Functioning in individuals with physical disabilities - Content validity of a tool based on the ICF

Funcionalidade em indivíduos com deficiência física - Validade de conteúdo de um instrumento baseado na CIF

Juliana Leme Gomes [1,2*]
Lisa Carla Narumia [1]
Marcia Harumi Uema Ozu [1]
Uleida de Brito Lima Lopes [1]

[1] Associação de Assistência à Criança Deficiente (AACD), São Paulo, SP, Brazil
[2] Universidade de São Paulo (USP), São Paulo, SP, Brazil

Date of first submission: July 1, 2023
Last received: February 7, 2024
Accepted: July 18, 2024
Associate editor: Ana Paula Cunha Loureiro

***Correspondence:** juliana.leme.gomes@gmail.com

Abstract

Introduction: The International Classification of Functioning, Disability and Health (ICF) provides a unified framework and standardized language for describing health. It is encouraged to be used to monitor functional achievements throughout patients' therapeutic process. Physiotherapy should provide and examine care with appropriate standardized assessments. To address both needs, a tool based on the ICF codes and qualifiers was created to monitor the therapeutic process of patients with physical disabilities. **Objective:** To validate the content of a physiotherapeutic functional assessment tool for children and adults with physical disabilities based on ICF codes and qualifiers. **Methods:** A prospective cross-sectional content-validity study was performed. The instrument was sent to 30 physiotherapists specialized in the care of individuals with physical disabilities to be evaluated for its comprehensibility, relevance and applicability for adult and pediatric population. The content validity index (CVI) was used to determine the interrater agreement, and a minimum of 90% was considered acceptable. **Results:** At first, one item was considered incomprehensible (CVI ≤ 90%); and, together with other six items that received important suggestions, they were revised and considered comprehensible after revision. Forty items were considered relevant for both populations, although some differences led to two different instruments. **Conclusion:** We were able to provide an ICF based tool with highly comprehensible and relevant items to address individuals with physical disabilities.

Keywords: International Classification of Functioning, Disability and Health. Neurological physiotherapy. Outcome and Process Assessment (Health Care). Rehabilitation.

Resumo

Introdução: *A Classificação Internacional de Funcionalidade, Incapacidade e Saúde (CIF) fornece uma estrutura unificada e uma linguagem padronizada para descrever a saúde. Seu uso é incentivado para monitorar as conquistas funcionais ao longo do processo terapêutico dos pacientes. A fisioterapia deve fornecer e examinar os cuidados com avaliações padronizadas apropriadas. Para atender a ambas as necessidades, foi criada uma ferramenta baseada nos códigos e qualificadores da CIF para monitorar o processo terapêutico de pacientes com deficiência física.* ***Objetivo:*** *Validar o conteúdo de um instrumento de avaliação funcional fisioterapêutica para crianças e adultos com deficiência física com base nos códigos e qualificadores da CIF.* ***Métodos:*** *Realizou-se um estudo prospectivo transversal de validade de conteúdo. O instrumento foi enviado a 30 fisioterapeutas especializados no atendimento de pessoas com deficiência física para avaliação quanto à sua compreensão, relevância e aplicabilidade para a população adulta e pediátrica. O índice de validade de conteúdo (IVC) foi utilizado para determinar a concordância entre avaliadores, sendo considerado aceitável um mínimo de 90%.* ***Resultados:*** *A princípio, um item foi considerado incompreensível (IVC ≤ 90%); e, junto a outros seis itens que receberam sugestões importantes, os itens foram revisados e considerados compreensíveis após revisão. Quarenta itens foram considerados relevantes para ambas as populações, embora algumas diferenças tenham levado a dois instrumentos diferentes.* ***Conclusão:*** *Conseguiu-se fornecer uma ferramenta baseada na CIF com itens altamente compreensíveis e relevantes para abordar indivíduos com deficiência física.*

Palavras-chave: *Classificação Internacional de Funcionalidade, Incapacidade e Saúde. Fisioterapia neurológica. Avaliação de Processos e Resultados em Cuidados de Saúde. Reabilitação.*

Introduction

The International Classification of Functioning, Disability and Health (ICF) provides a unified framework and standardized language for describing health and its components. The ICF presents a biopsychosocial approach that focuses on functioning instead of disease. It defines functioning as an umbrella term indicating a positive interaction between individuals and their contextual (environmental and personal) factors.[1]

Rehabilitation facilitates a positive interaction by adjusting contextual factors and maximizing capacity to complete tasks, which allows individuals with health conditions to participate in community life.[2]

Patients' rehabilitation and functional evolution must be monitored throughout their therapeutic process. Physiotherapeutic evaluation demands the use of appropriate standardized assessments in clinical practice to appraise the impact of functional gains, incorporate them into the perspective of the patients and family members, and help therapists and family to set new goals.[3] Not all rehabilitation centers perform patients' continuous assessments routinely and rarely they consider a comprehensive biopsychosocial instrument for their approach,[4,5] although its use is encouraged.[6,7]

