Exploring health professionals' perceptions of acceptability, facilitators, and barriers to using a conceptual framework for community rehabilitation in small, medium urban and rural settings in Manitoba.

by

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Abstract

Background: In Canada, individuals are living longer with chronic health conditions. Estimates suggest one-third of individuals need rehabilitation at some point during their illness or injury. Community Rehabilitation (CR) services can support these individuals to continue living in their communities, but existing service delivery is disjointed and disorganized. To address this gap. the Conceptual Framework for Adult Community Rehabilitation (CFACR), was created with input from Manitoba stakeholders in a large urban setting, to inform CR policy design, service, care planning, and research. However, Manitoba includes other settings with distinct features.

Purpose: The purpose of this study was to better understand what is needed to implement the CFACR in small, medium urban, and rural contexts in Manitoba by exploring 1) health professionals' perceived acceptability of the CFACR, and 2) barriers and facilitators to the use of the CFACR in their setting.

Methods: In this qualitative descriptive study, I interviewed health professionals in relevant settings in Manitoba. I used directed content analysis guided by the Consolidated Framework for Implementation Research, which can identify determinants of implementation and inform implementation planning.

Results: Six health professionals from two health regions participated. All participants perceived the CFACR as acceptable, included relevant constructs and aligned with practice goals, but emphasized the need for flexibility in the constructs to be responsive to practice needs. Key facilitators identified to support using the framework in these settings included compatibility with organizational and professional service goals and suitability to address patient needs. Identified barriers related to lack of resources, current care model, health system transformation, client flow, communication, client capacity, and logistics and workplace safety issues.

Discussion: Participants positively perceived the CFACR, and compatible with service delivery aims but the identified barriers indicate that implementation needs support from external actors (i.e., government), and allocation of resources to community services. Research is needed to determine if barriers are specific to certain service settings (e.g., rural).

Conclusion: The CFACR is acceptable in small, medium urban, and rural settings in Manitoba, fits with the goals of service delivery and practice, but barriers may challenge the feasibility of implementing it.

Introduction

The population demographic in Canada is changing (1), with increasing numbers of individuals living longer with one or more long-term "chronic" health conditions (2–6). To continue living in their communities, many of these individuals need support from healthcare systems, service providers, and informal caregivers to manage the negative impacts of their condition(s) such as decreased physical function and loss of independence (7,8).

Health services delivered with the purpose to support individuals with chronic conditions and/or decreased physical function often require some form of rehabilitation, but many do not always include such services. Rehabilitation services are interventions intended to help recover or maintain an individual's ability to operate in their environment (9–11) by preventing loss of function, and aid in maintaining independence, often through a combination of self-management strategies, use of equipment, and home modifications (10). According to a global estimation, one in every three people need rehabilitation at some time during their illness or injury (10). However, many individuals do not receive such services, often because rehabilitation is not accessible (12). Rehabilitation services may be provided in a variety of settings and situations, such as inpatient (i.e. the patient receives treatment while admitted to a hospital), outpatient (i.e. the patient receives treatment in a clinic or hospital without being admitted to a hospital) (13) and some rehabilitation services are delivered in the community (14,15). Rehabilitation services in the community (i.e. "community rehabilitation") are delivered to people who live in their homes (14). This type of community rehabilitation should be delivered by a multidisciplinary team and developed together with the client and their informal caregiver (15).

Community rehabilitation services have been suggested to offer a cost-effective way to improve patient health outcomes (16–19). Nevertheless, the organization of community healthcare services has shown to be disjointed and lacking appropriate coordination in Canada and globally (20,21). Poorly organized services are associated with disruptions in continuity of care, inefficient use of resources, and absence of some services (20). Collectively, these effects can result in worse patient outcomes, such as a negative impact on the emotional state of clients, and deterioration of general health with decreased level of function (22–27). In the province of Manitoba, Canada, it has been found that community rehabilitation services lack a focus on

restoring or maintaining an individual's function and that there is a need for integration of services across the care continuum (28,29).

To address gaps in the organization of community rehabilitation services, a team of Manitoba provincial system health leaders and academic researchers recently developed a framework for optimizing the organization and delivery of adult community rehabilitation**.** The Conceptual Framework for Adult Community Rehabilitation (CFACR), shown in Figure 1, was created for use in policy design, service planning, care, and research related to adult community rehabilitation (30). The framework consists of 11 components that are grouped into 2 areas: principles and organization of community rehabilitation. "Organization" consists of 6 components; *coordinated, continuity, team-based, stepped, evaluated,* and *appropriate.* "Principles" consists of 5 components; *person- and family centered, equity-focused, culturally safe, evidence-informed,* and *restorative* (30).

Figure 1. Visual representation of the CFACR (30), used with permission. For further details on the framework components, please see Appendix V.

However, conceptual tools like the CFACR do not necessarily get adopted after conception. Healthcare organizations and healthcare systems are considered complex adaptive systems, and they consist of several elements with various agents that interact and influence each other (31). A growing body of research (32–36) has demonstrated that the uptake of knowledge and use of innovations in healthcare depends on many factors (34) and requires active processes (often termed "implementation") to put these innovations into effect. For example, a person's attitudes, beliefs, and perceptions of an innovation, and environmental context, resources at

hand, or organizational structures, can either help or hinder efforts to implement innovations and bring change to healthcare (37,38).

It is important to consider how the target audience for an innovation perceives it when considering its potential for adoption (39). For example, if a health professional does not find a new clinical practice guideline acceptable, they may choose not to follow it (37). Acceptability of an innovation is an important factor for successful adoption and an indicator of implementation success (40). However, acceptability is not in itself sufficient for the implementation of an innovation like the CFACR (39). There can be other factors that impede adoption. Factors that hinder knowledge use and implementation are commonly referred to as "barriers" (41). Barriers that are not addressed in the implementation process can result in the knowledge not being used as intended, or not used at all (37,39). For example, if organizational structures prevent health professionals from collaborating, an innovation dependent on interprofessional teamwork would most likely fail unless the barrier is properly addressed. On the other hand, a factor that instead promotes or assists in the adoption of an innovation is considered a facilitator (38,41). For example, if the success of an innovation relies on educating healthcare staff about how to use it, facilitators could be the time allotment and access to educational resources for staff to learn about the innovation.

Prospectively investigating barriers and facilitators offer an opportunity to tailor an implementation plan with strategies that use the facilitators to promote the adoption of the innovation and address the barriers that might hinder its uptake. Implementation efforts that include strategies tailored to address barriers in specific contexts have proven more likely to succeed (34,38).

The CFACR was rigorously developed with feedback and input from community rehabilitation health system administrators, managers, service providers, clients[b], and informal caregivers. However, the participants were exclusively from one health region - the Winnipeg

[b] Disclaimer: The terminology used to describe the individuals that receive healthcare services varies. For example, individuals may be referred to as patients, clients, or customers. As a former clinician, I recognize that there is debate on what is considered appropriate terminology, and the words may imply fundamental differences in the relationship between care recipients and care providers. In my thesis, "patient" and "client" are used synonymously. I use the word "client" with the intent to keep my language consistent with the terminology used in the CFACR.

Health Region (WHR)- and thus does not include perspectives from other areas of the province. The WHR is the geographically smallest health region in Manitoba yet encompasses the only large urban center in the province, which houses over half of the provincial population (42). Previous research has indicated that contextual differences, such as population demographics and healthcare needs can vary between urban and rural settings (5). This could act as a limitation for the CFACR to be used in provincial initiatives as it may not be considered applicable to contexts that are different from the WHR. In particular, the remaining population serviced by four other health regions includes only medium and small urban communities, as well as rural communities (42). It is not possible to determine if the CFACR is ready for implementation on a provincial level without understanding more about the context of other Manitoba health regions.

For the CFACR to inform adult community rehabilitation services on a provincial scale in Manitoba, it is necessary to understand the acceptability of the CFACR in different settings and be informed about the potential barriers and facilitators that can influence its use. This data can then be used to assess if the initial CFACR needs to be refined or adapted to the specific context and gain insight into challenges related to implementing the CFACR.

Objectives and Research Questions

The purpose of my thesis project was to inform implementation planning to support the use of the CFACR in Manitoba. My study aimed to describe perceptions of the CFACR among health professionals working with provincially funded-and-delivered community rehabilitation services in rural, small, and medium urban settings in Manitoba, Canada. To do this, the specific objectives were to better understand the:

1. acceptability of the CFACR.
2. potential barriers and facilitators to using the CFACR in community rehabilitation care.

The research questions were:

1. "To what extent is the CFACR acceptable to health professionals working in provincially funded-and-delivered community rehabilitation services in rural, small, and medium urban settings in Manitoba, Canada?"
2. "What barriers and/or facilitators do health professionals working in provincially funded-and-delivered community rehabilitation services in rural, small, and medium urban

settings in Manitoba, Canada, anticipate will influence the ability to use the CFACR in their setting?"

Present State of Knowledge

More people are living longer with chronic conditions

According to the *Global Burden of Diseases, Injuries, and Risk Factors (GBD) Study 2019*, overall population health has improved over the last 30 years. However, since 1990, there has been an increased proportion of disease burden of individuals living for years with disability from non-communicable diseases and injuries. This was mainly motivated by population growth and aging populations (43).

Chronic conditions are non-communicable long-term health conditions that are usually treatable but not curable. Often, these conditions involve some form of functional disability (5,44). Roberts et al. (2015) found that 12.9% of Canadian adults over 20 years of age reported having two or more chronic health conditions. 3.9% of adults reported three or more conditions (5). Fisher et al. (2021) studied individuals 65 years and older, created cohorts by linking several cycles of the Canadian Community Health Survey (2005-2012) with administrative data, and found that 44% of their sample reported having three or more chronic conditions (45).

Individuals living with one or more chronic conditions or disability from injury can experience a negative impact on their quality of life (46). Maresova et al. (2019) conducted a scoping review on the consequences of chronic disease in old age. The study found that older adults experienced consequences related to several aspects of their life. For example, many older adults had difficulties in mobility, psychological problems, participated in activities and experienced injuries from falls (46).

A systematic review by Paterson and Warburton (2010) suggested that a moderate to high level of physical activity can reduce disability and functional limitations in Canadian older adults (47). Another review by Theou et al. (2011) confirmed that older adults can benefit from exercise interventions to maintain physical function and to reduce the risk of adverse health events, such as falls (48).

As individuals are living longer and many spend more years living with a disability due to non-communicable diseases and injuries, there is a need for rehabilitation services that are suited to address health needs in the population (46,49).

Health service supports include rehabilitation services

Rehabilitation services have been shown to be effective in the treatment of individuals with chronic conditions (50). They can reduce functional decline, disability, mortality, and increase independence (51) and quality of life (16). According to the World Health Organization (WHO), rehabilitation services may be provided by different healthcare professionals such as physiotherapists, occupational therapists, speech-language pathologists, and physicians to name a few (11). These professional specialties complement each other. For example, physiotherapists may focus on an individual's treatment in terms of exercise to enable and optimize function. An occupational therapist might help the patient adapt to their environment to increase their function and participation in activities. A physician may prescribe pharmaceutical treatment to address issues like pain or high blood pressure. Because different health conditions may require different (or a combination of) specializations, the WHO's *Rehabilitation in health systems* from 2017 recommends the availability of a multi-disciplinary workforce for the effective management of health conditions (11).

According to Cieza et al. (2020), "rehabilitation" is defined as "a set of interventions needed when a person is experiencing limitations in everyday physical, mental, and social functioning due to aging or a health condition, including chronic diseases or disorders, injuries or trauma". Meanwhile, the WHO defined rehabilitation as "a set of interventions designed to optimize functioning and reduce disability in individuals with health conditions in interaction with their environment"(11). The definition from Cieza et al. (2020) focuses on what circumstances rehabilitation exists and puts some parameters on what type of health conditions are relevant, while the WHO emphasized what rehabilitation aims to achieve. Based on the definitions only, it is unclear what the interventions entail and to what extent, who provides the services, or where it is provided[c].

[c] In both publications, the description of rehabilitation suggests that it encompasses interventions such as: a) support and exercises to support physical, affective, and cognitive function, b) modifications of an individual's environment to enable independence, c) strategies for preventing further functional decline, d) drug prescription to reduce debilitating pain or muscle stiffness, and e) equipment modification to assist an individual in performing tasks (10,11,15,52). These definitions do not include rehabilitation related to substance abuse or criminal offense.

Building on the results of the study by Vos et al. (2020), Cieza et al. (2020) estimated the global need for rehabilitation by establishing what conditions could benefit from rehabilitation and calculated the prevalence and years of life lived with disability for those conditions. The analysis resulted in an estimate of 2.41 billion individuals with conditions suited for rehabilitation and demonstrated that this number has increased by 63% since 1990. The most prevalent conditions prescribed for rehabilitation belong to the category of musculoskeletal disorders (10).

Although there is a high need for rehabilitation, there are some indicators that raise concerns about the capability to address rehabilitation needs in the global population. In the Americas (mainly the US and Canada), there is low participation in rehabilitation programs (i.e., although rehabilitation programs are offered, clients do not attend them), absence of referrals, and even a paucity of available programs, as indicated by a scoping review (12). The study reported that additional barriers to participation in rehabilitation were due to shortcomings in financial aid and the distance to travel for programs (12).

To meet the needs of rehabilitation, the WHO has recommended that rehabilitation services are available both in hospitals and in the community (11). Studies comparing the effects of rehabilitation services in different settings (i.e., day hospitals, center-based care with home-based care in the community) found little to no difference in patient outcomes, such as functional improvement or quality of life (51,53–56). A Cochrane systematic review of articles published between 1950-2013 found no strong evidence in support of medical day hospitals compared to other services, including rehabilitation in the home when looking at the level of disability or patient-reported health status in older adults (51). However, there are some results in favor of rehabilitation in the home. A systematic review found that RCT studies regarding adults with stroke either showed no difference in patient outcomes or better results in the group receiving rehabilitation in their own homes (55). Aside from improved patient outcomes, rehabilitation in the home has also been considered a cost-effective option for service delivery (16,55,57).

Community rehabilitation services in Manitoba

In a report from Manitoba Health, Seniors and Active Living, 55% of Manitobans 40 years or older were living with one or more chronic conditions in 2017/2018 (58). Half of those were living with two or more chronic conditions (58). *The 2019 RHA Indicators Atlas* shows the

prevalence of different chronic conditions in the adult population in the province and per health region (59). The number of individuals living with a chronic illness is above the provincial average in the Northern Health Region (NHR), Prairie Mountain Health Region (PMHR), and the Interlake-Eastern Health Region (IEHR) (59).

In Manitoba, 57.1% of the provincial population is serviced by the WHR, which oversees services in the cities of Winnipeg and Churchill, with the vast majority located in Winnipeg (42). This makes the WHR the geographically smallest out of the health regions but with the highest population density (42). Also, while the WHR within Winnipeg consists of several urban community areas, the other health regions include zones that encompass semi-rural, rural, and remote areas (59). These factors can have implications for the provision of healthcare services fit to address the needs of individuals.

In 2018, the Manitoba provincial government introduced its Transformation Program Charter, which is an effort to address population needs, manage healthcare costs, and improve healthcare quality. The charter emphasized changes to increase the effectiveness of healthcare services and build a more integrated healthcare system (60). As part of the transformation plans, Manitoba's Clinical and Preventative Services Plan from 2019 by Shared Health outlines efforts to invest in better care closer to home (61). It specifically mentions enhanced primary care support with interdisciplinary care teams and "community support for healthy aging, prevention, and chronic disease management" (61).

At present it is unclear how many individuals in Manitoba need rehabilitation services and who or how many do not receive such services. Since the organization of community healthcare services in Canada has been found to be disjointed and lacking appropriate coordination (62), a shift in care with more emphasis on community raises questions such as if the current services will be able to address rehabilitation needs in the population.

Two recent studies examined the aspects of community rehabilitation service organization and delivery in Manitoba. Leclair et al. (2022) investigated the current delivery of community rehabilitation services for older adults through the perspective of service providers, managers, and health system administrators in the city of Winnipeg. They utilized a case study in which they asked participants about the perceived limitations, strengths, and gaps in community rehabilitation services. The findings indicated several limitations in the service delivery related

to access to rehabilitation services including the focus of the services, and the organization and coordination of care. Access to community rehabilitation programs was hindered by eligibility criteria (e.g., age) that excluded many people who could benefit from rehabilitation. Eligibility criteria for enrollment in programs were disease-specific and not based on functional status. While long waitlists to programs delayed some eligible participants' rehabilitation, transportation costs to and from programs were also a challenge for some individuals. The study found that services offered were of a consultative nature (one assessment visit with no follow-up), and a dearth of programs with a focus to restore a person's function in their home. Since one of the main purposes of rehabilitation is to restore function, the lack of a restorative focus in rehabilitation services is a significant shortcoming like the services provided in Manitoba (28).

Another main finding in the study described the inadequacy of proper organization of service and deficiency of care coordination in the care continuum. This lack of coordination was in part because professionals and patients did not know what services and programs were offered or available. Participants perceived the incorporation of rehabilitation services into the larger healthcare system as a challenge. The absence of follow-up of participating patients was cited as another challenge to enable continuity of care (28).

A longitudinal study by Zawaly et al. (2022) aimed to explore the experiences of older adults and their informal caregivers that participated in community rehabilitation programs in Winnipeg. The findings presented examples of how accessible transport could help or hinder participation in rehabilitation programs. Programs and services suited to the patient's need and with consideration for their informal caregiver were experienced as supportive in the rehabilitation journey rather than a logistical burden. Testimonies also indicated that services aiding participants to engage and function in their own social and physical environments were more favorable than the services that did not (29).

The studies by Leclair et al. (2022) and Zawaly et al. (2022) confirm challenges related to the delivery of rehabilitation services previously identified in the literature (12). Most notable was the lack of organization and coordination of services (28,29). Accessibility issues were related to the cost of transportation or the location of services The unavailability of services could be because the individual did not fulfill strict eligibility criteria, which were often based on the type of disease (28,29). A lack of coordinated community rehabilitation is an important

finding because coordinated healthcare services have implications for better client outcomes. According to the literature, coordinated healthcare services support better care continuity and are associated with decreased healthcare use and higher patient satisfaction (19,63–66). For example, a systematic review by Siemonsma et al. (2014) reported that home-rehabilitation interventions for stroke survivors significantly reduced hospital stays without affecting readmission rates, but this success depended on good coordination and continuity of care (19).

In essence, both provider and patient perspectives in Winnipeg suggest that improvement of the coordination and organization of community rehabilitation services would be beneficial for the purposes of providing valuable rehabilitation services, with a greater focus on supporting individuals to reach their rehabilitation goals, applicable to their environment, with consideration for, and in collaboration with, informal caregivers (28,29).

The CFACR: A tool to support community rehabilitation

Sibley et al (in review) identified a need for a guiding framework for community rehabilitation to support provincial health system transformation. The team developed the CFACR (table 1) to be used for policy design, research, planning, and care. They used a combination of information from a document review and interview data. They reviewed documents for existing definitions, models, or programs for community rehabilitation in Canada and incorporated the interviews from the studies by Leclair et al. (2022) and Zawaly et al. (2022) to formulate a definition of community rehabilitation and establish a list of components for a first draft of the framework (30). The draft was then revised and refined based on feedback from participating system and service informants, patients, and informal caregivers.

Table 1. The Conceptual Framework for Adult Community Rehabilitation, CFACR (30). Used with permission.

Category	Component	Definition/ Explanation
Principle	Culturally-safe	Critically reflects, recognizes, analyzes, and addresses power imbalances, institutional discrimination, and colonial relationships in the context of community rehabilitation care to advance therapeutic encounters.
	Equity-focused	Supports all people reaching their full health potential and are not disadvantaged from attaining it or accessing health services because of socially determined circumstances.
	Evidence-informed	Distills, disseminates, and applies the best available evidence from research, context, and experience, and uses that evidence to inform and improve community rehabilitation practice and policy.
	Person-and family-centered	Partners with clients and families (as defined by the client) to put people first and provide care that is holistic, culturally safe, acceptable, respectful, and responsive to individual preferences, needs, and values.
	Restorative	Works to attain and maintain the highest level of function possible by doing *with* a person, rather than doing *for* a person.
Organization	Appropriate	Community rehabilitation services are provided in the most suitable setting for providing safe, accessible, and timely care aligned with individuals' needs and potential to achieve rehabilitation goals.
	Coordinated	Care is organized between the community rehabilitation team and other care providers across the continuum of care. Clients and family are encouraged to participate in goal setting and care planning.
	Continuity	A series of initiating, consistent, and concluding care events that result when a person seeks community rehabilitation services in one or more settings.
	Evaluated	Consistent measurement to monitor and demonstrate health system, program, and individual outcomes that contribute to enhanced functional independence.
	Stepped	The most-effective and least-resource-intense community rehabilitation services are initiated first, adapted, and increased as needed, and then reduced in a coordinated manner when an endpoint is reached.
	Team-based	Includes rehabilitation professionals and support staff from multiple disciplines who work collaboratively and in an integrated way.

The team defined community rehabilitation as "rehabilitation services for people living in their homes or continuing place of residence, developed in partnership with clients and families, designed to optimize function and reduce disability and delivered by an interdisciplinary team*"* (30). This definition effectively encapsulates the position of services in the community, the purpose of services, and the nature of professional teamwork that should deliver those services. This is a useful definition since it excludes institutionalized temporary hospital care but is flexible enough to include outpatient services that are located at a hospital to individuals that are still residing in their own homes. While each component originated from the primary data collection in the study, the component descriptions were derived from the literature. All eleven components are considered equally important, and they were organized into two groups to aid with interpretation: principles and organization.

The three data sources the team used offer a rich foundation for such a framework. The studies that provided the interview data focused primarily on community rehabilitation for older people, although the framework's purpose and definition encompass all adult populations and are not limited to older adults (30). As the CFACR was conceptualized to address the gaps in community rehabilitation in Manitoba, an appropriate next step is to consider the practical application and use of this framework.

Moving the CFACR towards use in practice

The process of moving knowledge into practice is in Canada often referred to as "knowledge translation". Knowledge translation is defined as: "the exchange, synthesis and ethically-sound application of knowledge—within a complex system of interactions among researchers and users—to accelerate the capture of the benefits of research for Canadians through improved health, more effective services and products, and a strengthened health care system" (67). This concept considered the complex dynamics between research and end users of knowledge (i.e. "knowledge users") to inform decision-making (68).

The Knowledge-To-Action (KTA) framework by Graham et al. (2006) describes the process of creating new knowledge (knowledge creation funnel) and applying knowledge into practice (action cycle)(69). This is one of the most commonly cited frameworks which has been extensively used in implementation research projects (70). "The Thing" or "What" is implemented into practice is usually referred to as an "intervention" or "innovation" in the

literature (38–40,71). I use the term "innovation" in this project to refer to the CFACR as "the thing that is being implemented". This is to avoid confusion between *what is being implemented*, and *the process of implementation*. Once an innovation has been conceptualized, the KTA framework can be useful as a "map" to identify steps that need to be addressed to better inform an implementation process and thus increase the probability of a successful implementation. This framework can help set parameters and structure for a project and situate a smaller project within the larger, often complex, process of moving knowledge into practice. Since the purpose of my project is to inform an implementation plan for the CFACR, the KTA identifies necessary steps to gather information that is relevant to the implementation plan.

Implementation science focuses on research methods to advance understanding of how the implementation of an innovation succeeds in real settings (68,72,73). Other authors describe the main aims of implementation science as being "to produce insights and generalizable knowledge regarding implementation processes, barriers, facilitators, and strategies" (32,33).

To accomplish successful and sustainable implementation efforts, acceptability and satisfaction from the perspective of an end-user can be as important as high confidence in the efficacy and feasibility of the innovation (74,75). Low acceptability can be a significant challenge to the implementation and adoption of an innovation because knowledge users might not use the innovation as intended, if at all (19,39,40). For example, Siemonsma et al. (2014) give an example of how healthcare professionals involved with a home-based rehabilitation program did not use a collaborative approach promoted by the program when their values and beliefs did not agree with the program approach. Acceptability is important to consider both from the perspective of the service provider (e.g., a health professional follows a best practice guideline) and the service recipient ("client" or "patient") perspective (e.g., the client chooses to participate in a rehabilitation program) (39).

