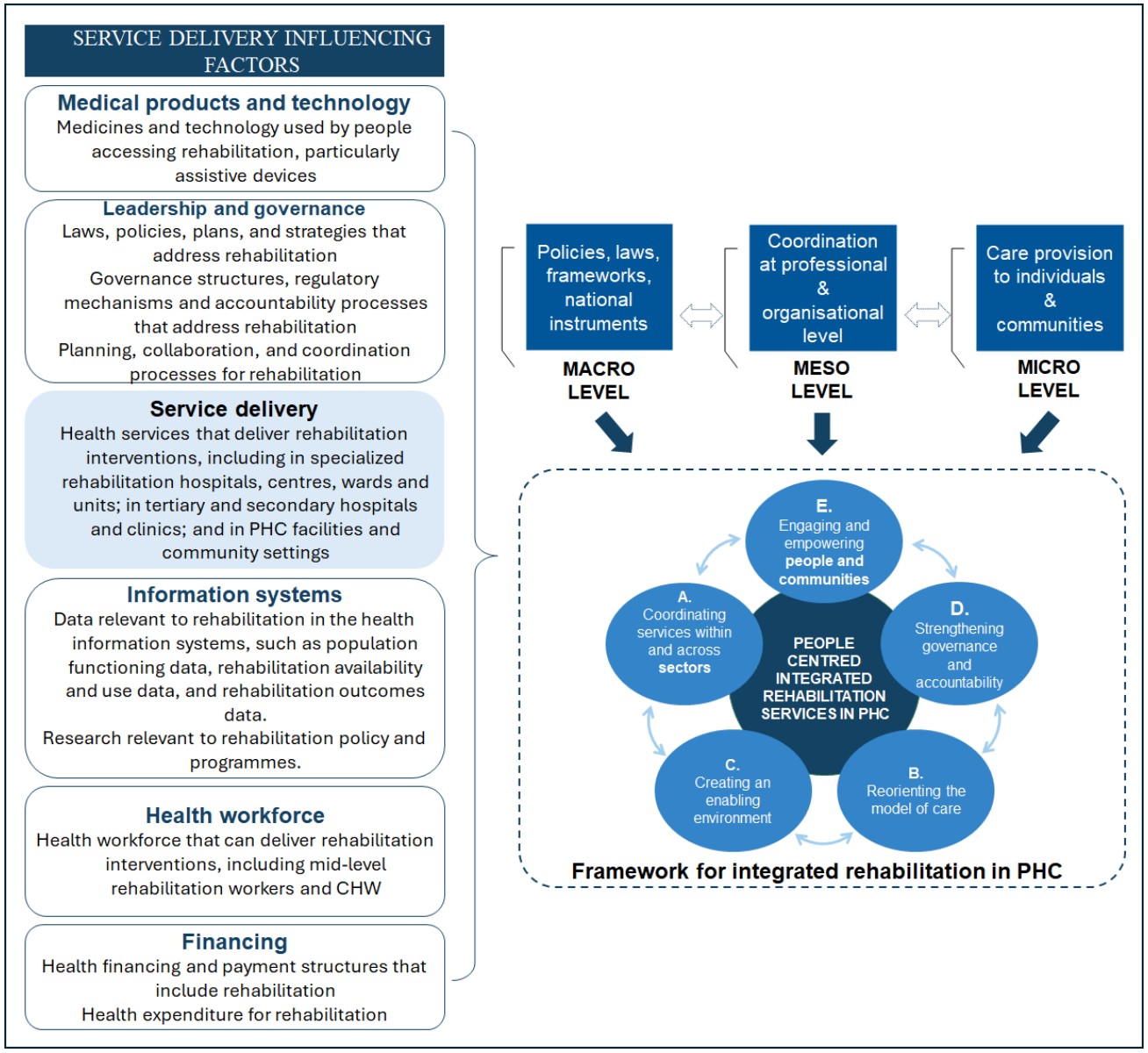


Figure 9.11 Conceptual considerations in developing a rehabilitation integration framework in PHC

9.3.2.6 Step 6: Synthesising, resynthesising, and making it all make sense

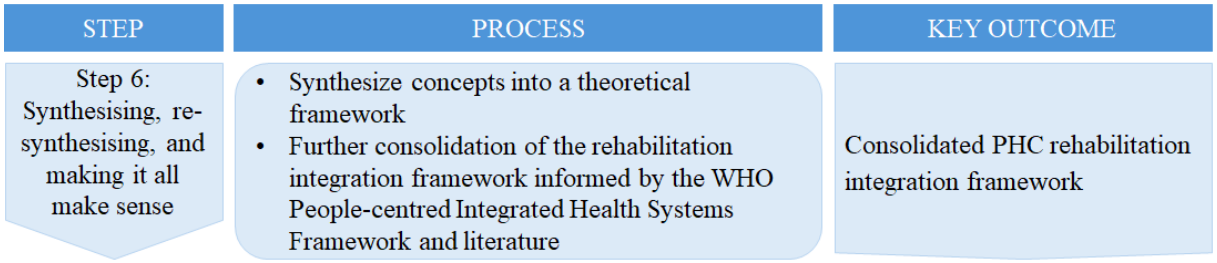


Figure 9.12 Step 6: Synthesising, resynthesising, and making it all make sense

The final step is a proposed framework for integrating rehabilitation services in PHC in Gauteng, South Africa (Figure 9.12). A framework usually denotes a structure, overview, outline, system, or plan consisting of various descriptive categories, such as concepts, constructs, or variables, and the relations that are presumed to account for a phenomenon.[118] Upon reviewing the outcomes from Phases 1–3, namely the context of rehabilitation services (Phase 1); the profile of rehabilitation services, including existing implementation gaps, the current state of services, deficiencies, care models, and the demographic profile of service users (Phase 2); and the user experience in rehabilitation (Phase 3), it was clear that it is a complex issue to address integration issues to develop an effective framework for integrated service delivery in PHC. Complex adaptive systems thinking provides a science to approach the description of the proposed framework for integrating rehabilitation in PHC, the final phase of this study.[156]

In complex adaptive systems thinking, the emphasis is placed on understanding the whole system rather than focusing exclusively on the individual components they comprise off because the processes within the system are interrelated, non-linear, and dynamic.[157] Within the context of complexity, the identified components from the previous three phases were structured into a coherent overview that can be broken down into actionable steps for service enhancement, specifically for integrated rehabilitation services in PHC. This approach advocates for using macro, meso, and micro levels to place the individual at the heart of the framework. Consequently, it was logical to categorise the issues identified in all the prior phases of the study within this framework to span the macro, meso, and micro levels. Additionally, a secondary categorisation employed the WHO Framework on Integrated People-centred Health Services to further refine our understanding.

The main research question of this study asked how rehabilitation services should be integrated into PHC at district level in Gauteng, South Africa. Figure 9.13 shows that to answer this question, the framework for integrated rehabilitation services in PHC was framed on the five

strategies of the WHO Framework on Integrated People-centred Health Services. At the centre of the proposed framework is an emphasis on the importance of placing the patient and communities at the centre of care through integrated rehabilitation services that are people centred. Surrounding the centre are the five strategies of the WHO Framework on Integrated People-centred Health Services, which are strengthening governance and accountability, coordinating services within and across sectors, reorienting the model of care, engaging and empowering people and communities, creating an enabling environment, within three concentric circles denoting the macro, meso and micro levels. These levels indicate the multi-level approach required to integrate rehabilitation services in PHC. Within the macro, meso, and micro levels, the WHO health system influencing factors, namely leadership and governance, financing, health workforce, service delivery, medicines and technology, and health information systems, are populated from the findings from Phases 1–3 of the study. Therefore, the outcome of step 6 is a formulated framework for integrating rehabilitation services in PHC, the elements of which are discussed in the next section.

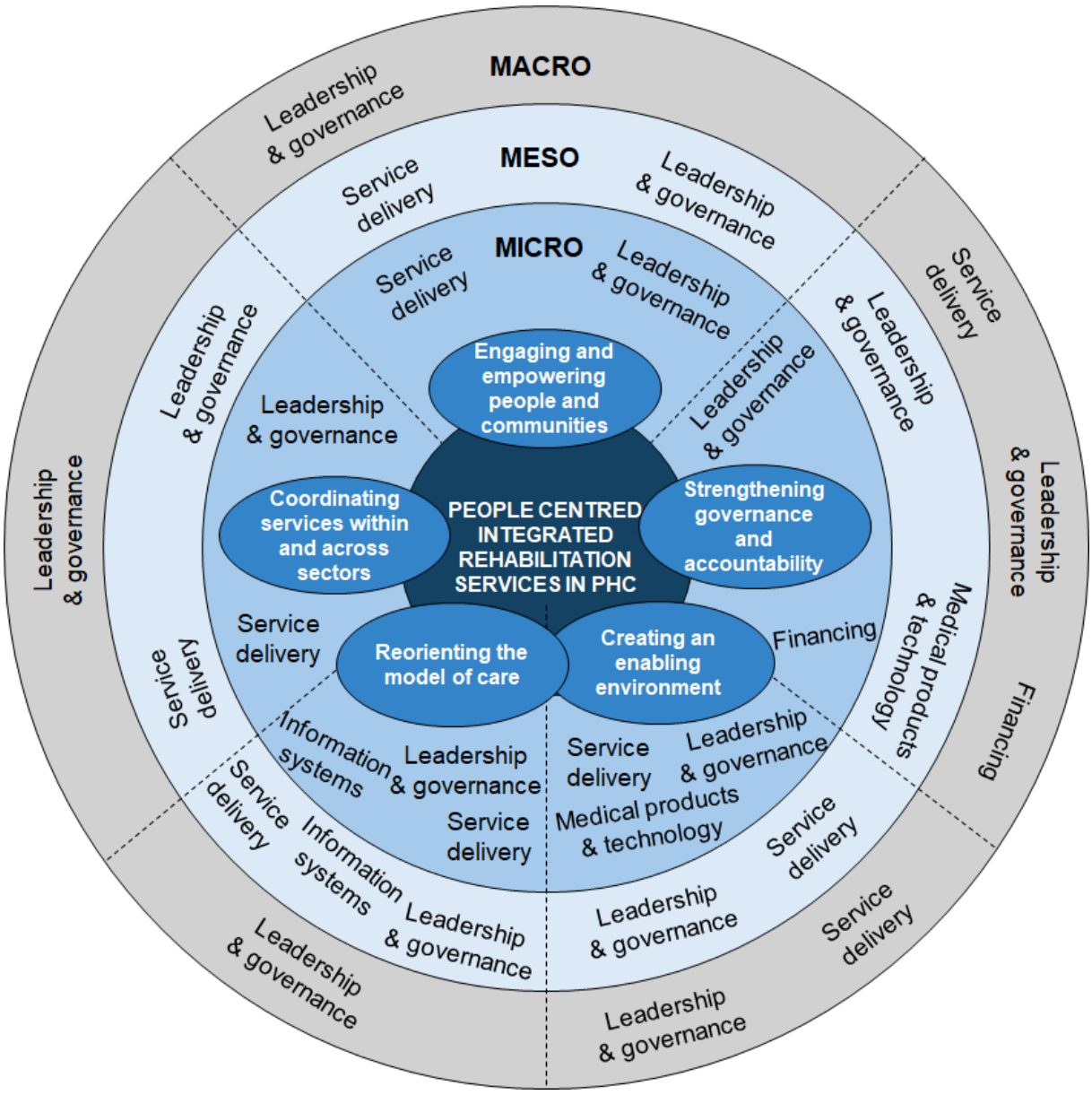


Figure 9.13 Proposed framework for integrating rehabilitation services in PHC

9.4 Framework for Integrating Rehabilitation Services in PHC at District Level in Gauteng, South Africa

9.4.1 Description of the Framework for Integrating Rehabilitation Services in PHC at District Level in Gauteng, South Africa