The World Health Organization (WHO) has extensively investigated the best practical use for ICF, which is strongly recommended for physiotherapeutic therapy care worldwide.[8,9] Despite not being an evaluation tool, it may help professionals in guiding the continuous assessment of their patients, and it aims to generate reliable data on the functional status of the world's population for large-scale consumption.[10] Although the use in clinical practice is progressing, it must be matured to improve measurement, statistics, and communication in the health field. Initiatives that implement ICF-based assessments in routine work such ours, offer a more reliable assessment and documentation in rehabilitation and assists therapists to consider all domains of participation when planning their service. [10,11]

Some authors are involved in linking the content of existent instruments to ICF conceptual framework, however few related them with the ICF qualifiers.[11,12] The qualifiers indicate the magnitude of the patients' conditions, but its generic scale can be considered too broad for practical use, presenting moderate-to-weak interrater validity.[8,12-14] It is recommended the ICF to be associated with assessment tools and have their psychometric characteristics evaluated for clinical use.[15] To address this need, the Association for the Assistance of the Disabled Children (*Associação de Assistência à Criança Deficiente*, AACD), a Brazilian rehabilitation center, created an instrument based on the ICF codes and qualifiers for physiotherapists to monitor the therapeutic process of patients with physical disabilities.

The aim of this study was to validate the content of the instrument designed for physiotherapy functional assessment of individuals with physical disabilities based

on ICF codes and qualifiers throughout their rehabilitation process. We hypothesized that the tool was comprehensible and addressed relevant content for the studied population.

Methods

This is a cross-sectional content-validity study of a therapeutic follow-up tool developed based on ICF qualifiers. The instrument properties analyzed were comprehensibility and relevance from the perspective of the professionals. It was approved by the Research Ethics Committee of the AACD under protocol No. 50942921.9.0000.0085. For content validity definition and selection of statistical methods, we followed Souza et al.'s approach.[16] The study design was also based on the items suggested by the COSMIN – Study Design Checklist for Patient-Reported Outcome Measurement Instruments.[17]

The instrument was developed in the physiotherapy divisions of the institution from 2016 to 2018, by a group of physiotherapists. It was designed to assess functioning of population with physical disabilities in a language accessible to both therapists and users during the patient's evaluation and throughout their process.

The group selected several ICF codes that corresponded to the most common complaints/objectives chosen by physiotherapists to address children and adults with physical disabilities. For each ICF code the group either searched and adapted a literature validated test or created the qualifiers descriptions following the generic ICF suggested magnitudes (in cases there were none validated tool available). We maintained the codes descriptions from the original manual and described each qualifier. The final version comprised 62 codes, covering domains of body functions, activities and participation, and environmental factors. The detailed process of the tool creation was previously reported.[18,19]

To apply the tool, physiotherapists must choose a specific task and use the related ICF code and qualifiers to better understand the magnitude of patients' condition. One code at a time is applied individually for a specific period, directing the therapeutic goal and measuring patients´ evolution during said period.

Physiotherapists working at AACD and external physiotherapists (who do not work at the institution) who were acquainted to the research group were screened based on the following inclusion criteria: participants should be specialized in the care of individuals with physical disabilities and have at least five years of experience.

Accordingly, the initial sample of judges was composed by 56 physiotherapists from the institution (which were grouped by areas of expertise: 16 pediatric, 18 aquatic, and 22 adult physiotherapists) and 30 external physiotherapists (composing the last group) who met the inclusion criteria. From each group seven or eight judges were randomly selected (via the website Sortear.net) until completing seven external physiotherapists, seven pediatric, eight adult and eight aquatic physiotherapists experts. The research group contacted each of the selected judges inviting them to participate in the research and sending the access link by email. From that moment on, the researchers were unaware of the participants who agreed on participating in the study, as the questionnaires were anonymous.

Participants who did not accept the proposed terms or sent unfinished questionnaires were excluded from the study, and a new invitation with a link was sent to the next judge from the randomly selected physiotherapists groups until the expected sample size of 30 questionnaires was reached. The target of 30 responses was considered adequate by the COSMIN checklist.[17]

We assessed the comprehensibility of qualifiers descriptions and the relevance of its content in two stages. For both stages, links to the online questionnaires, created using the free software tool *SurveyMonkey*, were sent to the participants' email addresses. The link contained general explanations of the study and forms for informed consent and data confidentiality.

The comprehensibility of the items descriptions was assessed through a 4-point Likert scale in the questionnaire (1. not understandable; 2. it requires a major revision to become understandable; 3. understandable but requires minor revisions; and 4. completely understandable) in addition to an open field for suggestions for improving the tool. The interrater agreement regarding the comprehensibility of the items was determined using the content validity index (CVI) computed as the number of scores of 3 and 4 for a question divided by the total number of scores for that question (CVI = number of scores of 3 or 4/ total number of scores). A minimum CVI of 90% was considered acceptable.[16]

Questions with a CVI < 90% and those requiring major or full revisions (according to the suggestions) were reframed and resent to the same judges for a new evaluation of their comprehensibility (with the following

options: 1. Yes, the item is understandable; 2. No, major improvements are still needed to make the item understandable). The CVI of the new evaluation was then recalculated as the number of positive responses divided by the total number of responses. The items that maintained a CVI < 90% were removed from the tool.