Despite its importance, previous research studies are often vague on the definition and theoretical foundation of acceptability (39,74–79). For example, Moore et al. (2012) reported assessing the acceptability and feasibility of a community-based pulmonary rehabilitation program. This study focused solely on acceptability from a client perspective and did not report if the program was deemed acceptable by service providers. Instead, acceptability was defined as the clients' "willingness to attend" the program but did not cite any source for the definition, or

justification for the definition (80). Another team conducted a pilot study investigating acceptability and feasibility related to a community-based exercise program for stroke survivors but did not provide a definition of acceptability (77). Wade et al. (2014) proposed that acceptability by clinicians is a key factor the in adoption of an innovation. However, research studies including provider acceptability also did not include a definition of the concept (74,78,81,82)

Proctor (2011) defined *"*acceptability" as end users' perception of an innovation to be agreeable. Sekhon et al. (2017) theorized the concept of acceptability and defined it as "a multi-faceted construct that reflects the extent to which people delivering or receiving a healthcare intervention consider it to be appropriate based on anticipated or experienced cognitive and emotional responses to the intervention"[d]. Both agree that acceptability refers to the nature of the innovation (i.e., it is innovation specific) and to how someone perceives "what" is being implemented or "how" it is being implemented. Acceptability can change during the process of implementation. Therefore, information on acceptability for the innovation is relevant to consider before, during, and after an implementation project (39,40). According to Sekhon et al. (2017), acceptability depends on factors such as an individual's perceived opportunity costs, effectiveness, self-efficacy, coherence, fit, burden of participation, and how an individual feels about an innovation (39).

I interpret the definition by Sekhon et al. (2017) as how an individual perceives innovation-specific components as "compatible" or "fitting" to that person's capabilities, values, and capacity (i.e., intrinsic factors). This would not include innovation "fit", or "compatibility" related to external factors (e.g., organizational setting). Sekhon et al. (2017) thereby offers a more detailed framework for exploring "acceptability" in healthcare research. For the purposes and scope of this research project, I will focus on Proctor's definition: "the end user's perception of an innovation to be agreeable". For example, the acceptability of the CFACR could be to what extent providers consider it comprehensible and are satisfied with the components of the framework.

[d] "Intervention" here refers to the "Innovation".

The KTA framework indicates that it is important to investigate which factors help or hinder an innovation to be implemented (69). This is commonly referred to as "barriers" and "facilitators" in the research literature (34). Hale-Gallardo et al. (2020) found that aspects of culture in an organization, infrastructure, logistics, and environment acted as barriers to implementing a new form of remote delivery of rehabilitation services for rural veterans. Meanwhile, local champions, along with flexibility for the providers to implement the innovation supported the implementation (81). Another study found that service providers' characteristics, patients' attitudes as well as organizational factors, and team coordination could act as either a barrier or a facilitator of patient-centered outpatient rehabilitation (82). In a study by Déry et al (2021) lack of training, financial and human resources were identified as barriers supporting the implementation of a patient prioritization tool in rehabilitation programs (83). Other examples of barriers can be a) gatekeepers preventing knowledge from being accessible or used in practice, or b) an alternative innovation perceived as more effective or fitting might have a higher degree of support for implementation (38).

According to implementation science, assessing factors that can influence the use of the innovation is vital to be able to successfully implement the innovation into healthcare (34). Without knowledge about what hinders or enables knowledge to be used in healthcare, implementation efforts have a high risk of failing to bring the desired change (34,38). A systematic review on barriers and facilitators to implementing evidence-based stroke rehabilitation reported that the most common reason why implementations failed was because of a lack of adherence to the innovation (84).

While barriers and facilitators to knowledge use can be assessed after implementation (i.e., retroactively), it may be considered a waste of resources (85). By investigating barriers and facilitators prospectively, it can provide an opportunity for action to address the barriers and optimize the potential for successful implementation of the innovation. If barriers cannot be addressed, the innovation may need to be revised or allow for a more suited option to be implemented (34).

Many different frameworks have been developed with the intent to investigate barriers and facilitators to implementation. Damschroder et al. (2009) consolidated 19 theoretical frameworks into one comprehensive framework, The Consolidated Framework for

Implementation Research (CFIR). It provides an organization of constructs that may influence implementation. The constructs are grouped into overarching domains. The CFIR aims to predict determinants (barriers and facilitators) or to explain their connection to implementation outcomes (38). For example, Déry et al. (2021) used the CFIR constructs to code qualitative and quantitative data from focus groups and questionnaires asking about service providers' perspectives on barriers and facilitators to implementation of their prioritization tool. Van Stan et al. (2022) used the CFIR constructs to analyze the qualitative data on rehabilitation professionals' use or application for a theory-driven framework intended to identify and describe clinical action and patient functions of rehabilitation treatments. The research team then ranked barriers depending on how common they were and used a matching tool to generate suggested strategies to address the barriers. However, this study was executed after the innovation had already been implemented (86). Both studies considered all parts of the CFIR for data collection, but Déry et al. (2021) used different data collection methods for the selected domains. However, the researchers did not elaborate on the reason for the selection (83,86).

Kirk et al. (2015) conducted a systematic review of the use of the CFIR in research and found that although it has been used in several studies, most of them qualitative, few studies used the CFIR for pre-implementation research (87). Kirk et al. (2015) refer to this as a "missed opportunity" to prepare an implementation and improve the possibility of success. Since the publication of the review, there has been an increase in studies that use the CFIR, but it is unclear how many used it for pre-implementation research.

Taking the opportunity to explore factors that are considered important to successful implementation through a pre-implementation study can add to the current research field of implementation science and improve the chances of successful implementation of a novel innovation to inform community rehabilitation.

Next Steps

Zawaly et al. (2022) and Leclair et al. (2022) identified a discrepancy between research and practice in community rehabilitation in Manitoba, and Sibley et al. (in review) created the CFACR to help address those gaps. Before adopting the CFACR in Manitoba, it is important to recognize that the feedback from the interviews that informed the CFACR came exclusively from participants residing in a large urban center. This could be a limitation as the literature

suggests that access and provision of rehabilitation services can vary between urban and rural areas (12). Understanding implications for the framework from the lens of people in community rehabilitation outside of a large urban center would potentially support the use of it for policy and planning for community rehabilitation on a provincial scale.

It remains unclear how to apply the CFACR in Manitoba. There is no information on how the CFACR would be acceptable in a setting outside of Winnipeg, or what could help or hinder the use of the innovation in those settings. Exploring the acceptability and assessing barriers and facilitators that might influence the adoption of the CFACR would provide useful information to inform a future implementation plan in Manitoba.

Methodology and Methods

Paradigm

My thesis research was rooted in pragmatism. Pragmatism is one of several defined worldviews in research (88). It recognizes that knowledge is based on human experience and accepts the existence of both unique and shared worldviews. Experiences are specific to contexts that shape an individual's beliefs and as such, act as a foundation for their actions. By understanding the underlying factors that influence action, improvements can be achieved by appropriately planning and executing actions that result in more desirable outcomes (89). For example, although a knowledge product such as the CFACR could be recognized as an accurate representation of ideal community rehabilitation services by health professionals, some might adopt it while others might not. This difference in action between health professionals could be because of how they perceive and ascribe meaning to the framework. By understanding why they chose not to adopt this framework, we could potentially address concerns about the implications of the framework. In this regard, implementation research aligns well with pragmatism (88,90). Implementation science makes use of different research methods depending on what can produce practical answers (32,73,91).

Pragmatism operates on the notion that a research method should be based on what is best suited to answer the research question(s) (88). This principle also aligns with implementation research as implementation science recommends the use of different methods depending on what is the most likely to produce practical answers (32,73,91).

Positionality Statement

A researcher's ontological and epistemological foundations influence their research, and it is, therefore, important to reflect on them in the context of the research being done. The researcher locates themselves within three areas to identify their positionality: what the research study is about, the individuals participating in the study, along with the context and process of the research. According to Holmes (2020), while some parts of positionality are considered "fixed", such as skin color or nationality, others (e.g., political views or life experiences) are considered "fluid" and change over time. The concept of a researcher's positionality is never fixed but is dependent on the context (92).

I have been trained as a rehabilitation clinician in Sweden, and I worked in an urban setting as a licensed physiotherapist in primary care before immigrating to Canada. I have worked clinically with outpatient and inpatient rehabilitation in Manitoba in a large urban setting.

My experience of the differences in clinical work cultures and settings between Sweden and Manitoba was the foundation for my chosen direction to conduct research related to implementation science and investigating barriers and facilitators to knowledge use. My past clinical front-line role influences how I engage in conversation or perceive responses from front-line participants, and my experience working in research teams and consulting with healthcare decision-makers provides me with some insight into leadership and decision-making roles.

My experience of working exclusively in urban settings puts me in an "outsider" perspective in this study focused on small and medium urban and rural settings as I have limited knowledge about settings with, for example, larger geographical areas or limited infrastructure.

It is also worth mentioning that as a student in academia, the focus and perceived relevance of a project may be vastly different from a practice setting. For example, a current working health professional may focus more on current-day events and look for solutions to identified problems that are ongoing in their everyday work environment. Meanwhile, academia and research may strive for increased knowledge and understanding that can aid in solving problems in the future or the long term.

To aid in the process of identifying my positionality in the research process (92), I reflected on the research process and kept ongoing documentation in a reflective journal. For

example, although qualitative research is interpretive, (93) reflecting on my position as an outsider and former clinician, motivated me to take a more descriptive methods approach instead of more deeply interpretative methods. An interpretative approach to me would mean incorporating cultural, praxis, and linguistic assumptions based on my experiences that have been shaped by (potentially) significantly different work settings and teaching institutions. By focusing on being descriptive, I would be more aligned with the nature of the research questions and the possible implications of the research (i.e., influence implementation of the CFACR).

Theoretical Frameworks

The use of theoretical and conceptual frameworks in research methodology strengthens rigor and aims to make findings more meaningful. A theoretical framework is built on one theory, while a conceptual framework includes several theories, and attempts to illustrate the connections between these theories. Using theoretical and/or conceptual frameworks may increase understanding of what works for whom and under what circumstances (94). A conceptual framework is an organization of how a researcher would explore a problem by providing a logical path to address a research inquiry (95).

There are different types of theoretical and conceptual frameworks in implementation science (94,96). *Process frameworks* specify stages that can guide an implementation plan. *Determinant frameworks* identify constructs that can influence implementation, and *Evaluation frameworks* identify relevant implementation outcomes (96). Given the focus of my research questions in my thesis, I chose and was guided by one process framework (KTA) and one determinant framework (CFIR). I did not use an evaluation framework. However, I used the definition of "acceptability" based on the evaluation framework by Proctor (2011).

In this study, the KTA framework (69) helped guide the selection of the research questions and situate the research project within the knowledge-to-action process. According to the KTA framework, the knowledge creation funnel involves a knowledge inquiry, knowledge synthesis, and finally a knowledge tool or product (i.e., the "innovation"). In this project, the CFACR is considered the "knowledge product" that sets a vision for ideal community rehabilitation. The next thing to consider is if, or to what degree current practices in small, medium urban, and rural settings already align with the CFACR. This is the first step in the KTA action cycle titled: "Determine the know/do gap". This can be done by asking health

professionals with relevant experience in the current settings and practice. If current practices do not align with the CFACR, then it is relevant to examine how this knowledge can be adapted to the local context (the second step in the action cycle). This could mean that although the CFACR components would not change, the component descriptions may be revised to fit better with the context. Then, to bring the innovation closer to implementation, it is important to investigate potential barriers and facilitators to implementing the CFACR (step three in the action cycle). Understanding barriers and facilitators could then allow for an informed selection of implementation strategies and a plan tailored to address the identified barriers (69).

I used the CFIR to identify factors that can influence the implementation of the CFACR (i.e., "implementation determinants"). Due to how comprehensive the CFIR is, I chose it with the motivation and expectation that it was likely to capture a wide range of constructs and thereby be useful to organize and describe data. There are also research efforts made to connect CFIR constructs to strategies that can help address barriers and facilitators (e.g., the ERIC-CFIR Matching Tool) (97,98). I reasoned that by using the CFIR for organization, it would help translate research findings to the language used in implementation research, and thus be more useful to inform an implementation plan.

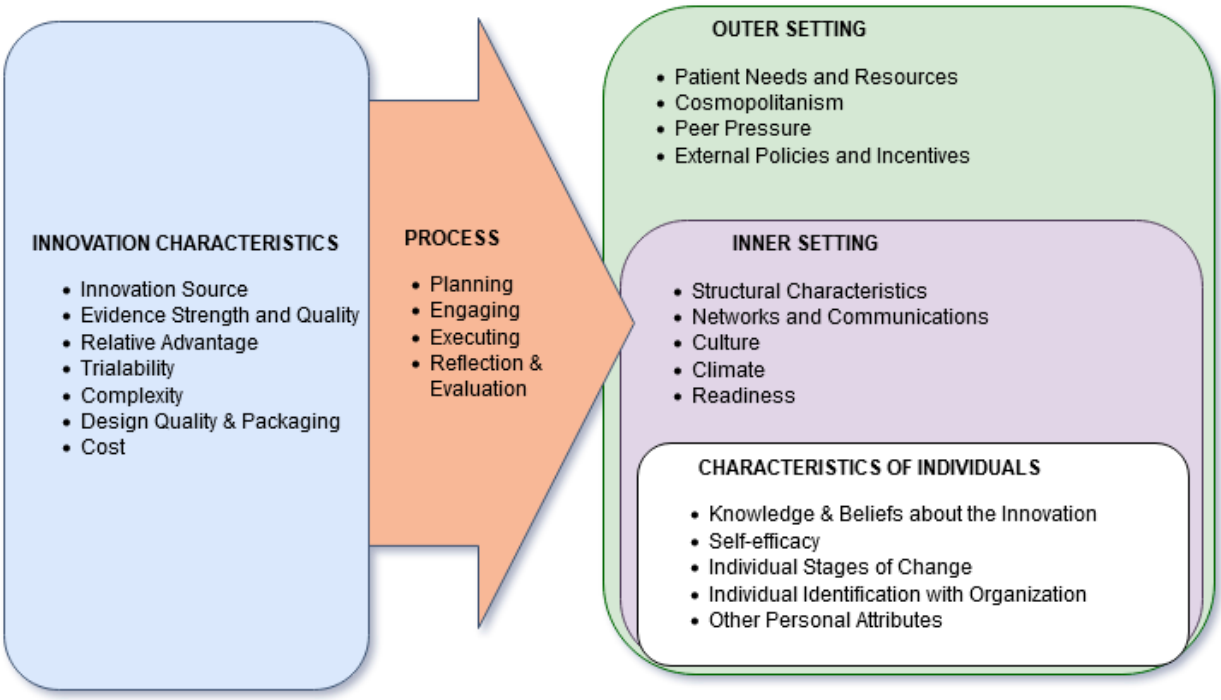
The five domains of the CFIR are (figure 2): *Innovation*[e] *Characteristics* ("what" is being implemented), *Process of Implementation* ("how" the innovation is being implemented), *Inner Setting* ("where" the innovation is being implemented), *Outer Setting* (the setting in which the implementation setting is located) and *Characteristics of Individuals* (attributes of the individuals involved in the implementation). Each domain contains several constructs (see Appendix X for domains with all 39 constructs and definitions). For example, *Relative Advantage* is a construct in the domain *Innovation Characteristics* and this case would refer to how knowledge users (health professionals) perceive the innovation (the CFACR) as the better option when compared to an alternative (including the status quo). (38,99,100).

The *Inner Setting* often includes several sub-settings and/or multiple levels of settings. For this study, the *Inner Setting* domain in the CFIR refers to the health region (i.e., the service

[e] In the CFIR 2009 edition, this domain was called "Intervention Characteristics", In the qualitative codebook this was later updated to "Innovation Characteristics" to clarify that the domain refers to "what" is being implemented (38,71,99)

delivery organization), and small, medium urban, and rural settings refer to sub-settings within the *Inner Setting* domain. The *Outer Setting* refers to environments or conditions external to the service delivery organization. These are things that the *Inner Setting* doesn't have direct control over but still depends on to some degree (e.g., regional, or provincial political directives).

Figure 2. The Consolidated Framework for Implementation Research (CFIR). It has 5 domains and a total of 39 associated constructs. Not all constructs are represented in this figure due to space limitations (38,100). This illustration represents how I view the CFIR domains and it is based on similar visual adaptations (101,102).



While the CFIR addresses many implementation determinants, it does not address the concept of acceptability. Therefore, I thought it necessary to consult other research evidence and theory to distinguish what data were relevant to describe acceptability. Although Sekhon et al. (2017) proposed a framework for the acceptability of health interventions (39), I found that adding another framework added more complexity and confusion to interview questions and analysis about a conceptual framework (i.e. the CFACR) rather than aiding in clarification. Meanwhile, the definition by Proctor (2011) ("the end user's perception of an innovation to be agreeable") was challenging to operationalize. Proctor (2011) lists "acceptability",

"appropriateness" and "feasibility" as three constructs that are important in the early stages of implementation (table 2). These constructs are also semantically similar, as they all refer to some type of fit or match of the innovation (103). Because of the similarities, it could at times be hard to distinguish the data related to acceptability from the data related to appropriateness or feasibility (103). Weiner et al. (2017) build on the concepts by Proctor (2011) by clarifying the differences between the three concepts. Acceptability is about how the innovation being implemented fits or matches a personal criterion. For example, acceptability is how the CFACR fits with the health professional's preference or ethical values. An example of appropriateness would be how the CFACR matches the organizational mission (as the criterion here is technical or social). For feasibility, the criterion is practical and thus could indicate how the CFACR may be successfully implemented using the available resources, or for example what it could be used for in practice (103).

In this study, I used Proctor's definition of acceptability, and (combined with Weiner's clarifications) differentiated between data related to appropriateness and feasibility. The purpose was to identify data that was relevant to address the first research objective: Explore the acceptability of the CFACR (40,103). I present a visual summary of the key concepts that I used in this study (table 2). I have included the definition and examples of appropriateness and feasibility to help orient the reader to the differences between acceptability, appropriateness, and feasibility.

Table 2. A summary of the key concepts used in this study. Descriptions of "acceptability", "appropriateness" and "feasibility" are adapted from Proctor (2011) and Weiner et al. (2017).

Implementation Determinants "factors that can influence implementation" as per CFIR domain + construct Purpose: to describe and organize the data		
Barrier The participant expresses something that can HINDER the use of the CFACR at their level (e.g., manager) or other level (e.g., manager talking about front-line staff context).	**Facilitator** The participant expresses something that can HELP or ASSIST the use of the CFACR at their level (e.g., manager) or other level (e.g., manager talking about front-line staff context).	**Barrier/Facilitator** The participant expresses something that can INFLUENCE (HELP or HINDER) the use of the CFACR at their level (e.g., manager) or other level (e.g., manager talking about front-line staff context).
Implementation Constructs Aspects of implementation with importance for the early phase of an implementation project Purpose: To distinguish between semantically similar constructs and select data to answer research question #1.		
Acceptability "Acceptability is the perception among implementation stakeholders that a given treatment, service, practice, or innovation is agreeable, palatable, or satisfactory" (40). The Innovation fit or match [a personal criterion] Ex: [The CFACR framework as a whole/ the specific CFACR component] meets my approval (103).	**Appropriateness** "It is the perceived fit, relevance, or compatibility of the innovation or evidence-based practice for a given practice setting, provider, or consumer; and/ or perceived fit of the innovation to address a particular issue or problem" (40). Ex. [The CFACR framework as a whole/ the specific CFACR component] seems suitable (103).	**Feasibility** "It is the extent to which a new treatment, or an innovation, can be successfully used or carried out within a given agency or setting" (40). Ex. [The CFACR framework as a whole/ the specific CFACR component] seems possible (103).

Research Design

I used a qualitative approach for this study to explore aspects of individuals' perceptions, and to capture a variation of relevant experiences within a group of individuals (88,104). There is no single definition of qualitative research, as the term encompasses many different philosophies and sometimes conflicting ideologies, along with an array of methods to utilize for a research inquiry (105,106). In a broad sense, qualitative research is highly contextualized and uses systematic methods to interpret and draw on meaning from the experiences and perspectives of

individuals and groups in their social worlds (93). Qualitative research methods can help answer questions of how and why in implementation science and within a pragmatic paradigm. It can be used to investigate contextual factors and providers' perceptions that can affect implementation outcomes and sustainability (104).

This study drew methodologically on Fundamental Qualitative Description due to the descriptive nature of the objective(s). "Fundamental" qualitative description, as described by Sandelowski (2000), is suited for a research inquiry that aims to produce a broad synopsis of a particular circumstance in a lay language. The purpose of this is to answer questions regarding individuals' perceptions and experiences (107). It is less interpretative compared to other methodologies such as phenomenology, grounded theory, or interpretative description, but it provides some interpretation and more in-depth data than quantitative description (107). In sum, qualitative description emphasizes starting by accurately describing the data, and thereafter understanding participants' meanings and practical implications through interpretation without straying far from the initial description (108–110). Qualitative description is not confined to a specific pre-existing theoretical or philosophical tradition, and the methodology can be used with different research traditions. It allows the researcher to initiate their inquiry with a theory or with a framework for collecting and analyzing data. However, the researcher can move away from the initial theory or framework should the research inquiry need to go beyond it (110).

A qualitative descriptive research approach fits well with a pragmatic paradigm, as it allows for flexibility to incorporate theoretical and conceptual frameworks common in implementation science, but also allows for building on and adding to the existing research theories. Therefore, I considered it to be a suitable approach to investigate and describe healthcare professionals' perceptions of the CFACR.

Research Ethics and Research Study Approvals

I obtained research ethics approval from the Health Research Ethics Board (HREB) at the University of Manitoba, Bannatyne Campus, and institutional approvals from participating health regions.

Participants and Recruitment

Statistics Canada has established several definitions of urban, rural, and remote settings. The most-used definition of urban and rural in a Canadian setting is population centers

(POPCTR). Based on this definition, Manitoba consists of one large urban center, one medium urban center several small urban centers, and rural areas (111). I used the POPCTR definition in my study to distinguish between small, medium urban, and rural settings.

To suit the aim of a qualitative descriptive study, it is important to involve individuals or groups that have relevant experience and expertise about a topic. This can allow you to gain insight into perspectives to help answer the research question(s). Thus, participants are intentionally selected. This can be achieved through "purposeful" or "purposive" sampling (108,109,112).

In the context of this research project, individuals who were considered relevant to involve in the research inquiry were 1) individuals who have a role in the service delivery, coordination, and/or implementation of publicly funded adult community rehabilitation services, 2) AND work as a front-line service provider (allied health/nurse/physician) OR as a manager OR work with policy, 3) AND work in the PMHR, IEHR, Southern Health- Sante Sud (SHSS) or NHR. I intended to build on the research by Sibley et al. (in review), therefore the first and second eligibility criteria were decided upon based on experiences from the research team involved in creating the CFACR (30). The first criterion was aimed at encompassing care restricted to the scope of provincial public healthcare, as privately funded care and healthcare services with other types of funding structures (such as federal funding for specific population groups) could be a significantly different experience than publicly funded care, not accessible for everyone, and therefore may not be appropriate to include. The second eligibility criterion was limited to health professionals and intentionally excluded perspectives from patients and informal caregivers due to feasibility in terms of the scope of the project. The third criterion was set to ensure that participants' perspectives represented experiences relevant to the objectives of the study, i.e., settings within Manitoba, other than a large urban setting and the WRHA.

To allow for a variety of perspectives, I also considered maximum variability sampling when defining the participant eligibility criteria. Maximum variability sampling is intended to expand the sample to include a wider range of different perspectives (112). In this study, maximum variability referred to the type of health professional (front-line, management, or policy), professional role (allied health, nurse, physician), regional health authority, and setting characteristics (rural, small urban, and medium urban setting).