This section discussed the framework for integrating rehabilitation in PHC in Gauteng (Figure 9.13), which was developed using six of Jabareen's[82] eight steps. An integrated PHC rehabilitation service at district level in Gauteng, South Africa, should be one in which there is strong governance and accountability, an enabling environment, a model of care that is reorientated to facilitate contextually responsive care for optimal rehabilitation outcomes,

services that are coordinated within and across the various sectors and not only limited to health, and service in which the people and communities who access these services are engaged and empowered to be active contributors to their overall wellbeing.[116]

9.4.1.1 Strengthening governance and accountability

At the macro level, the areas that needed attention were leadership, governance, service delivery, and financing. The policy landscape plays a pivotal role in shaping responsive PHC rehabilitation services. Therefore, policy framing should commence with acknowledging rehabilitation as an essential health service rather than a luxury optional supplement to other health services in order to foster the integration of rehabilitation into PHC.[158] A comprehensive integration strategy necessitates strong national policy support across various sectors, not just in health.[33] A robust contextually relevant framework reinforces strong governance and accountability that promotes mutual accountability among policymakers, administrators, service providers, and users, and that is complemented by intrinsic and extrinsic incentives that encourage a person-centred approach rather than just a patient-centred approach.[159]

It is essential to develop a comprehensive policy framework that includes rehabilitation services in PHC and a compelling narrative for reform in order to establish a shared vision and strategies for its realisation. Rehabilitation professional bodies must commit to a united approach and continue engaging with and providing a voice for rehabilitation at strategic high-level engagements. It is essential to constantly advocate for the inclusion of rehabilitation services at all levels of health, including in PHC. Mandatory reporting of rehabilitation indicators by South Africa to the WHO can influence policy intentions. Achieving substantial reform in integrating rehabilitation services into PHC requires robust political leadership and a system-based approach to health governance.[51] This approach should prioritise policy and governance frameworks conducive to integrating rehabilitation services, and ensuring accessibility, equity, contextual relevance, and high-quality services for all South Africans. Additionally, it should promote alignment between provincial and district policies to eliminate fragmented healthcare delivery in order to facilitate the delivery of integrated rehabilitation services at all healthcare system levels.

At the micro level, rehabilitation personnel should actively contribute to policy documents to influence policy formulation. Platforms like the Rehabilitation Indaba, a multidisciplinary gathering of rehabilitation professional associations, offer an ideal opportunity for this contribution. Effective governance entails mutual accountability and responsibility among stakeholders and aligning incentives with a patient-focused approach.[51] Thus, responsibility

does not only include contributing to the development of policies but also requires rehabilitation personnel to familiarise themselves with policies and procedures. Moreover, addressing the lack of policy knowledge among stakeholders and the absence of a dedicated mental health and rehabilitation directorate are critical steps in overcoming barriers to effective policy implementation. The inclusion of rehabilitation services in reengineered streams of PHC is essential to ensure alignment with broader PHC objectives.[51] In summary, addressing these challenges requires a concerted effort to enhance policy coherence, stakeholder education, and the structural integration of rehabilitation services within the healthcare system.

Increasing community involvement in rehabilitation service planning is crucial for improving governance. Communities play a vital role in identifying local concerns and advocating for their recognition.[160] The National Health Act outlines mechanisms for citizen participation in PHC through clinic committees, but these bodies often underperform, and therefore, accountability within the PHC system can be improved by more effectively leveraging these committees.[33,55] Additionally, adequately incorporating CHWs into governance structures across the entire PHC system is essential for promoting community participation and accountability.[161]

Furthermore, there is a pressing need for better alignment between the health sector and other governmental sectors to address the multifaceted needs of individuals requiring rehabilitation services. Integrating rehabilitation outcomes across health, transportation, education, and housing sectors is crucial for holistic health outcomes.[51,162] Participatory decision-making and evaluation in PHC rehabilitation services are essential to enhance governance. Actively involving patients in healthcare decisions can inform improvements in service delivery by promoting universal access and fair healthcare delivery.[163]

The lack of standardised, disaggregated, and interoperable data on the rehabilitation workforce, the rehabilitation services delivered, and the outcomes achieved presents a significant challenge in systematically identifying gaps in the availability of rehabilitation personnel and services. Without accurate information, provincial and district management cannot effectively address unmet rehabilitation needs.[164] Regulatory bodies such as the Health Professions Council of South Africa are well-positioned to collect essential rehabilitation workforce data to enable appropriate explanations of the ratio of rehabilitation professionals to service users so planning and funding for additional rehabilitation workforce for integrated service delivery can be done.

It is necessary to explore funding sources and procurement processes at the macro level to identify systemic barriers hindering the efficient delivery of assistive devices at the micro level. Strengthening governance and accountability demands an inclusive approach to policy

formulation and outcomes-based performance assessment across all healthcare system levels.[165] Additionally, clear, comprehensive service guidelines and their implementation are crucial for the successful integration of rehabilitation services into PHC,[166] and this should include community-based strategies to enhance the reliability of the rehabilitative process.

9.4.1.2 Coordinating services within and across sectors

The second strategy in the proposed framework for integrated rehabilitation services in PHC, illustrated in Figure 9.13, is coordinating services within and across sectors. It advocates for services to revolve around people's needs, and therefore, requires integrated healthcare providers in interprofessional teams, robust referral systems, and linkages between sectors to minimise discontinued service use due to loss to follow-up.[131] Intersectoral and interdisciplinary collaboration have been found to be essential to improve mental health at the population level.[167] A strategy that is currently being used to minimise discontinued use is to deploy CHWs to follow up on patients who default on their care; thus, the interprofessional teams should include CHWs. Coordinating services within and across sectors involves local collaborations to address determinants of health outcomes and optimise the use of limited resources, occasionally through partnerships with private entities. For example, coordination in the context of Gauteng PHC services would include improving service delivery by aligning and integrating processes and information across diverse services rather than merging different structures, services, or workflows.[118]

Intersectoral collaboration between the various government departments is an important approach to integrating rehabilitation services in PHC in Gauteng. Due to the multidisciplinary nature of rehabilitation, several stakeholders are involved in providing services, which inherently requires intersectoral collaboration. However, collaboration appears to happen haphazardly on a short-term basis with no formal procedures. Service coordination through collaborative practices will require role clarification between the sectors, particularly where there is overlap in service delivery.[80] The goal is to address health determinants and optimise resource use through partnerships with the private sector.[43,168]

The training and scope of practice of CHWs have not focused on the social determinants of health or the development of skills required for community mobilisation.[169] There is considerable potential for ward-based PHC outreach teams to further promote local action on the social determinants of health and extend CBR services. However, this can only be achieved if the value of such roles are recognised, and if CHWs are actively supported through

appropriate training on a national level and through support from rehabilitation personnel.[161] CHW training is already taking place in the Western Cape, but not nationally.

The social determinants of health in the life of a person with a disability would necessitate intersectoral collaboration between health, education, labour, social development, housing, and transportation, but South Africa lacks this intersectoral collaboration.[145] Coordinating services within and across sectors requires partnerships to be established, and building interpersonal working relationships between rehabilitation personnel and service users, rehabilitation personnel and other PHC healthcare workers, and among the rehabilitation personnel themselves within the PHC level and across the different levels of care.

The lower use of audiology services at the primary level raises concerns about adequately addressing sensory impairments, including the availability of audiology equipment and audiologists at this level of care. Effective ear and hearing service implementation at the PHC level requires careful planning, clear programme goals, and defined care pathways.[170] It is important to explore strategies, such as including audiology services in the School Health Programme of the reengineered PHC, and better yet, these services were found to be more effective in preschool children.[171] Intersectoral collaboration with advocacy for rehabilitation posts in other governmental departments is needed, including in education and social development.

9.4.1.3 Reorienting the model of care

Evaluating and adapting existing rehabilitation service delivery models while crafting new ones are essential steps to seamlessly incorporate rehabilitation services into PHC in order to foster inclusion, equity, and justice.[127] A reorientated model of care, as seen in Figure 9.13, requires a shift from the current clinic-based focus of rehabilitation services in PHC to more inclusive models that incorporate services in clients' homes and outreach to underserved communities. The current focus of rehabilitation services in PHC primarily revolves around clinic-based care, and limited attention is given to delivering services in clients' homes or reaching out to underserved communities.[172] It is necessary to expand service delivery beyond clinic settings through outreach services and home and CBR programmes to enhance accessibility for vulnerable populations. Such expansion is important to integrate rehabilitation in PHC because improvements in patient health outcomes and reduced health system costs have been shown when services are restructured to focus on person-centred experiences and needs.[135]

The WHO's Rehabilitation 2030 initiative highlights the necessity of integrating rehabilitation into PHC to address the complex needs of individuals, aligning with the universal health coverage agenda.[43] However, the integration and prioritisation of rehabilitation services face obstacles, especially in LMICs, despite existing policies and guidelines. Innovative care models prioritising primary and community care are essential for effective rehabilitation services in LMICs. The CBR model and peer support workers are promising approaches than can enhance rehabilitation outcomes and integrate services into PHC through community involvement, shared care, and self-management.[134,75,173] Implementing CBR programmes could improve rehabilitation outcomes and foster community-based inclusive development in resource-constrained settings.

