Original Article

Assessing the Knowledge and Utilization of the International Classification of Functioning, Disability, and Health (ICF) among Pediatric Physiotherapists: A Questionnaire Based Cross-Sectional Study

[1]Rifana Fakrudheen, [2]Priyanka Amit Kumar, [3]Sachin K Venu

[1]MPT Student, Yenepoya School of Allied Sciences and Health Professions, Yenepoya (Deemed to be University), [2]Assistant Professor, Yenepoya School of Allied Sciences and Health Professions, Yenepoya (Deemed to be University), [3]MPT Student, Yenepoya School of Allied sciences and Health Professions, Yenepoya (Deemed to be University)

How to cite this article: Rifana Fakrudheen, Priyanka Amit Kumar, Sachin K Venu. Assessing the Knowledge and Utilization of the International Classification of Functioning, Disability, and Health (ICF) among Pediatric Physiotherapists: A Questionnaire Based Cross-Sectional Study. Indian Journal of Physiotherapy and Occupational Therapy / Vol 20 No. 2, April - June 2026

Abstract

Background: The International Classification of Functioning, Disability and Health (ICF), developed by WHO, offers a standardized, biopsychosocial framework to assess health and functioning. Its Pediatric version International Classification of Functioning, Disability and Health for Children and Youth (ICF-CY), addresses developmental aspects specific to children. Although it aids clinical decision-making and outcome evaluation in pediatric physiotherapy, its integration into routine clinical practice is still not widespread.This limited adoption may be due to factors such as lack of awareness, training, and perceived complexity in applying the framework in everyday practice.The objective the study is to assess the level of knowledge and utilization of the International Classification of Functioning, Disability, and Health (ICF) among pediatric physiotherapists.

Methods: A cross-sectional study was conducted among 95 pediatric physiotherapists practicing in Bangalore, Karnataka. Participants were selected based on inclusion criteria using purposive sampling. A structured questionnaire was used to assess knowledge and utilization of the ICF.

Conclusion: Among 95 pediatric physiotherapists surveyed, 55.8% demonstrated average knowledge of the ICF, 27.4% had good knowledge, and 16.8% showed below average knowledge. The study highlights the pediatric physiotherapists have average knowledge of the ICF, with limited good understanding and a notable portion showing below average knowledge. These findings emphasize the need for enhanced training to improve ICF use in clinical practice and support better patient outcomes.

Keywords: ICF, International Classification of Functioning, Disability and Health, Physiotherapy, Pediatric Physiotherapy, Knowledge.

Corresponding Author: Priyanka Amit Kumar, Assistant Professor, Yenepoya School of Allied sciences and Health Professions, Yenepoya (Deemed to be University)

E-mail: banghla.priyanka@gmail.com

Submission: Aug 11, 2025 **Revision:** September 18, 2025 **Published date:** April 3 , 2026

Introduction

The International Classification of Functioning, Disability and Health describes people's and communities' health and health-related conditions in a consistent and standardized manner[1]. In May 2001 the World Health Assembly accepted International Classification of Functioning, Disability and Health (ICF) as a component of World Health Organization (WHO) international classification[2]. ICF is a multidimensional model that can be used for all individual despite of their health conditions[3].

One of the primary objectives of the ICF is to make study results comparable at the national and international levels by using numerical codes as a common language for healthcare professionals to explain how people with a health condition function. There are 1495 numeric codes in the ICF. The extensive scope of ICF has led to the development of so-called core sets. Core sets are of two types; comprehensive core sets and brief core sets[3].

The ICF gives detailed classifications of disability and ability in the areas of body functions, body structures, activities, participation and environmental factors. Aspects of functioning for each of these elements are explained in a hierarchical category with four levels of increasing detail and also, they are denoted by unique alphanumeric codes[4]. Body structures represent anatomical parts and organs of the body, whereas body functions reflect physiological functions of the human body. Activities are tasks that a person performs on their own. Participation is the practice of individual getting involved in various aspects of life including their jobs, hobbies, families, communities and studies. Environmental factors include the physical, psychological and social environments in which an individual lives or performs their activities. Personal factors refer to the way an individual experiences a specific health condition[5].