I approached the four health regions within Manitoba for study approval and help with participant recruitment via appropriate online forms and/or email inquiries. Once organizational approval was attained, each participating regional health authority assigned a regional contact person to the study project that I could engage with. Study information and recruitment contact information were emailed out either via the regional contact or directly to staff based on email lists provided by the regional contact (in cases where such a list was available). When individuals with desirable experience are challenging to access for recruitment, snowball sampling is a useful method in purposeful sampling (112,113). I utilized snowball sampling by encouraging health region contacts and recruited participants to share recruitment materials and information about the study with other individuals who may be interested or relevant to the study topic. I also asked participants for recommendations of people they would consider relevant to include in the study. A maximum of three reminders were sent, either to the individual email contacts or to the regional contact persons as applicable.

Individuals who self-identified via email as interested in participating and working with community rehabilitation were screened for eligibility to participate (see Appendix III for the Participant Eligibility Screening Form). Eligible individuals were invited to participate in the study. Participants who were deemed eligible received the Participant Demographics Form (Appendix IV), the Participant Information and Consent Form (Appendix III), and a summary description of the CFACR (Appendix V) before the interview. The invitation also included in-depth information on the study process and study purpose. All participants provided written consent before enrolling in the study. As a part of the consent process, participants were asked if they were willing to be contacted and participate in a "follow-up" session to provide feedback on the interview transcripts before coding. I developed the information and consent form documents based on human research ethics guidelines and used required language throughout[f].

The suggestion of "one way to determine sample size" or to "determine an adequate sample size" for a qualitative study is highly debated in qualitative research (108,114). A systematic review of 15 years of qualitative health research found that studies reported between 6 and 197 interviews. Vasileou et al., (2018) recommend between 9-30 interviews to reach

[f] Source: https://umanitoba.ca/research/opportunities-support/ethics-compliance/ethics/bannatyne#informed-consent-guidelines

saturation (114). Data saturation is often an accepted method for determining sample size, although this concept is also debatable, as some qualitative researchers argue that saturation never can be reached. Drawing on a strategy suggested by Francis et al., (2010), I set a goal for an initial sample size of nine interviews. This goal was based on the aim to include three different types of health professionals (front-line, management, policy) and three types of settings (rural, small urban, and medium urban) as I considered this to be in line with the objectives of the project. In addition, once the initial sample size had been achieved, I planned to consider maximum variability sampling in the consecutive recruitment process. For example, if I had successfully recruited mostly front-line professionals, I would prioritize the manager and policy for further recruitment. The stopping criteria of 15-20 interviews were based on the expected capacity and feasibility to analyze within the scope of the project (115).

Data Collection

To collect data on health professionals' perspectives, I used semi-structured interviews. This is a common data collection method in qualitative research. It offers the opportunity to pose questions to individuals using open-ended questions about the topic of interest and relevance to answering the research questions. It also allows the participant to elaborate on their answers, and provide more detailed and rich data which may lead to new knowledge or insight on the topic that has not previously been considered by the researcher (116,117).

Information on the participants was collected through the Participant Demographics Form (see Appendix IV). This form included asking for the participant's name, age, gender, professional background, current main role, where they worked, what health region they were affiliated with, and the length of their work experience. This information was included because it was considered relevant for adding context to participant perspectives to address the research questions.

The interviews were conducted between January and May 2022. Interviews were scheduled at a date and time that was most convenient for the participant and took place via an online conference platform of their preference (Zoom or Microsoft Teams). Each interview was recorded and auto-transcribed live during the session. Participants were asked to review the provided information sheet on the CFACR (Appendix V). The information sheet briefly introduced the identified need for more organized rehabilitation services, and that the provincial

health leaders and research team developed the framework. The sheet also gave a visual representation of the CFACR, as well as the framework structure and components with accompanying descriptions and definitions. The information was selected to provide enough information about the rationale, development team, purpose, structure, and components to inform the participants without inducing information overload.

Interview Guide Development

I developed an interview guide based on the objectives of the study (Appendix I). The initial draft turned out hyper-structured with numerous and detailed questions, which is not congruent with a qualitative research approach. Therefore, including consideration for time and feasibility to conduct a full interview within a 60-minute timeframe, the number of questions was reduced to include six main questions, with some targeted follow-up questions (i.e., prompts). The timeframe was limited to an hour to avoid deterring individuals from participation yet would allow for time to appropriately go through the consent process and answer participants' questions in addition to asking the interview questions. The draft questions were formulated to be open-ended to allow the participant to elaborate on their answers.

The first main question and prompts were considered a "warm-up" stage for the conversation and focused on the participant's role and context. Then, I reviewed the description of the CFACR with the participant. The following questions asked for the participant's impression of the CFACR and their setting and asked them to identify barriers and/or facilitators to the framework in their setting. To finish off the interview, I included a question to allow the participant to say something that they thought was important to the topic that we had not touched on in the interview, and finally what other individuals would be relevant to recruit for the study.

After feedback from the thesis committee, one question was changed from a repetitive question on the participant's acceptability of the CFACR to a more direct inquiry about the fit of the CFACR to their setting. I pilot-tested the revised interview guide with three individuals who worked in rehabilitation but were not eligible to participate in the study since they operated within a large urban setting in Manitoba. This included two physiotherapists and one healthcare decision-maker. Feedback from the interviews was incorporated into a revised interview guide and reviewed by the thesis committee. The main changes made to the interview guide based on the pilot feedback were 1) expand from only asking about the "now", by asking participants to

elaborate on their past and current role (this provides more context on their perspective and experience), and 2) asked participants to reflect on the CFACR and implications both in the current health system and organization, as well as a potential future health system (this expansion was deemed relevant due to the health systems transformation underway in the province and the healthcare system challenges imposed by the COVID-19 pandemic), 3) One question was added to ask the participant to elaborate on how potential facilitators could help address some of the barriers to implementing the CFACR in their setting. This question allows the participants to offer suggestions and potential solutions that are suitable for their setting, as this could be valuable insight with implications for an implementation plan. These changes primarily represent the perspective of policy and decision-making, as this was missing from the earlier iteration of the interview guide.

Data Management and Analysis

Interview Transcription Process

I familiarized myself with the data over several sessions that involved reviewing the audio recordings when working on the transcripts. I considered each interview transcript a unit of analysis.

My first goal was to generate transcripts that represented detailed accounts of the interviews (118). Transforming spoken words and sounds into text will not generate a fully objective account of the interview, as the transcriber will need to make decisions on what to include and what to leave out, and how to convey it into words and sentences (for example inserting punctuation marks). Therefore, it is argued that transcription is the first point of interpretation (119). As expressed by McMullin (2021), transcription can be seen as a spectrum between "intelligent verbatim" and "full verbatim" (119). Intelligent verbatim aims to depict what was intended to be said by for example removing stutters or repetitions and representing how the speaker would have expressed themselves in written form (119). Full verbatim on the other hand includes as much literal information as can be obtained from the audio recordings, including stutters, repetitions, and sounds to name a few, but it omits linguistic or phonetic-type transcription (119,120). Typically full verbatim transcripts are preferred right after the interview (118,120).

I started with the aim of generating full verbatim transcripts for record-keeping, and through the interview transcription process producing a more readable version of the transcripts (i.e., intelligent verbatim transcripts). This process is described in more detail below. It was necessary to prepare the data for analysis and coding, reduce cognitive burden, and make the transcript a comprehensive account of the interviews that did not require audio consultation to fully understand (119).

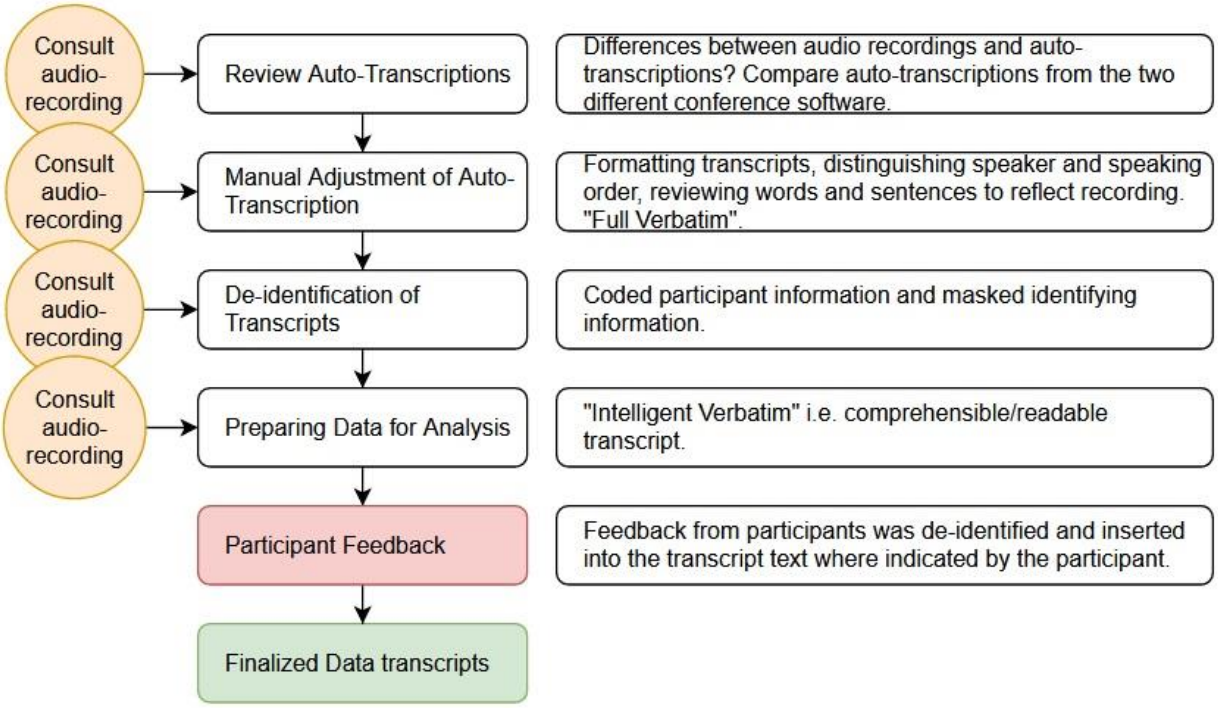
I transcribed all interviews, and the transcripts were managed in Microsoft Word. There were several erroneous elements in the transformation from the interview sessions to the auto-transcriptions. For example, some words were mistranscribed or even missing from the text. There were also significant differences in how the transcription software managed the auto-transcription. For example, Microsoft Teams identified the speaker by name but changed the conversation order whenever the interviewee and interviewer spoke at the same time. Zoom on the other hand did not differentiate between speakers and wrote everything as a continuous text file without periods or pauses. To generate full verbatim transcripts, I changed the formatting to be equal between the transcripts (e.g., identified speaker), added descriptions of background noise, and added or changed words that were missing or mistranscribed to better reflect the audio recordings. Then the participant information was coded and any identifying information (e.g., location, health region) was masked. The next version of the transcripts aimed for intelligent verbatim and written marks were added indicating signs of emphasis and pauses. I also removed "filler" words such as "uhm" and "eh" along with stutters and repetitive words. The audio recordings were constantly consulted to compare the transcripts to what was said in the interview.

As a final step in the transcription process, the participants who gave consent to be contacted for follow-up were invited to review the transcript and provide written feedback if there was anything they wanted to add, correct, or clarify. Hagens et al., (2009) refer to this as "interviewee transcript review" (121). Hagens et al., (2009) argue that this method comes with both advantages (e.g., the participant(s) adding more detail or supplemental insights, improving transcript quality by correcting transcript "errors") and disadvantages (e.g., participant "self-censuring" interview information, the increased workload associated with transcription process) (121). I used this method to allow the participant to contribute to the intelligent verbatim

transcript as a representation of our interview and their perspectives on the CFACR. This decision was based on feedback from the pilot interviews. One of the physiotherapists commented on the potential challenge of discussing a theoretical framework and how their thoughts and perspectives on the CFACR might change somewhat during the interview conversation. Some theoretical concepts appeared abstract to the participant before the interview and became clearer as the participant had more chance to reflect on the topic. All participants received an invitation to review the transcription of their interview and instructions on how to review the transcript from their interview and how to provide feedback.

The steps involved in the transcription process are illustrated in Figure 3. A more detailed account of the process of working on the transcripts (with examples) is available in Appendix VI.

Figure 3: Interview transcription and data management process.



Data Analysis Method

Qualitative descriptive approaches start by accurately describing the data, then interpreting the meanings while staying close to the data (107,108,110). I used content analysis to analyze the data. Content analysis offers options for methods to describe and interpret data (118,122–124). Hsieh and Shannon (2005) define content analysis as "a research method for the subjective interpretation of the content of text data through the systematic classification process

of coding and identifying themes or patterns" and this encompasses a range of different types of content analysis approaches (123). A researcher's choice of which type of approach to choose depends on the "theoretical and substantive interests of the researcher and the problem being studied" (123).

Directed content analysis is one such approach and a method that is commonly used in healthcare research as it can be used when there already exists research and theory that could potentially be expanded upon (118,123,124). The method is deductive, utilizes and builds on previous theories, creates preliminary codes from the existing theory, and connects them to categories. Directed content analysis requires the researcher to identify initial categories *before* coding, but can expand on new categories if needed (123,124). With my objective to describe participants' perceptions of the CFACR using concepts from implementation science, directed content analysis was an appropriate method.

My approach drew on the descriptions by Hsieh and Shannon (2005), Assarroudi et al. (2018), and Kleinheksel et al. (2020). Assarroudi et al. (2018) synthesized research literature and combined methods that used directed content analysis to aid in the application of the method in qualitative research (118). Hsieh and Shannon (2005) and Assarroudi et al. (2018) agree that when using directed content analysis, the process starts by identifying concepts from existing theory relevant to answer your research question(s) and then producing working definitions of each category based on the theory. The categories can also be used to inform the interview guide (118,123). In this study, a code consists of a domain and construct from the CFIR. I use the word "category" to refer to a label that indicates a certain meaning or distinction relevant to answer the research question(s).

This study examined four categories (barrier, facilitator, and barrier/facilitator (34,38,98,125) and acceptability (40,103)) Barriers or facilitators were considered as factors that can influence an innovation to be implemented (125). The category of barrier indicated factors that can hinder an innovation from being implemented, while the category facilitator referred to factors that support an innovation. The third category barrier/facilitator referred to the text that was unclear if participants were indicating that it was either a barrier, a facilitator, or if it could be both. Acceptability referred to text which indicated how participants agreed with or were satisfied with, the CFACR (40,103). The categorization matrix is displayed in tTable3.

Table 3: Categorization Matrix with categories (Facilitator, Barrier, Facilitator/Barrier, Acceptability) and the codes (Domain + Construct) from the initial codebook (118).

Domain	Construct	***Facilitator***	***Barrier***	***Barrier/ Facilitator***	***Acceptability***
INNOVATION CHARACTERISTICS	Innovation Source				
	Evidence Strength and Quality				
	Relative Advantage				
	Adaptability				
	Trialability				
	Complexity				
	Design Quality and Packaging				
	Cost				

Domain	Construct	***Facilitator***	***Barrier***	***Barrier/ Facilitator***	***Acceptability***
PROCESS	Planning				
	Engaging				
	Opinion Leaders				
	Formally Appointed Internal Implementation Leaders				
	Champions				
	External Change Agents				

Domain	Construct	***Facilitator***	***Barrier***	***Barrier/ Facilitator***	***Acceptability***
CHARACTERISTICS OF INDIVIDUALS	Knowledge and Beliefs about the Innovation				
	Self-efficacy				
	Individual Stage of Change				
	Individual Identification with Organization				
	Other Personal Attributes				

Table 3 (cont.): Categorization Matrix with categories (Facilitator, Barrier, Facilitator/Barrier, Acceptability) and the codes (Domain + Construct) from the initial codebook (118).

Domain	Construct	***Facilitator***	***Barrier***	***Barrier/ Facilitator***	***Acceptability***
OUTER SETTING	Needs and Resources of Those Served by the Organization				
	Cosmopolitanism				
	Peer Pressure				
	External Policy and Incentives				

Domain	Construct	***Facilitator***	***Barrier***	***Barrier/ Facilitator***	***Acceptability***
INNER SETTING	Structural Characteristics				
	Networks & Communications				
	Culture				
	Implementation Climate				
	Tension for Change				
	Compatibility				
	Relative Priority				
	Organizational Incentives & Rewards				
	Goals & Feedback				
	Learning Climate				
	Readiness for Implementation				
	Leadership Engagement				
	Available Resources				
	Access to Knowledge & Information				

Data Analysis

To prepare the data for coding, I separated the transcribed texts into Meaning Units (MUs) in Microsoft Excel and then condensed each text segment into Summarized Meaning Units (SMUs) (table 4). Meaning units can be defined in different ways depending on what analysis is being used (122,124). According to Kleinheksel et al. (2020), it is up to the researcher to determine if the meaning units are to be divided into phrases or sentences. If there are several

constructs expressed in a paragraph, then it can be broken down into sentences, or even smaller numerous pieces of a sentence (124). Condensing the meaning units to shorter versions is done to ease the process of analysis (122,124). For transparency and tracking purposes, I kept the MUs and SMUs in the same order in which they appeared in the transcript. For the portion of the interview where the CFACR was discussed, I also made a note for each meaning unit on what aspect of the CFACR a participant was referring to. This was a necessary step since the research questions ask for the participants' perspectives of the CFACR. If a participant was, in general, referring to the CFACR, I noted it as "CFACR overall" and if they referred to a specific component of the framework, the note stated that component- for example "Restorative" or "Organization". Using a spreadsheet made it possible to keep each iteration of the transcript text next to each other to enable comparison and backtracking to the original text format for context. This allowed me and my academic advisor (KS) to check any step in the process, for example, reducing sentence length while maintaining the original identified meaning of the unit (124).

Table 4: Example process of condensing interview data into MU and SMU.

Interview Question: *So, in your setting, what would facilitate the implementation of the framework in your setting?*	
Meaning Unit (MU) from "Intelligent Verbatim" transcript	Summarized Meaning Unit (SMU)
Well, I think as I said before, more rehab aide time. Because you can have, you know someone who can carry out a lot of the recommendations with a higher frequency, and then your clinicians are checking in and just progressing programs as needed.	More rehab aide time: to carry out more recommendations and higher frequency- the clinicians just check in, progress programs as needed.

I used the 39 CFIR constructs and their associated domains as preliminary codes for the SMUs. A code is a short "label" that describes the SMU (124). This study considered the CFIR domain integral to the construct for coding the data. To recall an earlier example, *Relative Advantage* is a construct in the domain *Innovation Characteristics* in the CFIR. This was operationalized in this study as the code *Innovation Characteristics- Relative Advantage* in the preliminary codebook.

The coding process was iterative and took place in four rounds. Each round consisted of four steps: 1) KS and I independently coded the same section of a transcript, 2) I reviewed the coded segments and noted agreements and disagreements 3) KS and I met to review the coded texts and discuss the coding process 4) ending the round by me revising my coding process based

on the outcome of our discussion. KS and I assigned codes based on our understanding of the construct descriptions in the CFIR (Appendix X). The preliminary codes were tested in the first two rounds of coding. Any SMUs that KS and I did not find a suitable code for were considered for a new code. New codes were constructed by identifying a suitable CFIR domain, and then we added a construct using a descriptive word that fit the identified determinant described in the SMU. By the end of the second round, we agreed on most of the codes and the overall approach. In two additional rounds, I coded the rest of the data, and KS reviewed the codes and provided feedback until we agreed on all codes and we both considered the coding process complete. After the coding was completed, I reviewed the coded text and assigned a category to indicate if the coded text was identifying a barrier or facilitator (table 5).

Table 5: Coding rules and anchor samples to categorize data to barrier, facilitator, or barrier/facilitator.

Directives for assigning Categories		
Category	**Description**	**Anchor sample**
Barrier	The participant expresses something that can HINDER the use of the CFACR at their level (e.g. manager) or other level (e.g. manager talking about front-line staff context).	Can be CURRENT: "because we don't have resources…" or FUTURE: "if they don't hire new staff…"
Facilitator	The participant expresses something that can HELP or ASSIST the use of the CFACR at their level (e.g. manager) or other level (e.g. manager talking about front-line staff context).	Can be CURRENT: "this framework aligns with our regional vision statement..." or FUTURE: "when we update our documentation system it will make things easier."
Barrier / Facilitator	The participant expresses something that can INFLUENCE (HELP or HINDER) the use of the CFACR at their level (e.g. manager) or other level (e.g. manager talking about front-line staff context).	Can be CURRENT: "we serve a diverse population..." or FUTURE: "healthcare changes are coming..."

This is what Assarroudi et al. (2018) call "coding rules" and "anchor samples". Together it provides a guide to assign the categories and help with interpretation (118). These coding rules and anchor samples were developed through an initial trial of rules and refined to ensure the

appropriate code was assigned to the characteristics of the SMU. Similarly, I reviewed the coded text to distinguish what text applied to "acceptability" (table 6).

Table 6: Coding rules and anchor samples to differentiate between semantically similar concepts acceptability, appropriateness, and feasibility, to be able to parse out data related to "acceptability" (40,103). The definitions for the categories were reproduced from Proctor (2011) and Weiner et al. 2017. Anchor samples were adapted from a survey developed by Weiner et al. (2017).

Directives for assigning Categories		
Category	**Description**	**Anchor sample**
Acceptability (ACC)	*Acceptability is the perception among implementation stakeholders that a given treatment, service, practice, or innovation is agreeable, palatable, or satisfactory* (40). *The Innovation fit or match [a personal criterion]* (103).	[The CFACR framework as a whole/ the specific CFACR component] **meets my approval.** [The CFACR framework as a whole/ the specific CFACR component] is appealing to me. I like [The CFACR framework as a whole/ the specific CFACR component]. I welcome [The CFACR framework as a whole/ the specific CFACR component].
Appropriateness (APP)	*Appropriateness is the perceived fit, relevance, or compatibility of the innovation or evidence-based practice for a given practice setting, provider, or consumer; and/ or perceived fit of the innovation to address a particular issue or problem* (40). *The Innovation fit or match [a technical or social criterion]* (103).	[The CFACR framework as a whole/ the specific CFACR component] **seems fitting.** [The CFACR framework as a whole/ the specific CFACR component] seems suitable. [The CFACR framework as a whole/ the specific CFACR component] seems applicable. [The CFACR framework as a whole/ the specific CFACR component] seems like a good match.
Feasibility (FEA)	*Feasibility is defined as the extent to which a new treatment, or an innovation, can be successfully used or carried out within a given agency or setting* (40). *The Innovation fit or match [a practical criterion]* (103).	[The CFACR framework as a whole/ the specific CFACR component] **seems implementable.** [The CFACR framework as a whole/ the specific CFACR component] seems possible. [The CFACR framework as a whole/ the specific CFACR component] seems doable. [The CFACR framework as a whole/ the specific CFACR component] seems easy to use.

To make sure that I could retrace my steps back to the full transcript and confirm the information on context, I added a tracking label for each SMU with information on what interview question the text was referring to, which participant, and in what order the SMU appeared in that transcript. An excerpt of the coding and categorization spreadsheet that was used for analysis is displayed in Appendix VII.

The data were examined for each category in terms of its similarities, differences, and meanings. All SMUs were sorted by their CFIR code and grouped by category. Based on the research objectives, the data was again examined for similarities, differences, uniqueness, complexities, and meanings (118,126).

Reporting guidelines on qualitative research indicate the relevance of reporting on context as part of the methods (127). As part of the study's purpose to inform an implementation plan, understanding context is important to help determine the know/do gap. Data that was coded with the CFIR but not discussing the CFACR was also analyzed and summarized to give insight into how participants described their contexts. This was specifically data related to answers from the first three interview questions before introducing the CFACR in the interview.

To answer the first research question, (*"To what extent is the CFACR acceptable to health professionals working in provincially funded-and-delivered community rehabilitation services in rural, small and medium urban settings in Manitoba, Canada?"*), I drew on the analysis description by Assarroudi and Ravitch to create a protocol for how to approach and describe the data. I started by limiting the dataset to the SMUs which had been identified as relevant to "acceptability" and examined which CFIR domains and constructs were coded. Then I sorted the SMUs based on the assigned codes. I also investigated counts of codes to see what codes were more, or less, common. I then examined which participants were represented within each construct, to find out if all participants are represented within a construct, or if it was only one participant. I further considered the *content* of the SMUs encapsulated in the construct. This was to examine what participants were expressing, and if participants were speaking about the same or similar things, or if one participant expressed the same thing repeatedly. This enabled me to look at similarities in perspectives and differences in expressed content within a construct that could indicate disagreement or discourse and identify unique perspectives. By looking at who expressed what, I considered what the participant's role was to identify the perspective

being expressed (frontline or manager/policy level). From the content of the data in each construct, I also examined what spoke in favor of the "acceptability" of the CFACR, and what was expressed in opposition to the "acceptability" of the CFACR. The expressed perceptions related to "acceptability" were summarized by domain and construct. Similar expressions were "aggregated" or "collapsed" and described in the text, presented together with a comment on the number of participants the summary represented. Codes related to acceptability were all located within the CFIR domain *Innovation Characteristics*.