Additionally, integrated PHC rehabilitation services may be impacted in South Africa since they are often provided by less experienced rehabilitation personnel during their year of compulsory community service. While this is beneficial in providing a workforce for PHC, it is a single year appointment that limits the continuity of rehabilitation services in PHC[174]. A suggested remedy involves incorporating CHWs and community rehabilitation workers into multidisciplinary and interdisciplinary teams to improve service reach and effectiveness and leveraging their unique community roles by enhancing continuity of care.[75] Peer support workers play a key role in making healthcare more inclusive and empowering for service users through shared care and self-management, leading to improved health outcomes.[175] Incorporating peer support workers mitigates professional shortages and promotes a sustainable healthcare model in which communities actively participate in delivering rehabilitation services.[78]

The working model between the rehabilitation services and the provincially funded mental health NGOs is an important area that requires further attention. The aftermath of the Life Esidimeni tragedy[1] in South Africa taught the hard lesson that NGOs must be supported and capacitated to care for residents with mental illness[96], and that they play an important role in

[1] Life Esidimeni was a catastrophe that resulted in the deaths of 144 individuals at psychiatric facilities in the Gauteng province of South Africa. The causes of death included neglect and starvation. The tragedy is named after Life Esidimeni, a subsidiary of Life Healthcare, the private healthcare provider from which approximately 1,500 state patients were evacuated during the first half of 2016. The patients were transferred to less expensive care facilities, many of which were subsequently discovered to be unlicensed and inadequately equipped. In democratic South Africa, the incident has been referred to as "the greatest cause of human rights violation" and has prompted a discussion regarding the treatment of psychiatric and other state patients.

expanding rehabilitation service delivery. Measures have been put in place to provide outreach services to the NGOs, but rehabilitation personnel's interactions with the NGOs must extend beyond auditing infrastructure to include more health promotion and prevention orientated activities, such as skills development and capacity building for the staff at the NGOs.[176] This process is essential to ensure NGOs effectively and efficiently deliver on their mandates, particularly in areas related to health and rehabilitation services. However, there seems to be a lack of clarity and standardisation in the working model, which could impact the quality and reliability of the services provided.

Integrating rehabilitation services into PHC faces significant challenges due to limited rehabilitation personnel and service availability, especially in remote and underserved areas[51] because of limited health funding and management models. A reorientated service delivery model must be principle-based so that it is not influenced by the funding model. This means that rehabilitation services should be uniform across the PHC facilities in an integrated PHC system.

It is essential to explore and implement strategies that combine task shifting to CHWs with self-management through community empowerment and peer support to achieve a fully integrated people-centred PHC rehabilitation system,. This requires a well-informed plan that includes adequate capacity building and appropriate use of community workers to ensure rehabilitation services are effectively integrated and accessible within the PHC framework.

9.4.1.4 Creating an enabling environment

Creating an enabling environment for integrated rehabilitation services in PHC involves bringing together stakeholders to effect meaningful change (Figure 9.13). An enabling environment involves transforming leadership and management approaches, improving information systems, adopting quality improvement methods, reorienting the workforce, updating legal frameworks, modifying financial arrangements, and adjusting incentive models. Motivated rehabilitation personnel who are dedicated to their roles and sometimes even use their personal resources to ensure service delivery are a testament to the commitment within PHC rehabilitation services. Leveraging this dedication by providing the resources needed can prevent disillusionment and demotivation, which are issues currently faced by nursing staff.[177]

Building strong interpersonal relationships with service users, ensuring effective communication, and providing culturally competent services that respect diverse beliefs and values are fundamental for positive patient experiences.[178] This is particularly significant in

South Africa, where there are often differences in culture and language between service users and rehabilitation personnel.[179] Addressing service users in their home language is a step towards cultural competence but needs to be part of broader efforts to understand and respect users' cultures to demonstrate cultural humility and ubuntu.[155]

The lack of district hospitals in the Johannesburg Metropolitan District has placed increased pressure on PHC clinics, and therefore, it is necessary to advocate for district hospitals in PHC or increased primary- and community-level capacity to manage the high demand for services, including increased staffing. Additionally, service delivery models should be reassessed to address these pressures; for example, the supported discharge model using CHWs in the ward-based PHC outreach teams to provide transitional care for early discharges.[180] There is a pressing need for greater investment in rehabilitation to build capacity in South Africa. These investments should include human resources for PC rehabilitation services as part of ward-based outreach teams and fostering partnerships between government and NGOs. Compulsory community service has notably improved service delivery, especially at district level; however, the challenge of retaining community service rehabilitation personnelleads to a discontinuity of services and insufficient staffing to meet the growing patient demand, and this remains a significant issue.[181]

Audiologists are in short supply, and this affects the ability to perform hearing screenings for patients with chronic illnesses and universal screenings for babies.[181] The number of rehabilitation personnel, especially in LMICs, suggests that the need for rehabilitation is much higher than the services provided.[30] The disparity between the need for rehabilitation and the services provided underscores the importance of systematically collecting and analysing information on the dynamics of the health labour market, such as production, inflows and outflows, distribution, retention and regulation and their determinants to improve the availability and quality of PHC services.[164] The Department of Health Statutory Councils, such as the Health Professions Council of South Africa, the Council for Medical Schemes, and professional bodies or entities that manage health professional numbering systems, should perform this function with input from academia.[138]

An efficient supply chain management system that is unequivocally patient-centred is required to integrate service delivery in PHC. Consideration of an appropriate procurement system (whether centralised or decentralised) with standardised processes at the national and provincial levels must be considered to deal with corruption and economies of scale. Appropriately skilled labour, and an effective information technology system are critical to enable efficient procurement processes.[138]

There is a pronounced lack of computers and other necessary information technology devices that are crucial for modern healthcare delivery at CHCs. This shortfall impedes efficient service delivery, and limits healthcare providers' ability to access and use digital health records, perform timely data entry, and facilitate effective referrals and efficient patient care management. The reliance on paper-based patient records further compounds the issues stemming from technological and procedural inadequacies. This outdated method of documentation poses risks of loss and damage, and hinders the quick retrieval and exchange of patient information, which slows down clinical decision-making and increases the administrative burden on healthcare providers.[182] In South Africa, service provision issues like loadshedding also negatively impact digitalisation of records.

Within the typical curative services at the PC level, there is a reliance on technology for referral to secondary- and tertiary-level facilities. However, the infrastructure to support this process is not readily available, particularly for rehabilitation services; for example, medical doctors are using the Vula app, which is not available for rehabilitation services, and often requires health professionals to use their own data for referrals. Therefore, a transition to an electronic record-keeping system to decrease and avoid inconsistent and paper-based practices is necessary to enhance long-term service-user management in PHC.[44] An integrated patient record is important for people-centred integrated rehabilitation in PHC as it provides a longitudinal view of patient care across the continuum of care, and includes health information from multiple healthcare services.[182]

An enabling environment requires physical spaces that facilitate the integration of rehabilitation into PHC. Part of the NHI piloting in South Africa included building new clinics in the pilot sites under the Ideal Clinic Programme across the nine provinces.[104] There is undocumented evidence on the extent to which treatment spaces for rehabilitation have been incorporated into the new clinics; however, anecdotal evidence suggests that no spaces have been factored in for rehabilitation services. Furthermore, progress towards completing the new clinics has been slow, and many are still under construction or incomplete.[138]

One of the barriers to integrated service delivery is the lack of definition, awareness, and recognition of the role of each professional within a multidisciplinary team. The value of multidisciplinary teams and collaboration between rehabilitation personnel and medical professionals must not be underestimated. This proposed framework advocates for interprofessional care rather than interdisciplinary care to ensure effective and efficient patient care. Awareness building and relationship building initiatives are key to fostering interprofessional trust in health workforce efficiency[183] and meso-level professional and

organisational integration.[1] Through working together, rehabilitation personnel can harness collective strength to improve service delivery and increase referrals to rehabilitation from other PHC professionals.[184] Ultimately, person-centred integrated rehabilitation services in PHC are based on conceptual models that recognise that each profession has their own role to play in the rehabilitation process.[101]

Furthermore, a critical aspect of creating an enabling environment for people-centred integrated rehabilitation in the PHC system is ensuring patients do not face prohibitive transportation costs to access rehabilitation services at CHCs.

9.4.1.5 Engaging and empowering people and communities

Engaging and empowering individuals and communities are essential for fostering active participation in and advocacy for health services. This involves reaching out to underserved and marginalised groups to involve them in planning and delivering healthcare services. Training unemployed community members as CHWs and community rehabilitation workers could significantly improve access to rehabilitation services, particularly in underserved areas.[185] Additionally, as part of the community, trained CHWs can serve as vital links between the healthcare system and opening communication channels between rehabilitation personnel and users.[173]

In South Africa, the Local Government: Municipal Systems Act of 2000[186] and the Local Government: Municipal Structures Act of 1998[187] require municipalities to develop an integrated development plan through consultations with their communities. This mandate highlights the importance of involving all local stakeholders, including traditional leaders, in services, including planning rehabilitation services at the PHC level.[188] The national government launched the Batho Pele ('People First') initiative to improve healthcare services, and it fosters consultations between citizens and public officials. This initiative is based on eight principles to improve public service delivery and sets clear standards for engaging and empowering people and communities in PHC rehabilitation service delivery. These principles embody the ingredients for people-centred integrated rehabilitation services in PHC, and it covers establishing standards, ensuring equitable access, treating the public considerately, maintaining accountability, promoting transparency, addressing user complaints, evaluating provider performance, and ensuring accountability.[188]

Integrated people-centred PHC rehabilitation services necessitate a well-prepared workforce. University training programmes must equip graduates for community-based roles in PHC.

Collaboration between PHC rehabilitation services and higher education institutions is necessary to adopt a holistic approach that addresses preventable morbidity and mortality through activity engagement and participation.[33] This shift involves focusing on intersectoral actions that target social determinants of health and strengthens partnerships between academics and practitioners through communities of practice.[15] In addition, higher education institutions should also ensure graduates leave with interprofessional competencies that are essential for a holistic approach and person-centred care.[189]

It is important to challenge misconceptions that view rehabilitation services as solely for individuals with disabilities and as a luxury, non-essential service. Integrating rehabilitation into all health system levels is the collective responsibility of all health workers, not just rehabilitation personnel. Promoting an understanding of rehabilitation principles among health workers is vital to ensure high-quality care, appropriate referrals, and optimal service utilisation.[32]

Barriers to delivering PHC services in the public health sector include a lack of policies, resources, and infrastructure, and transport limitations for community-based outreach.[190] Enhancing the visibility of rehabilitation services in PHC requires forming partnerships with public and private providers and engaging with local communities. Community partnerships provide valuable resources for supporting rehabilitation efforts, highlighting the need to train and employ more discipline-specific mid-level workers.

9.5 Conclusion

Health systems are highly context-specific, and therefore, it is challenging to prescribe a set of best practices that can be put forward as a model for improved performance. However, health systems that function well have certain shared characteristics, such as procurement and distribution systems that deliver appropriate assistive devices to those in need. Well-functioning PHC rehabilitation services are staffed with sufficient rehabilitation personnel who have the right skills and motivation. Moreover, well-functioning health systems operate with financing systems that are sustainable, inclusive, and fair. Healthcare costs should not force impoverished households even deeper into poverty nor require them to sacrifice basic needs.[91] This chapter reinforced the necessity for more integrated and contextually responsive PHC rehabilitation services that accommodate the unique needs of rehabilitation service users. Strengthening governance and accountability, creating an enabling environment, reorienting the model of care, coordinating services within and across sectors, and engaging and empowering people and communities are the five concepts that can be applied to integrate rehabilitation in PHC at

district level in Gauteng. Improving architectural designs, enhancing intersectoral collaboration, addressing resource gaps, and fostering strong patient-provider relations are essential steps toward achieving more integrated and effective rehabilitation services in the PHC.