In the relevance and applicability evaluation stage, we used the modified tool with its adjusted content (based on the suggestions obtained at the comprehensibility stage). We asked the judges whether they considered the items that comprised the tool relevant and applicable to each age group (children/ adults) and to which diseases they considered them relevant. Items that failed to reach 90% interrater agreement regarding their relevance were excluded from the tool.

All tests were performed considering a p-value of 0.05 and a 95% confidence interval (CI) using software R1 or IBM SPSS Statistics for Windows, version 25 (IBM Corp., Armonk, N.Y., USA).

Results

The data collection period was approximately four months. There were 28.5% losses in the first comprehensibility data collection phase (12 of the 42 sent links were lost) and 10% losses (3 of the 30 sent links were lost) in the item revision phase. However, the losses in the latter phase were not replaced because only the judges who answered the initial questionnaire were asked to revise it after the changes, and they were not replaced by different judges. Ultimately, the final revision was performed by 27 judges. The results have been divided into comprehensibility and relevance. In the relevance stage, there were 44% losses (23 of the 52 sent links were lost), due to either non-acceptance of the response or non-completion of the questionnaire (Figures 1 and 2). In this stage we admitted one loss because the stipulated time for the data collection was finished, and so no other judge was recruited.

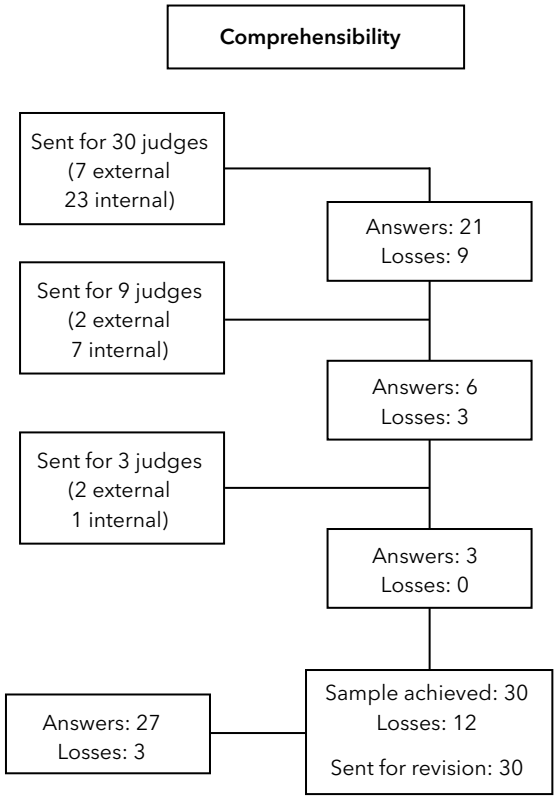

Figure 1 - Flowchart of the sample of professionals who evaluated the tool for its semantic comprehensibility in the first phase of this stage.

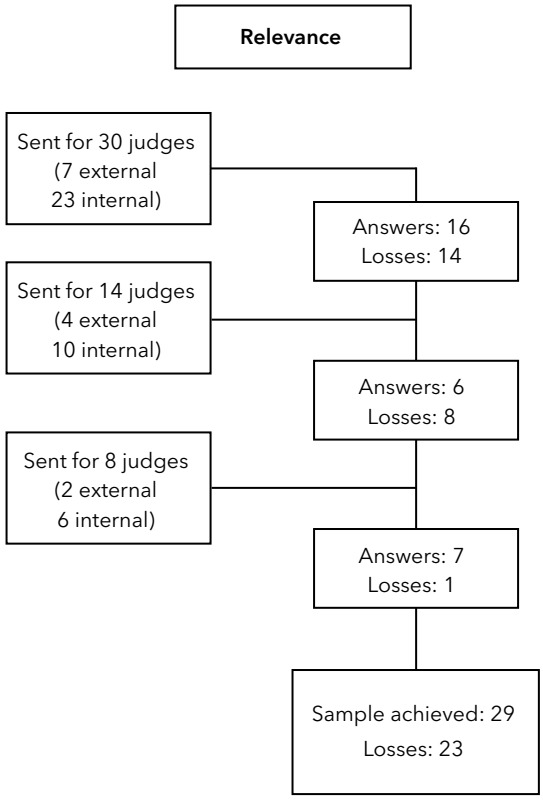

Figure 2 - Flowchart of the sample of professionals who evaluated the tool for its relevance and applicability.

Stage I - Comprehensibility

Three codes and qualifiers descriptions (4.8%) were considered completely comprehensible by 100% of the judges, and only five (8.1%) were considered completely comprehensible by less than 80% of the judges.

Only item b4202 – Blood Pressure Functions – had a CVI lower than 90% (Table 1). All the other items had an adequate CVI, although the vast majority received suggestions for improvements. The five items that were considered completely comprehensible by less than 80% of the judges were reviewed, as were two others that received important suggestions that would considerably improve their comprehensibility, according to the group.

