Original Article

Family-Centred Care among Caregivers of Children with Disabilities in Selected Paediatric Rehabilitation Centres in Rwanda: A Cross-Sectional Study

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Abstract

Background
Family-centred care (FCC) is broadly acknowledged as the most effective method in paediatric rehabilitation. This study evaluated the use of FCC and its influencing factors in paediatric rehabilitation services in Rwanda due to scarcity of literature on FCC use in Rwanda.

Methods
This was a cross-sectional study conducted among 107 participants, using census-sampling method. The study used the Wilcoxon rank-sum and Kruskal-Wallis tests to determine the differences in Measure of Processes of Care (MPOC) median scores across socio-demographic variables. A stepwise regression with a P value threshold of <0.25 was used for variable selection. Model fit was determined using Akaike's Information Criterion. Data analysis was performed using Stata version 15.

Results
The median age for caregivers was 36 years (IQR: 30–43) and 6 years (IQR: 3–10) for the children. Median rehabilitation duration was 10 months (IQR: 4–28). Common diagnoses were cerebral palsy and physical disability (each 44.9%). Self-employed parents reported higher FCC use compared to part-time employed parents (3.08, 95% CI: 2.02–3.66).

Conclusion
Use of FCC in paediatric rehabilitation in Rwanda is influenced by diagnosis, sibling number, child sex, rehabilitation institution, and parental employment. Interventions tailored to these factors are recommended to enhance FCC use.

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Keywords: Family-centred care, Child diagnosis, Measure of Processes of Care, Rehabilitation Services, Disability

Introduction

Children with disabilities typically have higher healthcare needs and engage more frequently with healthcare systems compared to the general paediatric population. Despite this, their needs often remain unmet, as healthcare systems are often not adequately prepared to address their specific requirements. Family-centred care (FCC) has been internationally recognized as the best paediatric rehabilitation practice.[1] Such interventions are believed to lead to improved outcomes in child development, family satisfaction and reduction in healthcare costs by decreasing the frequency of hospitalizations.

Different studies have demonstrated the positive effects of FCC on child developmental skills, service satisfaction, quality of life and psychosocial well-being of both parents and children with disabilities.[2–4] Despite the recognized importance of FCC in paediatric rehabilitation services, there is limited research on how various socio-demographic and institutional factors affect its implementation. Previous studies have indicated that factors such as the child's diagnosis, parental education level, employment status, and the frequency of rehabilitation services might influence the use of FCC.[1,5–7] However, the relative contribution of these factors remains unclear. Understanding the factors influencing FCC utilization can inform strategies to enhance service delivery and ensure better health outcomes for children with disabilities.

Globally, FCC is regarded as a critical component of paediatric rehabilitation, emphasizing the involvement of families in the planning, delivery, and evaluation of healthcare.[5,8] The UK, Canada and the USA are the countries where the majority of the literature on FCC has its roots.[9] Studies from high-income countries indicate that FCC is well-established due to a strong healthcare infrastructure and policies that support patient autonomy. However, specific information about the scope of practice and implementation of FCC is scarce in low- and middle-income nations where they have limited technological, economic, and human resources. FCC implementation should be a priority in low and middle-income countries because of the increased burden presented by diseases and other ill health conditions.[10,11]

In Africa, FCC is increasingly being recognized but faces challenges such as limited healthcare resources, a lack of trained professionals, and cultural diversity. Many healthcare systems, particularly in rural areas, still emphasize a provider-centred model. However, FCC is slowly gaining ground in paediatric rehabilitation programs in countries like South Africa, where efforts are being made to involve families in the treatment process and create community-based rehabilitation initiatives.[4]

In a two-day workshop report on the perspectives of stakeholders and healthcare service providers in East Africa, it was observed that FCC in paediatric rehabilitation is still developing.[12] Additionally, there is a scarcity of published information with regard to FCC practice within the region. This report also highlighted the importance of FCC in low resourced areas like East Africa but also identified certain barriers that hinder the implementation of FCC in paediatric rehabilitation services. The mentioned barriers include limited parental commitment, employment and other responsibilities, long distance from their homes to the rehabilitation institutions, limited time, human resource, and lack of training for health care providers on FCC and supportive policies on implementation of FCC.[12]

Currently, there is no published study on the use of FCC in paediatric rehabilitation services in Rwanda, and this study may serve as a baseline information and a reference for future research on this particular topic. The aim of this study was therefore to

determine the level of use of FCC and its influential factors in caregivers of children with disabilities (CwDs) who receive paediatric rehabilitation services in selected institutions in Rwanda.