Chapter 10: Conclusion

10.1 Introduction

This study aimed to determine how to integrate rehabilitation services into PHC at district level in Gauteng, South Africa. A review of rehabilitation services at the PHC level was required to establish the current service delivery landscape to enable the development of a rehabilitation integration framework for PHC within the proposed National Health Service.

10.2 Main Findings of the Study

The current study made the following main findings:

1. The clinic, outreach, case management, shared care, self-management, and CBR models can be used to integrate rehabilitation in PHC;
2. Rehabilitation is not currently integrated into PHC because it is impeded by the following factors:
    - 2.1 The shortage of rehabilitation personnel and limited access to services, especially in remote areas;
    - 2.2 There are variations in record-keeping practices and long-term follow-up of patients, which impact integrated rehabilitation service delivery and continuity of care;
    - 2.3 The current focus of rehabilitation services primarily revolves around clinic-based care, and limited attention is given to delivering services in clients' homes or reaching out to underserved communities; and
    - 2.4 There are variations in rehabilitation service availability among the various rehabilitation services with occupational therapy and physiotherapy being the predominant ones;
3. It is necessary to understand the demographic profile of rehabilitation service users to guide rehabilitation service planning and delivery;
4. Rehabilitation service users have positive experiences of rehabilitation services, resulting in high satisfaction rates; and
5. Both adult and child service users experienced significant improvements in activity participation in self-care and mobility.

10.3 Strengths and Limitations of the Study

The study began with a scoping review to map out existing literature on the service guidelines, models, and protocols for integrating rehabilitation services in PHC (Chapter 3). While the review provided valuable insights, it only included data published or translated into English; therefore, unknown valuable data from published and unpublished studies in other languages may exist. A retrospective study design using a review of rehabilitation records (Chapter 6), which relied on the accessibility and accuracy of the records, may have introduced bias. Moreover, the focus on provided services overlooked those not provided and the reasons behind them. In addition, the study focused on the nine clinics providing rehabilitation services, and the findings may not be generalisable to other regions or healthcare settings. Another challenge encountered was the lack of discharge information in the records, which is important for understanding service continuity and access. This highlights the need for strengthened health information systems to ensure patient information is captured, processed, and used to better inform rehabilitation service planning and delivery.[44]

The study sample of rehabilitation service users (Chapters 7 & 8) was not heterogeneous in terms of disability because the service users presented predominantly with neuromusculoskeletal impairments, which may not fully represent the broader range of rehabilitation needs in the district. Additionally, a sample size of 38 service users instead of was used. Furthermore, the rehabilitation service users from whom data were gathered were already receiving rehabilitation services, which may have influenced their positive outlook because of the functional improvements they were experiencing. However, their health status should not diminish or invalidate their experiences. Future research should include the experiences of those lost to follow-up to gain a more comprehensive understanding of factors influencing service discontinuation. Additionally, further investigation into other areas related to user experiences, such as barriers to access and affordability, would provide valuable insights.

Due to the COVID-19 pandemic restrictions, there were limitations placed on face-to-face activities that were not directly related to direct patient care. The rehabilitation personnel were therefore trained to conduct the semi-structured interviews with online support from the researcher. This was not ideal as the principal researcher could not conduct all the interviews as originally intended, but it facilitated data collection, which would otherwise have been impossible. Measures were put in place to ensure that the rehabilitation personnel did not interview service users at their facility and within their profession, for example, a

physiotherapist from one clinic would conduct interviews with service users at another clinic from another rehabilitation service outside of physiotherapy.

Despite the limitations, the study used several study designs to address the overall PhD study aim, and this strength enabled a comprehensive approach to address the research aim. This study is the first to provide insights into the data available on rehabilitation services in the Johannesburg Metropolitan District. The study revealed valuable insights into the demographics of clients, types of disabilities, referral sources, service use, and variations in rehabilitation services across the nine clinics. It provided insights into the diverse rehabilitation needs across different age groups and disabilities and the differences in services offered by the different rehabilitation services (Chapter 6). Furthermore, the study provided valuable insights into the outcomes of PHC rehabilitation services, which validated the often undocumented effectiveness of the interventions provided in the CHCs.[134] It emphasised the importance of service-user perspectives when evaluating and planning rehabilitation service interventions.[163] Furthermore, the study is positioned in the Rehabilitation 2030 Agenda, a top priority on the WHO agenda. Therefore, it provides insights with real-time implications to a topical issue currently on the global agenda.

10.4 Recommendations

10.4.1 Recommendations for Further Research

Further research is needed to determine the optimal frequency and duration of rehabilitation sessions in PHC to maximise outcomes and patient satisfaction. This research would also inform the packages of care funded under the NHI in South Africa. Given the positive outcomes experienced by rehabilitation service users, future research should look at the extent of rehabilitation service reach and coverage. The individuals who have discontinued rehabilitation services must be included in future research to understand the factors influencing the discontinuation and identify areas for intervention. In addition, other actors in integrated rehabilitation services such as other health professionals, NGOs, CHWs, policy makers, and district managers should be included in future research.

10.4.2 Recommendations for Training

Universities need to prepare graduates for community-based work in PHC, which includes delivering culturally and contextually appropriate services that respect diverse values, languages, and beliefs about health and disease.

10.4.3 Recommendations for Practice

Patient-centred care must be prioritised. Rehabilitation service providers in PHC should ensure that rehabilitation services are centred on patients' needs, preferences, and values to empower them to actively participate in their treatment decisions. Rehabilitation service delivery models currently in use must be reviewed, revised, and realigned. Alternative service delivery models that have the potential to improve the reach, effectiveness, adoption, implementation, and maintenance of rehabilitation services and enhance their integration into PHC must be explored.

10.5 Reflections on the Study

As a rehabilitation professional myself, I went into the study with an opinion of what the current state of rehabilitation is in the Johannesburg Metropolitan District. I was aware of the obstacles to providing rehabilitation services from my clinical experience, and often found these obstacles insurmountable. Such challenges can be discouraging, and many health professionals succumb to helplessness and do the bare minimum, especially in places with poor management and leadership. On the other hand, as was seen in the study, rehabilitation personnel remain dedicated to providing services to people who need them to their satisfaction. I realised how important it is to do research to provide evidence to support these colleagues who spend their working days doing what they can with the little they have and get satisfaction from their work. The positive regard that service users have for rehabilitation services was somewhat of a surprise to me. I expected the service users to be disgruntled and dissatisfied with the services because of the known challenges in providing them. However, it became apparent that the dedication of the rehabilitation personnel to provide services despite the challenges was in fact beneficial, and to a large extent, a protective factor for the service users.

In my opinion, the strength and future of rehabilitation service integration in PHC lie with the people we serve. The notion that meaningful change is rooted in community involvement and empowerment is a powerful reminder of the value of listening and responding to those we aim to serve. Creating an enabling environment for them to be active participants and equal partners in the integration process is where I see the greatest potential for innovation. In reflecting on this study, I am inspired by the potential for change and mindful of the challenges that still lie ahead. Implementing these recommendations requires commitment, collaboration, and creativity from all involved. It is a journey towards bridging the gap for those who need rehabilitation most, a journey well worth undertaking.

10.6 Concluding Remarks

In conclusion, the journey towards enhancing integrated, people-centred rehabilitation services within PHC presents a multi-dimensional challenge that necessitates a holistic and collaborative approach. The recommendations outlined offer a roadmap towards achieving a more equitable, accessible, and responsive healthcare system that places the individual and community at its heart. The importance of strengthening governance and accountability cannot be overstated, as it lays the foundation for a transparent, equitable, and committed system to continuous improvement. Similarly, reorienting the model of care to focus on holistic, community-based approaches marks a pivotal shift towards addressing the broader determinants of health by ensuring that care is not only accessible but also relevant to those it aims to serve.

Creating an enabling environment and fostering coordination across sectors are critical for the seamless integration of services that leverage the strengths of various stakeholders and innovative service delivery models to overcome systemic barriers. This integrated approach promises to enhance the efficiency and effectiveness of rehabilitation services and ensure their sustainability. At the core of these efforts is the engagement and empowerment of people and communities. By involving those most affected by health policies and practices in the planning and delivery of services, we not only honour the principle of 'nothing about us without us' but also unlock the potential for more responsive, effective care. The active participation of communities, particularly through the roles of CHWs and community rehabilitation workers, embodies the essence of a people-centred approach, and bridges the gap between healthcare systems and the individuals they serve.

In summary, the path to integrated, people-centred rehabilitation services in PHC is one of collective action, innovation, and unwavering commitment to the principles of equity, accessibility, and person-centred care. Challenges undoubtedly lie ahead, but the potential rewards—a healthcare system that truly serves and reflects the needs of its community—are immense and well within reach. Rehabilitation is key to addressing the social determinants of health in vulnerable populations. This can only be realised by integrating these services in PHC using contextually relevant and informed frameworks and approaches. Reorienting service delivery models challenges traditional models and requires a shift in perspective and practice for many health professionals, yet it also opens the door to more compassionate, comprehensive care that meets people at their point of need.