Table 1 - Items and content validity indices (CVI) regarding the comprehensibility of the items of the first version of the questionnaire

Categories	CVI
b1266 Confidence	0.97
b1268 Temperament and personality functions, other specified	1.00
b1565 Visuospatial perception	1.00
b260 Proprioceptive function	0.97
b265 Touch function	1.00
b2801 Pain in body part	0.93
b289 Sensation of pain, other specified and unspecified	1.00
b4202 Maintenance of blood pressure	0.87*
b4352 Functions of lymphatic vessels	1.00
b4402 Depth of respiration	1.00
b4408 Respiration functions, other specified	1.00
b450 Additional respiratory functions	1.00
b4550 General physical endurance	0.93
b4551 Aerobic capacity	0.93
b4552 Fatiguability	1.00
b7100 Mobility of a single joint	0.97
b7300 Power of isolated muscles and muscle groups	1.00
b7351 Tone of muscles of one limb	0.97
b7401 Endurance of muscle groups	0.97
b755 Involuntary movement reaction functions	0.97
b7600 Control of simple voluntary movements	0.93
b7602 Coordination of voluntary movements	0.97
b7603 Supportive functions of arm or leg	1.00
b7651 Tremor	1.00

Note: *Item which CVI < 90% - significantly incomprehensible.

Table 1 - Items and content validity indices (CVI) regarding the comprehensibility of the items of the first version of the questionnaire (continued)

Categories	CVI
b770 Gait pattern functions	1.00
b789 Movement functions, other specified and unspecified	0.93
b820 Repair functions of the skin	0.97
d1558 Other specified acquiring skills	1.00
d198 Other specified learning and applying knowledge	1.00
d220 Undertaking multiple tasks	0.97
d4100 Lying down	0.97
d4102 Kneeling	0.97
d4508 Walking, other specified	1.00
d4551 Climbing	1.00
d4552 Running	1.00
d4553 Jumping	1.00
d4558 Moving around, other specified	1.00
d4600 Moving around within the home	1.00
d4601 Moving around within buildings other than home	1.00
d4602 Moving around outside the home and other buildings	1.00
d4608 Moving around indifferent locations, other specified	1.00
d4609 Moving around in different locations, unspecified	1.00
d465 Moving around using equipment	1.00
d4701 Using private motorized transportation	1.00
d4702 Using public motorized transportation	1.00
e1208 Products and technology for personal indoor and outdoor mobility and transportation, other specified	1.00

The judges mainly suggested clarifying terms or instructions and questioned the main differences between qualifier magnitudes, proposing ways to improve clarity. Suggestions for adjusting the language of the ICF or changing the way of applying the standardized tests used as a reference were not accepted, nor were those that would reduce the scope of the item to a small portion of the target population. This is because such changes would often lead to a failure to meet the percentages indicated by the WHO in generic qualifiers. The adjustment of one of the codes according to the judges' suggestions is exemplified in Table 2. The other adjustments are shown in the supplementary information (in Portuguese), as authors agreed that a simple translation would not be accurate for the validated content (Appendix 1).

Table 2 - Demonstration of the analysis of suggestions and changes made to the selected codes exemplified for item b260 – Proprioceptive function

b260 - Proprioceptive function	Description of the application and qualifiers before adjusting for comprehensibility	Description of the application and qualifiers after adjusting for comprehensibility
ICF description	Sensory functions that sense the relative position of body parts.	Sensory functions that sense the relative position of body parts.
Application guidelines	Analyze: Passively perform the motion on one side of the body, and the patient must repeat the motion on the opposite side, with eyes closed.	Analyze: Ask the patient to close their eyes and then passively perform the motion in the chosen segment of the patient's most affected side, positioning it at any desired angle. Ask the patient to reproduce the final joint position on the less affected side. Describe the chosen segment and motion. If the patient cannot reproduce the motion, ask whether they noticed the motion and whether they know the direction in which the motion was performed. Assess the reproduction of the motion and the perception reported by the patient.
Qualifiers	0 - No impairment	0 - No impairment, identifies the direction of motion, and the final joint position is the same as the contralateral segment
	1 - Can identify the joint position and direction of motion when < 10°	1 - Can identify the direction of motion, but the final joint position differs by less than 10° from the contralateral segment
	2 - Can perceive only the direction of motion when > 10°	2 - Can identify the direction of motion, but the final joint position differs by more than 10° from the contralateral segment
	3 - Can perceive the execution of the motion, but in the wrong direction	3 - Can identify that the motion is being executed, but performs or reports in the wrong direction
	4 - Complete impairment	4 - Cannot identify and does not perform the requested motion

Note: ICF = International Classification of Functioning, Disability and Health. Some of the suggestions made by the judges:

"In ´analyze,´ the physiotherapist must perform the passive motion on the patient's most affected side of the body; the patient will then execute the motion on the less affected side. In the qualifiers, I had difficulty understanding to what the angle in question referred (...)"

"The therapist will evaluate only the contralateral motion of the patient and compare it with the side that made the passive motion. (...) Would asking the patient about the perception of motion as well complement the test?"