The International Classification of functioning, disability and health- children and youth (ICF-CY) version, is an expanded version of ICF that places a special focus on the behavioural, educational and developmental aspects of children and youth[6]. With the help of the ICF-CY version, children's environments and functions can be explored and documented in innovative ways[7]. Both ICF and ICF-CY are universal in that they can be used to characterize functioning of all people, not only those with disabilities[7]. Documenting children's participation in daily life is the primary goal of the ICF-CY classification[7].

The ICF has been more used to classify outcomes for various pediatric disorders[8]. The ICF can help families and healthcare professionals have an explanation about different objectives in pediatrics rehabilitation which can help them understand priorities[9]. Relationships between impairments in body functions and structures, activities, participation, and environmental factors are essential for understanding the health and development of those with cerebral palsy throughout their lives[10]. Using ICF framework, gives a uniquely broad overview of the preschool motor functioning of children born very preterm. A greater number of pediatric disorders, such as, cerebral palsy, developmental coordination disorder, congenital hemiplegia and traumatic brain injury are having their outcomes categorized using the ICF[8]. Also, the crutches and ankle-foot orthoses' impact in improving gait and walking results at ICF body functions and structures level[11].

As the integrated model proposed by the ICF includes equally essential biological, social and individual view-points that may prevent the progress of health or disease, the ICF-classified data can help health professionals in clinical practice in thinking clinically and making decisions[1]. The ICF highlights the need for many health care professionals and serve as an ideal model for approaching health and healthcare. As a result, it motivates healthcare professionals to think about the health concerns that support their area of expertise. In this way, by providing a universal language and framework for health and functioning, the ICF facilitates better communication among healthcare professionals during patient assessment[5]. This study aims to evaluate how well pediatric physiotherapists understand and use the International Classification

of Functioning, Disability, and Health (ICF). By identifying gaps in knowledge and application, it seeks to improve the quality of care for children. The findings can inform.

Material and Methods

Study Design: Cross-sectional study

Study Setting: Physiotherapist working at various clinics atBangalore

Source of Data: Bangalore

Inclusion Criteria

- Physiotherapists currently working with children.
- Physiotherapists those who were practicing in Bangalore.

Exclusion Criteria

- Physiotherapists with less than one year of experience in pediatrics.

Sampling Method: Purposive sampling

Sample Size: 95 paediatric physiotherapists

Materials: Questionnaire

Method of Data Collection:

After obtaining SRB approval and Ethical clearance, all procedures performed in studies involving human participants were in accordance with the ethical standards of the institutional and/ or national research committee and with the 1964 Helsinki Declaration and its later amendments or comparable ethical standards participants who fulfil the eligibility criteria were included in the study, the study was conducted among pediatric physiotherapists in and around Bangalore, Karnataka. The participant is selected by purposive sampling method. 162 participants were approached and screened directly in person. In which, 95 participants were selected who met the inclusion criteria. The study was explained to the participant through the participant information sheet, it was given and signature was obtained with the informed consent of the participants for their voluntary participation by the principal investigator. Later the participants were given a questionnaire for assessing the knowledge and utilization of International Classification of Functioning, Disability and Health (ICF) among pediatric physiotherapists. The questionnaire consists of three sections with total 16 questions. Approximately 10-15 minutes were required to answer the questions. In case, the participant doesn't understand any question, the principal investigator explained the questions. The questionnaire was given to the participant only when they are free and available so as not to disrupt their clinical time and other daily activities. The data was collected within three months. All the data was collected anonymously to protect the participants privacy. After completion, the questionnaires and informed consent was handed back to the researcher. The participant was commended and thanked for their time, Following the data collection statistical analysis was conducted. Interpretation of data was done. After analysing, the data was interpreted and the final report was prepared.

Statistical Analysis

Data collected through the questionnaire were analysed using **jamovi version 2.6.26**. Descriptive statistics were computed to summarize participants' demographic characteristics, as well as their levels of knowledge and utilization of the International Classification of Functioning, Disability, and Health (ICF). Measures of central tendency (mean, median) and dispersion (standard deviation, interquartile range) were used for continuous variables, while frequencies and percentages were reported for categorical variables.