To answer the second research question (*"What barriers and/or facilitators do health professionals working in provincially funded-and-delivered community rehabilitation services in rural, small and medium urban settings in Manitoba, Canada, anticipate will influence the ability to use the CFACR in their setting?")* I took a similar approach to examining and organizing the data. First, I limited the data to SMUs identified as dialogue referring to the CFACR, then limited it further by excluding the data related to "acceptability". I examined 1) the included domains and constructs, 2) which participants were represented within each construct, 3) the content included in each construct, and 4) took note of similarities and differences between the data, as per their categories: barrier, facilitator, and barrier/facilitator.

Trustworthiness

Trustworthiness, also often called validity in qualitative research, refers to the quality or rigor of the research (127,128). Although each paradigm may have specific criteria relevant to assess trustworthiness in a research study, there are a few standards that should be considered for most, if not all, qualitative research (128). Those standards address credibility (i.e., the researchers take into consideration all the complexities that present themselves in the study), transferability (i.e., the study is bound to its context), dependability (i.e., the stability of the data), confirmability (i.e., account for how the data is influenced so the findings can be confirmed) (128).

I used several methods to consider the trustworthiness of my study. Ongoing reflections on the methods, data collection, analysis, and interpretation were noted in a reflective journal. This was intended to increase credibility through self-reflection on my positionality, the learning process as a novice researcher, the choice of methods, and how the methods aligned with the study purpose and research questions. I also used a participant interview transcript review with

the intent to confirm my final transcripts with the participants before the main data analysis. Meanwhile, contextual factors are an important part of the transferability of a study. I took note of this by including interview questions on participant contexts to be able to report on this in my results. Dependability was addressed in part by the choice of qualitative methods for investigating contexts we know little about. This was also a reason to choose more open-ended questions in the interview guide, as this would allow participants to express themselves and elaborate as much or as little as they wanted. Through the data analysis process, having two individuals independently code a transcript and then have the second person review all the codes was done to increase the confirmability of the study results.

Presentation of findings

To present the findings, I organized the findings by the CFIR domain (e.g., *Inner Setting*). I then organized findings by research question (acceptability, barrier, facilitator). Within each domain, I described the finding based on the SMU. I emphasized more frequently assigned codes by presenting them first, followed by less common codes. I used exemplar quotes throughout for emphasis and to highlight key findings. I used context-specific data to provide the full description within each CFIR domain as it was expressed by the participants.

Results

Recruitment and Participants

Organizational approval was obtained from three out of four health regions. Eight individuals from three health regions self-identified as working in community rehabilitation and expressed interest in the study. One declined to participate before the screening. Out of the seven individuals screened for eligibility, seven were deemed eligible and invited to participate. One individual did not finish the enrollment process and was not included in the study. In total, six individuals from two health regions fully participated in the study. Four individuals were working in full-time clinical positions, either as an occupational therapist (OT), a physiotherapist (PT), or as a registered nurse (RN). The two other participants worked at a manager level (with professional training as a PT) and a manager level and policy level for the region (with professional training as an OT). Most participants reported working in a mix of small, medium urban, and rural settings. One participant worked exclusively in a medium urban setting, and one other participant worked exclusively in a rural setting. See Table 7 for a breakdown of

recruitment results. Participants were between 33-59 years of age, the majority were female, had between 9-28 years of experience in the profession, and had worked between 6 months to 10 years in their current position. Participant demographics are shown in Table 8.

Table 7: Recruitment results.

Health Region (HR)		**Level**			**Setting**			**Training**
HR 02	**HR 03**	**Front Line**	**Manager**	**Policy**	**Rural**	**Small Urban**	**Medium Urban**	**Prof. Background**
X			**X**		50%	50%	0%	PT
X		**X**			5%	95%	0%	OT
X		**X**			100%	0%	0%	RN
	X	**X**			1%	2%	97%	PT
	X		**X**	**x**	33%	33%	33%	OT
	X	**X**			0%	0%	100%	OT

Table 8: Participant Demographics.

Age range (years)	33-59
Gender (% female)	67%
Years in Profession	9-28
Years in Current Role	0.5-10

Two participants answered the invitation email for a follow-up session to review the transcription. These two participants reviewed their transcripts; one of the participants reported that they had nothing to add or clarify in the transcript, and the other participant added clarifications as comments in sections of the interview transcript. Those comments were de-identified and inserted into the transcript where it was indicated by the participant. This feedback text was marked for tracking purposes.

Each participant was encouraged to share the information on the study with individuals to increase participation rates. Participants were also asked to suggest individuals who might be relevant to recruit. I was invited to attend a virtual regional rehabilitation team meeting in one health region, where I got the chance to present the study and provide information if team members were interested in participating. During this meeting, my study was endorsed by one team member who had already been interviewed. However, attempts to increase recruitment via these snowball sampling methods were unsuccessful. One individual did not wish to participate

in their spare time and hence declined to be screened for eligibility, and I was not able to get direct contact details for other individuals who were suggested by interview participants.

The Coding Process and the Finalized Codebook

After the first round of coding with the preliminary codebook, two new codes were created and added to the codebook: *Outer Setting- Geography* and *Outer Setting- Hazards. Outer Setting- Geography* represented the geographical condition that the implementation setting operates within. *Outer Setting- Hazards* referred to potentially dangerous or harmful conditions that influence the service delivery (e.g., entering private homes). Both constructs were identified as belonging to the outer setting because the SMU detailed factors or conditions that influence service delivery (i.e., the inner settings must adapt to or work with) but is not within the direct control or governance of the implementation setting to change. This is similar to and consistent with, how the construct *Patient Needs and Resources* are attributed to the domain *Outer Setting* in the CFIR. In total, 25 constructs were used to code the data, and 23 of these were from the original 39 CFIR constructs.

Acceptability

Within the health region organization, participants provided services in small, medium urban, and rural settings.

When talking about the characteristics of the innovation, all participants expressed perceptions in favor of the CFACR. Participants perceived the CFACR as comprehensive, relevant, sensible, supportive, and reaffirming of clinical practice, and that the CFACR encompassed appropriate components for a community rehabilitation framework. However, one participant also expressed that the concept of community rehabilitation is very broad and hard to define, which could be a challenge for the CFACR to be accepted. A more comprehensive framework without clear eligibility criteria could spread service provisions even thinner than they were currently. Rehabilitation services were primarily based on a consultative service model, which limited contact to rehabilitation professionals to one initial client contact and one follow-up contact. This left it up to the client to execute the therapist's recommendations on their own.

Three participants commented on how the CFACR compared to other alternatives. Two participants found the framework to be the preferable option. For example, the CFACR

supported the idea of community care instead of an institutional care model, and the framework was perceived as more aligned with best practices and what community rehabilitation services strive to attain (e.g., *Restorative*), rather than current practices. Participants reported that management was supportive of, and promoted the idea of a rehabilitative care model to keep clients at home in their community instead of in the hospital. One participant thought the description "concluding care events" in the CFACR component *Continuity* was too restrictive for some client cases with chronic conditions. In certain cases, service providers experienced that a "concluding" a care event (i.e., closing client files) resulted in a higher administrative burden and delayed client support. This was because when clients with chronic conditions were discharged from services and intermittently needed some level of support to manage their conditions in their communities, they had to repeatedly go through the process to reestablish care contacts through re-referrals. Therefore, while the study participant overall agreed with the concept of care continuity, they suggested that the description of the component may be worded in a way that reflected some flexibility in the concept.

[…] we sometimes have clients on caseload that just have a long-standing need- they've got a chronic condition. They just have constantly evolving needs. We are not doing a start-and-stop with them, generally, because that's not appropriate to [do]. So, for someone that's your long-standing MS patients having different periods of progression in the community- we keep those files open. And so then we just kind of say to them 'hey we dealt with whatever this last circumstance you called us about. I'm keeping your file open'. And their family and friends can call and initiate that if something else comes up. We don't do that for many, but for the most part, we're and in-and-out consultative service. [4_014_11]

The CFACR component *Continuity* was also mentioned by another participant. The participant agreed with the idea of *Coordinated* and *Continuity* of services but also perceived the components as developed for a large urban setting, which would have more resources to do those things well.

Rurally, we always have barriers with Coordinated services- using your terminology here- or Continuity: a lot of stuff is so [LARGE URBAN CENTRE] focused! [4_015_02]

Two participants spoke about challenges related to the CFACR and the potential costs associated with implementing it. There was one specific rehabilitation program in one health region, intended to provide eligible clients a more intense rehabilitative service for a limited period. One participant (frontline) shared the experience in setting up and running this program and thought it aligned well with the components of the CFACR. The participant highlighted that a complex and high workload can deter therapists from getting involved in change initiatives or service programs. The other participant (manager/policy) shared that there is an opportunity cost to consider. The service delivery areas were described as including a variety of cultures, languages, and service locations, and client transition between hospital-based services and community services could be complex and challenging. Therapists could find it challenging to prioritize clients and balance the community workload. The participant pointed out that services can either aim to do all or most components of the framework well for one or a few individuals or do less well in each component but then service providers will be able to see more clients. The individual highlighted that this is a daily ethical dilemma for therapists.

You know, we're person-and-family centered, our practices are evidence-informed equity-focused, culturally-safe… Like we do use all of those pieces of the framework. The challenge is: when you're stretched thin, feeling good about attaining all of those […] [6_010_03]

Facilitators and Barriers

Facilitators

Participants discussed the conditions within their health region organization. Four participants discussed facilitators of the CFACR related to its fit or compatibility in their setting. They expressed that the CFACR aligned with the region's aim, clinical practice guidelines, and health professionals' aim within rehabilitation services. Participants also explained that the framework fits well with current services and/or goals for current service delivery.

Existing facilitators were existing management that was supportive of rehabilitation services. Two participants expressed that supportive leadership could potentially help the implementation of the CFACR, either in terms of facilitating the use of the CFACR or in advocating for more resources to practice in accordance with the framework.

One participant suggested that introducing multidisciplinary rounds, would fit the definition of community rehabilitation mentioned in the framework, and act as a facilitator to use the CFACR in practice since the framework components would need involvement from several professionals involved in community rehabilitation services. Introducing rounds was also suggested to improve consistency between care providers.

Another participant confirmed that continuity of services was a challenge for service provision in their current consultative care model but expressed that staff always followed up with their clients if they had committed to that, despite limited time resources. The participant also highlighted the staff's ability to "think outside the box" and be flexible to patient needs and creative with the available resources to provide services.

Other suggested facilitators were funding allocation, increased staff resources, suitable infrastructure for documentation, more power to lower-level management, and a process that enabled travel logistics and reimbursed staff for travel expenses related to service delivery.

But like just the way our Healthcare is set up like our managers have managers, and their managers have directors, and those directors have CEOs and. And, you know, it's just, I don't know: Working in a big healthcare system like the way it's set up- Like, what can you do to? {I guess this can be another barrier because anything we ask for in the community (or hospital too I guess) needs to go our management then upper management and then the director etc., so it's time and resources/ money. I think if management could be more proactive or have more power at a lower level or less upper management… this would help to incorporate frameworks like these and improve programs/ rehab… }[g] *[…] [9_015_05]*

Another existing facilitator was infrastructure in the form of a standardized referral form across community services, which helped communicate client cases between services. One participant also mentioned that having a good connection and good coordination with other service providers was a strength and facilitator. Service providers worked closely with each other depending on client needs. They also worked to assess client needs and communicate with home care to coordinate outpatient care and referral processes.

[g] Text within curly brackets {} in the quote is data from the interviewee transcript review. This was added to the text by the participant to clarify their original interview quote.

For facilitators located outside of the health region organization, four participants expressed that the CFACR was a good fit with client needs (to live in their environment). Although many clients would benefit from rehabilitation, they may not have had access to services because they were required to physically go to a local clinic- these clients would benefit from services in their home- especially stroke patients. With some communities being more isolated, services were currently delivered in different types of homes and environments, and the type of services depended on client needs. One participant observed similarities between the CFACR, and "essential competencies" defined by a provincial professional organization, and another participant suggested regulatory colleges as a facilitator to inform clinicians about the CFACR. Because clinicians get messages from many different directions (e.g., organizations like the Heart & Stroke Foundation) clinicians look to the professional regulatory colleges for practice guidance. According to the participant, spreading information about the CFACR via these colleges could increase the awareness in the rehabilitation community that a framework like the CFACR exists.

Because we get, as clinicians, we get kind of messages from all over the place. Heart and Stroke and all sorts of places, right? […] for me I'm an [OT], and so you've got these messages coming from, often, from many places. And so from it to be in a place that is like a source that we look for guidance on our practice. That probably would help [to use the framework]. [9_014_03]

Four participants indicated facilitating factors related to the implementation process. Participants suggested engaging framework users through educational strategies; packaging and marketing the CFACR in a way that is appealing to staff, holding educational days for clinicians, potentially through multidisciplinary sessions, and led by a facilitator that can provide information about the framework. Another participant suggested engaging with therapists in the community to incorporate the CFACR in the development of a program or system. Recommended roles to engage with included home care, intake coordinators, and case coordinators. Participants suggested that community organizations can help create client buy-in, while regulatory colleges can help prompt professionals about their practice.

One participant suggested that if the implementation of the CFACR was driven by the current community-based rehabilitation program it could benefit their clients and home care.

Yeah, in my mind, if it was driven by the community-based rehab kind of program: It would be beneficial for clients and for my clients or home care. And, yeah, because I'm referring to specific goals for each client. And then, OT and PT kind of take it from there and I follow their lead. I have specific questions but I definitely follow their lead and so I can see how, if the program was applying these principles- that my clients would benefit. Yeah. [6_012_01]

It was also suggested that learning to work with or in accordance with the CFACR, would benefit from applied learning techniques, such as using client scenarios and reflective exercises.

As for the characteristics of the CFACR itself, two participants reflected on practical suggestions for how the CFACR could be used: by frontline staff to learn and to reflect on service delivery or used by managers as a reference tool for change communications with staff or to advocate for more resources to smaller health centers. The CFACR could potentially also be used to facilitate a problem-solving approach to issues by breaking down problems into smaller components.

I would probably just use it as a reference point. Because […] as I'm going to incorporate some change, and maybe providing some direction to staff, […] Yeah like I think I would just use that as a sort of reference tool. But I think also that I probably do that already […]. So, I think it should be a learning tool for newer clinicians and practice. Yeah, because sometimes they don't know what they don't know yet and so having them stop and say 'How do I apply this?' or 'How is this actually a factor to what I'm doing?'. [6_014_01]

One participant perceived that their experience with a rehabilitation program aligned with the CFACR components and that they thought it was the preferred way to address client goals, reduce the burden on healthcare facilities and improve the transition to the community.

One participant expressed that understanding the components of the CFACR depends on individual characteristics such as a person's experience level, since newer practitioners may need more support in their work and learning about how the framework would apply to their practice.

[…] I think for clinic, depending on your experience level, [you] might not be fully aware of the ins and outs of each piece [of the CFACR framework components]. [6_014_04]

Barriers

All participants identified a lack of resources as a barrier for the CFACR to be translated into practice, based on their current experience in service delivery.

Within their service delivery setting and organization, participants reported challenges to deliver community rehabilitation. The current consultative service model imposed limitations on appointments with clients to be able to keep continuity of care. Participants specifically expressed that the restrictions implied by the current care model were a barrier to the restorative component of the CFACR. With their current service model, they didn't have enough funding for nor trained staff resources within community rehabilitation services funding within their health region to be able to deliver restorative services, and much less be able to practice in accordance with the comprehensiveness of the CFACR. Part of the issue of lacking staff resources was that it was challenging to recruit rehabilitation staff rurally. Overcoming these challenges was even more problematic due to the hierarchy of management, with low-level management having little power to make changes in the organization. Participants also experienced barriers to coordinating client visits with rehabilitation team members due to the travel time and availability of staff in different settings and locations. The logistics of service delivery were further complicated by a lack of infrastructure for accessible service documentation as some services were still using paper charts for client documentation and referrals. A lack of transportation services to support service delivery in the community and client access to services was also reported.

[…] I think the framework like this is having a staff to administer it and it's like anything: it all can look good on paper, but if you don't have the staff to administer and if you don't have qualified staff and good well-trained staff, you don't have the funding, [then] you're gonna have waitlists and waitlists and it's not going to be effective, right? […] You need a lot of staff and quality. Yeah, qualified staff and rehab aides, whether it's therapist, rehab aides, whether it's nursing, whether it's home care aides, whether it's case coordinators. [10_013_01]

Participants argued that since they didn't have adequate resources for their current service model and delivery, it was a challenge to see how the CFACR would be implemented unless it was supported by substantial resources, which they didn't think was likely considering the current direction of healthcare.

[…] I'm just seeing that we are not in the place of where we have been in the past, to provide as timely of service. And I'm seeing kind of eroding of it, and so if you want to truly achieve it, and all the pieces of it, it needs to be resourced properly. [5_014_03]

One participant commented that there were often barriers to Coordinated and Continuity of services in rural settings. They provided an example where their client could not be assessed for equipment since the therapist could not access the necessary testing equipment, due to several unforeseen circumstances within the health region.

Two participants expressed themselves as having a negative outlook on the future of service delivery in their setting. One of them found it hard to picture an "ideal" state of a community rehabilitation setting, and the other participant associated change efforts with disappointment, and referenced previous provincial health transformation efforts.

One participant suggested that facilitators or educators could disseminate information to health professionals to increase awareness of the framework. Because of time constraints for health professionals, information about the CFACR needs to be accessible, since clinicians are not likely to "dig through" research articles to inform themselves on the innovation.

[…] I think, unfortunately…… a lot of times, there's a lot of wonderful frameworks out there I'm sure a lot of wonderful studies but if it's not, I'm trying to think of the term… disseminated or passed on or spread about [to] the clinical crowd then, we're not often not quick to go and start digging through journals or through research articles. Maybe we should be? I don't know… [7_011_02]

Participants perceived barriers to practice in accordance with the CFACR in their current service delivery that was beyond the influence and control of the organization of their own health region. Policies could pose challenges for staff resources. For example, policies dictated that two staff members were required to operate a mechanical lift, which could be challenging to accommodate because of the logistics for staff to be available at the same time to travel between care locations, especially rurally.

Barriers were related to delayed provincial healthcare transformation and the complexity of the healthcare system. There was also pressure on the workload of therapists due to the

increased flow of referred clients from a large urban center. Participants expressed challenges to coordinated services with a large urban center because of barriers in communication and siloed work processes, pandemic-related changes to client flow from hospitals, and lack of overall funds from external sources to support service delivery and client flow.

[…]I actually was trying to arrange some community rehab for patients who lived in [LARGE URBAN CENTER]. And I was shocked at all the barriers I ran into: Where we would bend over backwards to provide what this person needed and when I was speaking to CTS I was getting more 'No we can't do that, no we can't do that', and very little, 'here's what we could do'. [8_010_04]

One participant elaborated on their experience of implementing and running a restorative rehabilitation program that they thought aligned well with the CFACR. They reported that few eligible clients would accept the program due to the time commitment needed to participate. Some clients were also not able to participate due to cognitive limitations and therefore could not maintain training during or after the program ended. Another barrier was a disconnect between client readiness and the clinician's perceived service benefit. In some cases, clients were just not motivated to participate in a restorative rehab program, or the client's resources (e.g., living far away, no access to transportation) were a limitation to participate. Clients could also create barriers to service providers working as a team. These aspects could to some extent help modify or reshape the expected impact of implementing the CFACR would have on service delivery.

[…] you're often wanting to do provide service and you end up kind of chasing some clients that are maybe not, at a level of readiness to change or are, 'pre-contemplated', or not there yet. And then [they] are not engaged in the service that you're offering. Even though you're of the firm belief that they do require that service or that they would benefit from it. And I think that is often a barrier. [8_011_02]

Geographic circumstances were expressed as a challenge for team-based services to manage logistically, as it was not always possible for staff to meet clients together. Travel between clients could take time and staff resources away from seeing more clients. This was also

a challenge to providing equitable services, as the staff needed to prioritize their workload and consider the use of limited resources while the client's needs varied.

From experience with staff visiting a client's residence, there were also concerns as to the safety of staff either from an ergonomic and practical sense, but also in terms of entering homes when working alone, especially for female staff.

One participant identified a challenge in the form of buy-in from physicians but did not elaborate on why they considered this a challenge. Another perceived barrier was the inconsistent level of training and experience in clinical support staff (i.e., rehabilitation assistants), which could limit trust between therapists and support staff on the quality and proper delivery of treatments.

[…] you're having rehab aides go into somebody's home is: what kind of education do they have? […] we've got rehab aides have just been trained on the job. We've got some that have taken a course. […]? So, I have to have the trust that they're doing what I am wanting them to do or have shown them to do, and I have found an even with our rehab aides, I go and do my reassessments- and [the client] they're not doing their exercises right. […] So, you've got a lot of responsibility on these rehab aides to do what the therapist want them to do. […]. So, you really have to have good staff that you can trust. So that's a big barrier. [4_013_10]

A breakdown of results presented as per category and codes (domain and construct of the CFIR) is presented in Appendix IX.

Discussion

The purpose of this research study was to inform an implementation plan by addressing two research objectives to better understand: 1) the acceptability of the CFACR and, 2) barriers and facilitators to use the CFACR in small, medium urban, and rural settings in Manitoba.

Summary of key findings

Six health professionals from two regional health authorities found that the CFACR was acceptable. However, participants felt that the many components of the framework may be a challenge to address equally or need to be interpreted with respect to limitations in service capacity.

Participant-identified facilitators to implement the CFACR were the framework's compatibility with current regional aims, clinical best practices, and management support, and that the framework fits well with a current rehabilitation program. The components of the CFACR were considered suitable to address patient needs, and it was aligned with directives from regulatory colleges on clinicians' competencies.

Within the health regions, the lack of resources (staffing levels, trained staff, funding, and time) and a consultative care model were considered barriers to CFACR components addressing equity, continuity of care, restorative, team-based, and coordinated care. External to the organization, participants reported barriers to the CFACR components equity and continuity of care. These barriers were related to issues with communication between health regions, discrepancies between institutional care and community care (including increased pressure on client transition from hospital to the community), and delays in a provincial healthcare transformation plan. A patient's motivation and/or ability to participate (due to cognitive limitations, time, and transportation) were also perceived as barriers to equity, continuity of care, restorative, and the team-based care components of the CFACR.

In contrast to the WHR, most participants in this study worked across two or more settings. This may be a key difference between health professionals working in the WHR and those working in other health regions in Manitoba.

The significance of this study

At the time of writing, the province is undergoing a health system transformation, including a provincial clinical service plan that involves care "closer to home" (61). Since the CFACR was developed to help address identified gaps in the current organization and delivery of community rehabilitation services (30), this is an opportune time to introduce a conceptual framework like the CFACR to support these service changes. For example, it has been confirmed that health services within the WHR lack a restorative focus. The main reason behind this is the consultative care model that current services are restricted to. However, the CFACR could offer a more restorative care model to bring about positive changes in this regard.

This is the first study to explore the acceptability and investigate perceived barriers and facilitators of the CFACR in Manitoba. The research provides information on the context for community rehabilitation outside a large urban setting, which is highly relevant for research and

implementation projects intended for these settings, or at an overall provincial level. Providing context can aid in assessing possible implications of implementation efforts, avoid a "one-size fits all" approach, and instead improve chances of implementation success through tailored strategies (34). For example, geographical challenges may not be a context factor that can be modified but presenting for example what "appropriate" or "team-based" services could look like in these settings could enable more health professionals to be engaged with the framework.

Interpretation of findings

The CFACR was conceptualized with the intent for it to be used for policy design, research, and service and care planning. Users of this framework could be health professionals involved in community rehabilitation services on either a policy level, management, or front-line healthcare professionals.