"I am not sure about whether the therapist should first perform the motion in a small range (< 10°) and assess whether the patient perceives and reproduces it, and then perform it in a greater range and reassess whether the patient reproduces it. I did not find its evaluation very clear."

"I suggest, if possible, explaining the term < *10°* and >*10°*."

"I believe that the analysis should be performed by body segment and not just by hemi body."

"The ends of sentences 2 and 3 were confusing (< 10°, > 10°)."

The reviewed items, including the item with a CVI < 90%, were reframed and resubmitted in a new questionnaire. Specifically, these items were b1266 - Confidence, b260 - Proprioceptive Function, b4202 - Blood Pressure Functions, b4551 - Aerobic Capacity, b7602 - Coordination of Voluntary Movements, d198 - Learning and Applying Knowledge, Other Specified, and d4106 - Shifting the Body's Center of Gravity. Please note that for one of the questions, the suggestion was to add a visual scale to facilitate patient response, and although we found it pertinent, the online form did not allow us to add images; therefore, the suggestion was not proposed but will be applied in the final version of the tool. These items were evaluated by 27 judges, and all of them reached the desired minimum CVI in this round.

Stage II - Relevance

Of the items presented, 40 were considered relevant for both populations, and 30 were considered relevant by 100% of the judges. The items relevant to

each population and the differences in scores and their percentages between internal and external judges can be assessed in the supplementary material (Appendix 2).

For the adult/elderly population, of the 62 items, 55 codes (88.7%; CI - 82.3%–96.3%) were considered relevant by 90% or more judges. The seven non-relevant codes were b1266 - Confidence, b1268 - Temperament and personality functions, other specified, d4102 - Kneeling, d4108 - Changing Basic Body Position, d4552 - Running, d4553 – Jumping, and d4558 - Moving Around, Other Specified.

For the pediatric population, of the 62 items under analysis, 47 codes (75.8%; CI - 66.1 – 86.4%) were considered relevant by 90% or more of the judges. The 15 non-relevant codes were b260 - Proprioceptive Function, b265 - Touch Function, b2801 - Pain in Body Part, b289 - Sensation of Pain, b4202 - Blood Pressure Functions, b4352 - Functions of Lymphatic Vessels, b4550 - General Physical Endurance, b4551 - Aerobic Capacity, b4552 - Fatigue, b7401- Endurance of Muscle Groups, b7602 - Coordination of Voluntary Movements, d220 – Undertaking Multiple Tasks, d4105 - Bending, d4701 - Using Private Motorized Transportation, and d4702 - Using Public Motorized Transportation.

Considering the differences in codes deemed relevant between the adult/elderly and pediatric populations, we divided the tool, thus obtaining two similar assessments, albeit more specific for each age group. The summary of the tools obtained following the content validity process is shown in Figure 3, and the complete tools are provided in a supplementary material available on the journal website. The complete tool is in Portuguese, as authors agreed that a simple translation would not be accurate for the validated content.

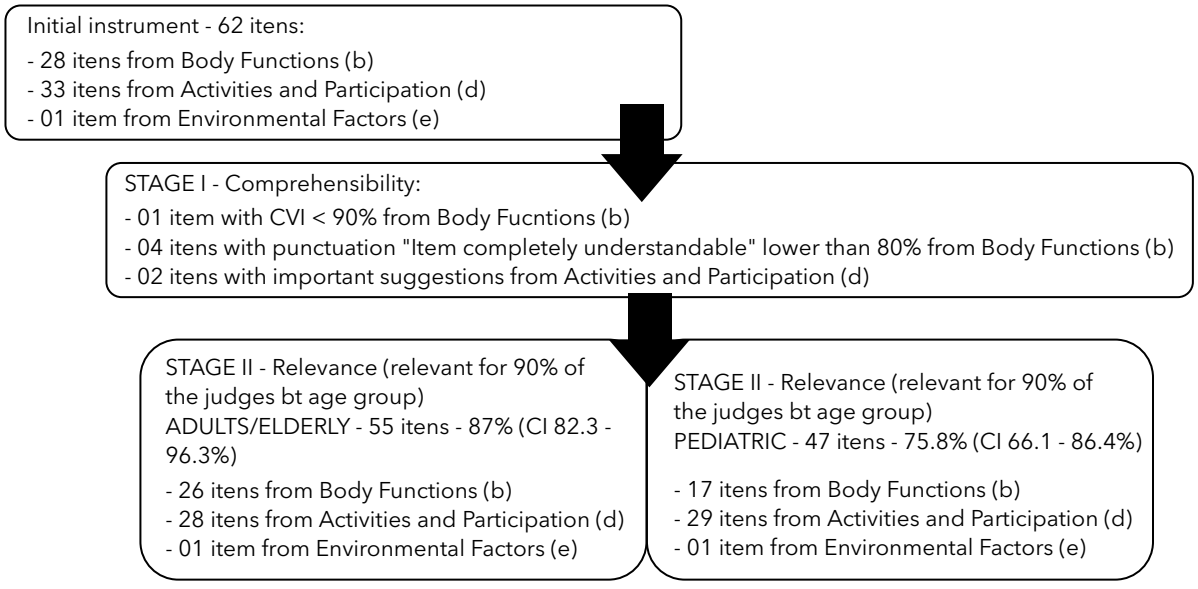

Figure 3 - Flowchart of the steps taken with findings summarizing the modified International Classification of Functioning, Disability and Health domains.