Results

A total of 95 pediatric physiotherapists participated in the study. The majority were female (65.30%), and the highest level of education reported was a bachelor's degree who practice in pediatric clinical setups, which accounted for 82.10% of the respondents. Most participants reported practicing primarily in clinical settings (57.90%), indicating that the ICF framework

is being considered within routine clinical care. The demographic characteristics shown in Table. 1. Participants' knowledge of the International Classification of Functioning, Disability, and Health (ICF) was assessed through a questionnaire designed to evaluate their understanding of key concepts and practical applications related to pediatric physiotherapy. The questions covered fundamental aspects such as the meaning of the acronym, components of the ICF, relevant screening tools for gross motor skills, outcome measures specific to pediatric conditions like cerebral palsy, and ICF-based intervention strategies. Table 2. summarizes the frequency and percentage of correct and incorrect responses for each question.

Table 1. Demographic characteristics and percentages of total

Demographic characteristics	Counts	% of Total	Cumulative %
Gender			
FEMALE	62	65.30%	65.30%
MALE	33	34.70%	100.00%
Frequencies of Highest degree			
Master's Degree	16	16.80%	16.80%
Bachelor's Degree	78	82.10%	98.90%
Doctoral degree	1	1.10%	100.00%
Frequencies of Where do you act professionally			
Clinics	55	57.90%	57.90%
Hospital	36	37.90%	95.80%
Patient's house	2	2.10%	97.90%
University or college	2	2.10%	100.00%
Frequencies of How long have you been working in pediatric clinical setups?			
More than 4 years	12	12.60%	12.60%
2 years	37	38.90%	51.60%
1 year	44	46.30%	97.90%
3 years	2	2.10%	100.00%
Frequencies of Do you know ICF?			
Yes	80	84.20%	84.20%
No	15	15.80%	100.00%
Frequencies of When was your first contact with the ICF?			
Clinical Practice	28	29.50%	29.50%
Graduation	44	46.30%	75.80%
Masters or Doctorate	6	6.30%	82.10%
Never	17	17.90%	100.00%

Continue....

Frequencies of In which area, do you use ICF?			
Clinic	60	63.20%	63.20%
Research	11	11.60%	74.70%
I do not use	24	25.30%	100.00%
Frequencies of How important do you think it is to use ICF-based outcome measure			
Very important	64	67.40%	67.40%
Somewhat important	26	27.40%	94.70%
Not very important	5	5.30%	100.00%
Questions		**Counts**	**% of Total**
Q1. What is the meaning of the acronym "ICF"?			
Correct answer		90	94.70%
Wrong answer		5	5.30%
Q2. Among the options below, which is not a component of International Classification of Functioning, Disability and Health (ICF)?			
Correct answer		52	54.70%
Wrong answer		43	45.30%
Q3. What screening tool would you use to assess the gross motor skills of a pediatric patient, specifically, to evaluate their ability to perform physical activities such as running, jumping, and balancing?			
Correct answer		68	71.60%
Wrong answer		27	28.40%
Q4. Which of the following outcome measures assesses gross motor function in children with cerebral palsy, based on the International Classification of Functioning, Disability and Health component of Activities?			
Correct answer		70	73.70%
Wrong answer		25	26.30%
Q5. A pediatric physiotherapist is working with a child who has difficulty with self-care activities due to limited upper limb function. What International Classification of Functioning, Disability and Health -based intervention would be most appropriate?			
Correct answer		49	51.60%
Wrong answer		46	48.40%
Q6. Which International Classification of Functioning, Disability and Health (ICF) component addresses the child's ability to perform daily activities, such as dressing and feeding?			
Correct answer		67	70.50%
Wrong answer		28	29.50%

Table 2. Frequency and percentage of correct and incorrect responses for each question.