In the knowledge-to-action process, after the conceptualization of a knowledge product such as the CFACR, one of the first steps is to see if there is a difference between the current practice and what is suggested by the knowledge product (i.e., "determine the know/do gap") (69). By determining this gap, implementation teams can start to gauge the scope of a potential implementation need.

Participant's sharing of information about their contexts echoes concerns about issues with staff recruitment in rural settings reported by Bourgault et al. (2014) and Hale-Gallardo et al. (2020). Issues to recruit or retain staff for community rehabilitation in this study could also be hampered by the lack of transportation reimbursement or logistics issues for staff and identified workplace hazards. Bourgault et al. (2014) and Kamenov et al. (2019) reported on a paucity of rehabilitation programs, and Leclair et al. (2022) found that several rehabilitation programs offered in a large urban setting in Manitoba lacked a restorative focus. Participants in this study had experiences from a variety of settings, and the descriptions of their contexts echo similar findings to Leclair et al. (2022). The community rehabilitation services were mainly built around a consultative care model that limited the number of care sessions to one assessment and potentially one follow-up. This consultative model was not focused on restorative care. Participants in the study by Leclair et al. (2022) identified this as a major shortcoming of community rehabilitation services, and this was also the case in these other health regions in Manitoba. However, there was one specific rehabilitation program offered in one health region,

which had a restorative focus. It was not clear from the interview if this program determined eligibility based on diagnosis criteria or the functional capacity of the client. In the studies by Zawaly et al. (2022) and Leclair et al. (2022), participants reported client eligibility to participate in community rehabilitation was determined by "eligibility criteria" or "eligibility checklist", usually based on diagnosis, and specific criteria.

The fact that study participants worked in a mix of settings (small, medium urban, and rural settings) simultaneously is most likely a key difference between community rehabilitation in a large urban setting and the other health regions in Manitoba.

The first research question was: *"To what extent is the CFACR acceptable to health professionals working in provincially funded-and-delivered community rehabilitation services in rural, small and medium urban settings in Manitoba, Canada?"* The acceptability of an innovation can change during the process of implementation. Exploring acceptability early is for the purpose of examining if an innovation is ready for adoption (40). Of the factors of implementation success, the acceptability of an innovation is the single most impactful factor to influence the success of implementing the innovation (75). Participant comments such as "I like it", and "It's a great framework", suggested that participants had a positive impression of the CFACR. The words participants used to describe their overall impression of the CFACR (for example, "great", "well-rounded" and "reaffirming") support the notion that the CFACR is agreeable to health professionals in several ways: 1) they had a positive impression of the CFACR; 2) that the CFACR included relevant components, and 3) the CFACR confirmed what their current practice aimed to achieve. While Weiner et al (2017) only refer to this as acceptability, Sekhon et al. (2017) refer to this as "affective attitude", meaning how someone "feels" about an innovation (39,103). The notion that participants perceived that the CFACR was the better way to support rehabilitation in the community instead of institutional care also suggests that they believed in the effectiveness of the innovation. Believing in the effectiveness of an innovation further supports acceptability according to Sekhon et al. (2017).

The participant who took issue with the portion of the description that says "concluding care events" of the CFACR component *Continuity*, may indicate a concern for how a reasonable and well-intended framework component might be misinterpreted when translated into practice. To the participant, this description of the component seemed to indicate that all client care

contacts needed to be ended. When they put this into their context, clients with chronic conditions may fulfill short-term goals with their rehabilitation but could often run into new issues to manage their chronic condition in the community. Therefore, these individuals could intermittently need additional support from rehabilitation professionals to stay in their communities. By concluding their care events, clients would get discharged from rehabilitation services, and then they had to go through a process to get re-referred to rehabilitation services. This process could delay the timeliness of support and add administrative burden on rehabilitation staff through repeated re-referrals, as service providers were already pressed on time to execute their work. They argued that ending care contacts when servicing chronic conditions in the community, may not be in the best interest of the client nor the service provider. This offers an interesting insight into how a health professional perceives the CFACR by thinking of risks associated with operationalizing the framework.

In this case, the concern expressed by the participant could potentially be addressed by revising the construct description or elaborating and explaining the implications for service delivery during the dissemination of the framework. Hale-Gallardo et al. (2020) framed the importance of service providers' autonomy and flexibility to implement innovation into their practice. This could be an indicator of how the CFACR can be adapted to a local context. Translating the aspect of "concluding care events" to a format that fits the needs of the community rehabilitation services operating in the health regions, could support implementation of the framework.

Since most of the participants in this study had similar training backgrounds (e.g., occupational therapy or physiotherapy) this could suggest that the framework to an extent reflects their previous professional training. For example, participants said that the CFACR framework had relevant constructs for community rehabilitation and that the framework was supportive of clinical practice. However, it may be important to gauge physician acceptability of the framework since a participant (RN) identified "physician buy-in"- as a potential barrier to the CFACR.

A "hard-to-define" concept like "community rehabilitation" and the comprehensiveness of the framework may also have practical and ethical implications for service delivery, especially as services operate with limited resources. In addition, an innovation that implies a higher

workload for practitioners could deter professionals from participating. Sekhon et al. (2017) defines this as another aspect of acceptability called the "burden" of participating. Lawson et al. (2020) reported that while clinicians saw comprehensive services (i.e., covering regular content and incorporating individually tailored content in their treatment sessions) as advantageous and preferable to address patient needs, it also imposed challenges to cover all program content within the allotted time limit, and in some cases increased administrative burden on clinicians (74). With the comprehensiveness of the CFACR, this may indicate that if professionals think implementing the framework means a higher workload to them, it might decrease the acceptability of the CFACR. In addition, one participant mentioned the opportunity cost could pose a daily "ethical" dilemma to health professionals of having to choose between doing one or a few CFACR components well for a few clients or trying to address several components to some extent for more clients. This seems to indicate what Sekhon et al. (2017) refer to as either the "ethicality" or "opportunity cost" of an innovation and indicated other aspects of acceptability. These aspects of acceptability are closely tied to the lack of resources. Additional resources could support more comprehensive services, prevent increased workload on practitioners, and support the clients in the community that need the services.

Even though professionals agreed with the comprehensiveness of the CFACR (i.e. the framework components were relevant), and the direction for service aims (i.e. care in the community), the service delivery setting and professional practice required some flexibility in the concepts to allow for problem-solving (e.g. keeping files open for patients with chronic conditions instead of ending the consultation), prioritization (e.g. timeliness of services instead of comprehensiveness/complexity) and the professionals' consideration for ethical implications of care (e.g. providing services to a few or many). This may indicate that certain CFACR components could be considered more acceptable than others depending on the health professional, what resources they have at their disposal and the needs of their service recipients. For example, Laver et al. (2012) found that preferences for rehabilitation service delivery could differ between the type of health professionals. In their study, occupational therapists tended to be more accepting of integrating virtual delivery of services than physiotherapists. This may be due to differences between the type of services that rehabilitation professions focus on (78). This could indicate that while the ideal vision is acceptable, exactly how it is operationalized could

influence how health professionals experience the implementation of the CFACR and to what degree they still think of it as acceptable to them and their practice. The participant expressing that the *Continuity* and *Coordinated* components of the CFACR were focused on a large urban center, may suggest that different settings may view the level of importance differently between CFACR components. It could also mean that service providers find components acceptable when they feel that they have a chance to "do it well". For example, the emphasis on person-and family-centered services may have a higher priority for the service provider than the continuity of services in a rural setting with fewer resources, for example, a medium urban setting.

The second research question was: *"What barriers and/or facilitators do health professionals working in provincially funded-and-delivered community rehabilitation services in rural, small and medium urban settings in Manitoba, Canada, anticipate will influence the ability to use the CFACR in their setting?"* The primary facilitators to using the CFACR identified by participants were the CFACR's compatibility with regional aims and clinical best practices. It was also considered well-suited to address patient needs and supported management advocacy for community rehabilitation services. These results suggest that the CFACR fit well with the stated aims of the health regions that governed the direction of service delivery in small and medium urban and rural settings in Manitoba. The CFACR was also perceived as aligning with professional practice. This was supported by a participant's comment on how work culture in their setting supported service delivery mentioned in the CFACR, such as continuity of care and coordination despite limited resources. Further comments in support of the work culture highlighted the staff's ability to think outside of the box to solve issues in service delivery, as well as fostering and maintaining strong, close relationships with other service providers.

Participants provided suggestions for practical applications of the CFACR in their settings. For example, participants indicated that the CFACR could be used as a tool to communicate with staff, reflect on service delivery and practice, or break down identified problems in care to be able to make the issue more manageable to address. These suggestions could provide a tangible direction and goal setting for how the CFACR could benefit community rehabilitation services in practice. Setting goals for an implementation project is necessary for evaluating if the venture resulted in a successful adoption of an innovation (40,69).

Others suggested that training would be needed for potential users to understand the components of the CFACR. This was further supported by suggestions to use different educational strategies (e.g., multidisciplinary and facilitated educational sessions, with included patient scenarios and reflective exercises) to introduce the CFACR into their setting. These answers present similar findings in the study by Van Stan et al. (2022), where the most frequently reported barriers for clinicians were a lack of resources within their institution and access to knowledge and information about the innovation. Resources referred in particular to the lack of time and educational resources to learn or use the innovation (86). Leclair et al. (2022) reported that health professionals had a lack of knowledge regarding what community programs were available within their existing service delivery.

Participants in my study highlighted a lack of resources in their current service delivery. This could indicate a difference between the experiences reported in a large urban center and the settings included in this study. The way that participants framed perceived barriers to implementing and using the CFACR was in terms of how well they could practice in accordance with the framework in relation to their current context. This could be because they thought they were already trying to practice in accordance with what the CFACR proposed. Therefore, they seemingly used the CFACR in the interviews as a benchmark to elaborate on reasons why they were not already practicing like that in full due to their experienced challenges. As expressed by one participant, a framework can "look good on paper" but if it is not substantiated by action to support it, then it may not carry much meaning to practice changes. The participants did express some frustration and disappointment with past and expected changes for community rehabilitation services, that were not supported with resources to deliver the changes. Lacking resources for service delivery was cited multiple times as a significant barrier. The lack of resources was referred to both in terms of limitations for capacity to deliver their current services and also resources needed for the CFACR to be implemented. According to participants in my study, the lack of coordination and continuity was primarily due to limited capacity from scarce resources within the service delivery organization, and communication issues from working in silos in the external organization (large urban center).

Participants in my study suggested that some transportation issues could be mitigated by involving local volunteer organizations to transport clients to community care programs or

offering services in the client's homes. However, due to the large geographical area to cover in the health regions, this imposed other barriers that need to be addressed. Shifting the transportation to service delivery staff depends on transportation infrastructure such as access to a vehicle and funding for gas and vehicle maintenance. Siemonsma et al. (2014) found in their systematic review that reimbursing for staff travel-related expenses was an important factor for home-based rehabilitation in stroke survivors (19). Other barriers noted workplace hazards for staff to deliver care. Examples that one participant expressed were related to staff working alone or isolated, exposing rehabilitation staff to risks of entering private homes that were considered in some manner threatening to staff safety. This is a problem previously reported in the research literature on home care (129). A systematic review by Hignett et al. (2016) also reported that working alone, access to equipment, abuse, violence, and inadequate team support were some of the risk factors associated with delivering home care services. According to the participant, this could also be a reason for issues with staff resources and recruitment which have implications for resources required for the effective use of the CFACR.

As most barriers were related to practical aspects of service delivery, the barriers to using the CFACR are what Weiner et al. (2017) consider to be issues with feasibility. Although participants found the CFACR acceptable, and a good fit (appropriate) to their setting, their experience with the current service delivery caused concern for its feasibility. These points are worth considering, as Wade (2003) pointed out: there is a risk that community rehabilitation services may end up carrying the expectations to reduce healthcare costs and improve patient outcomes, but fail to satisfy because of a lack of resources (primarily lack of funding and professional expertise) (14). Without the resources needed to support the practical application of the framework components in service delivery, there was a perceived risk that the framework would be asking the health professionals to do more with less.

It is worth mentioning that there is an inherent connection between barriers and facilitators. When considering the analysis of specific perspectives or sub-settings, it may be preferable to present barriers and facilitators together to better understand how facilitators identified in a certain context may be used to address barriers within that context (82). For example, one reported barrier in this study was the increased client flow from a large urban center which made it hard for service providers to manage their workload, but their supportive

management would then help them prioritize which clients to see and advocate for more resources. Another important distinction is what Van Stan et al. (2022) reported as a difference between what they called "experienced facilitators" and "potential facilitators". What could hinder an innovation from being implemented (i.e., a barrier) such as a lack of resources, could also be identified as a "potential" facilitator. In my study, potential facilitators were usually conveyed via participants' suggestions on what could help implementation and mitigate barriers. For example, increased resources such as funding and staff for community rehabilitation and increased power to low-level management were suggested as potential facilitators, while management supportive of rehabilitation services was mentioned as a facilitator based on the current experience of management.

The components of the CFACR that was perceived as more challenging to achieve, were "restorative", "coordinated", "continuity" and "team-based". These were all considered heavily dependent on additional resources (trained staff, travel reimbursements, and time). The limited number of client sessions was not enough to provide restorative services, and the increased number of sessions would require more staff resources and time to be able to achieve. For services to be coordinated and have continuity, they needed timely access to equipment, and time to travel over a large geographical area. Travel logistics and access to other health professionals were also cited as challenges for services to be team-based. This suggests that health professionals have an established idea of what these framework components "should" look like in their settings, but it would be worth exploring if there are ways to address these perceived barriers. For example, a team-based approach may not require the health professionals to see clients together at the same time, and there might be a different communication strategy that health professionals would still consider as team-based work.

Unexpected results

Findings show participants both indicating that current services fit well with the CFACR and report barriers to being able to practice in accordance with several framework components (e.g., *Restorative*). These seemingly conflicting reports could be attributed to differences in service delivery between health regions and sub-settings. Both health regions had a consultative care model for community rehabilitation services, one of the health regions also had a specific rehabilitation program that had a restorative focus but was limited to eligible clients. This

indicates that while there are some services with a restorative focus, they are limited to that specific program based on those who participated.

On the other hand, this could also indicate that although services are not set up to be restorative and align with the CFACR, service providers still aim to provide services that align with their professional best practices and work to overcome the limitations of the organization (e.g., resources). Wade et al. (2014) suggest that clinicians' acceptability of an innovation is one of the strongest indicators of implementation success because they can find ways to overcome barriers. This is further supported by findings where the data indicates service providers being creative, "thinking outside of the box" to solve problems and utilizing strong collaborative bonds with team members in their settings to deliver care.

The results indicate that the participants perceived the CFACR as acceptable, both in terms of what they thought of as agreeable to their professional practice aims (i.e., best practices), and the overall purpose of community rehabilitation services (i.e., restorative instead of consultative care model) and services in community instead of institutional.

Reflection on the study methods

Qualitative descriptive studies and directed content analysis can use frequencies and counts to describe data (107,110,123). For example, Van Stan et al. (2022) used frequencies to determine the most reported barriers to implementing a treatment specification system. However, I limited my use of counts and code frequencies to explore the data during analysis. This was because the purpose and methods of this study were not intended to put weight or importance on how often something is coded, but on *what* is being said. For example, if the perceptions of the framework were shared with, or similar, amongst participants, or if a participant expressed something unique (that could possibly be attributed to their specific role or sub-setting). Previous research studies on service providers' acceptability do not mention if there is a certain aspect of acceptability that is more important (19,74,75,78,81,82), or to what degree an innovation needs to be acceptable to be successfully implemented (19,39,40,75). This presents a challenge to gauge what aspects of acceptability could potentially be addressed or focused on to increase acceptability to the point where it is worth investing resources in the venture. Or to understand at what point an innovation is deemed as more likely to fail due to low acceptability and decide that a different option is preferable (34). These are relevant considerations for implementation

projects, especially with regard to limited resources assigned to rehabilitation services (78), but were beyond the scope of this study.

My choice to use the CFIR as an initial codebook was a) my research lens and perspective from implementation science, b) because of the strong recommendations in the research literature to advance implementation science by building on previous knowledge through the use of established frameworks (130), and c) due to the highly established use of the framework in the research literature (71,87). The developers of the CFIR also envisioned their framework to be expanded upon by incorporating new research knowledge over time (38). With such a large number of constructs in this comprehensive framework, I envisioned that it may cast a wide net and be able to capture and describe as many barriers and facilitators as possible, without limiting the possibility of generating new constructs if needed. However, the many constructs also introduced some challenges in coding. During the data analysis, both my academic advisor and I individually reflected on that we sometimes felt constrained by the constructs in the framework (i.e., it was hard to find a good match between the meaning units and the preliminary codes) and on the other hand in some instances felt compelled to use as many of the constructs as possible. We discussed this during our meetings as part of the coding rounds and refinement of the codebook. We also identified meaning units relevant to the CFIR domain *Outer Setting*, but for which we could not identify an appropriate construct. Therefore, we named two new constructs to add to the domain. These constructs were aimed to describe the content of the meaning units that we did not have codes for (i.e., *Geography* and *Hazards*). *Geography* referred to the geographical context that imposed challenges to service delivery and access to care. This was placed in the *Outer Setting* because it affected both staff having to travel long distances to deliver care, and clients who had a harder time accessing care. *Hazards* were concerns in the external work environment (i.e., going into private homes to deliver care) and the risks for staff that this entailed. Once the meaning units were coded with a revised codebook, it worked well to categorize, sort, and organize the data to explore the results.

After my coding process was completed, an updated version of the CFIR was released. CFIR 2.0 was created in response to feedback from users of the framework (71). Although it was beyond the scope of my study to redo the analysis with CFIR 2.0, I reviewed the differences between the old and the new version. This update included revisions with clarifications of

concepts, and expansion of the previous domains to include several more constructs. For example, in the 2009 version of the CFIR that I used, the domain *Outer Setting* was limited to four constructs (38). In CFIR 2.0, this has been expanded to a total of 10 constructs. The construct *Patient Needs and Resources* has been removed from the domain *Outer Setting* in the new version of the CFIR (71).

The domain *Innovation Characteristics* remained the same (albeit with some clarifications of constructs) and would not have made any difference to my coding process and analysis related to the acceptability of the CFACR. However, there were some notable differences to the updated version that could have impacted the analysis of barriers and facilitators. 1) The construct *Patient Needs and Resources* was completely removed from the domain *Outer Setting*. The construct was separated into different constructs and relocated to other domains. My results for identifying barriers and facilitators coded to *Patient Needs and Resources* (e.g., client readiness to participate) would most likely have been coded to the domain *Individuals*[h]*- Assessing Needs: Innovation Recipients*[i]. This is an interesting change since the domain is different and doesn't locate the client in an *Outer Setting*. I agree with the notion that a client doesn't necessarily belong within the *Inner Setting* or the *Outer Setting* since the definitions or "parameters" of those domains are decided by the researcher and thus depend on the project.

Another likely difference is that the two new constructs used in my analysis (*Geography* and *Hazards* in the *Outer Setting* domain) would have been included in the construct *Outer Setting- Local Conditions*[j] in CFIR 2.0, because the construct refers to environmental conditions in the *Outer Setting* (71). However, considering the challenges of an extensive preliminary codebook we experienced during the coding process in my study, I believe the expansions of constructs in CFIR 2.0 would make it less manageable to use the entire CFIR as a preliminary codebook.

[h] *Individuals Domain* in CFIR 2.0 was named *Characteristics of Individuals* in the 2009 version of the CFIR.

[i] Definition in CFIR 2.0: "Collect information about the priorities, preferences, and needs of recipients to guide implementation and delivery of the innovation" (71).

[j] Definition in CFIR 2.0: "Economic, environmental, political, and/or technological conditions enable the Outer Setting to support implementation and/or delivery of the innovation" (71).

Reflecting on my use of directed content analysis, I believe I would have ended up with similar results if I would not have used a pre-established framework like the CFIR. But the process of getting to the results may have looked slightly different. Because I had already been "exposed" to frameworks in the implementation science and knowledge translation literature through graduate courses and health services research, this would most likely have influenced my coding process and analysis to use similar terminologies and organizational structures like the CFIR domains and constructs. In my opinion, the framework was useful to get a comprehensive idea about which information may be important to implementation planners. Using a framework to inform my analysis spurred me to reflect iteratively on my coding and analysis process and make me aware of each step in the deductive process as well as the interpretation more transparent. The downside of using the directed approach with the CFIR was that while the language may help communicate with implementation specialists, it was not useful to communicate with my stakeholders who were not implementation specialists. In addition, the framework isn't descriptive enough to describe nuanced data (e.g., the difference between "experienced" vs "potential" facilitators). This meant that I had to first deduct a great amount of data to code, I then had to "reinsert" that data to give enough context for interpretation. For example, to describe if it was a specific part of the CFACR that the participant was talking about (see table columns in Appendix VII).

Trustworthiness

To increase the trustworthiness of my study, I used a reflective journal to take note of the data management and analysis process. Initially, I started taking these notes in a separate document, but once I had completed the interviews and started working on the transcription process, I realized that I needed to keep the notes with the data that was being worked on. This allowed me to share some reflective notes with my academic advisor during the coding process. I also expanded on the reflective journal to include reflections on the research process itself (e.g., what influenced the research process and decision-making) and my positionality (e.g., how learnings and experiences of pre-implementation projects contributed to my interpretations).

Another strategy to inform trustworthiness was the collaborative coding process with my academic advisor and our reflective discussions. The dependability was addressed in part by the coding rounds and setting coding guidelines based on the CFIR construct descriptions. The

theoretical frameworks also added to the dependability by using established theory from implementation science to organize data. The stability of the data over time was supported by the many coding rounds, constantly comparing results by tracking the original transcript text, and coding notes with justifications on why a code was selected when more than one code appeared eligible. Using previously established research knowledge in the form of conceptual frameworks and concepts also strengthens confirmability.

Recruiting participants suited to provide information relevant to answer the research questions, and collecting data through open-ended questions, supports the credibility of this study. Participants represented a variety of settings, and the open-ended questions allowed participants to express and elaborate on their perspectives without restraints. A greater number of participants could have contributed to the transferability of the data, as it may have added data on context and allowed for a more detailed view of different perspectives and/or settings and sub-settings. However, by asking participants to describe their experiences and settings prior to the inquiry about their perspectives on the CFACR, I was able to account for this in my study results.

Although the use of interview transcript review (i.e., the opportunity for participants to review the transcript) (121) was initially intended as a strategy to incorporate participant validation to increase credibility, most of the participants chose not to review their transcripts (128). However, providing the opportunity for participants to review their transcripts was important from an ethical perspective to me as a former clinician, especially when establishing research connections with community contexts that I am considered an outsider to. The opportunity to review data also supported the completeness of the data, as one participant reviewed, but did not add data, and another participant added data to the transcript.

Limitations and future research

Discussion of limitations of the study

My goal was to initially recruit nine individuals, however, I successfully recruited six. I aimed to include three different levels of perspectives (frontline, manager, and policy). Despite the initial recruitment goal was not met, the three levels were still represented in the data collection. As I exhausted my recruitment options, it was not possible to overcome the limitation of a low number of participants. A possible consideration for future recruitment options in these

regions could be to advertise through professional colleges or recruit with incentives to participate, to somewhat compensate the participant for their time and effort to participate.

Although three out of four health regions participated in the study, participants only represented two of these regions. It is unclear why there was only one initial response to recruitment in the third health region (who was eligible but didn't fulfill the enrollment in the study), but it is worth to consider if email correspondence might not be an effective recruitment method in all health regions.