Methods

Study Design

This was a cross-sectional study conducted between 2nd September 2023 and 15th February 2024 to assess the use of FCC practices in paediatric rehabilitation settings in Rwanda. The study involved collecting data at a single point in time from a sample of parents and caregivers of children with disabilities who were receiving rehabilitation services during the study period. A structured questionnaire incorporating the Measure of Processes of Care (MPOC-20) was administered to capture caregivers' perceptions and experiences of FCC across different service settings.

Study Setting

In Rwanda, rehabilitation services are widely accessible and well integrated into medical specialities in half of the national referral and teaching hospitals at the tertiary care level in Kigali and Huye District. The services are markedly less available in tertiary and secondary care hospitals outside these key urban centres. Additionally, these hospitals lack designated long-term rehabilitation beds to support individuals with complex injuries and conditions.[13] Rehabilitation services are available in both private hospitals/clinics, non-governmental organizations (NGOs) and faith-based centres for paediatric rehabilitation.

This study was conducted in public hospitals and NGO centres that offer paediatric rehabilitation services in both rural and urban settings in Rwanda. The selected study settings were: Gahini District Hospital, Home de la Vierge des Pauvres (HVP) Gatagara Orthopaedics and Rehabilitation Hospital/Gikondo branch, Chance for Childhood, and Love with Actions. Gahini District Hospital functions in a rural setting within the Kayonza District. The facility includes the Gahini Rehabilitation Centre, providing a range of rehabilitation services for both inpatients and outpatients. These services encompass physiotherapy, occupational therapy, orthopaedic surgery, prosthetics and orthotics, as well as community rehabilitation and outreach activities. Children with Disabilities (CwDs) who live far from the Gahini District Hospital are admitted for a certain period for intensive therapy and then discharged later.[14]

Home de la Vierge des Pauvres Gatagara Orthopaedics and Rehabilitation Hospital/ Gikondo branch is situated in Kigali city, Kicukiro district. It offers diverse services across various departments. It has an orthopaedic department that designs and fit prosthetic and orthotic devices. The Physiotherapy and Occupational Therapy department focuses on habilitating functional activities, addressing gross and fine motor skills in children with anomalies, as well as restoring impaired functions in individuals' post-injuries or neurological impairments. Furthermore, the institution features a special school for CwDs and a psychology department.[15]

Chance for Childhood operates as an international organization with dual locally led operational hubs in East and West Africa. These hubs provide support to a network of partners across five countries, namely: the Democratic Republic of Congo, Ghana, Kenya, Rwanda, and Uganda. Collaborating with UNICEF Rwanda, Chance for Childhood aims to enhance family and community-based assistance by training parents to support children with disabilities at home. This involves ensuring that family homes become safe and accessible spaces and establishing new community services. The organization is actively engaged in Bugesera and Huye Districts, focusing its efforts on rural settings in Bugesera District across 20 community rehabilitation sites which were the study settings for this particular study.[16] Love with Actions is a local NGO that supports CwDs and their families by advocating for their rights, providing education, offering medical care

(physiotherapy and occupational therapy), and empowering their families.[17]

These study settings were selected because they provide paediatric rehabilitation services and receive the majority of paediatric cases that require rehabilitation in Rwanda.

Study Population and Eligibility Criteria

The study population were parents/ caregivers of children with disabilities receiving paediatric rehabilitation services from the selected study settings at the time of data collection.

Inclusion and Exclusion Criteria

Inclusion Criteria

Participants were parents/caregivers of children with disabilities aged 12 years and below currently receiving paediatric rehabilitation services in Rwanda for at least 3 months at the time of data collection. They had to be 18 years or older and actively involved in the care of a child undergoing rehabilitation at the time of the study.

Exclusion Criteria

The parents/caregivers were excluded if they were unable or unwilling to give informed consent to participate, or had severe cognitive impairment or a mental health condition.