Discussion

This study aimed to validate the content of a tool based on the ICF codes and qualifiers, designed for physiotherapeutic functional assessment of individuals with physical disabilities throughout the patient rehabilitation process. We obtained two similar tools, one for adult/elderly and other for pediatric population, which correlated the ICF with clinical practice, covered a vast and diverse population and showed a valid content, providing functioning data of the population with physical disabilities in the rehabilitation.

The process of establishing the validity of a clinical tool is continuous and multifaceted. This article is the first to describe the validation of comprehensibility and relevance of a tool that operationalizes the use of ICF

codes and adapted qualifiers with validated content for population from different age groups with physical disabilities in general. This achievement is very relevant for clinical practice, concerning not only the therapeutic process but also the patient community participation.

Our results showed a striking interrater agreement from the item comprehensibility stage, even among the external judges who had not previously acknowledge the tool. This high agreement indicates that the concept and its ratings are comprehensible and are applicable by physiotherapists in this population.

The main disagreements were related to ICF nomenclature and descriptions of each item. We believe that this difficulty can be attributed to the lack of knowledge of ICF language, which were considered unusual and not very clear.[20,21] We retained the original description to ensure that the tool remains faithful to the ICF language, and the physiotherapist identifies the main concept evaluated. Disagreements related to qualifier ratings were adjusted respecting the methods previously used to define item categorization.[18,19]

Regarding the relevance, we observed that most items were relevant for both populations. There were 55 and 47 items considered relevant for evaluating adult/elderly and pediatric patients, respectively, however, the items differed from each other, which required the adoption of different tools for each age group. The tools were slightly shortened in comparison to the initial proposal; nevertheless, despite the condensation, both remained long, which illustrates the challenge of physiotherapeutic rehabilitation in considering the wide variety of activities and functions when approaching a patient with a physical disability.

We observed that the items included in the two tools developed in this study mainly cover categories of the activities and participation component of the mobility chapter. These include changing/maintaining body position (d410 and d415), transferring oneself (d420), walking/moving around (d450 and d460), and hand and arm use (d445). Additionally, muscle power and tone functions (b730 and b735), mobility of joint functions (b710), and respiration function (b440) were included from the body function and structures component. These components and categories have been cited in other studies as the most frequently occurring in practical use and research in the area.[22,23]

To assure the relevance of the two tools created, we used the ICF Rehabilitation Set, that is, a list of codes created by WHO which is strongly recommended to be applied when reporting clinical data on the rehabilitation context).[24] We were able to use 10 out of 30 rehabilitation categories from the ICF Rehabilitation Set, which is significant because the set was developed for all rehabilitation purposes, and our tool only addresses physiotherapy. Among the codes of the created tools, 60% are covered in the categories of the Rehabilitation Set such as d450 (we consider, in addition to d450 – Walking, the d460 - Moving around because they are part of the same construct), Sensation of Pain (b280), Exercise Tolerance Functions (b455), and Using Transportation (d470).

Our tools included codes other than those listed by the WHO, which are also not cited in other literature. These codes are quite specific to the rehabilitation process in clinical practice, therefore relevant for operationalizing the use of the ICF in rehabilitation clinics. These include d198 - Learning and Applying Knowledge, Other Specified, which is related to patient and family education regarding their understanding of and participation in the therapeutic process, and d1558 - Acquiring Skills, Other Specified, which is related to the skill that we specify as wearing and adapting to walking aids and prostheses. The items of child bonding and confidence in the therapist and environment (codes: b1268 - Temperament and Personality Functions, Other Specified and b1266 - Confidence, respectively) are also significantly relevant in the evolution of pediatric patients within the objectives defined in the clinic. The only environmental factor code included in the tool also appears to be relevant for both populations (code e1208 - Products and Technology for Personal Indoor and Outdoor Mobility and Transportation, Other Specified). It is very specific to the process of patients with physical disabilities in rehabilitation and clinical practice, and it is essential in therapeutic planning.

Recent studies that created and adapted scales based on the ICF for specific populations also used the components of body function and structures and activities and participation, corroborating ours.[25,26] It is important to include codes related to the environmental factors' component because of its wide influence on functioning, however, this component is still underused in our clinical practice. Other articles relating the ICF to outcome measure scales in the field of physiotherapy cite its importance when organizing the clinical practice and emphasize the use of qualifiers in goal setting.[22,23,27,28]

The study the most similar to ours regarding its proposal and methodology is Coelho et al.´s,[29] who developed a similar process for patients with spinal cord injury based on the core sets of this disease, enriching the language of the qualifiers to improve response reliability. We ignore whether its psychometric properties have been validated this far.[29] Kohler et al.[30] already demonstrated that adapting the ICF generic qualifiers increases intra- and interrater reliability when compared with the original form, and we hope to continue the subsequent validation steps of this tool to assess the same effect. The next steps will be to validate the repeatability, reproducibility and sensitivity of the tools, and to encourage the replication of similar tools in other areas of the multidisciplinary team for an overview of the functioning of the individual with physical disability in rehabilitation.