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Appendices

Appendix A: Turnitin Report

Integrating rehabilitation in PHC

by Lebogang Maseko

Submission date: 07-Apr-2024 02:33PM (UTC+0200)
Submission ID: 2342122165
File name: 325_Lebogang_Maseko_Integrating_rehabilitation_in_PHC_52262_1134224487.docx (854.62K)
Word count: 27890
Character count: 173988

Integrating rehabilitation in PHC

ORIGINALITY REPORT

12%	9%	10%	1%
SIMILARITY INDEX	INTERNET SOURCES	PUBLICATIONS	STUDENT PAPERS

PRIMARY SOURCES

1	coek.info Internet Source	1%
2	Saeed Shahabi, Carlotte Kiekens, Manal Etemadi, Parviz Mojgani, Ahmad Ahmadi Teymourlouei, Kamran Bagheri Lankarani. "Integrating rehabilitation services into primary health care: policy options for Iran", BMC Health Services Research, 2022 Publication	1%
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Appendix B: Five Phases of a Scoping Review[76]

PHASE	DESCRIPTION
1st phase: Identifying the research question	This is described as the most important phase of the review because it determined which studies were included, the means adopted for identification and information gathered in each selected study. Hence, it included the definition of participants, the interventions to be evaluated and the results to be measured. In this study the guiding question was: What are the existing guidelines and models for the integration of rehabilitation services in PHC in the BRICS countries? Inclusion criteria: Guidelines for integrating rehabilitation into other programmes Rehabilitation service delivery models used for integration Must focus on services in PHC Must be from Brazil, Russi, India, China and South Africa. Grimshaw and Russell (1993) define clinical guidelines as "systematically developed statements to assist practitioner decisions about appropriate healthcare for specific clinical circumstances" (89 p.1317). Kielhofner, 2009 describes components of a model as having professional lenses through which the service provider sees the service user and the therapy process, develops plans and solves problems. Models can therefore be thought of having the following components: theory, practice resources as well as a research and evidence base [192]. These definitions were used to guide the classification of studies as those referring to guidelines or to models.
2nd phase: Identifying relevant studies	The search in databases were broad and diverse, including search in electronic databases, manual search in journals, the references described in the selected studies, contact with researchers and the use of unpublished material [193]. Various electronic databases were searched, including (but not limited to) PubMed/Medline, Web of Science, Google, Google Scholar, Mendeley and the University of Witwatersrand subscribed databases or libraries. Studies published between 2011 and 2023 on rehabilitation and rehabilitation service delivery models in BRICS countries will be included. Peer reviewed (e.g. papers, conference abstracts, and presentations) and non-peer-reviewed/unpublished material (e.g. reports, presentations, fact sheets, and other grey literature) will be included. Existing policies on disability and rehabilitation will also be reviewed.
3rd phase: Study selection	To extract data from the articles selected, it was necessary to use an instrument that was able to assure collection of all relevant data and to serve as a record. The purpose of the instrument was to simplify, summarise and organise the findings, so that each study is reduced to one page [193]. The data included aspects such as the definition of the subjects, methodology, size of the sample, measuring variables, method of analysis and concepts used as bases. A data extraction tool initially developed and validated by Ursi 2005 was adopted and used to extract the details of the studies (Appendix F). It was subjected to content validation by three experts in the field, with experience in rehabilitation and / or instrument evaluation. They were requested to make suggestions for changes in the instrument. The instrument included the following items: identification of the original article, methodological characteristics of the study, evaluation of methodological rigour, the interventions measured and the results found [194].
4th phase: Charting the data	In order to select the best possible evidence, a hierarchy of evidence has been proposed in the literature, based on the design of the research [193]. The studies were levelled and recorded on the data extraction tool as follows:

PHASE	DESCRIPTION
	Level 1: evidence resulting from meta-analysis of multiple randomised controlled clinical trials (RCT)/ a RCT Level 2: evidence from individual studie(s) with experimental design; Level 3: evidence from quasi-experimental studie(s); Level 4: evidence of descriptive (non-experimental) studie(s) or with a qualitative approach; Level 5: evidence from case report(s) or from experience; Level 6: evidence based on opinion(s) of specialists. Thematic analysis, was suited to the synthesis of both qualitative and quantitative evidence will be used to organise and categorise the findings from the studies into themes [195]. Firstly, the researcher and research assistant read the results of each study and independently develop a set of common themes. These initial themes were discussed, compared collectively and agreed upon before the researchers categorised them into a final set of themes and subthemes/categories. This analytic process provided a summary of findings about what is known from studies incorporating guidelines and models used for integrating rehabilitation in PHC BRICS [195]. A descriptive synthesis of policy documents was carried out to outline the information, identifying any commonalities or differences.
5th phase: Collating, summarising and reporting of results.	This aspect of the scoping review was based on the interpretation and synthesis of the results. To ensure validity/trustworthiness of the scoping review, conclusions, inferences, and any potential biases will be explained. The synthesis of findings was presented in a narrative that reflects the themes on the guidelines and models used in integrating rehabilitation in PHC in BRICS. The studies were divided into subgroups according to whether they refer to guidelines or models for integrating rehabilitation services. They were characterised according to the type of rehabilitation service provided, e.g. physical rehabilitation, mental health or speech/hearing.

Appendix C: Written Permission from Gauteng Department of Health

GAUTENG PROVINCE
HEALTH
REPUBLIC OF SOUTH AFRICA

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a world class African city

JOHANNESBURG HEALTH DISTRICT

Faculty Of Health Sciences
Research Ethics Committee,
University of The Witwatersrand
Johannesburg, South Africa
lebogang.maseko@wits.ac.za

Enquiries: Dr EM Ohaju
Tel: 011 694 3888 Cell: 076 8831659
Email: Elizabeth.Ohaju@gauteng.gov.za
Hillbrow CHC: Administration Building
Cr Smith Str. & Klein Street
Private Bag X21, Johannesburg
South Africa, 2017

DRC Ref: 2019-05-007

NHRD Ref no: GP_201905_048

Dear: Mrs Lebogang Maseko

TITLE: ***Integrating Rehabilitation services at Primary Healthcare level in Johannesburg, South Africa.***

Your application for research approval refers.

The District Research Committee has reviewed your application. This letter serves as an in-principle approval to access the Districts Health facilities (mentioned below) for the above project subject to following conditions:

- The facility to be visited: **GAUTENG PROVINCE PROVINCIAL OFFICES, CITY OF JOHANNESBURG METROPOLITAN MUNICIPALITY OFFICES, DIEPSLOOT SOUTH CLINIC, OR TAMBO CLINIC, RABIE RIDGE CLINIC, WITKOPPEN CLINIC**
- This facility will be visited from **16/09/2019 to 16/09/2020**
- The research can only commence after you submit an ethics clearance certificate from a recognized institution.
- You will report to the Facility Manager before initiating the study.

Region	Regional Health Manager	Contact No.	Cell phone
ABCEF	Ms Matlala	011 440 1259	082 307 0267
A (L A)	Nelly Shongwe	011 237 8010	082 467 9276
District	Laila Patel	-	082 497 4299

The following conditions must be observed:

- Participants' rights and confidentiality will be maintained all the time.

- No resources (Financial, material and human resources) from the above facilities will be used for the study. Neither the District nor the facility will incur any additional cost for this study.
- The study will comply with **Publicly Financed Research and Development Act, 2008 (Act 51 of 2008) and its related Regulations**.
- You will submit a copy (electronic and hard copy) of your final report. In addition, you will submit a six-monthly progress report to the District Research Committee.
- Your supervisor and University of the Witwatersrand will ensure that these reports are being submitted timeously to the District Research Committee.
- The District must be acknowledged in all the reports/publications generated from the research and a copy of these reports/publications must be submitted to the District Research Committee.

We reserve our right to withdraw our approval, if you breach any of the conditions mentioned above.

Please feel free to contact us, if you have any further queries. On behalf of the District Research Committee, we would like to thank you for choosing our District to conduct such an important study.

Regards,

Dr E.M Ohaju
Chairperson: District Research Committee
Johannesburg Health District
Date 17/09/2019

Mrs M.L Morewane
Chief Director
Johannesburg Health District
Date:

Dr R Bismilla
Executive Director
Johannesburg Health District
Date: 30/9/19

Appendix D: PHC Facility Information Sheet

FACILITY INFORMATION SHEET

Project Title: Integrating rehabilitation services at Primary Healthcare level in Gauteng, South Africa

Good Day,

My name is Lebogang Maseko from the Occupational Therapy Department at the University of the Witwatersrand faculty of Health Sciences. I am investigating the manner in which rehabilitation services are currently delivered in PHC and the extent to which they are integrated. We would be most grateful if you would consider participating in this work.

Why are we doing this? The White Paper on a National Health Insurance (NHI) 2015, specifies primary healthcare (PHC) reengineering as one of the action plans for the transformation of the health system in South Africa. The re-engineering of PHC aims to increase access of health services to the general public as well as to improve the quality of health services within the district health system.

Although rehabilitation services are currently provided at the primary platform, health service planning and provision have overlooked rehabilitation as a component of PHC. The existing national and international policies and guidelines recognise the need for the integration of rehabilitation in PHC, however they fail to address the extent to which rehabilitation services should be organised and delivered. Thus the need to review rehabilitation services at PHC level so as to establish the current service delivery landscape and to enable the development of a framework for integration within the proposed National Health Service (NHS). There is inadequate clarity in the implementation of existing policies on integrated rehabilitation services.

What do we expect from the participants in the study? We would like to find out what rehabilitation services are provided in this community, by whom and to whom. The researchers would like to access the records of the patients seen for rehabilitation at this facility.

Are there benefits to the participants? There are no direct benefits to you in this study, however at the end of the study we will present our findings, and answer questions that you may have.

May participants withdraw from the study? Certainly, they may do this at any time without having to give a reason. Remember that the study is completely voluntary and not taking part in it, or withdrawing from it, carries no penalty of any sort.

What about confidentiality? Confidentiality will be maintained by the use of a code instead of names on all records that will be reviewed and the facilities they were accessed from. Only the researcher and research assistants will have a list of names and codes to enable the code to be linked to a particular person or facility. This list will be kept locked in an office.

If you have any queries, more information may be obtained from Lebogang Maseko at telephone number (011)717 3701.

If you are happy for your facility to take part in the study, please read and sign the attached consent form.

Contact details of the researcher and for ethical concerns and questions the Chairperson of the ethics committee Prof Penny at clement.penny @wits.ac.za via the administrative offices: Ms. Z Ndlovu/ Mr Rhulani Mkansi, Tel: 011 717 2700/2656/1234/1252, or email: Zanele.ndlovu@wits.ac.za; Rhulani.mkansi@wits.ac.za.

Thank you

Lebogang Maseko

Appendix E: PHC Facility Consent Sheet



FACILITY CONSENT SHEET

Project Title: Integrating rehabilitation services at Primary Healthcare level in Gauteng, South Africa

1. I have been given Facility Information Sheet which explains the nature and processes involved in this study, which is attached hereto;
2. I was given time to read it, or had it read to me, in the language I best understand;
3. I was given time to ask any questions I wanted to and found any answers given to me to be reasonable and satisfactory;
4. I believe I fully understand why the study is being conducted and what the intended outcomes will be;
5. I understand that there will be no immediate benefit to the me/facility, should I agree to participate, nor will I/the facility receive any payment; conversely, participation will not cost me/the facility anything but my time;
6. I understand that, even if I initially consent to take part in the study, I may subsequently withdraw at any time and would not be required to give any reasons; if that happened, any data collected about me/the facility for the purposes of the study would immediately be destroyed, unless I give consent for it to be retained;
7. I have been given a range of contact details, listed below. If I require further information or become concerned about any aspect of this study I am free to speak to any of these contacts.

Contact details:

Lebo Maseko, Principal Investigator, telephone no. 011 717 3701, or by e-mail at Lebogang.maseko@wits.ac.za.

Professor CB Penny, Chairperson of the Human Research Ethics Committee (Medical) at the University of Witwatersrand, on telephone no. 011 717 2301, or by e-mail at Clement.Penny@wits.ac.za.