Sampling

All individual parents/caregivers finally selected were invited to participate in the study on agreed-upon dates. That is, a census sampling method was used to recruit 107 parents/ caregivers of children with disabilities. A census is suitable when the total population is small and manageable, and every individual must be included for accuracy or policy reasons. Census sampling eliminates sampling error altogether, ensuring full representation.[18]

Data Collection and Sampling Procedure

Data Collection Tool and Pilot Study

Data was collected through a questionnaire adapted from Measure of Process of Care (MPOC-20). The MPOC-20 is a standard tool that was developed by the CanChild Centre for Child Disability Research.[19] This questionnaire is used to assess the quality of services for FCC from the perspectives of parents of children with disabilities. The MPOC-20 has five domains which include: enabling and partnership, providing general information, providing specific information about the child, coordinated and comprehensive care, and respectful and supportive care. The questionnaire has two parts, one asking about demographic information and the other has 20 items of the MPOC-20. Additional questions on the demographics of participants were included to meet the study objectives. The questionnaire included information about the child (gender, age, child diagnosis, number of months of rehabilitation, and frequency of receiving Rehabilitation Services). In addition, the questionnaire gathered the caregivers' information that included age, relationship with the child, employment status, marital status and educational level. All response options were recorded, ranging from 1 ('never') to 7 ('to a very great extent').[19] The questionnaire was translated into Kinyarwanda to ensure that caregivers who did not understand English were also able to participate in the study. The translation was performed using a forward-backward translation method to ensure that the final version reflected the original content of the questionnaire.

A pilot study was conducted prior to the main data collection to evaluate participants' understanding of the questionnaire and to ensure that it effectively captured the intended information. The estimated time to complete the questionnaire was between 15 to 20 minutes. Eight participants from HVP Gatagara Gikondo took part in the pilot study; however, they were excluded from the main study. Additionally, Cronbach's alpha reliability analysis for the MPOC-20 domains was conducted in the pilot study to assess internal consistency in measuring care processes. The average inter-item covariance was 0.84, and with 20 items on the scale, the reliability coefficient was 0.85, indicating strong internal consistency in measuring care processes.

Data Collection

The researchers approached the participants, introduced themselves, and provided a brief explanation of the study's significance. Participants who met the inclusion criteria provided written informed consent. The researchers explained the benefits of the study, ensuring participants that no harm would result from their involvement. It was also clarified that participants' names would not be collected to guarantee anonymity. Additionally, participants were informed of their right to withdraw from the study at any time and were assured that doing so would not affect the services they received. Questionnaires were self-administered, and participants who were unable to read or write were assisted by trained researchers.

Outcome Measure

The MPOC-20 includes 20 items grouped into five key domains. Each item is rated on a 7-point Likert scale (1 = not at all, 7 = to a very great extent), with higher scores indicating greater alignment with FCC principles. The domains reflect core components of FCC in paediatric rehabilitation settings (Table 1).

Table 1. Domains of the Measure of Processes of Care (MPOC-20)

Domain	Description	Number of Items
Enabling and Partnership	The extent to which service providers involve parents in decision-making and support their role in care.	5
Providing General Information	The extent to which parents receive general information that is useful for understanding services and systems.	5
Providing Specific Information about the Child	How well service providers share information specific to the child's condition and care needs.	3
Coordinated and Comprehensive Care	The degree to which care is well organized and integrated across providers.	4
Respectful and Supportive Care	How respectful, understanding, and supportive the service providers are towards families.	3

Data Analysis

Univariate analysis was used to generate descriptive statistics. In this study, the IQR was calculated solely for continuous variables which were age and number of siblings. Additionally, categorical variables which included sex, child's diagnosis, rehabilitation institution, frequency of rehabilitation services, caregiver's marital status, employment status, level of education, and relationship with the child were summarized using frequencies and percentages. Normality was evaluated using the Shapiro-Wilk test and Q-Q plots, Due to non-normal distribution of MPOC scores across some groups, non-parametric tests, the Wilcoxon rank-sum and Kruskal-Wallis tests were used to assess differences in median MPOC scores across the socio-demographic factors. Prior to constructing the multiple linear regression model, diagnostic tests were performed. Linearity and specification errors were assessed using the Ramsey RESET test, while homoscedasticity was evaluated using the Breusch–Pagan/Cook–Weisberg test and residuals versus fitted values plots.