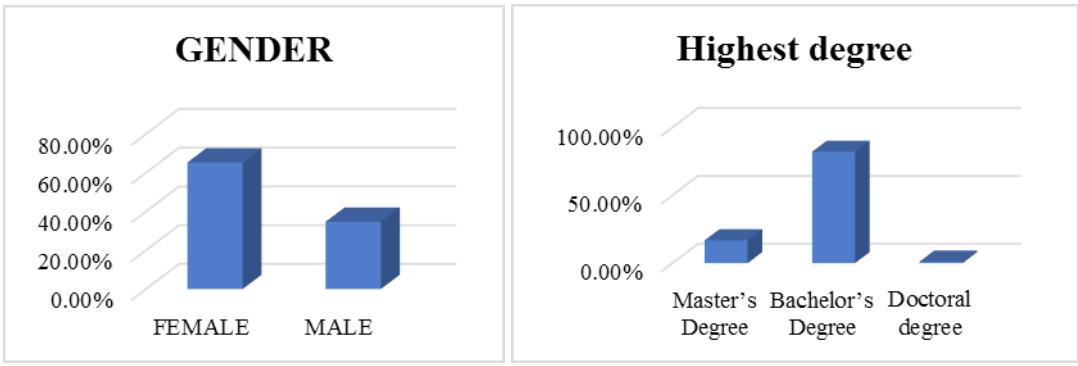

Figure 1: Frequencies of gender and highest degree

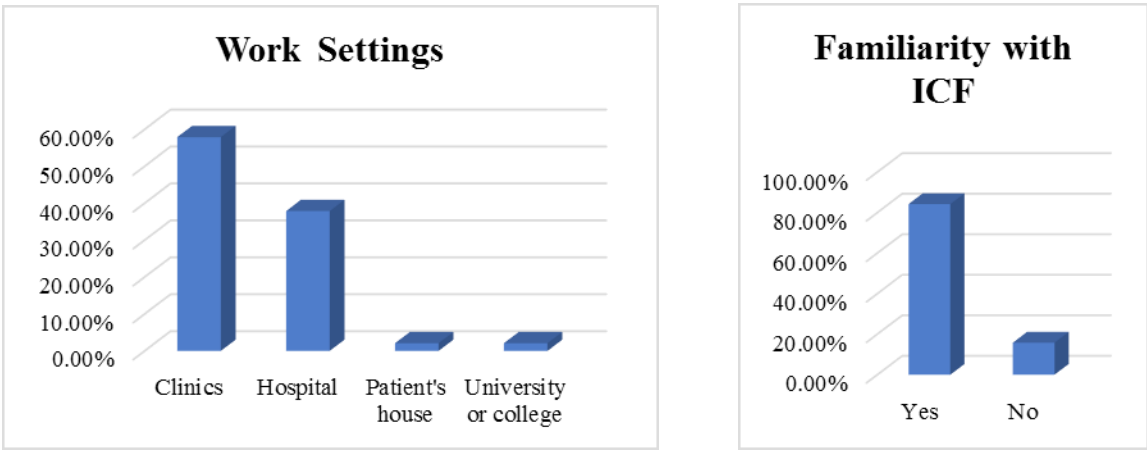

Figure 2: Frequencies of work setting and familiarity with ICF

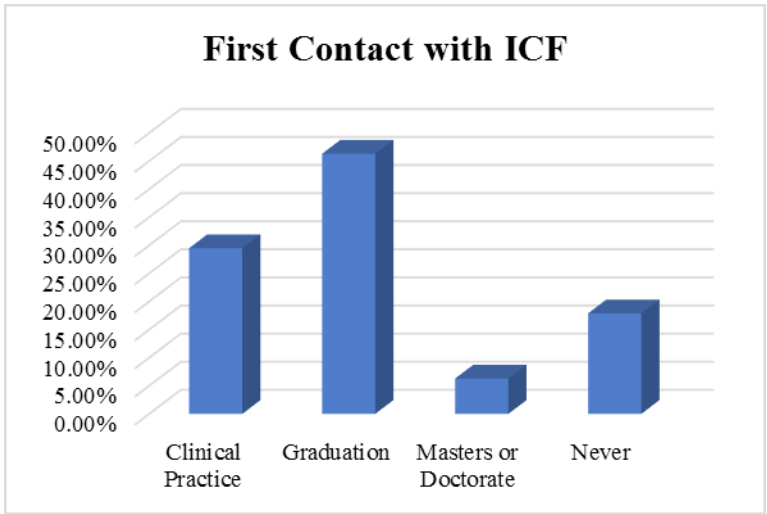

Figure 3. Frequencies of First Contact with ICF

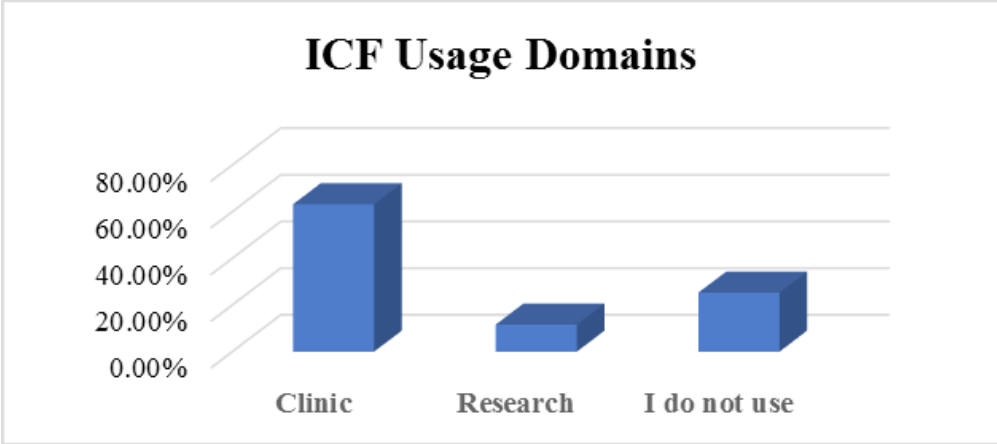

Figure 4: Frequencies of ICF Usage Domains

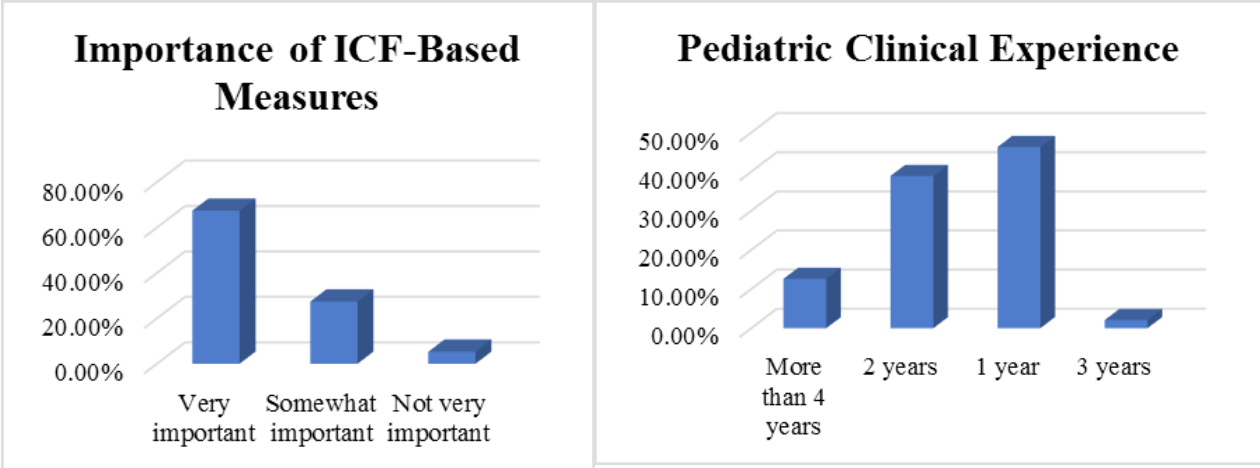

Figure 5: Frequencies of Importance of ICF-Based Measures and Pediatric Clinical Experience

The overall knowledge of the International Classification of Functioning, Disability, and Health (ICF) among pediatric physiotherapists was categorized into three levels: below average, average, and good knowledge. As shown in figure 8, the majority of participants (55.8%) demonstrated average knowledge of the ICF framework. Approximately 27.4% of respondents showed good knowledge, indicating a strong understanding of the concepts and applications of ICF in pediatric physiotherapy. Meanwhile, 16.8% of participants were classified as having below average knowledge.