Ms. Z Ndlovu or Mr Rhulani Mkansi, Committee Secretariat, telephone nos.: 011 717 2700 or 1234, or by e-mail at: Zanele.Ndlovu@wits.ac.za or Rhulani.Mkansi@wits.ac.za

Name of facility representative: _____

Name of facility: _____

Date: _____

Place: _____

Signature or mark _____

Witnessed by:

Name of Witness: _____

Signature: _____

Date: _____

Appendix F: Record Review Data Extraction Form

Confidential

Record Review

Participant ID	_____
Clinic	○ Alexandra ○ Hillbrow ○ Stretford ○ Lenasia ○ Lenasia South ○ Mofolo ○ Zola ○ Discoverers ○ Chiawelo
Recorded code	_____
Referred by	○ Hospital ○ Self ○ Teacher ○ Unknown ○ Other
Name of hospital/clinic	_____
Other	_____
Address in record	_____
Contact Number 1	_____
Contact Number 2	_____
Date of Birth	_____
Age at Assessment	_____
Diagnosis	_____

Therapies received	☐ OT ☐ PT ☐ SLT ☐ AUDIO
Number of group sessions (OT)	_____
Number of group sessions (PT)	_____
Number of group sessions (SLT)	_____
Number of group sessions (AUDIO)	_____
Number of Individual Sessions (OT)	_____
Number of Individual Sessions (PT)	_____
Number of Individual Sessions (SLT)	_____
Number of Individual Sessions (AUDIO)	_____
Short description of therapy received	_____
Reason for leaving therapy	◯ Lost to follow-up ◯ Deceased ◯ Referred elsewhere ◯ Unknown ◯ Other
Other	_____
Total duration of rehab intervention	_____
Number of clinic visits	_____
Number of home visits	_____
Number of outreach visits	_____

Appendix G: Service Provider Interview Guide

Key Informant Interview Topic Guide

Researcher to begin by thanking the participant and asking him/her for availing themselves. Remind the participant that the interview is being recorded so they should speak as clearly as they can. Also alert the participant that the researcher will be making notes of some points that the researcher may want to refer to later.

1. I am here to talk to you about rehabilitation in Gauteng Province and in particular at PHC level. What would you say is the status of PHC rehabilitation services at present? Where are we?
2. What policies and or guidelines guide rehabilitation services at PHC in the Joburg Metro District or in Gauteng, the country as a whole?
3. How well are these being implemented?
4. What would you like rehabilitation professionals and service users to understand about what integrated rehabilitation services are?
5. To what extent has PHC reengineering taken place in Gauteng
    a. How well has it been adopted at district level
    b. What is on offer in terms of services (particularly in the 4 reengineering streams)
    c. How are rehabilitation services being delivered and by whom?
        i. Prompt: NGOs have been known to support rehabilitation services offered by the department of health and have 'filled the gap' where rehabilitation services have been lacking. Would you say that is true?
6. How do you imagine rehabilitation services to be integrated into PHC? In other words, if we were to say rehabilitation services are integrated into HC what would/should they look like
7. What would you say are the barriers to integrated rehabilitation services
8. What would you say are the facilitators to integrated rehabilitation services

Appendix H: Activity Participation Self-evaluation Form: Rehabilitation Outcome of Service Users (Adopted from Zhao T, Kwok JKF, 1992)

Confidential

Rehabilitation Outcome of Service Users in the Jhb Metro District

The purpose of the survey is to understand the experiences of rehabilitation service users in the Johannesburg Metro District and their perceived outcomes of rehabilitation. This relates to services received at the PHC level only- i.e. at the CHC or Clinic. The survey is to be administered by the researcher as part of the interview. Please encourage the service user to respond as honestly as possible and reassure them that the answers they provide will not influence their care in any way.

Please ensure the service user has signed the written consent form before commencing with the interview.

SERVICE USER DEMOGRAPHIC INFORMATION	
Name of Health Facility	_____ (Please write the name of the facility where service user acesses rehabilitation services)
Date of Birth	_____
Age	_____
Diagnosis	_____
Impairments and Difficulties Please select the impairments or difficulties that you have in your opinion.	☐ Seeing/Visual ☐ Hearing ☐ Speaking ☐ Learning ☐ Moving ☐ Loss of feeling in limbs ☐ Seizures/Fits ☐ Mental health ☐ Other
Other impairments If other, please elaborate.	_____
Date of the first visit to rehabilitation services in Jhb Metro District (PHC level)	_____ (Date that service user was first seen by any rehabilitation service- OT, PT, Speech or Audiology)
Rehabilitation services received/accessed in Jhb Metro District (PHC level)	☐ OT ☐ Physio ☐ Speech therapy ☐ Audiology ☐ Other (Tick the rehabilitation services that service users has received in the Jhb Metro District)

Other Rehabilitation services received
If other, please specify

_____
(Please state other rehabilitation services received by service user if selected other in previous question)

ACTIVITIES OF DAILY LIVING

Please indicate how you completed your activities of daily living before and after you started receiving rehabilitation services from the Johannesburg Metro District.

	Alone/Independent	With help	Not at all/Dependent
Activities of Daily Living Before Rehabilitation	○	○	○
Activities of Daily Living after Rehabilitation	○	○	○

PHYSICAL MOBILITY

Please indicate your ability to move around before and after you started receiving rehabilitation services from the Johannesburg Metro District.

	Not at all	Inside the home	Outside the home, around the yard	Around the street
Physical Mobility before Rehabilitation	○	○	○	○
Physical Mobility after rehabilitation	○	○	○	○

SOCIAL COMMUNICATION

Please indicate your ability to engage and communicate with people before and after you started receiving rehabilitation services from the Johannesburg Metro District.

	With a stranger	With a familiar person	Not at all
Social Communication before Rehabilitation	○	○	○
Social Communication after Rehabilitation	○	○	○

ABILITY TO WORK

Please indicate your ability to work before and after you started receiving rehabilitation services from the Johannesburg Metro District.

	Not at all	Simple work	Complex work
Ability to work before Rehabilitation	○	○	○
Ability to work after Rehabilitation	○	○	○

SOURCE OF INCOME

Please indicate your source of income before and after you started receiving rehabilitation services from the Johannesburg Metro District.

	Ones's own	Family	Social grant	Other
Source of Income before Rehabilitation	○	○	○	○
Source of Income after Rehabilitation	○	○	○	○

Source of income before rehabilitation other
if other, please specify.

_____
(Please state source of income of service user before rehabilitation if selected other in previous question)

Source of income after rehabilitation other
if other, please specify.

_____
(Please state source of income of service user after rehabilitation if selected other in previous question)

QUALITY OF LIFE

Please indicate your quality of life before and after you started receiving rehabilitation services rom the Johannesburg Metro District.

	Poor	Medium/Fair	Good
Quality of life before Rehabilitation	○	○	○
Quality of life after Rehabilitation	○	○	○

EMPLOYMENT STATUS

Please indicate your employment status before and after you started receiving rehabilitation services from the Johannesburg Metro District.

	Unemployed	Employed	Self-employed	Other
Employment status before Rehabilitation	○	○	○	○
Employment status after Rehabilitation	○	○	○	○

Employment status other before rehabilitation
If other employment status, please specify.

_____
(Please state employment status of service user before rehabilitation if selected other in previous question)

Employment status other after rehabilitation
If other employment status, please specify.

_____
(Please state employment status of service user after rehabilitation if selected other in previous question)

SCHOOLING STATUS/TYPE OF SCHOOLING

Please indicate your schooling status before and after you started receiving rehabilitation services from the Johannesburg Metro District.

	Mainstream	LSEN/Remedial	None	Other
Schooling status/type before Rehabilitation	○	○	○	○
Schooling status/type after Rehabilitation	○	○	○	○

Schooling status before rehabilitation other
if other, please specify.

_____
(Please state type of schooling of service user before rehabilitation if selected other in previous question)

Schooling status after rehabilitation other
if other, please specify.

_____
(Please state type of schooling of service user after rehabilitation if selected other in previous question)

EDUCATION LEVEL

Please indicate your level of education before and after you started receiving rehabilitation services from the Johannesburg Metro District.

	None	Primary Education	Secondary Education/High School	Higher Education/Tertiary	Other
Level of education before Rehabilitation	○	○	○	○	○
Level of education after Rehabilitation	○	○	○	○	○

Education level before rehabilitation other
if other, please specify.

_____
(Please state level of education of service user before rehabilitation if selected other in previous question)

Education level after rehabilitation other if other, please specify.	_____ (Please state level of education of service user after rehabilitation if selected other in previous question)

SOCIAL PARTICIPATION

Please indicate how much you participated in social activities or activities of a social nature before and after you started receiving rehabilitation services from the Johannesburg Metro District.

	Not at all	Sometimes	Often
Social participation before Rehabilitation	○	○	○
Social participation after Rehabilittaion	○	○	○

SELF ATTITUDE

Please indicate how you felt about yourself before and after you started receiving rehabilitation services from the Johannesburg Metro District.

	Positive	Negative	In-between
Self attitude before Rehabilitation	○	○	○
Self attitude after Rehabilitation	○	○	○

Overal rehabilitation effect on service user Please indicate what you would rate in your opinion the overall effect that the rehabilitation services you received from the Joburg Metro District have had on you.	○ Low ○ Medium ○ High

Appendix I: Service User Interview Guide

Service User Interview Topic Guide

The interview serves to understand how service users experience rehabilitation services in the Jhb Metro District.

It will focus on the four most common diagnoses seen in the Jhb Metro as derived from the record review from phase 1:

- Neuromusculoskeletal and Movement-Related Functions (physical conditions, etc.)
- Mental Functions (mental health, learning disabilities)
- Voice and Speech Functions (self-explanatory)
- Sensory Functions and Pain (hearing deficits, hearing loss, etc.)

The patient must be attending their 3rd session at the least.
The first part of the interview involves the interviewer asking the participant set questions- it is a self-evaluation of their rehab outcomes on RedCap. You then probe/ask them to explain why they give the ratings that they do. The second part of the interview serves to unpack the responses that the participants gave to the questionnaire and dig deeper into things that were mentioned superficially earlier.

The researcher to begin by thanking the participant for availing themselves. Remind the participant that the interview is being recorded so they should speak as clearly as they can. Also alert the participant that the interviewer will be making notes of some points that the interviewer may want to refer to later.

"I would like to find out more about the responses you gave in the questions you have just answered. So to begin with I am going to ask you to tell me about your journey from the time you got discharged after your injury/ after you were hospitalised. It may be a long time ago so I need you to try and remember as much as you can and tell me everything you can remember. Do not leave anything out".

Allow the participant to narrate their story and ask them clarifying questions where you see gaps, e.g.

- Name of hospital they were discharged from?
- When they were discharged?