One limitation was that the interview guide did not have prompts specific to explore the acceptability of the CFACR. With more recruitment, I was expecting to incorporate prompts to ask more specifically about components of the CFACR, but due to the low recruitment numbers, this was not incorporated. This could have offered more opportunities for gathering data related to describing the acceptability of different CFACR components. Another limitation of my study is that I did not attempt to distinguish between different aspects of acceptability. Sekhon et al. (2017) presented a framework and defined seven aspects of acceptability: how a person feels about the innovation, the effort or burden of participating, how well it fits with an individual's value system, how coherent the innovation is perceived, what needs to be surrendered to engage with the innovation, how effective it appears, and how confident individuals are that they have the skills and capacity to participate (39). This could have potentially produced a more detailed and intricate view of health professionals' acceptability of the CFACR. However, I decided not to use this framework for data analysis, because I found that the descriptions of the seven concepts were insufficient to clearly distinguish between them and risked complicating and/or confusing the interview dialogue and analysis, without contributing to clarity. I decided that a highly detailed description of the acceptability of the CFACR was not feasible in this project considering the scope of the study and time limitations for data collection. I suggest that a more detailed investigation that inquiries about the acceptability of the CFACR would be warranted *if* the initial impression is that participants do *not* perceive the CFACR as acceptable. If that would be the case, then providing further detail by using the framework by Sekhon et al. (2017) could support work to revise the CFACR.

Although participants were encouraged to elaborate beyond their current service delivery experience, participants still stayed close to their lived experience when talking about barriers.

This may be because my participants were not presented with a concrete example of using the CFACR to elaborate on. Setting a scenario or presenting options for how to use the framework could potentially have anchored the conversation and based rationale for why something was considered a barrier. Another strategy could have been to focus the interview questions on certain components of the CFACR. This might have offered an opportunity for participants to go into more depth when thinking about the framework. Frontline health professionals may also be limited in their perspectives on how to use a conceptual framework. From my reflective journal on the interview process, I perceived the managers as more readily to take in and elaborate on the potential use of a framework. They also recommended me to recruit other health region managers for my study.

How limitations may have affected the findings

Because of the low number of participants in my study, I was not able to analyze data with regards to differences between the level of health professionals (i.e., manager/policy or frontline service provider) or their setting (i.e., rural, small urban, or medium urban setting). This analysis could be valuable to understanding more about shared and unique needs that can influence and strengthen implementation planning. However, despite the low recruitment results, the perceptions represented in the sample still aligned with the goals for recruitment in terms of professional role (i.e., frontline, manager, policy) and setting (i.e., rural, small urban, and medium urban settings). At the time of recruitment, the province and healthcare system experienced enormous pressure due to the COVID-19 pandemic at the time of data collection. This caused a large workload on an already overburdened healthcare system and accompanied staffing issues, and I abstained from prompting for recruitment in a more aggressive manner to avoid adding to the pressure on health professionals.

Participants in this study were recruited from two of four relevant health regions, and therefore the information on different contexts may be incomplete. Other health regions may have other facilitators and barriers. For example, results from this study suggest that large geographical areas and challenges with staff recruitment and expertise are perceived as barriers for the CFACR. A geographically larger health region may have even greater challenges related to transport and time use. However, it is also important to consider that this health region may also have unique facilitators to enable service delivery that we do not have insight into.

The timeliness of recruitment and interviews may also have introduced another limitation. At the time, the province was going through another COVID-19 wave (Omicron), and the health system was under high pressure with staff burnout and higher than normal client flow from hospitals to the community. This was cited by a participant as a problem with significant implications for their service delivery. The timeliness might therefore be one reason for the low recruitment result but could also mean that participant answers are reflective of a state of service delivery with an emphasis on the pandemic experience and associated limitations to service capacity.

Sibley et al. (in review) included patients and informal caregivers in the work to create the CFACR, my study does not include the perceptions of patients and informal caregivers in these health regions. As one participant compared the CFACR with a current rehabilitation program in their health region, they indicated that comprehensive rehabilitation programs may not always be acceptable or feasible for clients to attend. This may indicate that a patient's perspective on the CFACR is warranted. However, the results from my research study are similar to some of the concerns expressed in previous research studies of community rehabilitation in Manitoba. For example, the rehabilitation services were consultative rather than restorative, and the time commitment and energy needed from clients could act as a barrier to participation (28). In addition, clients and informal caregivers expressed that transportation challenges were a barrier to services in a large urban center (29) which participants in my study also expressed as a barrier.

Although my study was not able to analyze differences between settings, the implementation of the CFACR may not necessarily look the same between settings. While health regions may have certain strengths to support implementation, sub-settings (small, medium urban, and rural settings) may also have strengths or unique challenges that influence the use. Implementation differences can be driven by individuals who have the ability to make use of it in their setting. For example, in some settings, this may be initiated by frontline health professionals, in other cases it might be introduced by a manager engaged with different community service teams. Although a system change would need involvement from individuals on an organizational and system level (such as policy), it is worth considering that readiness for change can refer to both organizational and individual readiness (131–133). By approaching

different levels of the CFACR, implementers can learn more about the existing structures and relationships within the settings that may have the opportunity to influence implementation and adopt the framework.

The potential impact of this study

At current, it is unclear if all the health regions in Manitoba have community rehabilitation services. This study confirms that at least three of the health regions (excluding the WHR) have some form of community rehabilitation service and that at least two of them include health professionals that are supportive of the use of the CFACR.

Understanding the extent to which the CFACR is perceived as acceptable by the health professionals involved in community rehabilitation services in other health regions supports further work aimed at adopting the use of the CFACR in healthcare planning and service delivery in Manitoba, possibly without the need for extensive revisions of the current format of the CFACR.

The perceived barriers provide information to consider when developing a plan for the use and implementation of the CFACR in small, medium urban, and rural settings in Manitoba. For example, identified barriers can be mapped to evidence-based implementation strategies using the ERIC-CFIR Matching Tool (134). To illustrate an example, I ran a trial query using the tool. For each CFIR construct with identified barriers, the query will generate an output with implementation strategies for each construct and rank the strategies from the highest recommended strategy to the lowest for each construct. This ranking is meant to help select what strategy is considered the most effective to address a barrier in that construct. In my trial query, the output presented three highly recommended strategies for addressing barriers within the construct *Patient Needs and Resourc*es (ranked in order of recommendation strength): 1) Obtain and use patients/consumers and family feedback, 2) Involve patients/consumers and family members, and 3) Conduct local needs assessment. This could warrant further research of the CFACR from a client perspective.

Many studies report on acceptability, barriers, and facilitators during the implementation or after as part of testing the feasibility of implementing the innovation (74,77–79,82–84,86,87). Damschroder et al. (2022) highlight the purpose of the CFIR as a determinant framework is to predict and explain implementation determinants to implementation outcomes. Results from this

study can contribute to exploring the predictive value of pre-implementation studies by providing information on these factors prior to implementation. Implementation researchers can thus compare if aspects of acceptability of the CFACR change during implementation and evaluate differences between perceived barriers and "actual" barriers. Considering how many facilitators in my study were presented as "potential" facilitators, it is further useful to examine this in position to "experienced" facilitators (e.g., identification of implementation "champions").

Suggestions for future research directions and next steps

Further research should expand on exploring the acceptability of the CFACR in other health regions and assess barriers and facilitators to its use in community rehabilitation services in Manitoba. To potentially overcome the limitation of low recruitment, other recruitment strategies, such as advertising through regulatory colleges or professional associations and having incentives to participate could be valuable. Utilizing other methods for data collection could also be relevant, such as developing and distributing a survey based on CFIR 2.0 may build on results from this study.

A secondary analysis of the data from this study could examine the information as it is presented as salient to different implementation constructs (i.e., acceptability, appropriateness, and feasibility) and discuss the relevance of this information to developing an implementation plan.

As most barriers were based on participants' experience with current service delivery, a different inquiry could present community rehabilitation health professionals with framework use case scenarios to further explore the feasibility of implementing the CFACR and examine potential differences between perceived and actual barriers and facilitators. This could for example be presented to focus groups of health professionals to elicit discussions about its implementation.

To build on the results from this study, perceived barriers include patient needs and resources. The ERIC-CFIR Matching Tool suggests involving clients and informal caregivers in the implementation of the CFACR. Further research on the CFACR could examine the acceptability of the CFACR from the perspective of clients, to explore similarities and differences from clients in a large urban center.

Another perspective to explore is if certain components of the CFACR are more prioritized from a provider and/or client perspective. This is especially relevant to consider regarding settings with limited funds such as healthcare and rehabilitation services.

For the next steps, I recommend further effort to build on the contacts with the health regions initiated in this study to build on the momentum of interest in this framework and the current health system changes. These contacts could help identify which individuals or processes that should be addressed to support the implementation of the CFACR. These could be policymakers within the regions, or different managers with established networks to decision-makers. It could also be physicians involved in community rehabilitation services that have a significant impact on service delivery and/or input on decision-making in the organization.

Conclusion

Acceptability is considered a critical component of successful implementation, but previous research on the acceptability of healthcare innovations lacks a clear and/or consistent definition of acceptability. Using a theoretical definition to distinguish between acceptability and other similar implementation constructs, can help identify data relevant to explore acceptability.

Further use of conceptual frameworks from implementation science, such as the CFIR, to assess barriers and facilitators to implementation efforts, is highly recommended in the research literature, and it can help connect results to implementation strategies for a future implementation plan. However, few studies assess barriers and facilitators before implementation, and this is thereby a missed opportunity to prepare to address barriers to implementation.

Participants were from small, medium urban, and rural settings in Manitoba and reported similar conditions within their settings as mentioned in previous literature. These were mostly limited resources and a discrepancy between the care model and service aims. Participants who worked as health professionals in front-line roles, management, and/or policy roles in these settings perceived the CFACR as acceptable. This is important because service providers' acceptability of an innovation is considered one of the single most impactful contributions to successful implementation. A few comments suggested that the component definitions may need flexibility for interpretation to avoid negative impact through increased workload burden on service providers.

Participants perceived the CFACR as a good fit with the overall aims of regional service delivery, professional practice, and patient needs. However, several barriers, in particular lack of resources such as a limited number of staff and expertise, time, and funding, may present a challenge to implement the CFACR in their settings. Facilitators were presented primarily as "potential" facilitators, such as allocation of funds to community rehabilitation, while barriers were mainly based on "experienced" challenges or limitations, for example, time and resources needed to travel long distances in the health region.

Ultimately, health professionals in small, medium urban, and rural settings may work across several settings, with potentially different resources and contexts that influence their work with community rehabilitation service delivery and implementation. Future research with a higher number of participants and including perspectives from other health regions may determine if these results are specific to a health professional perspective, a certain health region, or a sub-setting. This could further aid in implementation efforts to tailor strategies to the sub-settings, taking into context their strengths and challenges to enable implementation success.

References

1. Statistics Canada. Annual Demographic Estimates: Canada, Provinces and Territories, 2022. Statistics Canada. 2022;(91):21–2.

2. Feely A, Lix LM, Reimer K. Estimating multimorbidity prevalence with the Canadian Chronic Disease Surveillance System. Health Promotion and Chronic Disease Prevention in Canada. 2017;37(7):8.

3. Kone Pefoyo A, Bronskill SE, Calzavara A, Thavorn K, Petrosyan Y, Maxwell CJ, et al. The increasing burden and complexity of multimorbidity. BMC Public Health. 2015;(15):415.

4. Marengoni A, Angleman S, Melis R, Mangialasche F, Karp A, Garmen A, et al. Aging with multimorbidity: A systematic review of the literature. Ageing Research Reviews. 2011 Sep;10(4):430–9.

5. Roberts KC, Rao DP, Bennett TL, Loukine L, Jayaraman GC. Prevalence and patterns of chronic disease multimorbidity and associated determinants in Canada. Health Promot Chronic Dis Prev Can. 2015 Aug;35(6):87–94.

6. Tanuseputro P, Wodchis WP, Fowler R, Walker P, Bai YQ, Bronskill SE, et al. The Health Care Cost of Dying: A Population-Based Retrospective Cohort Study of the Last Year of Life in Ontario, Canada. Räisänen SH, editor. PLoS ONE. 2015 Mar 26;10(3):e0121759.

7. Lilleheie I, Debesay J, Bye A, Bergland A. Experiences of elderly patients regarding participation in their hospital discharge: a qualitative metasummary. BMJ Open. 2019 Nov;9(11):e025789.

8. Sinha M, Statistics Canada, Social and Aboriginal Statistics Division. Portrait of caregivers, 2012 [Internet]. Statistics Canada; 2014 [cited 2020 Nov 6]. Available from: http://www.deslibris.ca/ID/240440

9. Cieza A. Rehabilitation the Health Strategy of the 21st Century, Really? Archives of Physical Medicine and Rehabilitation. 2019 Nov;100(11):2212–4.

10. Cieza A, Causey K, Kamenov K, Hanson SW, Chatterji S, Vos T. Global estimates of the need for rehabilitation based on the Global Burden of Disease study 2019: a systematic analysis for the Global Burden of Disease Study 2019. The Lancet. 2020 Dec;396(10267):2006–17.

11. World Health Organization. Rehabilitation in health systems [Internet]. Geneva: World Health Organization; 2017 [cited 2021 Jun 20]. Available from: https://www.who.int/publications/i/item/9789241549974

12. Kamenov K, Mills JA, Chatterji S, Cieza A. Needs and unmet needs for rehabilitation services: a scoping review. Disability and Rehabilitation. 2019 May 8;41(10):1227–37.

13. Molinier V, Alexandre F, Heraud N. Effectiveness comparison of inpatient vs. outpatient pulmonary rehabilitation: a systematic review. BMC Health Serv Res. 2022 Aug 12;22(1):1028.

14. Wade D. Community rehabilitation, or rehabilitation in the community? Disability and Rehabilitation. 2003 Jan;25(15):875–81.

15. Wade DT. What is rehabilitation? An empirical investigation leading to an evidence-based description. Clin Rehabil. 2020;34(5):571–83.

16. Allen L, John-Baptiste A, Meyer M, Richardson M, Speechley M, Ure D, et al. Assessing the impact of a home-based stroke rehabilitation programme: a cost-effectiveness study. Disability and Rehabilitation. 2019 Aug 14;41(17):2060–5.

17. Cook RJ. Rehabilitation in Home Care Is Associated With Functional Improvement and Preferred Discharge. Archives of Physical Medicine and Rehabilitation. 2013 Jun;94(6):1038–47.

18. Kraal JJ, Van den Akker-Van Marle ME, Abu-Hanna A, Stut W, Peek N, Kemps HM. Clinical and cost-effectiveness of home-based cardiac rehabilitation compared to conventional, centre-based cardiac rehabilitation: Results of the FIT@Home study. Eur J Prev Cardiolog. 2017 Aug;24(12):1260–73.

19. Siemonsma P, Döpp C, Alpay L, Tak E, Meeteren N van, Chorus A. Determinants influencing the implementation of home-based stroke rehabilitation: a systematic review. Disability and Rehabilitation. 2014 Dec 1;36(24):2019–30.

20. Carson AS, Bourgeault IL, Demers C, James Y, Bray E, Lau F, et al. Creating Strategic Change In Canadian Healthcare. In Queens School of Business, The Monieson Centre For Business Research in Healthcare; 2014. p. 86. Available from: https://smith.queensu.ca/centres/monieson/knowledge_articles/2014WhitePaper_v16SmallestFileSize.pdf

21. Cohen M, Canadian Centre for Policy Alternatives, BC Office. Caring for BC's aging population: improving health care for all [Internet]. Vancouver, B.C.: Canadian Centre for Policy Alternatives, BC Office; 2012 [cited 2020 Oct 31]. Available from: https://www.deslibris.ca/ID/233557

22. Costa AP, Poss JW, Hirdes JP. Acute care inpatients with long-term delayed-discharge: evidence from a Canadian health region. BMC Health Services Research. 2012 Jun 22;12(1):172.

23. Covinsky K, Pierluissi E, Johnston B. Hospitalization-associated disability: "She was probably able to ambulate but I'm not sure". JAMA. 2011;306(16):1782–93.

24. Graf C. Functional Decline in Hospitalized Older Adults: It's often a consequence of hospitalization, but it doesn't have to be. The American Journal of Nursing. 2006;106(1):58–67.

25. Rojas-García A, Turner S, Pizzo E, Hudson E, Thomas J, Raine R. Impact and experiences of delayed discharge: A mixed-studies systematic review. Health Expectations. 2018;21(1):41–56.

26. Smith GM, Cenzer IS, Covinsky K, Reuben DB, Smith AK. Who Becomes a High Utilizer? A Case-Control Study of Older Adults in the USA. J GEN INTERN MED. 2020 Feb;35(2):596–8.

27. Tiruvoipati R, Botha J, Fletcher J, Gangopadhyay H, Majumdar M, Vij S, et al. Intensive care discharge delay is associated with increased hospital length of stay: A multicentre prospective observational study. Lazzeri C, editor. PLoS ONE. 2017 Jul 27;12(7):e0181827.

28. Leclair LL, Zawaly K, Korall AMB, Edwards J, Katz A, Sibley KM. Exploring the delivery of community rehabilitation services for older people in an urban Canadian setting: Perspectives of service providers, managers and health system administrators. Health & Social Care in the Community. 2022;30(5):e2245–54.

29. Zawaly K, Ripat J, Guse L, Katz A, Edwards J, Sibley KM. Re-braiding the Strands of Life through Community Rehabilitation, Home Care, and Informal Support: A Longitudinal Collective Case Study. Can J Aging. 2022 Jul 11;1–12.

30. Sibley K, Barclay R, Cooper J, Edwards J, Guse L, Leclair L, et al. Development of a Conceptual Framework for Community Rehabilitation Policy, Planning, Care, and Research: A Multi-Method Qualitative Approach. Disability and Rehabilitation. In review;

31. Ratnapalan S, Lang D. Health Care Organizations as Complex Adaptive Systems. The Health Care Manager. 2020 Mar;39(1):18–23.

32. Bauer MS, Damschroder L, Hagedorn H, Smith J, Kilbourne AM. An introduction to implementation science for the non-specialist. BMC Psychol. 2015 Dec;3(1):32.

33. Bauer MS, Kirchner J. Implementation science: What is it and why should I care? Psychiatry Research. 2020 Jan;283:112376.

34. Grimshaw JM. Knowledge translation of research findings. Implementation Sci. 2012 Dec;7(1):50.

35. Rapport F, Clay-Williams R, Churruca K, Shih P, Hogden A, Braithwaite J. The struggle of translating science into action: Foundational concepts of implementation science. Journal of Evaluation in Clinical Practice. 2018;24(1):117–26.

36. Straus SE, Tetroe J, Graham I. Defining knowledge translation. Canadian Medical Association Journal. 2009 Aug 4;181(3–4):165–8.

37. Cabana MD, Rand CS, Powe NR, Wu AW, Wilson MH, Abboud PAC, et al. Why Don't Physicians Follow Clinical Practice Guidelines? A Framework for Improvement. Pediatr Res. 1999 Apr;45(4, Part 2 of 2):121A-121A.

38. Damschroder LJ, Aron DC, Keith RE, Kirsh SR, Alexander JA, Lowery JC. Fostering implementation of health services research findings into practice: a consolidated framework for advancing implementation science. Implementation Sci. 2009 Dec;4(1):50.

39. Sekhon M, Cartwright M, Francis JJ. Acceptability of healthcare interventions: an overview of reviews and development of a theoretical framework. BMC Health Serv Res. 2017 Dec;17(1):88.

40. Proctor E. Outcomes for Implementation Research: Conceptual Distinctions, Measurement Challenges, and Research Agenda. Adm Policy Ment Health. 2011;(38):65–76.

41. Straus S, Tetroe J, Graham ID. Knowledge Translation in Healthcare: Moving from Evidence to Practice. 2nd ed. BMJ Books; 2013.

42. Manitoba Health, Seniors and Active Living. Population Report 2019 [Internet]. Winnipeg, MB: Government of Manitoba; 2019 [cited 2021 Jun 20] p. 103. Available from: https://www.gov.mb.ca/health/population/pr2019.pdf

43. Vos T, Lim SS, Abbafati C, Abbas KM, Abbasi M, Abbasifard M, et al. Global burden of 369 diseases and injuries in 204 countries and territories, 1990–2019: a systematic analysis for the Global Burden of Disease Study 2019. The Lancet. 2020 Oct;396(10258):1204–22.

44. Corry M, While A, Neenan K, Smith V. A systematic review of systematic reviews on interventions for caregivers of people with chronic conditions. Journal of Advanced Nursing. 2015;71(4):718–34.

45. Fisher KA, Griffith LE, Gruneir A, Upshur R, Perez R, Favotto L, et al. Effect of socio-demographic and health factors on the association between multimorbidity and acute care service use: population-based survey linked to health administrative data. BMC Health Serv Res. 2021 Dec;21(1):62.

46. Maresova P, Javanmardi E, Barakovic J, Tomsone S, Krejcar O, Kuca K. Consequences of chronic diseases and other limitations associated with old age – a scoping review. BMC Public Health. 2019;19(1431).

47. Paterson DH, Warburton DER. Physical activity and functional limitations in older adults: a systematic review related to Canada's Physical Activity Guidelines. International Journal of Behavioral Nutrition and Physical Activity. 2010;7(38).

48. Theou O, Stathokostas L, Roland KP, Jakobi JM, Patterson C, Vandervoort AA, et al. The Effectiveness of Exercise Interventions for the Management of Frailty: A Systematic Review. Journal of Aging Research. 2011;2011:1–19.

49. Fong JH. Disability incidence and functional decline among older adults with major chronic diseases. BMC Geriatrics. 2019;19(323).

50. Mulligan H, Wilkinson A, Chen D, Nijhof C, Kwan N, Lindup A, et al. Components of community rehabilitation programme for adults with chronic conditions: A systematic review. International Journal of Nursing Studies. 2019 Sep;97:114–29.

51. Brown L, Forster A, Young J, Crocker T, Benham A, Langhorne P, et al. Medical day hospital care for older people versus alternative forms of care. Cochrane Effective Practice and Organisation of Care Group, editor. Cochrane Database of Systematic Reviews [Internet]. 2015 Jun 23 [cited 2021 Apr 28]; Available from: http://doi.wiley.com/10.1002/14651858.CD001730.pub3

52. Wade DT. Rehabilitation after COVID-19: an evidence-based approach. Clin Med. 2020;20(4):359–65.

53. Berggren M, Karlsson Å, Lindelöf N, Englund U, Olofsson B, Nordström P, et al. Effects of geriatric interdisciplinary home rehabilitation on complications and readmissions after hip fracture: a randomized controlled trial. Clin Rehabil. 2019 Jan;33(1):64–73.

54. Forster A, Young J. Community rehabilitation for older people: dayhospital or home-based services? Age and Ageing. 2011;(40):2–4.

55. Hillier S, Inglis-Jassiem G. Rehabilitation for Community-Dwelling People with Stroke: Home or Centre Based? a Systematic Review. International Journal of Stroke. 2010 Jun;5(3):178–86.

56. Karlsson Å, Berggren M, Gustafson Y, Olofsson B, Lindelöf N, Stenvall M. Effects of Geriatric Interdisciplinary Home Rehabilitation on Walking Ability and Length of Hospital Stay After Hip Fracture: A Randomized Controlled Trial. Journal of the American Medical Directors Association. 2016 May;17(5):464.e9-464.e15.

57. Mewes JC, Steuten LMG, IJzerman MJ, van Harten WH. Effectiveness of Multidimensional Cancer Survivor Rehabilitation and Cost-Effectiveness of Cancer Rehabilitation in General: A Systematic Review. The Oncologist. 2012 Dec 1;17(12):1581–93.

58. Manitoba Health, Seniors and Active Living IMA. Annual Statistics 2018-2019 [Internet]. Winnipeg, MB: Government of Manitoba; 2020 [cited 2021 Jun 20] p. 105. Available from: https://epe.lac-bac.gc.ca/100/201/301/weekly_acquisitions_list-ef/2020/20-41/publications.gc.ca/collections/collection_2020/statcan/91-520-x2019001-eng.pdf

59. Fransoo R, Mahar A, The Need To Know Team, Anderson A, Prior H, Koseva I, et al. The 2019 RHA Indicators Atlas [Internet]. Winnipeg, MB: Manitoba Centre for Health Policy; 2019 [cited 2021 Feb 17]. Available from: http://www.deslibris.ca/ID/10102862

60. Manitoba Health, Seniors and Active Living. Transformation Program Charter [Internet]. Government of Manitoba; 2020 Jan [cited 2020 Nov 7] p. 22. Available from: https://www.gov.mb.ca/health/hst/docs/transformation-program-charter.pdf

61. Shared Health, The Transformation Management Office, Deloitte. Manitoba's Clinical & Preventive Services Plan: Investing in Better Care, Closer to Home [Internet]. Winnipeg, MB: Shared Health; 2019 [cited 2021 Jun 20] p. 89. Available from: https://sharedhealthmb.ca/wp-content/uploads/Final_PCPSP_Final-Report_2019Nov-28.pdf

62. Bourgeault IL, Demers C, James Y, Bray E. Creating Strategic Change In Canadian Healthcare. 2014;15.

63. Aaltonen M, El Adam S, Martin-Matthews A, Sakamoto M, Strumpf E, McGrail K. Dementia and Poor Continuity of Primary Care Delay Hospital Discharge in Older Adults: A Population-Based Study From 2001 to 2016. Journal of the American Medical Directors Association. 2021 Jul;22(7):1484-1492.e3.