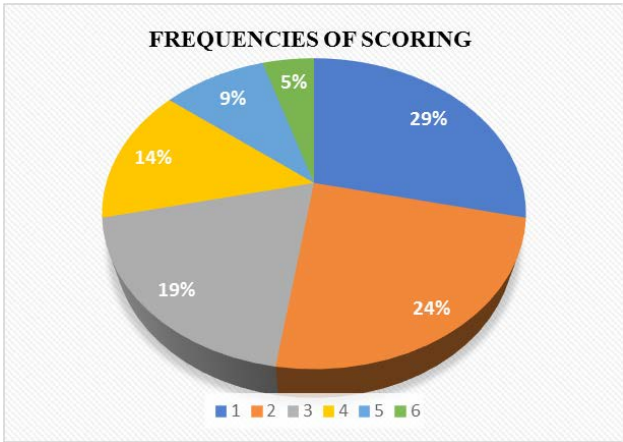

Figure 6: Frequencies of scoring

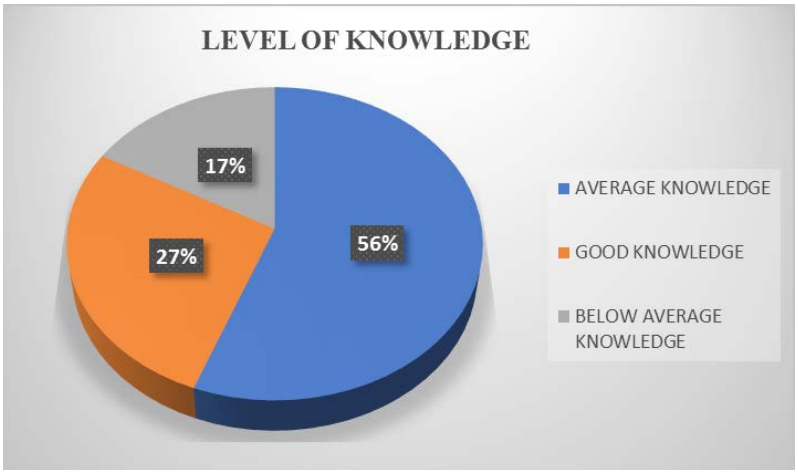

Figure 7: Level of Knowledge

Measures of central tendency (mean, median) and dispersion (standard deviation, interquartile range) are shown in table 3.

Table 3. Measure of central tendency and dispersion

Central Tendency and Dispersion	Q1	Q2	Q3	Q4	Q5	Q6	Scoring
Mean	0.947	0.547	0.284	0.737	0.484	0.705	3.71
Median	1	1	0	1	0	1	4
Standard deviation	0.224	0.5	0.453	0.443	0.502	0.458	1.29
IQR	0	1	1	1	1	1	2

Discussion

Using a questionnaire based cross-sectional study, this study is among the first to examine pediatric physiotherapists' knowledge and utilization of the international classification of Functioning, Disability and health (ICF). The ICF is still largely underutilized in clinical practice, although it has been recognized and recommended by national and international organizations including the world health organization (WHO) and professional regulatory bodies[12]. The gap was evident in our results, which indicate that while more than half of pediatric physiotherapists reported to be familiar with the ICF, but there is limited implementation of the tool into daily practice.

Although the ICF is designed to be a universal framework for health and disability, it is relevant across professions and sectors including health, education, insurance, and social policy—it is often incorrectly perceived as being the exclusive domain of rehabilitation professionals. In this study, we focused specifically pediatric physiotherapists because their work requires an extensive understanding of child development, functioning and disabilities. The ICF is therefore particularly relevant in this area. However, our findings indicate a gap between theoretical knowledge and practical application, consistent with findings from previous studies in other contexts[13,14].

Furthermore, over 84.20% of respondents stated that they were aware of the ICF and only 57.90%

reported using it in their clinical pediatric practice. This is in accordance with findings from other countries, including research from Canada and Israel, which similarly reported that high awareness but low practical implementation among rehabilitation professionals[13,14]. These results demonstrate that familiarity with the ICF does not always translate to application[14,15].

One important finding from this study is that many physiotherapists initially came inro touch with the ICF during their undergraduate studies, while others experienced it later on in their postgraduate studies. However, a sizable percentage reported no exposure to the ICF at all, especially those who finished their training prior to its international adoption in 2001. This suggests a persistent lack of training and education in ICF at the academic and professional development levels[16].