- Were they referred anywhere on discharge?
- How did they come to seek services at the CHC or Clinic?

1. *"Let's talk about your feeling or rating that you gave of the overall effect that you feel rehabilitation services had on your life. You rated it a low/medium/high, can you tell me more about that?"*
2. *"What is it that you would like rehabilitation service providers (therapists) to know about the service they are providing to you/have provided to you"?*
3. *"When you come to the clinic, do you see everyone is one day, e.g. if you need to collect your medication, do you see the nurse, the OT, Physio and all the other services you need all in one go on the same day"?*
4. If participants express that they have to come on separate days, ask them *"if I were to ask you how you would like things to happen for you when you come to the clinic, what would you say? How do you want services to be tailored for you? How would you redesign the services you receive overall in the Clinic/CHC and rehabilitation services"?*
5. *"Do you know anything about the NHI? Have you heard about the NHI"?* If the participant says YES, then follow up with *"Can you tell me what you know or understand about the NHI"?*
6. *"What would you say are the things that make it difficult for you to come for your rehabilitation appointment"?*
7. *"What would you say are the things that make it easier for you to be able to come for your rehabilitation appointment"?*
8. *"Is there anything else that you would like to add about your rehabilitation journey".*

Appendix J: RE-AIM Dimensions and Items Evaluated and Presented in This Study (Adopted from Glasgow et al., 1999 and Kessler et al., 2013)

RE-AIM dimension	level of evaluation	Measurement/objective	Outcome
REACH Proportion of the target population that participated in the intervention.	Individual	Objective 2 Patient record review: coverage looking at the number of people in need of rehabilitation services and access them	Rehabilitation services have inadequate reach based on the number of people who require rehabilitation but do not access the service
		Objective 3 In-depth interviews with service users: experiences/perceptions of access to rehabilitation services	
EFFECTIVENESS Success rate of implementation	Individual	Objective 3 In-depth interviews with service users: experiences/perceptions of outcomes of rehabilitation and broader outcomes (e.g. measure of quality of life)	Perceived to be effective in enhancing functional abilities, social participation, and wellbeing
ADOPTION Proportion and representativeness of settings that provide rehabilitation services.	Setting/organisation	Objective 2 Record review: percentage of settings that provide rehabilitation services across the number of settings in the Johannesburg Metropolitan District	Only nine of the 125 PHC clinics and CHCs in the Johannesburg Metropolitan District provide rehabilitation services
		In-depth interviews with rehabilitation service providers looking at perceptions of barriers/facilitators to integrating rehabilitation services.	
IMPLEMENTATION Extent to which the rehabilitation services are provided as intended in the real world.	Setting/organisation	Objective 2 In-depth interviews with rehabilitation service providers: perceptions of integration of rehabilitation services and the extent to which they are integrated as intended	Flawed system with inadequate resources, a disconnect between policy and practical implementation, and financial constraints that compromise the delivery of services
		Objective 3 In-depth interviews with service users: perceptions of cases of successful rehabilitation (e.g. percentage of perfect delivery or calls completed, etc.- adherence or consistency)	Mainly attend rehabilitation once a month and are satisfied with rehabilitation services. Services not consistently

RE-AIM dimension	level of evaluation	Measurement/objective	Outcome
			available across the various disciplines, mainly occupational therapists and physical therapists and very little Audio.
MAINTENANCE Extent to which a program is sustained over time	Individual level	Objective 2 In-depth interviews with rehabilitation service providers: perceptions of long-term effects of rehabilitation	Improvements in mobility, self-perception, and quality of life were reported for adults and children. Children also experienced positive changes in community, social, and civic life.
		Objective 2 Patient record review: loss to follow up in subcategories of physical rehabilitation, mental health and speech and hearing	
	Organisation/setting level	Objective 2 In-depth interviews with rehabilitation service providers: perceptions of policy on integrating rehabilitation in PHC and extent to which policy is implemented	Rehabilitation personnel, out of their commitment to patient care, use creative ways to ensure service delivery

Appendix K: Ethical Clearance Certificate Human Research Ethics Committee (Medical)

Certificate No: M190466

UNIVERSITY OF THE WITWATERSRAND, JOHANNESBURG	HUMAN RESEARCH ETHICS COMMITTEE (MEDICAL)

Office of the Deputy Vice-Chancellor (Research & Post Graduate Affairs)

TO: Ms L Maseko
School of Therapeutic Sciences
Department of Occupational Therapy
Medical School
University

E-mail: Legogang.Maseko@wits.ac.za

CC: Supervisor: Dr F Adams <Fasloen.Adams@wits.ac.za>
and <HREC-Medical.ResearchOffice@wits.ac.za>

FROM: Iain Burns
Human Research Ethics Committee (Medical)
Tel: 011 717 1252

E-mail: Iain.Burns@wits.ac.za

DATE: 2019/11/28

REF: *R14/49*

PROTOCOL NO: **M190466** *(This is your ethics application study reference number. Please quote this reference number in all correspondence relating to this study)*

PROJECT TITLE: *Integrating rehabilitation services at Primary Healthcare level in Johannesburg, South Africa*

Please find attached the Clearance Certificate for the above project. I hope it goes well and that an article in a recognized publication comes out of it. This will reflect well on your professional standing and contribute to the Government funding of the University.

MSWorks2000/Iain0007/Clearscan.wps

Appendix L: Patient Permission to Access Records and Follow-Up

PATIENT PERMISSION TO ACCESS RECORDS AND FOLLOW-UP

Project Title: Integrating rehabilitation services at Primary Healthcare level in Gauteng, South Africa

I hereby consent to the access of my records by the researchers and for them to follow me up:

I understand that:

1. My records will be reviewed from the facility at which I accessed rehabilitation services and I will be followed up by the researcher and the research supervisor.
2. Any information retrieved from my records that could identify me will be removed,
3. I understand that, even if I initially consent for my records to be reviewed, I may subsequently withdraw at any time and would not be required to give any reasons; if that happened, any data collected about me for the purposes of the study would immediately be destroyed, unless I give consent for it to be retained.
4. Anyone wishing to access this information in the future will first have to obtain the approval of the Human Research Ethics Committee (Medical) of the University of the Witwatersrand, Johannesburg
5. I have been given a range of contact details, listed below. If I require further information or become concerned about any aspect of this study I am free to speak to any of these contacts.

Contact details:

Lebo Maseko, Principal Investigator, telephone no. 011 717 3701, or by e-mail at Lebogang.maseko@wits.ac.za.

Professor CB Penny, Chairperson of the Human Research Ethics Committee (Medical) at the University of Witwatersrand, on telephone no. 011 717 2301, or by e-mail at Clement.Penny@wits.ac.za.

Ms. Z Ndlovu or Mr Rhulani Mkansi, Committee Secretariat, telephone nos.: 011 717 2700 or 1234, or by e-mail at: Zanele.Ndlovu@wits.ac.za or Rhulani.Mkansi@wits.ac.za

Name of participant: _____

Name of parent/guardian (minors): _____

Name of facility: _____

Date: _____

Place: _____

Signature or mark _____

Witnessed by:

Name of Witness: _____

Signature: _____

Date: _____

Appendix M: Participant Information Sheet

INFORMATION SHEET

Project Title: Integrating rehabilitation services at Primary Healthcare level in Gauteng, South Africa

Good Day,

My name is Lebogang Maseko from the Occupational Therapy Department at the University of the Witwatersrand faculty of Health Sciences. I am investigating the manner in which rehabilitation services are currently delivered in PHC and the extent to which they are integrated. We would be most grateful if you would consider participating in this work.

Why are we doing this? The White Paper on a National Health Insurance (NHI) that was released in 2015, states that primary healthcare (PHC) reengineering is one of the action plans in order to change the health system in South Africa. The re-engineering of PHC aims to increase access of health services to the general public as well as to improve the quality of health services.

Rehabilitation services are being provided at the primary platform, however health service planning and provision have overlooked rehabilitation as a part of PHC. The national and international policies that exist as well as the guidelines all acknowledge the need for the integration of rehabilitation in PHC, however they do not tell us the extent to which rehabilitation services should be organised and delivered. This is one of the reasons we need to review rehabilitation services at PHC level so that we can establish the current backdrop in which services are being delivered in order to develop a framework for integration in the proposed National Health Service (NHS).

What do we expect from the participants in the study? We would like to find out what rehabilitation services are provided in this community, who provides them and to whom they are provided. The researchers will access your medical records at the facility where you were seen and follow you up to ask you questions about your rehabilitation journey from the time you left the hospital. We would like to know how you came to have rehabilitation input and

whom you saw/received this input from. This will be done in an interview, which will be audio-recorded to ensure we capture all the information you provide.

Are there benefits to the participants? There are no direct benefits to you in this study, however at the end of the study we will present our findings, and answer questions that you may have.

May I withdraw from the study? Certainly you may do this at any time without having to give a reason. Remember that the study is completely voluntary and not taking part in it, or withdrawing from it, carries no penalty of any sort – your rehabilitation will not be influenced.

What about confidentiality? Confidentiality will be maintained by the use of a code instead of names on all results. Only the researcher and research assistants will have a list of names and codes to enable the code to be linked to a particular person. This list will be kept locked in an office. The audio-recordings will also be kept in a locked office and will be erased within either (a) two (2) years of the publication of the research findings, or (b) six (6) years, if no publications arise from this research.

If you have any queries, more information may be obtained from Lebogang Maseko at telephone number (011)717 3701.

If you are happy to take part in the study, please read and sign the attached consent form.

Contact details of the researcher and for ethical concerns and questions the Chairperson of the ethics committee Prof Penny at clement.penny @wits.ac.za via the administrative offices: Ms. Z Ndlovu/ Mr Rhulani Mkansi, Tel: 011 717 2700/2656/1234/1252, or email: Zanele.ndlovu@wits.ac.za; Rhulani.mkansi@wits.ac.za.

Thank you

Lebogang Maseko

Appendix N: Participant Information Sheet for Parent/Guardian

INFORMATION SHEET FOR PARENT/GUARDIAN

Project Title: Integrating rehabilitation services at Primary Healthcare level in Gauteng, South Africa

Good Day,

My name is Lebogang Maseko from the Occupational Therapy Department at the University of the Witwatersrand faculty of Health Sciences. I am investigating the manner in which rehabilitation services are currently delivered in PHC and the extent to which they are integrated. We would be most grateful if you would consider participating in this work.

Why are we doing this? The White Paper on a National Health Insurance (NHI) that was released in 2015, states that primary healthcare (PHC) reengineering is one of the action plans in order to change the health system in South Africa. The re-engineering of PHC aims to increase access of health services to the general public as well as to improve the quality of health services.