64. Dyer SM, Suen J, Williams H. Impact of relational continuity of primary care in aged care: a systematic review. BMC Geriatr. 2022;22(579).

65. Richardson J, Letts L, Chan D, Stratford P, Hand C, Price D, et al. Rehabilitation in a primary care setting for persons with chronic illness – a randomized controlled trial. Primary Health Care. 2010 Oct;11(04):382–95.

66. Van Walraven C, Oake N, Jennings A, Forster AJ. The association between continuity of care and outcomes: a systematic and critical review. Journal of Evaluation in Clinical Practice. 2010;16(5):947–56.

67. Government of Canada CIHR. Guide to Knowledge Translation Planning at CIHR: Integrated and End-of-Grant Approaches. 2012;1–30.

68. Khalil H. Knowledge translation and implementation science- what is the difference? International Journal of Evidence-Based Healthcare. 2016;14(2):39–40.

69. Graham ID, Logan J, Harrison M, Straus S, Tetroe J, Caswell W, et al. Lost in knowledge translation: Time for a map? Journal of Continuing Education in the Health Professions Winter 2006. 2006;26(1):13–24.

70. Field B, Booth A, Ilott I, Gerrish K. Using the Knowledge to Action Framework in practice: a citation analysis and systematic review. Implementation Sci. 2014 Dec;9(1):172.

71. Damschroder LJ, Reardon CM, Widerquist MAO, Lowery JC. The Updated Consolidated Framework for Implementation Research: CFIR 2.0. Implementation Sci [Internet]. 2022 [cited 2023 Mar 29];17(75). Available from: https://www.researchsquare.com/article/rs-1581880/v1

72. Deenik J, Czosnek L, Teasdale SB, Stubbs B, Firth J, Schuch FB, et al. From impact factors to real impact: translating evidence on lifestyle interventions into routine mental health care. Translational Behavioral Medicine. 2020 Oct 8;10(4):1070–3.

73. Eccles MP, Mittman BS. Welcome to Implementation Science. Implementation Sci. 2006;1(1).

74. Lawson DW, Stolwyk RJ, Ponsford JL, Baker KS, Tran J, Wong D. Acceptability of telehealth in post-stroke memory rehabilitation: A qualitative analysis. Neuropsychological Rehabilitation. 2020 Jul 17;1–21.

75. Wade VA, Eliott JA, Hiller JE. Clinician Acceptance is the Key Factor for Sustainable Telehealth Services. Qual Health Res. 2014 May 1;24(5):682–94.

76. Darzi AJ, Officer A, Abualghaib O, Akl EA. Stakeholders' perceptions of rehabilitation services for individuals living with disability: a survey study. Health Qual Life Outcomes. 2016 Dec;14(1):2.

77. Dean SG, Poltawski L, Forster A, Taylor RS, Spencer A, James M, et al. Community-based rehabilitation training after stroke: results of a pilot randomised controlled trial (ReTrain) investigating acceptability and feasibility. BMJ Open. 2018 Feb;8(2):e018409.

78. Laver K, Ratcliffe J, George S, Lester L, Crotty M. Preferences for rehabilitation service delivery: A comparison of the views of patients, occupational therapists and other rehabilitation clinicians using a discrete choice experiment. Australian Occupational Therapy Journal. 2013;60(2):93–100.

79. Moore L, Hogg L, White P. Acceptability and feasibility of pulmonary rehabilitation for COPD: a community qualitative study. Prim Care Respir J. 2012 Dec;21(4):419–24.

80. Moore JL, Shikako-Thomas K, Backus D. Knowledge Translation in Rehabilitation: A Shared Vision. Pediatric Physical Therapy. 2017 Jul;29:S64.

81. Hale-Gallardo JL, Kreider CM, Jia H, Castaneda G, Freytes IM, Cowper Ripley DC, et al. Telerehabilitation for Rural Veterans: A Qualitative Assessment of Barriers and Facilitators to Implementation. JMDH. 2020 Jul;Volume 13:559–70.

82. Morera-Balaguer J, Botella-Rico JM, Martínez-González MC, Medina-Mirapeix F, Rodríguez-Nogueira Ó. Physical therapists' perceptions and experiences about barriers and facilitators of therapeutic patient-centred relationships during outpatient rehabilitation: a qualitative study. Brazilian Journal of Physical Therapy. 2018 Nov;22(6):484–92.

83. Déry J, Ruiz A, Routhier F. Barriers and facilitators for implementation of a patient prioritization tool in two specialized rehabilitation programs. JBI Evidence Implementation. 2021;(19):149–61.

84. Juckett LA, Wengerd LR, Faieta J, Griffin CE. Evidence-Based Practice Implementation in Stroke Rehabilitation: A Scoping Review of Barriers and Facilitators. Am J Occup Ther. 2019 Oct 29;74(1):7401205050p1.

85. Eccles M, Grimshaw J, Walker A, Johnston M, Pitts N. Changing the behavior of healthcare professionals: the use of theory in promoting the uptake of research findings. Journal of Clinical Epidemiology. 2005 Feb 1;58(2):107–12.

86. Van Stan JH, Holmes J, Wengerd L, Juckett LA, Whyte J, Pinto SM, et al. Rehabilitation Treatment Specification System: Identifying Barriers, Facilitators, and Strategies for Implementation in Research, Education, and Clinical Care. Archives of Physical Medicine and Rehabilitation [Internet]. 2022 Oct 26 [cited 2023 Mar 26]; Available from: https://www.sciencedirect.com/science/article/pii/S0003999322016707

87. Kirk MA, Kelley C, Yankey N, Birken SA, Abadie B, Damschroder L. A systematic review of the use of the Consolidated Framework for Implementation Research. Implementation Sci. 2015 Dec;11(1):72.

88. Mertens DM. Research and Evaluation in Education and Psychology: Integrating Diversity With Quantitative, Qualitative, and Mixed Methods. 4th edition. SAGE Publications; 2014. 537 p.

89. Kaushik V, Walsh CA. Pragmatism as a Research Paradigm and Its Implications for Social Work Research. Social Sciences. 2019 Sep;8(9):255.

90. Kelly LM, Cordeiro M. Three principles of pragmatism for research on organizational processes. Methodological Innovations. 2020 May;13(2):205979912093724.

91. Lobb R, Colditz GA. Implementation Science and its Application to Population Health. Annu Rev Public Health. 2013;34:235–51.

92. Holmes AGD. Researcher Positionality - A Consideration of Its Influence and Place in Qualitative Research - A New Researcher Guide. education. 2020 Sep 1;8(4):1–10.

93. Ravitch S, Mittenfelner Carl N. Chapter One: Qualitative Research Design An opening Orientation. In: Qualitative Research; Bridging the Conceptual, Theoretical, and Methodological. 2nd ed. United States of America: SAGE publications; 2020. p. 1–31.

94. Nilsen P. Making sense of implementation theories, models and frameworks. Implementation Sci. 2015 Dec;10(1):53.

95. Adom D, Hussein E, Joe AA. Theoretical and Conceptual Framework: Mandatory Ingedients of a Quality Research. International Journal of Scientific Research. 2018 Jan 2;7:438–41.

96. Damschroder LJ. Clarity out of chaos: Use of theory in implementation research. Psychiatry Research. 2020 Jan;283:112461.

97. Powell BJ, Beidas RS, Lewis CC, Aarons GA, McMillen JC, Proctor EK, et al. Methods to Improve the Selection and Tailoring of Implementation Strategies. Journal of Behavioural Health Services & Research. 2015;44(2):177–94.

98. Waltz TJ, Powell BJ, Fernandez ME, Abadie B, Damschroder LJ. Choosing implementation strategies to address contextual barriers: diversity in recommendations and future directions. Implementation Sci. 2019 Dec;14(1):42.

99. Damschroder LJ, Reardon CM, Opra Widerquist MA, Lowery J. Conceptualizing outcomes for use with the Consolidated Framework for Implementation Research (CFIR): the CFIR Outcomes Addendum. Implementation Sci. 2022 Dec;17(1):7.

100. CFIR Research Team-Center for Clinical Management Research. The Consolidated Framework for Implementation Research: 2009 CFIR constructs. 2009 [cited 2022 Dec 10]. 2009 CFIR Constructs. Available from: https://cfirguide.org/constructs-old/

101. Khan S. The Center for Implementation. 2021 [cited 2022 Dec 12]. Measuring context: Balancing implementation research and practice. Available from: https://www.thecenterforimplementation.com/toolbox/measuring-context-implementation-research-and-practice

102. Pinto C, Bristowe K, Witt J. Perspectives of patients, family caregivers and health professionals on the use of outcome measures in palliative care and lessons for implementation: a multi-method qualitative study. Annals of Palliative Medicine. 2018;7(Suppl 3):S130–50.

103. Weiner BJ, Lewis CC, Stanick C, Powell BJ, Dorsey CN, Clary AS, et al. Psychometric assessment of three newly developed implementation outcome measures. Implementation Sci. 2017 Dec;12(1):108.

104. Hamilton AB, Finley EP. Qualitative methods in implementation research: An introduction. Psychiatry Research. 2019 Oct;280:112516.

105. Aspers P, Corte U. What is Qualitative in Qualitative Research. Qual Sociol. 2019 Jun;42(2):139–60.

106. Chesebro JW, Borisoff DJ. What Makes Qualitative Research Qualitative? Qualitative Research Reports in Communication. 2007;8(1):3–14.

107. Sandelowski M. Whatever happened to qualitative description? Research in Nursing & Health. 2000;23(4):334–40.

108. Bradshaw C, Atkinson S, Doody O. Employing a Qualitative Description Approach in Health Care Research. Global Qualitative Nursing Research. 2017 Jan 1;4:233339361774228.

109. Doyle L, McCade C, McCann M, et al. An overview of the qualitative descriptive design within nursing research. Journal of Research in Nursing [Internet]. 2019 [cited 2022 Dec 13];25(5). Available from: http://journals.sagepub.com/doi/epub/10.1177/1744987119880234

110. Sandelowski M. What's in a name? Qualitative description revisited. Research in Nursing & Health. 2010;33(1):77–84.

111. Subedi R, Statistics Canada. Developing meaningful categories for distinguishing levels of remoteness in Canada [Internet]. 2020 [cited 2021 Mar 10]. Available from: https://epe.lac-bac.gc.ca/100/201/301/weekly_acquisitions_list-ef/2020/20-33/publications.gc.ca/collections/collection_2020/statcan/11-633-x/11-633-x2020002-eng.pdf

112. Palinkas LA, Horwitz SM, Green CA, Wisdom JP, Duan N, Hoagwood K. Purposeful Sampling for Qualitative Data Collection and Analysis in Mixed Method Implementation Research. Adm Policy Ment Health. 2015;42:533–44.

113. Naderifar M, Goli H, Ghaljaie F. Snowball Sampling: A Purposeful Method of Sampling in Qualitative Research. Strides Dev Med Educ [Internet]. 2017 Sep 30 [cited 2021 Jun 11];14(3). Available from: http://sdmejournal.com/en/articles/67670.html

114. Vasileiou K, Barnett J, Thorpe S, Young T. Characterising and justifying sample size sufficiency in interview-based studies: systematic analysis of qualitative health research over a 15-year period. BMC Med Res Methodol. 2018 Dec;18(1):148.

115. Francis JJ, Johnston M, Robertson C, Glidewell L, Entwistle V, Eccles MP, et al. What is an adequate sample size? Operationalising data saturation for theory-based interview studies. Psychology & Health. 2010 Dec;25(10):1229–45.

116. Adeoye-Olatunde OA, Olenik NL. Research and scholarly methods: Semi-structured interviews. JACCP. 2021;4(10):1358–67.

117. McGrath C, Palmgren PJ, Liljedahl M. Twelve tips for conducting qualitative research interviews. Medical Teacher. 2019;41(9):1002–6.

118. Assarroudi A, Heshmati Nabavi F, Armat MR, Ebadi A, Vaismoradi M. Directed qualitative content analysis: the description and elaboration of its underpinning methods and data analysis process. Journal of Research in Nursing. 2018 Feb;23(1):42–55.

119. McMullin C. Transcription and Qualitative Methods: Implications for Third Sector Research. Voluntas [Internet]. 2021 Sep 10 [cited 2022 Dec 14]; Available from: https://link.springer.com/10.1007/s11266-021-00400-3

120. McLellan E, MacQueen KM, Neidig J. Beyond the Qualitative Interview: Data Preparation and Transcription. Field Methods. 15(1):63–84.

121. Hagens V, Dobrow MJ, Chafe R. Interviewee Transcript Review: assessing the impact on qualitative research. BMC Med Res Methodol. 2009 Dec;9(1):47.

122. Bengtsson M. How to plan and perform a qualitative study using content analysis. NursingPlus Open. 2016;2:8–14.

123. Hsieh HF, Shannon SE. Three Approaches to Qualitative Content Analysis. Qual Health Res. 2005 Nov;15(9):1277–88.

124. Kleinheksel AJ, Rockich-Winston N, Tawfik H, Wyatt TR. Demystifying Content Analysis. AJPE. 2020 Jan;84(1):7113.

125. Flottorp SA, Oxman AD, Krause J, Musila NR, Wensing M, Godycki-Cwirko M, et al. A checklist for identifying determinants of practice: A systematic review and synthesis of frameworks and taxonomies of factors that prevent or enable improvements in healthcare professional practice. Implementation Sci. 2013 Dec;8(1):35.

126. Ravitch S, Mittenfelner Carl N. Chapter Five: Methods of Data Collection. In: Qualitative Research; Bridging the Conceptual, Theoretical, and Methodological. 2nd edition. United States of America: SAGE publications; 2020. p. 124–64.

127. O'Brien BC, Harris IB, Beckman TJ, Reed DA, Cook DA. Standards for reporting qualitative research: a synthesis of recommendations. Acad Med. 2014 Sep;89(9):1245–51.

128. Ravitch S, Mittenfelner Carl N. Chapter Six: Validity in Qualtitative Research. In: Qualitative Research; Bridging the Conceptual, Theoretical, and Methodological. 2nd edition. United States of America: SAGE publications; 2020. p. 165–92.

129. Hignett S, Edmunds Otter M, Keen C. Safety risks associated with physical interactions between patients and caregivers during treatment and care delivery in Home Care settings: A systematic review. International Journal of Nursing Studies. 2016 Jul 1;59:1–14.

130. Moullin JC, Dickson KS, Stadnick NA, Albers B, Nilsen P, Broder-Fingert S, et al. Ten recommendations for using implementation frameworks in research and practice. Implementation Science Communications. 2020 Apr 30;1(1):42.

131. Holt DT, Armenakis AA, Feild HS, Harris SG. Readiness for Organizational Change: The Systematic Development of a Scale. The Journal of Applied Behavioral Science. 2007;43(2):232–55.

132. Weiner BJ. A theory of organizational readiness for change. Implementation Science. 2009 Oct 19;4(1):67.

133. Weiner BJ, Clary AS, Klaman SJ, Turner K, Alishahi-Tabriz A. Chapter 5 Organizational Readiness for Change: What We Know, What We Think We Know, and What We Need to Know. In: Implementation Science 30. eBook: Springer Nature Switzerland AG; 2020. p. 101–44.

134. Powell BJ, Waltz TJ, Chinman MJ, Damschroder LJ, Smith JL, Matthieu MM, et al. A refined compilation of implementation strategies: results from the Expert Recommendations for Implementing Change (ERIC) project. Implementation Science. 2015 Feb 12;10(1):21.

Appendix I - Interview Guide

Interview Guide version 2.0 2022-01-01

Hello and thank you for agreeing to participate in this study.

My name is Ann Jansson, and I am a graduate student in the Master's program in Community Health Sciences at the University of Manitoba. I have a background in physiotherapy, and I am interested in understanding more about how research can be used to inform practice.

This study includes health professionals involved in community rehabilitation service delivery and their perspective on a Conceptual Framework for Adult Community Rehabilitation. The framework was created to help improve the organization of community rehabilitation in Manitoba, and the research team would like to know how appropriate this framework is for settings outside of Winnipeg. Let's look at the consent form for a brief recap.

[brief walkthrough of the consent form- ask for verbal confirmation for interview and video/audio recording]

This interview is expected to take 60 minutes. It will include me asking you questions about the framework and your work setting. You are free to not answer if there is a question that you do not feel comfortable answering.

Before we get started, do you have any questions or concerns related to the consent form or the interview process?

[answer potential questions]

I will now start recording.

[start recording]

This is an interview with participant [insert de-identified participant code]

Primary interview questions (numbered) with sub-questions and prompts (letters):

1. To start off, can you tell me about your past and current role working with community rehabilitation? (Professional position/role definition)

Prompts for more details about individual's context:

   a. Can you tell me about the setting that you work in? For example, the organization that you work for. (SDO level)

b. Can you tell me more about your previous experience working in/with community rehabilitation? (Organization, role)

Thank you. As part of the study package, a document was sent out describing the CFACR. Have you had a chance to read that? If not, that is okay, we can go through it together.

[brief description of the CFACR from the CFACR information sheet emailed to the participant].

Considering that the framework is intended to inform community rehabilitation policy design, planning, care, and research:

2. Can you tell me about your overall impression of the [CFACR]?

Prompt: What are your thoughts on how the framework is or isn't consistent or appropriate with the community rehabilitation services you currently work with?

Prompt: Why is that?

Prompt: Since aspects of healthcare systems and service delivery changes over time; What are your thoughts on how the framework is or isn't consistent or appropriate with the community rehabilitation services you could work with in the future?

Prompt: Why is that? / Can you elaborate on why that is?

3. Can you tell me about how you might use the framework in your current setting?

4. a. What would facilitate the implementation/use of the framework? *[For example, if there is a good work structure in place to operate Team-based.]*

Prompt: Why is that?

b. Are there any aspects of the framework that would be harder to apply/implement? *[For example, if this framework were to be used in your setting, but there is a lack of a referral system would hamper the Continuity of services.]*

Prompt: Why is that?

c. Given your responses on facilitators and barriers, how do you think this should be considered when applying/implementing the framework in your role or potential future role, and in the communities that you work? / [clarification: Considering your responses on what could help or hinder the use of the framework, do you have any thoughts on how this could come together to address some of the challenges to use this framework in your role and your potential future role, and in the communities that you work?]

5. Is there anything else that you would like to express that you think is important to the conversation today? / Is there anything you consider important to the subject that I haven't asked about?

6. Is there anyone else that you think I should talk to?

Thank you for your time and participation in this study. If you think of any questions, feel free to connect with me. My contact information is on the consent form. [confirm that the participant has received copy of the signed consent form]

Appendix II - Eligibility Screening Form

Dear recipient,

Thank you for your interest in our study! Please answer the questions below by marking an X in the appropriate box. Please email the filled-out form to the principal investigator for the research study:

janssona@myumanitoba.ca

In this study, the definition of community rehabilitation is: "services aimed to restore or maintain an individual's function and delivered to people who live in their permanent place of residence".

Questions:	Yes	No
Do you have a role in the service delivery, coordination, and/or implementation of publicly funded adult community rehabilitation services?		
Do you work as an allied health professional?		
Do you work as a nurse?		
Do you work as a physician?		
Do you work as a manager?		
Do you work with policy? (For example, as a health system administrator)		
Do you work in any of the following service delivery organizations: Prairie-Mountain Health, Southern Health-Sante Sud, Northern Health Region, Interlake-Eastern Health Region, Shared Health		

If you are eligible to participate in this study, you will be contacted by the principal investigator with information on how to proceed.

Thank you for your time and consideration.

Sincerely,

Appendix III - Participant Information and Consent Form

Participant Information and Consent Form

Individual Interview

Title of the research study: *Exploring health professionals' perceptions of acceptability, facilitators, and barriers to using a conceptual framework for community rehabilitation in rural, small, and medium urban settings in Manitoba.*

Principal investigator: Ann Jansson, graduate student in Community Health Sciences at the University of Manitoba, address: Department of Community Health Sciences, University of Manitoba Max Rady College of Medicine S113- 750 Bannatyne Avenue, e-mail contact: janssona@myumanitoba.ca

Co-Investigators: Dr. Kathryn Sibley (student advisor, Associate Professor), Dr. Alan Katz (Professor), Dr. Leanne Leclair (Associate Professor).

Sponsor: Not applicable.

Funder: Student advisor's research funds.

Invitation

You are invited to participate in a research study involving an individual interview. Please take your time to review this consent form and discuss and questions you may have with the study staff, your friends, or friends before you make your decision. This consent form may contain words that you do not understand. Please ask the study staff to explain any words or information that you do not clearly understand.

Purpose

The purpose of the study is to explore what health professionals think of a conceptual framework developed for the organization of community rehabilitation. Another purpose is to ask health professionals about what they think can hinder or support the use of the framework in their setting. Understanding health professionals' perspectives can help improve the framework and the planning for how to use the framework in practice.

Participant Selection

You are being asked because you have a role in the coordination and implementation of publicly funded adult community rehabilitation services in one or more of the following service delivery

organizations in Manitoba; Northern Health Region, Prairie Mountain Health Region, Interlake-Eastern Health Region or Southern Health-Santé Sud. You have a role in either policy, management or font-line service delivery (allied health, nurse or physician). The reason you are being selected is because you have relevant knowledge and experience to help answer the study questions. The study aims to interview 8-20 individuals.

Study Procedures

· If you agree to participate in the study, please fill out this form together with the Participant Demographic form and provide it to the researcher start of the interview.

· The interview will take place remotely (via an online platform like Zoom or Microsoft Teams, or via phone depending on your preference) at a time that is convenient for you.

· The interview will be conducted by Ann Jansson.

· The interview will consist of some questions related to your experience with the organization and delivery of community rehabilitation in your setting.

· The interview will last approximately 60 minutes.

· The interview will be recorded by Ann Jansson to ensure accurate reporting of the information that you provide. All recordings will be audio recorded. Recordings will be transcribed by a professional transcription company and Ann Jansson.

· Any name used during the interview will be de-identified in the transcription.

· The recordings will be stored in locked files before and after being transcribed. Recordings, notes, and the transcriptions will be destroyed 5 years after the completion of this study.

· Optional: Follow-up session. The purpose of a follow-up session is to review the initial analysis of the researcher and for the study participants to get the opportunity to provide feedback on how the researcher is interpreting what the participant has expressed in the interview. You can choose to participate in the study without participating in the follow-up session. This session will take 30 minutes at most.

· If you have given consent for a follow-up session, this session will take place within 6 months of the initial interview.

· Once the study has finished, a summary of the study results will be sent to your email.

- The total time commitment to participate in this study is estimated to be 1 hour, 15 minutes, or 1 hour, 45 minutes depending on if you choose to participate in the follow-up session or not. The additional 15 minutes are to account for the time spent filling out the demographics form and consent form.

Risks

There are no known risks for participating in this study. However, you do not have to answer any question(s) that you don't want to answer.

Benefits

Your participation will help in the development of an evidence-based organization of community rehabilitation.

Costs

There is no cost to you to attend the individual interview.

Compensation

You will receive no payment or reimbursement for any expenses related to taking part in this study.

Confidentiality

We do everything possible to keep your personal information confidential. Your name will not be used at all in the study records. A list of names and addresses of participants will be kept in a secure file so that we can send you a summary of the results of the study. If the results of this study are presented in a meeting, or published, nobody will be able to tell that you were in the study. Please note that although you will not be identified as the speaker, your words may be used to highlight a specific point. The collection and access to personal information will follow provincial and federal privacy legislation. The recordings and notes will be kept on a password-protected server and the list of names will be kept in a secure locked file cabinet and office. The recordings, transcription, and the notes will be destroyed 5 years after the study has finished.