Stepwise regression with a cut-off P value of <0.25 was employed to select variables for the multiple linear regression model. Multicollinearity was checked using the Variance Inflation Factor test (VIF), which showed VIF values below 10, with a mean of 2.47. Tolerance values were above 0.1, with an average of 0.59, indicating no multicollinearity. Multivariable linear regression was conducted to assess the association between covariates and MPOC scores. Variables with P values <0.05 were considered statistically significant. Model fit was evaluated using Akaike's Information Criterion (AIC). All analysis was conducted using Stata version 15.

Ethical Considerations

Ethical clearance was obtained from UR-CMHS Institutional Review Board (CMHS/IRB/516/2023), and authorization was granted by the respective institutions to conduct the study among caregivers of Children with disabilities seeking rehabilitation services, as well as their rehabilitation service providers. The study adhered to the ethical principles outlined in the Declaration of Helsinki on medical research involving human subjects.[20] All participants gave informed written consent.

Results

Socio-Demographic Characteristics

One hundred and seven (107) parents/caregivers participated in the study. The median age of respondents was 36 years (IQR: 30–43), with the majority being female. Most were part-time employees, a third were unemployed with majority having primary education while a quarter were illiterate. The median age of the children was 6 years (IQR: 3–10) with most of them being male with cerebral palsy and physical disabilities. The median duration of rehabilitation was 10 months (IQR: 4–28) (Table 2).

Table 2. Socio-Demographic Characteristics (N=107)

Characteristic	Categories	Frequency, n (%)
Age (years)	Median(IQR)	36(30,43)
Child Age (years)	Median(IQR)	6(3, 10)
Rehabilitation months	Median(IQR)	10(4, 28)
Child Sex	Female	51 (47.7)
	Male	56 (52.3)
Caregivers' Sex	Female	96 (88.8)
	Male	11 (11.2)
No. of siblings	None	21 (19.6)
	1-3	60 (56.1)
	>3	26 (24.3)
Relationship with child	Mother	82 (76.6)
	Relative	11 (10.3)
	Caregiver	2 (1.9)
	Father	12 (11.2)
Marital status	Married	75 (70.1)
	Not in Union**	32 (29.9)
Employment status	Part time	41 (38.3)
	Unemployed	32 (29.9)
	Full time	3 (2.8)
	Self employed	31 (29.0)
Level of education	Illiterate	20 (18.7)
	Primary	56 (52.3)
	Technical education	1 (0.9)
	Bachelor's	4 (3.7)
	Adult Basic Education	13 (12.2)
	Secondary	13 (12.2)
Child diagnosis	Autism	3 (2.8)
	Cerebral palsy	48 (44.9)
	Developmental delay	2 (1.9)
	Down syndrome	5 (4.7)
	Other	1 (0.9)
	Physical disability	48 (44.9)
Name of institution	Chance for childhood	42 (39.3)
	HVP Gatagara Gikondo	15 (14.0)
	Love with Actions	18 (16.8)
	Gahini Hospital	32 (29.9)
Frequency of Rehabilitation services	Once a month	13 (12.2)
	Once a week	45 (42.1)
	Twice a month	7 (6.5)
	Twice a week	23 (21.5)
	Thrice a week	6 (5.6)
	five times a week	13 (12.2)

Key: **Not in Union includes, single, widowed, divorced and separated

Measure of Processes of Care Median Scores for Family-Centred Care

As presented in Table 3, statistically significant differences in MPOC median scores were observed across child sex, employment status of caregivers, name of institution, and frequency of rehabilitation services ($p < 0.05$). Specifically, caregivers of female children, unemployed caregivers, and those whose children received services at specific institutions or attended rehabilitation more frequently reported higher scores. No statistically significant differences were found based on caregiver sex, relationship to the child, marital status, number of siblings, level of education, or child diagnosis.