The final questionnaires are robust and may be considered long. However, in practice, these questionnaires were developed to be applied one item at a time, according to the need of the therapeutic period. Also, for this reason, we did not use qualifiers 8 and 9 (not specified and not applicable, respectively) since all items would be applicable and specified.

We should consider some limitations for this study. Firstly, the tool was considerably long and, although the judges contributed very significantly for its validation, we cannot discard the occurrence of evaluation fatigue bias due to its extension, even if any of the responses indicated such manifestation. Secondly, the judges did not necessarily have knowledge on the ICF, as they were expected to evaluate the clinical practice feasibility. We could still consider a fourth judge population of ICF experts to focus on the qualifiers adaptations and stablished magnitudes to continue to enhance the tools. They could also be further improved by adding more codes from the component of environmental factors to provide patients a broader view within their biopsychosocial context.

The present study relies only on the content validity and applicability of the items to better detail the steps and discuss the items. Validation steps for reliability and sensitivity properties are under development.

Conclusion

The items showed highly satisfactory comprehensibility among experts in the field and significant relevance for the follow-up of individuals with physical disabilities. Hence, we provide two comprehensive tools for use in populations with physical disabilities of different age groups (one for adults/elderly and another for children) throughout their rehabilitation process. As ICF-based tools, these instruments enable a holistic approach to patients and follows the global trend of facilitating the generation of homogeneous and reliable data on functioning. The reliability and sensitivity of the tools must be assessed in the next validity stage.

Acknowledgements

The authors would like to thank the Association for Assistance to Disabled Children (AACD) for granting us time and resources to work on this project. Also, we would like to acknowledge Dra. Simone Carazzato, Gabriela da Silva Matuti, Clarissa Barros de Oliveira and all the research commission from the institution for instructions on methodological matters and manuscript revision.

Authors' contributions

All authors participated in the conceptualization of the project, data collection and analysis, and discussion of the manuscript. JLG was responsible for the project administration and writing of the manuscript, while LCN, MHUO, and UBLL were responsible for its reviews. All authors approved the final version of the manuscript.

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Appendix 1 - Table presenting the items before and after their adjustments

CÓDIGOS E QUALIFICADORES INICIAIS		CÓDIGOS E QUALIFICADORES FINAIS	
b1266	**CONFIANÇA - Funções mentais que produzem um temperamento pessoal seguro, ousado e assertivo, em contraste com temperamento tímido, inseguro e humilde. ESPECIFICAÇÃO: ADAPTAÇÃO AO MEIO LÍQUIDO.**	**b1266**	**CONFIANÇA - Funções mentais que produzem um temperamento pessoal seguro, ousado e assertivo, em contraste com temperamento tímido, inseguro e humilde. ESPECIFICAÇÃO: Adaptação ao meio líquido.**
	OBSERVAÇÃO E PERCEPÇÃO DO TERAPEUTA COM O PACIENTE		**OBSERVAÇÃO E PERCEPÇÃO DO TERAPEUTA COM O PACIENTE**
Qualificadores:		Qualificadores:	
0 – Demonstra segurança, mesmo em situações que fogem do seu cotidiano. (de forma independente)		0 – O paciente demonstra segurança em qualquer situação durante toda a terapia.	
1 – Demonstra segurança, precisando utilizar seus recursos emocionais para se adaptar. (busca contato visual com o responsável, ou necessita de suporte externo para se sentir seguro durante a terapia)		1 – O paciente demonstra segurança, mas utiliza recursos emocionais para se adaptar (busca contato visual com o responsável) ou necessita de suporte externo (equipamentos como bóia, corrimão, entre outros) para se sentir seguro durante a terapia, permitindo manuseio.	
2 – Demonstra insegurança e/ou medo inicialmente e se beneficia do suporte emocional. (necessitando da presença constante do responsável, ou do contato físico com terapeuta durante toda a terapia)		2 - O paciente demonstra insegurança e/ou medo. Beneficia-se da presença do responsável na borda da piscina ou aceita algum manuseio do terapeuta no meio líquido.	
3 – Demonstra insegurança e/ou medo, se desorganiza facilmente diante de novas situações. (porém permite algum manuseio do terapeuta durante a terapia)		3 - O paciente demonstra insegurança e/ou medo. Desorganiza-se facilmente diante de novas situações (necessitando da presença e incentivo constante do responsável na borda da piscina), ou só aceita estar no meio líquido com suporte total do terapeuta - não permite manuseios.	
4 – Demonstra insegurança e/ou medo constantemente, frente a qualquer situação, mesmo em situações em que está acostumado. (mesmo antes de iniciar a terapia)		4 - O paciente demonstra insegurança e/ou medo constantemente, frente a qualquer situação, mesmo em situações em que está acostumado (necessidade constante da presença do responsável permanecendo o tempo todo em seu colo).	
b260	**Função proprioceptiva. Funções sensoriais que permitem sentir a posição relativa das partes do corpo. ESPECIFICAÇÃO: SENSIBILIDADE PROFUNDA**	**b260**	**FUNÇÃO PROPRIOCEPTIVA - Funções sensoriais que permitem sentir a posição relativa das partes do corpo.**
	OBSERVAR: Terapeuta realiza movimento de forma passiva em um lado do corpo do paciente e ele deve repetir o movimento com o lado oposto, estando o paciente de olhos fechados.		**ANALISAR: Solicite ao paciente para fechar os olhos e em seguida o terapeuta realiza o movimento no segmento escolhido do lado mais afetado do paciente de forma passiva e posicione o mesmo em qualquer angulação desejada. Peça para que o paciente reproduza a posição articular final com o lado menos afetado. Descrever qual o segmento e movimento escolhido. Caso o paciente não consiga reproduzir, questione se percebeu o movimento e se sabe a direção em que ele foi realizado. Verificar a reprodução do movimento e a percepção relatada pelo paciente.**
Qualificadores:		Qualificadores:	
0 – Normal;		0 – Normal, identifica a direção do movimento e a posição articular final é igual ao do segmento contralateral.	
1 – Consegue identificar a posição articular e direção do movimento < 10º;		1 – Consegue identificar a direção do movimento, porém a posição articular final apresenta diferença menor que 10° em relação ao segmento contralateral.	
2 – Consegue perceber apenas a direção do movimento quando >10º;		2 – Consegue identificar a direção do movimento, porém a posição articular final apresenta diferença maior que 10° em relação ao segmento contralateral.	
3 – Consegue perceber a execução do movimento, porém na direção errada;		3 – Consegue identificar que está sendo executado o movimento, porém realiza ou relata na direção errada.	
4 – Ausente		4 – Não consegue identificar e não executa o movimento solicitado.	