By itself, pediatric physical therapy requires an individualized, family-centred and developmental approach. By providing a common language and framework to direct assessment, goal setting, intervention planning and outcome evaluation, the biopsychosocial model promoted by the ICF could enhance these approaches[17]. The adoption of ICF framework has been limited by barriers like its complexity, lack of training, time constraints, and the perception that it is difficult in busy clinical settings. The medical model's continued dominance in many clinical and educational setting contributes to these challenges and may be a factor in difficulty or opposition to a more comprehensive biopsychosocial paradigm[18].

Our research also showed that 25.30% of physiotherapists do not use ICF, although believing it is feasible. The gap probably reflects structural problems as well as unfamiliarity, such as a lack of institutional support, inadequate continuing education, and absence of user-friendly tools to facilitate ICF coding and application in fast paced pediatric settings[19,20]. Therefore, initiates to make the ICF easier to implement, like targeted workshops, digital documentation tools, and mobile applications, may assist overcome this gap[20,21]. Furthermore, including the ICF more clearly into continuing professional development courses and undergraduate pediatric curricula might encourage both awareness and application[16,21].

The quality of care given to children is impacted by the non-utilization of the ICF because it limits a thorough understanding of the child's functional abilities, environmental barriers and social participation. The use of the ICF could improve interdisciplinary communication, guide individualized treatment planning, and strengthen pediatric physiotherapists' roles in educational and multidisciplinary settings. Additionally, it might support the cause of children with disabilities, particularly in areas like social services, education and inclusive policy making[13,21].

Conclusion

This study reveals that while the majority of pediatric physiotherapists possess an average level of knowledge regarding the International Classification of Functioning, Disability, and Health (ICF), only a limited proportion demonstrate good understanding of its concepts and clinical applications. The presence of a significant below average knowledge underscores the need for targeted educational programs and continuous professional development to enhance the effective utilization of the ICF framework in pediatric physiotherapy practice. Improving knowledge and competency in ICF is essential to promote comprehensive, standardized assessment and intervention, ultimately leading to better patient outcomes.

Limitations

A key limitation of this study is that it primarily measures self-reported knowledge and utilization of the ICF framework, which may not accurately reflect actual clinical practice or depth of understanding. Additionally, the study's cross-sectional design also restricts the ability to observe changes in knowledge or utilization over time.

Recommendations

- Based on the finding that a significant number of pediatric physiotherapists have average or below-average knowledge of the ICF, institutions and professional bodies should design targeted educational interventions and workshops, and integrate ICF training modules into Continuing Professional Development (CPD) requirements to improve understanding, ensure sustained learning, and enhance the practical application of the ICF framework in clinical practice.
- Advocate for healthcare facilities and rehabilitation centers to embed the ICF framework into patient documentation systems and care protocols to promote consistent use in clinical practice.
- Conduct follow-up studies to assess whether targeted interventions lead to improved knowledge and application of the ICF over time.
- Future studies should aim to include a larger and more diverse sample of pediatric physiotherapists across different regions and healthcare settings to enhance generalizability.

Funding Sources : None.

Ethical Clearance : The study was approved by the Yenepoya Ethics Committee – 1(YEC-1), Date: 24-10-2024, Approval No: YEC-1/2024/323.

Declaration of Conflicts of Interest: The authors declare no conflicts of interest.