Table 3. Measure of Processes of Care (MPOC) Median Scores for Family-Centred Care

Characteristic	Categories	MPOC Median Score median(IQR)	*P* Value
Child Sex	Female	4.9(4.4, 5.1)	0.025*
	Male	4.4(3.7, 5.0)	
Sex	Female	4.6(3.8, 5.1)	0.08
	Male	5.0(4.5, 5.5)	
Relationship with child	Mother	4.6(3.9, 5.1)	0.274
	Relative	4.4(3.6, 5.1)	
	Caregiver	4.5(4.4, 4.6)	
	Father	5.0(4.5, 5.5)	
Marital status	Married	4.7(4.1, 5.1)	0.765
	Not in Union**	4.5(3.8, 5.1)	
No. of siblings	None	4.4(3.8, 4.9)	0.715
	01-Mar	4.7(3.8, 5.1)	
	>3	4.6(4.4, 5.1)	
Employment status	Part time	4.4(3.1, 5.0)	0.01
	Unemployed	4.9(4.4, 5.1)	
	Full time	4.5(3.8, 5.1)	
	Self employed	4.8(4.3, 5.4)	
Level of education	Illiterate	4.4(4.2, 5.2)	0.147
	Primary	4.6(3.6, 5.1)	
	Technical education	5.5(5.5, 5.5)	
	Bachelor's	5.3(5.0, 5.9)	
	Adult Basic Education	4.6(4.1, 5.1)	
	Secondary	4.7(4.3, 5.0)	
Child diagnosis	Autism	3.2(2.9, 5.1)	0.135
	Cerebral palsy	4.5(3.7, 5.1)	
	Developmental delay	3.7(3.1, 4.3)	
	Down syndrome	5.1(5.0, 5.5)	
	Other	3.9(3.9, 3.9)	
	Physical disability	4.7(4.2, 5.1)	
Name of institution	Rehab institution A	3.9(3.1, 4.7)	0.001*
	Rehab institution B	4.9(4.4, 5.4)	
	Rehab institution C	5.1(5.0, 5.2)	
	Rehab institution D	4.7(4.3, 5.1)	
Frequency of Rehabilitation services	Once a month	4.4(3.3, 4.7)	0.001*
	Once a week	4.5(3.6, 4.8)	
	Twice a month	4.0(3.1, 4.4)	
	Twice a week	5.1(4.9, 5.4)	
	Thrice a week	5.1(4.5, 5.6)	
	Five times a week	4.8(4.4, 5.3)	

Key: * p<0.05, IQR: Interquartile Range; **Not in Union includes, single, widowed, divorced and separated

Factors Associated With the Use of Family-Centred Care

Several factors significantly influenced the use of family-centred care in pediatric rehabilitation settings. Specifically, children diagnosed with Down syndrome and families with more than three children reported significantly greater use of FCC. Furthermore, attendance at Rehab Institutions B, C, and D was significantly associated with higher FCC scores compared to Institution A. Self-employment among caregivers also showed a significant positive relationship with FCC use. In contrast, parental education level and having a male child were linked to significantly lower FCC scores compared to female children (Table 4).

Table 4. Multiple linear regressions for determinants of the use of family-centred care

Characteristic	Coefficient	Std. Err.	P>t	[95% CI]
Child Diagnosis				
Autism	Reference			
Cerebral palsy	3.18	2.93	0.205	(-2.63, 4.32)
Developmental disability	-2.25	3.37	0.77	(-4.45, 4.00)
Down syndrome	4.56	3.11	**	(3.23, 5.36)
Other	3.66	3.57	0.289	(-3.45, 5.14)
Physical disability	3.32	2.92	0.155	(-2.41, 4.37)
Siblings				
None	Reference			
01-Mar	2.36	2.23	0.253	(-2.12, 3.28)
>3	2.92	2.36	*	(1.18, 3.67)
Child Sex				
Female	Reference			
Male	-2.78	2	**	(-3.36, -1.74)
Name of Institution				
Rehab institution A	Reference			
Rehab institution B	3.31	2.34	**	(2.13, 3.95)
Rehab institution C	3.9	2.27	***	(3.31, 4.35)
Rehab institution D	3.02	2.15	**	(1.94, 3.64)
Education				
Illiterate	Reference			
Primary	-1.83	2.16	0.565	(-2.98, 2.66)
Technical education	3.96	3.47	0.135	(-2.73, 5.22)
Bachelor's	3.51	2.84	0.062	(-1.30, 4.46)
Adult Basic Education	1.06	2.5	0.977	(-3.10, 3.19)
Secondary	2	2.48	0.614	(-2.87, 3.37)
Employment Status				
Part time	Reference			
Unemployed	2.71	2.21	0.062	(-1.00, 3.44)
Full-time	2.56	3.14	0.515	(-3.23, 4.05)
Self-employed	3.08	2.17	**	(2.02, 3.66)