Some people or groups may need to check the study records to make sure all the information is correct. All these people have a professional responsibility to protect your privacy. These people or groups are:

- The Health Research Ethics Board of the University of Manitoba which is responsible for the protection of people in research and has reviewed this study for ethical acceptability.

- Quality assurance staff of the University of Manitoba.

All records will be kept in a locked secure area and only those persons identified will have access to these records. If any of your research records need to be copied to any of the above, your name and all identifying information will be removed. No information revealing any personal information such as your name, address, or telephone number will leave the University of Manitoba.

Voluntary Participation/Withdrawal from the Study

Your participation in this study is voluntary. You may refuse to participate, or you may withdraw from the study at any time.

Questions

If any questions come up during or after the study, contact the principal investigator.

For questions about your rights as a research participant, you may contact the University of Manitoba, Bannatyne Campus Research Ethics Board Office at (204) 789-3389.

Consent Signatures

I understand that I can participate in the study interview and refuse participation in the follow-up session without it having an impact on my ability to participate in this study. I consent to be contacted for participation in a follow-up session (please mark your selection with X).

Yes [ ] No [ ]

Would you be willing to be contacted about future research opportunities? (Please mark your selection with X).

Yes [ ] No [ ]

1. I have read all 5 pages of the consent form.

2. I have had a chance to ask questions and have received satisfactory answers to all of my questions. I understand that by signing this consent form I have not waived any of my legal rights as a participant in this study.

3. I understand that my records, which may indicate identifying information, may be reviewed by the research staff working with the Principal Investigator and the agencies and organizations listed in the Confidentiality Section of this document.

4. I understand that I may withdraw from the study at any time and my data may be withdrawn prior to publication.

5. I understand I will be provided with a copy of the consent form for my records.

6. I agree to participate in the study.

Participant signature_____ **Date** _____

(day/month/year)

Participant printed name: _____

[To be filled out by the Interviewer] I, the undersigned, have fully explained the relevant details of this research study to the participant named above and believe that the participant has understood and has knowingly given their consent

Printed Name: _____ **Date** _____

(day/month/year)

Signature: _____

Role in the study: _____

Appendix IV - Participant Demographics Form

Participant Demographics Form

Name:

Age:

Gender:

Professional background:

Main role (service provider, manager, policy):

Work location:

Service Delivery Organization:

Years in the profession:

Years in current position:

Setting (please fill out the table below):

	SETTING (the location where services are provided)*		
	Rural (population <1000) Ex. Strathcona, Ellice-Archie,	Small urban (population 1,000-29,999) Ex. Thompson, The Pas, Steinbach, Selkirk, Dauphin	Medium urban (population 30,000-99,999) Ex. Brandon
Percentage of current role takes place in:			

* Setting: For front-line service providers, the setting is where services are delivered. For managers, setting refers to what location services are managed for, and for individuals working with policy, setting refers to what environment the policy is developed for, implemented, or evaluated.

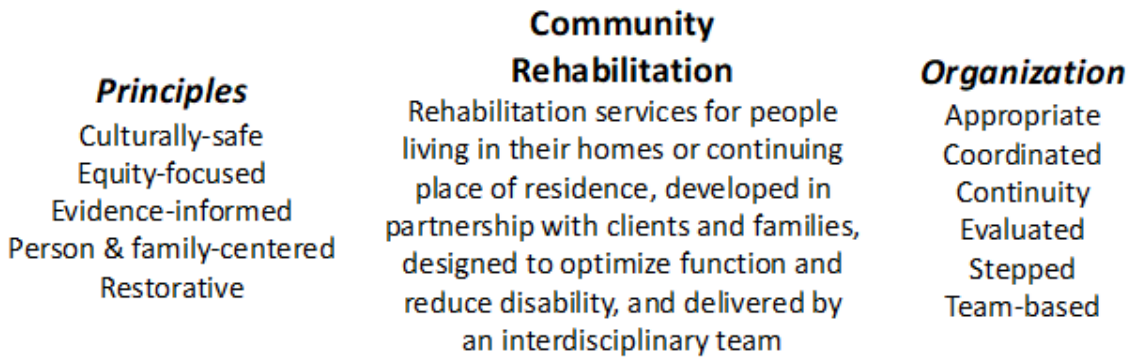
Appendix V – The CFACR Info Page

The Conceptual Framework for Adult Community Rehabilitation

More individuals are living longer, many with chronic health conditions and/or frailty. These individuals can benefit from rehabilitation services to regain or maintain their physical function and independence. Rehabilitation services for people living in the community have been shown to be effective and cost-efficient. However, organization or rehabilitation services are fragmented.

Manitoba provincial health leaders and rehabilitation researchers developed the Conceptual Framework for Adult Community Rehabilitation (CFACR) to act as a vision for community rehabilitation services and inform community rehabilitation policy design, planning, care, and research.

Figure 1. A visual interpretation of the framework. More information on each construct is displayed in Table 1.



The framework consists of 11 components that are grouped into 2 areas: "Organization" *(coordinated, continuity, team-based, stepped, evaluated, and appropriate).* "Principles" (*person- and family centered, equity-focused, culturally safe, evidence-informed,* and *restorative)* (30). It was developed with feedback and input from community rehabilitation service providers, clients, and informal caregivers, in Winnipeg.

Table 1. The Conceptual Framework for Community Rehabilitation(30). Used with permission.

Category	Component	Definition/ Explanation
Principle	**Culturally-safe**	Critically reflects, recognizes, analyzes, and addresses power imbalances, institutional discrimination, and colonial relationships in the context of community rehabilitation care to advance therapeutic encounters
	Equity-focused	Supports all people reaching their full health potential and are not disadvantaged from attaining it or accessing health services because of socially determined circumstances
	Evidence-informed	Distills, disseminates, and applies the best available evidence from research, context, and experience, and uses that evidence to inform and improve community rehabilitation practice and policy
	Person-and family-centered	Partners with clients and families (as defined by the client) to put people first and provide care that is holistic, culturally safe, acceptable, respectful, and responsive to individual preferences, needs, and values
	Restorative	Works to attain and maintain the highest level of function possible by doing *with* a person, rather than doing *for* a person
Organization	**Appropriate**	Community rehabilitation services are provided in the most suitable setting for providing safe, accessible, and timely care aligned with individuals' needs and potential to achieve rehabilitation goals
	Coordinated	Care is organized between the community rehabilitation team and other care providers across the continuum of care. Clients and family are encouraged to participate in goal-setting and care planning
	Continuity	A series of initiating, consistent, and concluding care events that result when a person seeks community rehabilitation services in one or more settings.
	Evaluated	Consistent measurement to monitor and demonstrate health system, program, and individual outcomes that contribute to enhanced functional independence
	Stepped	The most-effective and least-resource-intense community rehabilitation services are initiated first, adapted and increased as needed, and then reduced in a coordinated manner when an endpoint is reached
	Team-based	Includes rehabilitation professionals and support staff from multiple disciplines who work collaboratively and in an integrated way

Appendix VI - Interview Transcription and Data Management Process

1. Auto transcription in Zoom/MS Teams

Zoom:	**MS Teams:**
The raw auto-transcription did not distinguish between speakers and did not identify the speaker. Does not capture behavioral sounds (e.g., laughter) or background noise (people speaking, doors closing).	Raw auto transcriptions gave both timestamps and identified the speaker- however, it shuffled the sequence of speakers when both individuals were speaking at the same time. It did not capture behavioral sounds (e.g., laughter) or background noise (people speaking, doors closing).

2. Manual Adjustment of Auto-transcription

Zoom:	**MS Teams:**
· Removal of timestamps.	· Removal of timestamps.
· Distinguished between speakers and labeled by interview role/ participant ID.	· Replaced speaker names as per interview role/ participant ID.
· Speaking sequence was adjusted as needed (ex when both people were talking at the same time, the transcript was re-ordered to ensure a sequential and logical flow as close to the audio as possible.)	· [laughter] italic text inside square brackets [] describe sounds or noises in the recording.
· Correction as needed of words that the auto-transcription has 'misheard' when similar sounding words have different spelling and meaning. For example, 'here' instead of 'hear', or 'we have aid' instead of 'rehab aide'.	· Speaking sequence adjusted (ex when both people are talking at the same time, the transcript shows a sequential flow as close to the audio as possible).
· Highlighting some identifiable text in preparation for the next step.	· Correction of words that the auto-transcription has 'misheard'. For example, 'here' instead of 'hear', or 'we have aid' instead of 'rehab aide'.
· [laughter] italic text inside square brackets [] describe sounds or noises in the recording.	· Highlighting some identifiable text (names of people and locations) in preparation for the next step.

3. De-identification of Transcripts

De-identification of transcripts entailed:

- Names of people and locations were replaced with a code ex: [MEDIUM URBAN CENTRE] and [MANAGER] to address directly identifying information and contextual identifying information.
- [unintelligible] refers to the transcriber not being able to understand or hear what is said despite repeated attempts to listen to the audio file.
- [brackets with regular text] is an addition to the transcript and meant as an interpretation to clarify what is being said and what the speaker is referring to directional cue 'this paper that I am looking at' or a communicative assumption, for example, a participant is talking about 'it' and me as the interviewer knows that the participant is talking about the CFCR [framework].
- Some words were corrected after further consultation from the audio file. For example: 'impatient' changed to 'inpatient' when appropriate.
- Some filler words/stuttering removed.

4. Preparing the Data for Analysis

As per 'Intelligent Verbatim' aka 'naturalized transcription' (119). This step was intended as a documented bridge between the transcript and the coding process. Although verbatim transcription is important, "the text must also be readable"(120). The de-identified transcripts were not comprehensive enough to understand without consulting the audio files. This was due to, for example, stutters, multiple self-corrections, repetitive words, lack of clear sentence start and stop, and lack of indicator of emphasis on words. This would not allow for a coherent coding process, and important communicative indicators in the interview might be misinterpreted or lost otherwise.

To make the written data comprehensive for the readers (so that ideally the readers do not have to consult the audio tapes) and allow for further analysis of the data without losing many important indicators that add to the meaning of what is said, I processed the transcripts in the following manner: *(I had access to a better sound setup for this portion of the work with the audio and transcripts. Because of this, I found several areas that I had to adjust to better represent what was said on the recordings.)*

· *Italic text in the transcript* Is used when the speaker seems to emphasize something in particular, using the tone of their voice. Example: 'I was getting more 'No we can't do that, no we can't do that', and very little, 'here's what we *could* do'.' The last 'could' is clearly emphasized by the participant as a defined tone of voice and that makes the word stand out from the rest of the sentence. In this example, it communicates a contrast to the 'can't' wording in the begging of the sentence.

· … In the middle of a sentence that continues, it refers to when the speaker is clearly thinking of/contemplating what to say and this controls the pacing of the interview. In some cases, the sentence changes abruptly to another sentence, and the … it acts as a separator to distinguish between the initial sentence and the abrupt change. Example 1: (the speaker pauses and then continues the sentence) 'the most effective and least resource intense community we have… are initiated first'. Example 2: (the participant doesn't finish the sentence and starts another sentence) 'And then homecare… I have a main office here but everything is done in the client's home.'

· '' refers to when the speaker is giving an example of dialogue or what someone else might have said, or the participant is enacting a scenario.

· ***Italic, bold text*** to mark interview guide questions: highlight in color to make it easier to find in the document.

· Removal of stuttering, repetitive words/phrases, self-corrections, pauses. Example (underlined words here show what is removed from the text: 'Um, but I mean it always, it always kind of comes back to actually having having the people to carry it out.' Is changed to: 'But I mean it always kind of comes back to actually having the people to carry it out.'

· Correcting words and sentences when considering the context and not just individual words. For example, previously missed misspelled words/sentences such as 'because of cool good with the repatriations and the low leveling' are changed to 'because of COVID with the repatriations and the load leveling'.

5. Participant Feedback

As the preparation process is in some manner a form of analysis, where I as the PI decide what to transcribe and how to show it in written format, the process involved both reducing words to increase coherence and adding content (e.g., emphasis on words) as I have described. To regard

how the participant and what they have said and how they are being represented in the text, consenting participants were invited to provide feedback on the prepared text.

· Comments from participants were (de-identified) and inserted verbatim, in the locations of the document marked by the participant.

· {participant comment} These additions are marked to clarify that they are additions to the transcript made by the participant.

Appendix VII – Data Coding and Categorization Spreadsheet

BF	Proctor	ID	interview order	Domain	Construct	SMU	CFACR framework
Facilitator	ACC	**11**	3_011_03	INNOVATION CHARACTERISTICS	Evidence Strength and Quality	Agree with Equity-focused. Equity and Equality are not the same thing. Services need to consider marginalized groups.	*Equity-focused*
Facilitator	APP	**10**	4_010_01	INNER SETTING	Compatibility	At current, [participant believes] CR services follow the principles of the CFACR.	*CFACR overall*
Barrier	FEA	**10**	4_010_03	INNER SETTING	Available Resources	No resources (rehab aides or health care attendants) to carry out rehab programs, so the burden falls on families.	*Restorative*
Barrier	FEA	**10**	4_010_09	OUTER SETTING	Geography	a lot of distance to travel. Not always logistically possible to get staff to meet clients together.	*Team-based*
Facilitator/ Barrier	APP	**11**	4_011_05	OUTER SETTING	Patient Needs and Resources	Some require additional service or support to achieve the same outcome [referring to equity].	*Equity-focused*
Facilitator	FEA	**14**	7_014_02	PROCESS	Reflecting and Evaluating	Applied learning by clinicians: reflective exercises. Just learning about CFACR is not enough. Application to client scenario needed.	*CFACR overall*

BF: concepts for *Determinants of Practice* | **Proctor:** concepts for *Implementation Construct* | **ID:** Participant ID | **interview order:** Context tracker [question number_participantID_SMU order] | **Domain:** CFIR domain | **Construct:** CFIR construct | **SMU**: Summarized Meaning Unit | **CFACR framework:** The portion of the CFACR framework that the SMU is referring to.

Appendix VIII – SDO Recruitment Process

HR01[k] required the applicant to fill out forms tailored to the region and HR02 accepted a copy of the study proposal and a copy of the HREB approval to consider the request. HR03 utilized a screening process and an online meeting to facilitate the process. HR04 was not able to locate a contact person for initiating the approval process, despite several attempts, and the approval-seeking process was discontinued. To recruit more participants relevant to policy-related positions, organizational approval for HR05 was considered later in the research process. However, the approval process for HR05 was not finished in time to be feasible for project timelines, and no recruitment was initiated.

The regional contact persons in HR01 and HR03 were provided with study and recruitment information that they distributed via mass email. HR03 also invited me to present information about the study and recruitment information via an online regional staff meeting. HR02 provided email lists of staff and I sent out information about the study and recruitment via email.

[k] HR refers to "Health Region". The number indicates the order in which the HR provided research study approval. HR04 and HR05 research approval process was not completed.

Appendix IX – Summary of Results as per CFIR

Implementation Constructs		
Domain	Construct	**Acceptability**
INNOVATION CHARACTERISTICS	Innovation Source	• Coordinated and Continuity more aligned with a large urban center.
	Evidence Strength and Quality	• Comprehensive, relevant, sensible, supportive/reaffirming of clinical practice. • Appropriate components for this type of framework. • CR* concept hard to define.
	Relative Advantage	• Preferable care model • "Concluding care events" is not always suitable.
	Cost	• Implications for increased workload may deter therapists • Opportunity cost- one thing done well, or several done poorly.
	Implementation Determinants	
	Construct	***Facilitator (+)*** ***Barrier (-)***
	Adaptability	• Tool for learning and reflecting on practice. (+) • Tool for change communications and problem-solving. (+)
	Relative Advantage	• Rehab program best option to address client needs. (+)

Implementation Determinants		
Domain	Construct	***Facilitator (+)*** ***Barrier (-)***
PROCESS	Engaging	• Facilitated educational sessions. (+) • Presented in an appealing way. (+) • Co-design program with therapists. (+)
	Formally Appointed Internal Implementation Leaders	• Driven by the current CBR** program. (+)
	External Change Agents	• Community organizations to help client buy-in. (+) • Regulatory colleges to prompt professionals. (+)
	Reflecting and Evaluating	• Applied learning strategies. (+)

* CR: Community rehabilitation

** CBR: Community-Based Rehabilitation

Implementation Determinants		
Domain	Construct	***Facilitator (+)*** ***Barrier (-)***
CHARACTER. OF INDIVIDUALS	Knowledge and Beliefs about the Innovation	• Buy-in from physicians. (-)
	Individual Stage of Change	• Experienced staff (+) • Support for newer staff to learn about applying the framework. (+)
	Other Personal Attributes	• Staff differences in training and trust in service delivery. (-)

Implementation Determinants		
Domain	Construct	***Facilitator (+)*** ***Barrier (-)***
INNER SETTING	Structural Characteristics	• Introduce rounds to increase consistency between care providers. (+) • Funding allocation to CR*. (+) • Increased staff resources. (+) • Documentation infrastructure needed. (+) • Increased power to low-level management. (+) • Process for travel and reimbursement to staff travel expenses. (+) • Supportive management (+) • Standardize referral form for CR. (+)
	Networks & Communications	• Connection and coordination of service providers (+) • Introduce multidisciplinary rounds (+)
	Culture	• Staff honor commitments to clients. (+) • Staff use creative ways to address client needs. (+)
	Tension for Change	• Negative association with previous healthcare change. (-)
	Compatibility	• Align with regional aim & goals of current service delivery.. (+) • Align with clinical practice guidelines and best practices. (+) • Consultative care model. (-) • Access to equipment hindered by processes. (-)
	Leadership Engagement	• Leadership can advocate for resources and use of CFACR. (+)
	Available Resources	• Lack of funding (-)
	Access to Knowledge & Information	• Lack of time to research information. (-)

Implementation Determinants		
Domain	Construct	***Facilitator (+)*** ***Barrier (-)***
OUTER SETTING	Patient Needs and Resources	• Aligns with client needs. (+) • Client acceptability. (-) • Discrepancy between client readiness and clinician assessment. (-) • Client access to services due to distance to treatment. (-)
	Geography	• Travel time and access. (-)
	Hazards	• Private homes can be workplace hazards. (-)
	External Policy and Incentives	• Aligns with competencies listed by a professional organization. (+) • Regulatory colleges can support information spread to clinicians. (+) • Provincial healthcare transformation (-) • Health system complexity. (-) • Provincial healthcare transformation (-) • Communication with a large urban center. (-) • Changes in client flow from a large urban center. (-) • Lack of funds from the government. (-)

Appendix X – Initial Codebook as per the CFIR

CFIR constructs with definitions (38,71,99). This table with definitions is reproduced from the CFIR Qualitative Codebook tool before the fall 2022 update (100).

The CFIR domains and associated constructs with definitions (38,100)**.**	
INNOVATION Characteristics: ***The "thing" that is being implemented.***	
Innovation Source	*The perception of key stakeholders about whether the innovation is externally or internally developed.*
Evidence Strength and Quality	*Stakeholders' perceptions of the quality and validity of evidence supporting the belief that the innovation will have desired outcomes.*
Relative Advantage	*Stakeholder's perception of the advantage of implementing the innovation versus an alternative solution.*
Adaptability	*The degree to which an innovation can be adapted, tailored, refined, or reinvented to meet local needs.*
Trialability	*The ability to test the innovation on a small scale in the organization, and to be able to reverse course (undo implementation) if warranted.*
Complexity	*Perceived difficulty of the innovation, reflected by duration, scope, radicalness, disruptiveness, centrality, and intricacy and number of steps required to implement.*
Design Quality and Packaging	*Perceived excellence in how the innovation is bundled, presented and assembled.*
Cost	*Costs of the innovation and costs associated with implementing the innovation including investment, supply, and opportunity costs.*
OUTER SETTING: ***The setting in which the more specific implementation setting exists***	
Patient Needs and Resources	*The extent to which the needs of those served by the organization (e.g., patients), as well as barriers and facilitators to meet those needs, are accurately known and prioritized by the organization.*
Cosmopolitanism	*The degree to which an organization is networked with other external organizations.*
Peer Pressure	*Mimetic or competitive pressure to implement an innovation, typically because most other key peer or competing organizations have already implemented or are in a bid for a competitive edge.*
External Policy and Incentives	*A broad construct that includes external strategies to spread innovations including policy and regulations (governmental or other central entity), external mandates, recommendations and guidelines, pay-for-performance, collaboratives, and public or benchmark reporting.*

INNER SETTING: ***The setting in which the innovation is implemented.***	
Structural Characteristics	*The social architecture, age, maturity, and size of an organization.*
Networks & Communications	*The nature and quality of webs of social networks, and the nature and quality of formal and informal communications within an organization.*
Culture	*Norms, values, and basic assumptions of a given organization.*
Implementation Climate	*The absorptive capacity for change, shared receptivity of involved individuals to an innovation, and the extent to which use of the innovation will be rewarded, supported, and expected within their organization.*
Tension for Change	*The degree to which stakeholders perceive the current situation as intolerable or needing change.*
Compatibility	*The degree of tangible fit between meaning and values attached to the innovation by involved individuals, how those align with individuals' norms, values, and perceived risks and needs, and how the innovation fits with existing workflows and systems.*
Relative Priority	*Individuals' shared perception of the importance of the implementation within the organization.*
Organizational Incentives & Rewards	*Extrinsic incentives such as goal-sharing, awards, performance reviews, promotions, and raises in salary, and less tangible incentives such as increased stature or respect.*
Goals & Feedback	*The degree to which goals are clearly communicated, acted upon and fed back to staff, and alignment of that feedback with goals.*
Learning Climate	*A climate in which: 1. Leaders express their own fallibility and need for team members' assistance and input; 2. Team members feel that they are essential, valued, and knowledgeable partners in the change process; 3) Individuals feel psychologically safe to try new methods; and 4. There is sufficient time and space for reflective thinking and evaluation.*
Readiness for Implementation	*Tangible and immediate indicators of organizational commitment to its decision to implement an innovation.*
Leadership Engagement	*Commitment, involvement, and accountability of leaders and managers with the implementation of the innovation.*
Available Resources	*The level of resources organizational dedicated for implementation and on-going operations including physical space and time.*
Access to Knowledge & Information	*Ease of access to digestible information and knowledge about the innovation and how to incorporate it into work tasks.*

PROCESS: ***The activities and strategies utilized to implement the innovation.***	
Planning	*The degree to which a scheme or method of behavior and tasks for implementing an innovation are developed in advance, and the quality of those schemes or methods.*
Engaging	*Attracting and involving appropriate individuals in the implementation and use the innovation through a combined strategy of social marketing, education, role modeling, training, and other similar activities.*
Opinion Leaders	*Individuals in an organization that have formal or informal influence on the attitudes and beliefs of their colleagues with respect to implementing the innovation.*
Formally Appointed Internal Implementation Leaders	*Individuals from within the organization who have been formally appointed with responsibility for implementing an innovation as coordinator, project manager, team leader, or other similar role.*
Champions	*Individuals who dedicate themselves to supporting, marketing, and "driving through an implementation", overcoming indifference or resistance that the innovation may provoke in an organization.*
External Change Agents	*Individuals who are affiliated with an outside entity who formally influence or facilitate innovation decisions in a desirable direction.*
Executing	*Carrying out or accomplishing the implementation according to plan.*
Reflecting and Evaluating	*Quantitative and qualitative feedback about the progress and quality of implementation accompanied with regular personal and team debriefing about progress and experience.*

CHARACTERISTICS OF INDIVIDUALS: ***The roles and characteristics of individuals***	
Knowledge and Beliefs about the Innovation	*Individuals' attitudes toward and value placed on the innovation, as well as familiarity with facts, truths, and principles related to the innovation.*
Self-efficacy	*Individual belief in their capabilities to execute courses of action to achieve implementation goals.*
Individual Stage of Change	*Characterization of the phase an individual is in, as s/he progresses toward skilled, enthusiastic, and sustained use of the innovation.*
Individual Identification with Organization	*A broad construct related to how individuals perceived the organization, and their relationship and degree of commitment with that organization.*
Other Personal Attributes	*A broad construct to include other personal traits such as tolerance of ambiguity, intellectual ability, motivation, values, competence, capacity, and learning style.*