Rehabilitation services are being provided at the primary platform, however health service planning and provision have overlooked rehabilitation as a part of PHC. The national and international policies that exist as well as the guidelines all acknowledge the need for the integration of rehabilitation in PHC, however they do not tell us the extent to which rehabilitation services should be organised and delivered. This is one of the reasons we need to review rehabilitation services at PHC level so that we can establish the current backdrop in which services are being delivered in order to develop a framework for integration in the proposed National Health Service (NHS).

What do we expect from the participants in the study? We would like to find out what rehabilitation services are provided in this community, who provides them and to whom they are provided. The researchers will access your child's medical records at the facility where they were seen and follow your child up to ask you/your child questions about their rehabilitation journey from the time they left the hospital. We would like to know how your child came to

have rehabilitation input and whom you saw/received this input from. This will be done in an interview, which will be audio-recorded to ensure we capture all the information that you/your child provides.

Are there benefits to the participants? There are no direct benefits to your child in this study, however at the end of the study we will present our findings, and answer questions that you may have.

May I withdraw from the study? Certainly your child may do this at any time without having to give a reason. Remember that the study is completely voluntary and not taking part in it, or withdrawing from it, carries no penalty of any sort – your child's rehabilitation will not be influenced.

What about confidentiality? Confidentiality will be maintained by the use of a code instead of names on all results. Only the researcher and research assistants will have a list of names and codes to enable the code to be linked to a particular person. This list will be kept locked in an office. The audio-recordings will also be kept in a locked office and will be destroyed after 5 years in keeping with the HPCSA regulations.

If you have any queries, more information may be obtained from Lebogang Maseko at telephone number (011)717 3701.

If you are happy for your child to take part in the study, please read and sign the attached consent form.

Contact details of the researcher and for ethical concerns and questions the Chairperson of the ethics committee Prof Penny at clement.penny @wits.ac.za via the administrative offices: Ms. Z Ndlovu/ Mr Rhulani Mkansi, Tel: 011 717 2700/2656/1234/1252, or email: Zanele.ndlovu@wits.ac.za; Rhulani.mkansi@wits.ac.za.

Thank you

Lebogang Maseko

Appendix O: Participant Information Sheet for Minors

INFORMATION SHEET FOR MINORS

Project Title: Integrating rehabilitation services at Primary Healthcare level in Gauteng, South Africa

Good Day,

My name is Lebogang Maseko from the Occupational Therapy Department at the University of the Witwatersrand faculty of Health Sciences. I am investigating the way in which rehabilitation services are delivered in PHC at the moment and how much they work together. We would be most grateful if you would consider participating in this work.

Why are we doing this? Many laws in South Africa such as The White Paper on a National Health Insurance (NHI) 2015, have stated that primary healthcare (PHC) reengineering is one of the action plans to change the health system in South Africa. It is hoped that the re-engineering of PHC will allow people to be able to get health services such as hospitals and clinics and also improve the quality of health.

Rehabilitation services are being provided now at the primary platform, but we need to see and understand how they are provided so that we can develop of a framework that will make sure that they all work well together in the National Health Service.

What do we expect from the participants in the study? We would like to find out what rehabilitation services there are in this community, who provides them and to whom they are being provided. The researchers will look through your medical records at the facility where you were seen and follow you up to ask you questions about your rehabilitation journey from the time you left the hospital. We would like to know how you came to have rehabilitation and whom you saw/received it from. This will be done in an interview, which will be audio-recorded to ensure we do not miss any of the information you give us.

Are there benefits to the participants? There are no direct benefits to you in this study, however at the end of the study we will present what we found, and answer and questions that you may have.

May I withdraw from the study? Certainly you may do this at any time and you do not have to give a reason. Remember that you will be in the study because you want to be and not taking part in it, or withdrawing from it, will not have an effect on you – your rehabilitation will not be influenced.

What about confidentiality? We will make sure that no one can tell who you are from the information you give us by using a code instead of your name on all results. Only the researcher and research assistants will have a list of names and codes so that we can link it to a particular person. This list will be kept locked in an office. The audio-recordings will also be kept in a locked office and will be erased within either (a) two (2) years of the publication of the research findings, or (b) six (6) years, if no publications arise from this research.

If you have any queries, more information may be obtained from Lebogang Maseko at telephone number (011)717 3701.

If you are happy to take part in the study, please read and sign the attached consent form with your parent/guardian.

Contact details of the researcher and for ethical concerns and questions the Chairperson of the ethics committee Prof Penny at clement.penny @wits.ac.za via the administrative offices: Ms. Z Ndlovu/ Mr Rhulani Mkansi, Tel: 011 717 2700/2656/1234/1252, or email: Zanele.ndlovu@wits.ac.za; Rhulani.mkansi@wits.ac.za.

Thank you

Lebogang Maseko

Appendix P: Participant Consent Sheet



PARTICIPANT CONSENT SHEET

Project Title: Integrating rehabilitation services at Primary Healthcare level in Gauteng, South Africa

1. I have been given a Participant Information Sheet which explains the nature and processes involved in this study, which is attached hereto;
2. I was given time to read it, or had it read to me, in the language I best understand;
3. I was given time to ask any questions I wanted to and found any answers given to me to be reasonable and satisfactory;
4. I believe I fully understand why the study is being conducted and what the intended outcomes will be;
5. I understand that there will be no immediate benefit to me, should I agree to participate, nor will I receive any payment; conversely, participation will not cost me anything but my time;
6. I understand that, even if I initially consent to take part in the study, I may subsequently withdraw at any time and would not be required to give any reasons; if that happened, any data collected about me for the purposes of the study would immediately be destroyed, unless I give consent for it to be retained
7. I have been given a range of contact details, listed below. If I require further information or become concerned about any aspect of this study I am free to speak to any of these contacts.

Contact details:

Lebo Maseko, Principal Investigator, telephone no. 011 717 3701, or by e-mail at Lebogang.maseko@wits.ac.za.

Professor CB Penny, Chairperson of the Human Research Ethics Committee (Medical) at the University of Witwatersrand, on telephone no. 011 717 2301, or by e-mail at Clement.Penny@wits.ac.za.

Ms. Z Ndlovu or Mr Rhulani Mkansi, Committee Secretariat, telephone nos.: 011 717 2700 or 1234, or by e-mail at: Zanele.Ndlovu@wits.ac.za or Rhulani.Mkansi@wits.ac.za

Name of Participant: _____

Name of parent/guardian (minors): _____

Date: _____

Place: _____

Signature or mark _____

Witnessed by:

Name of Witness: _____

Signature: _____

Date: _____

Appendix Q: Participant Consent Sheet for Audio-Recording



CONSENT FORM FOR AUDIO-RECORDING OF STUDY PARTICIPATION

Project Title: Integrating rehabilitation services at Primary Healthcare level in Gauteng, South Africa.

I hereby consent to audio recording of the interview.

I understand that:

1. The recording will be stored in a secure location (a locked cupboard or password protected computer) with restricted access to the researcher and the research supervisor.
2. The recording will be transcribed and any information that could identify me will be removed,
3. The recordings will be erased within either (a) two (2) years of the publication of the research findings, or (b) six (6) years, if no publications arise from this research
4. Anyone wishing to access this information in the future will first have to obtain the approval of the Human Research Ethics Committee (Medical) of the University of the Witwatersrand, Johannesburg
5. Direct quotes from my interview, without any information that could identify me, may be cited in the research report or other write-ups of research.

Name of Participant: _____

Name of parent/guardian (minors): _____

Date: _____

Place: _____

Signature or mark _____

Witnessed by:

Name of Witness: _____

Signature: _____

Date: _____

Appendix R: Participant Assent Sheet



PARTICIPANT ASSENT SHEET FOR MINORS*

Project Title: Integrating rehabilitation services at Primary Healthcare level in Gauteng, South Africa

1. I have been given a Participant Information Sheet for Minors, which explains what this study is about;
2. The study was explained to me and I understand what will happen if I take part;
3. I was given time to ask any questions I wanted to and was happy with the answers I was given;
4. I understand that I will not benefit from the study, should I agree to take part. I also understand that I will not be paid to take part in the study; taking part will not cost me anything either;
5. I have been given a range of contact details, repeated below, should I require further information at a later stage, or have any cause for concern over anything which is done to me during the study; and
6. I understand that even if I agree to take part in the study, I can change my mind later and stop being a part of the study
7. My parent(s) or guardian(s) know that I have been invited to take part in the study. They agree that I may do so, but the decision to take part is also mine.

Contact details:

Lebo Maseko, Principal Investigator, telephone no. 011 717 3701, or by e-mail at Lebogang.maseko@wits.ac.za.

Professor CB Penny, Chairperson of the Human Research Ethics Committee (Medical) at the University of Witwatersrand, on telephone no. 011 717 2301, or by e-mail at Clement.Penny@wits.ac.za.

Ms. Z Ndlovu or Mr Rhulani Mkansi, Committee Secretariat, telephone nos.: 011 717 2700 or 1234, or by e-mail at: Zanele.Ndlovu@wits.ac.za or Rhulani.Mkansi@wits.ac.za

Name of Participant: _____

Date: _____

Place: _____

Signature or mark _____

Name of Parent or Guardian: _____

Date: _____

Place: _____

Signature or mark _____

Witnessed by:

Name of Witness: _____

Signature: _____

Date: _____

* Defined as being persons under the age of 18

Appendix S: Contributor Roles Taxonomy (CRediT) (Allen et al., 2019)

Term Definition	
Conceptualization	Ideas; formulation or evolution of overarching research goals and aims
Methodology	Development or design of methodology; creation of models
Validation	Verification, whether as a part of the activity or separate, of the overall replication/ reproducibility of results/experiments and other research outputs
Formal analysis	Application of statistical, mathematical, computational, or other formal techniques to analyse or synthesize study data
Data curation	Management activities to annotate (produce metadata), scrub data and maintain research data (including software code, where it is necessary for interpreting the data itself) for initial use and later reuse
Writing: Original draft	Preparation, creation and/or presentation of the published work, specifically writing the initial draft (including substantive translation)
Writing: Review and editing	Preparation, creation and/or presentation of the published work by those from the original research group, specifically critical review,
Commentary or revision, including pre- or post-publication stages	Visualisation Preparation, creation and/or presentation of the published work, specifically visualisation/data presentation
Supervision	Oversight and leadership responsibility for the research activity planning and execution, including mentorship external to the core team
Funding acquisition	Acquisition of the financial support for the project leading to this publication

Appendix T: Letter from Language Editor

Karien Hurter
LANGUAGE EDITOR

KARIEN HURTER
Copy Editor and Proofreader
Email: karien.hurter@gmail.com
Tel: 071 104 9484

6 April 2024

To Whom It May Concern:

This letter is to confirm that *Integrating Rehabilitation Services at Primary Healthcare Level in Johannesburg, South Africa* by Lebogang Maseko was edited by a professional language practitioner. It requires further work by the author in response to my suggested edits. I cannot be held responsible for what the author does from this point onward.

Regards,



Karien Hurter