Key: * p<0.05, **p<0.01, ***p<0.001

Discussion

Family-centred care emphasizes collaboration between healthcare professionals and families in making decisions and ensuring the well-being of the child. This study is the first to evaluate the level of FCC use in paediatric rehabilitation services in Rwanda. The study results show that significant factors influencing FCC use included Down Syndrome child diagnosis, having more than three siblings, child male sex (negative), institution of rehabilitation, and parental self-employment status. However, caregivers' education levels were not found to have a statistically significant impact on the utilization of FCC in these settings.

Institutional factors played a key role, with significant differences in MPOC scores across centres, with Rehabilitation Institutions B, C and D reporting higher scores, suggesting more effective family-centred practices. Conversely, "Rehabilitation institution A" exhibited lower scores, possibly due to resource limitations and overburdening. This finding aligns with other studies that highlight a shortage of professionals in rehabilitation services and barriers to the implementation of FCC at a policy level. [21,22] Training healthcare professionals in FCC principles and increasing human resources are critical steps for improving FCC in paediatric rehabilitation settings in Rwanda.

The effective implementation of Family-Centred Care (FCC) depends on sufficient resources and trained professionals. However, challenges arise in settings like Rehabilitation Institution A, where one rehabilitation service provider is responsible for 70 sites, each serving multiple children with disabilities. This reflects broader issues reported in the literature, highlighting a shortage of rehabilitation professionals within overstretched public healthcare systems.[21,22] The significant variation in MPOC scores between rehabilitation centres points to inconsistencies in the application of family-centred care (FCC) across paediatric rehabilitation settings. This finding aligns with previous research identifying policy-level barriers that hinder the effective implementation of FCC. [3,22] Additionally, research shows that healthcare professionals often lack formal training in family-centred care (FCC) principles,[23] a challenge also evident in Rwandan rehabilitation services. These insights highlight the urgent need to increase staffing, establish or enforce FCC policies, and provide targeted training to enhance FCC implementation in paediatric rehabilitation settings.

The study found that children with certain diagnoses, notably Down syndrome, were associated with higher family-centred care (FCC) scores, suggesting that parents of these children may perceive greater family-centredness, potentially influenced by differences in condition prognosis. This underscores the importance of tailored parent education, counseling, and the integration of FCC within paediatric rehabilitation. Notably, there is a lack of existing research on how specific diagnoses impact FCC utilization, highlighting a clear need for further studies in this area.

The study also found that children who attended rehabilitation services more frequently had higher MPOC scores. Increased service use may foster stronger relationships between parents and healthcare providers, promoting trust and open communication-core elements of family-centred care.[24-26] Rehabilitation settings offer valuable opportunities for building relationships between families and providers. Increased time in these services also facilitates interaction among parents facing similar challenges, fostering a sense of community and peer support. [27] As parents gain a better understanding of their child's needs and abilities, they tend to participate more actively in family-centred care decisions. Enhancing parental involvement can lead to improved rehabilitation outcomes, shorter treatment durations, and lower travel and related costs.

Ultimately, this approach could enhance the well-being of children with disabilities, reduce financial and time burdens, and increase family commitment and satisfaction with paediatric rehabilitation.

The findings of this study revealed that male children are less likely to receive FCC compared to females, which may reflect underlying gender biases in healthcare provision or differences in parental expectations and advocacy behaviours based on the child's gender. This is different from the results of a study conducted in Saudi Arabia which indicated that parents of female children were less likely to receive FCC.[5] Interestingly, other studies did not identify child sex as a determinant of FCC.[2,7] Cultural uniqueness might explain our findings. People from Arabic cultures often exhibit over-protectionism towards female children and this may result in increased attention to their needs.[5] Further research is necessary to better understand these findings.