References

1. Pernambuco AP, Lana RD, Polese JC. Knowledge and use of the ICF in clinical practice by physiotherapists and occupational therapists of Minas Gerais. Fisioterapia e Pesquisa. 2018 Jun;25(2):134-42.
2. Chaturvedi A. A survey of knowledge and use of ICF in clinical practice by physiotherapists in India. Ind J PhysiothOccupat Ther. 2017 Apr;11(2):84-91.
3. Karlsson E, Gustafsson J. Validation of the international classification of functioning, disability and health (ICF) core sets from 2001 to 2019–a scoping review. Disability and rehabilitation. 2022 Jul 3;44(14):3736-48.
4. Tofani M, Mustari M, Tiozzo E, Dall'Oglio I, Morelli D, Gawronski O, Salata M, Cantonetti L, Castelli E, Di Lallo D, Raponi M. The development of the International Classification of Functioning, Disability and Health for Child and Youth (ICF-CY) Core Sets: a systematic review. Disability and Rehabilitation. 2023 Nov 6;45(23):3951-60.
5. Sagahutu JB, Kagwiza J, Cilliers F, Jelsma J. The impact of a training programme incorporating the conceptual framework of the International Classification of Functioning (ICF) on knowledge and attitudes regarding interprofessional practice in Rwandan health professionals: a cluster randomized control trial. BMC Medical Education. 2021 Dec;21:1-3.
6. Park SD, Yi SH, Kim JS. Exploring the relationship between international classification of functioning, disability, and health items linked to clinical assessments in children with cerebral palsy. Physical Therapy Korea. 2021 Nov 20;28(4):245-50.
7. Mweshi MM. Use of the International classification of functioning, disability and health–children and youth (ICF-CY) in the management of children with disabilities. International Journal of Neurologic Physical Therapy. 2016;2(1):5-11.
8. FitzGerald TL, Kwong AK, Cheong JL, McGinley JL, Doyle LW, Spittle AJ. Body structure, function, activity, and participation in 3-to 6-year-old children born very preterm: an ICF-based systematic review and meta-analysis. Physical Therapy. 2018 Aug;98(8):691-704.
9. Nguyen L, Cross A, Rosenbaum P, Gorter JW. Use of the International Classification of Functioning, Disability and Health to support goal-setting practices in pediatric rehabilitation: a rapid review of the literature. Disability and rehabilitation. 2021 Mar 12;43(6):884-94.
10. Chagas PS, Magalhães ED, Sousa Junior RR, Romeros AC, Palisano RJ, Leite HR, Rosenbaum P. Development of children, adolescents, and young adults with cerebral palsy according to the ICF: A scoping review. Developmental Medicine & Child Neurology. 2023 Jun;65(6):745-53.
11. Ivanyi B, Schoenmakers M, van Veen N, Maathuis K, Nollet F, Nederhand M. The effects of orthoses, footwear, and walking aids on the walking ability of children and adolescents with spina bifida: A systematic review using International Classification of Functioning, Disability and Health for Children and Youth (ICF-CY) as a reference framework. Prosthetics and orthotics international. 2015 Dec;39(6):437-43.
12. World Health Organization. International Classification of Functioning, Disability and Health: ICF. Geneva: WHO; 2001.

13. Rosenbaum P, Stewart D. The World Health Organization International Classification of Functioning, Disability, and Health: a model to guide clinical thinking, practice and research in the field of cerebral palsy. InSeminars in pediatric neurology 2004 Mar 1 (Vol. 11, No. 1, pp. 5-10). WB Saunders.
14. Tal-Saban M, Zarka S, Gindes M, et al. Knowledge, perceived relevance and implementation of the International Classification of Functioning, Disability and Health (ICF) among Israeli occupational therapists. Disability and rehabilitation. 2017;39(23):2361–8.
15. Cerniauskaite M, Quintas RU, Boldt C, Raggi A, Cieza A, Bickenbach JE, Leonardi M. Systematic literature review on ICF from 2001 to 2009: its use, implementation and operationalisation. Disability and rehabilitation. 2011 Jan 1;33(4):281-309.
16. Swanson J, McIntyre LL, McLaughlin K. Training needs in the use of the ICF framework in pediatric physiotherapy education. Curr Pediatr Res. 2018;22(3):366–70.
17. Rosenbaum P, Gorter JW. The 'F-words' in childhood disability: I swear this is how we should think!. Child: care, health and development. 2012 Jul;38(4):457-63.
18. Alford V. The use of the ICF framework to contextualize functional recovery in stroke rehabilitation. Disabil Rehabil. 2008;30(16):1329–35.
19. Escorpizo R, Stucki G, Cieza A. Introduction to special issue: Application of the ICF in rehabilitation practice. Disabil Rehabil. 2013;35(11):935–6.
20. Jelsma J. Use of the International Classification of Functioning, Disability and Health: a literature survey. Journal of Rehabilitation Medicine. 2009;41(1):1-2.
21. Rauch A, Cieza A, Stucki G. How to apply the International Classification of Functioning, Disability and Health (ICF) for rehabilitation management in clinical practice. European journal of physical and rehabilitation medicine. 2008 Sep 1;44(3):329-42.