The study found that families with more than three siblings were more likely to use family-centred care (FCC) services. This suggests that larger families may be better at navigating healthcare systems or have stronger support networks, which helps them engage more effectively with FCC. These results are consistent with previous research, including a 2024 review, which emphasized the importance of family structure, social support, and cohesion in accessing healthcare—especially in family-centred care model.[28] This finding is further supported by qualitative evidence highlighting the pivotal role of siblings in caregiving dynamics. A study conducted in Zimbabwe emphasized sibling involvement as a key element in home-based rehabilitation, particularly within play-based therapy. Their participation was shown to enhance family coping mechanisms and alleviate the caregiving burden typically placed on mothers, thereby reinforcing the value of family-centred approaches.[29] Conversely, smaller families may encounter challenges in accessing FCC services due to limited support networks and less familiarity with healthcare systems. To promote equitable access, FCC providers should consider these disparities and adapt services accordingly. Future research is needed to investigate how family size impacts FCC utilization and to develop targeted strategies that support families across different structures.

Employment status also emerged as a significant factor, with self-employed parents reporting higher levels of FCC engagement compared to those in part-time employment. This may reflect the increased flexibility and autonomy associated with self-employment, allowing for more active participation in their child's care. These findings are consistent with research from Italy, which similarly identified parental employment status as an influencing factor in FCC utilization.[6] Part-time employment may contribute to financial strain, limiting parents' ability to fully engage in FCC. Economic pressures can lead families to prioritize income generation over healthcare involvement and may restrict access to essential resources such as insurance, transportation, and medications. This financial insecurity can also heighten stress and anxiety among parents of children with disabilities, further impacting their capacity to participate in care.[3,30] Addressing the barriers faced by part-time employed parents requires healthcare providers to consider their financial and time constraints. Strategies such as flexible scheduling, financial support programs, and effective communication can enhance parental engagement in FCC. Furthermore, community-based resources, including caregiver support groups, may help reduce financial stress and improve healthcare access for families facing employment-related challenges.[30]

Strengths and Limitations of the Study

The strengths of this study is its inclusion of diverse rehabilitation settings, encompassing both public hospitals and

non-governmental organizations (NGOs). This allowed for a comprehensive overview of different service delivery models, enhancing the generalizability of the findings. In addition, the inclusion of both urban and rural settings enabled comparative analysis, helping to identify potential disparities or unique challenges in FCC practices across different geographic areas.

The limitation of this study is the reliance on information provided by caregivers, including details about the child's impairments. These parent-reported impairments might differ from those documented in the child's medical records.

Conclusion

This research sought to explore the integration of family-centred care into paediatric rehabilitation practices in Rwanda, addressing the existing research gap due to the absence of prior published studies on this topic in the Rwandan context. In this study, statistically significant predictors of FCC usage in pediatric rehabilitation included Down syndrome diagnosis, having more than three siblings, institutional attendance differences, male child sex (negative), and caregiver self-employment. Understanding these factors can guide the development of targeted strategies, such as caregiver education programs, tailored communication approaches based on diagnosis and gender, staff training to standardize FCC practices across institutions, and flexible service models to accommodate caregiver employment needs. These interventions can enhance the delivery of FCC and improve health outcomes for children with disabilities.

Areas for further research

Several recommended pertinent avenues for further investigation have been carefully framed to align with the context of paediatric rehabilitation in Rwanda and are intended to guide future studies that aim to strengthen FCC delivery and outcomes as stated below.

- Future research should be conducted to explore specific barriers and enablers to implementing Family-Centered Care (FCC) in paediatric rehabilitation across Rwanda.
- Conducting in-depth qualitative studies involving families/caregivers to gain a deeper understanding of their lived experiences (barriers and facilitators to FCC use), expectations, and satisfaction with current FCC practices.
- Assessing the impact of structured FCC training programs on healthcare providers' clinical practices and levels of family engagement, to inform future policy and educational curricula.
- Comparative studies between urban and rural, as well as public and private rehabilitation facilities, to identify potential disparities and inform strategies for more equitable FCC implementation.
- Longitudinal research to evaluate the sustained impact of FCC on children's health, developmental progress, and psychosocial well-being over time.

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Conflicts of interest

The authors declare no conflicts of interest for this study.

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