CÓDIGOS E QUALIFICADORES INICIAIS		CÓDIGOS E QUALIFICADORES FINAIS	
b4202	**Manutenção da pressão sanguínea (funções relacionadas a manutenção da pressão sanguínea adequada a mudanças no corpo – hipotensão postural).**	**b4202**	**MANUTENÇÃO DA PRESSÃO SANGUÍNEA - Funções relacionadas à manutenção da pressão sanguínea adequada em resposta a mudanças no corpo.**
	QUESTIONAR PACIENTE OU ACOMPANHANTE: O paciente possui algum aparelho que possibilite ortostatismo? Qual aparelho? Precisa de supervisão enquanto fica na postura.		**QUESTIONAR O PACIENTE/ ACOMPANHANTE ou ANALISAR: Ao mudar de postura, ou permanecer por algum tempo em posturas mais altas (sedestação, ortostatismo...), o paciente apresenta sinais de hipotensão (tontura, visão turva, sudorese, palidez da face e/ ou lábios)? Consegue assumir ortostatismo/ sedestação com tronco à 90° e permanecer na postura sem sinais de hipotensão? Em que inclinação se mantém estável? Descreva a postura mais alta avaliada ou relatada.**
Qualificadores:		Qualificadores:	
0 – Ortostatismo em stand por longos períodos sem supervisão.		0 – Permanece na postura mais alta avaliada à 90° por longos períodos e sem sinais de hipotensão postural.	
1 – Realiza ortostatismo em stand, com supervisão.		1 – Paciente estável, sem apresentar sintomas de hipotensão postural quando passa maior parte do tempo com inclinação até 75° na postura mais alta avaliada.	
2 – Realiza ortostatismo em prancha ortostática (maior parte do tempo com inclinação > 60°).		2 – Paciente estável, sem apresentar sintomas de hipotensão postural quando passa maior parte do tempo com inclinação até 60° na postura mais alta avaliada.	
3 – Realiza ortostatismo em prancha ortostática (maior parte do tempo com inclinação < 60°).		3 – Paciente estável, sem apresentar sintomas de hipotensão postural quando passa maior parte do tempo com inclinação até 30° na postura mais alta avaliada.	
4 – Não consegue ficar em pé.		4 – Não é capaz realizar mudança postural	
b4551	**Capacidade aeróbica - Funções relacionadas à capacidade da pessoa de se exercitar sem sentir falta de fôlego**	**b4551**	**CAPACIDADE AERÓBICA - Funções relacionadas à capacidade da pessoa de se exercitar sem sentir falta de fôlego.**
	OBSERVAR: Calcular a capacidade aeróbica [fórmula de Tanaka (208 - 0,7 x idade)] e analisar o quanto atingiu após exercício físico escolhido (esteira, cicloergômetro, elíptico, bicicleta ergométrica vertical ou horizontal).		**ANALISAR: Calcular a capacidade aeróbica do paciente [fórmula de Tanaka (208 - 0,7 x idade)]. Descrever a frequência cardíaca máxima (FC máx) atingida pelo paciente durante o exercício físico escolhido (esteira, cicloergômetro, elíptico, bicicleta ergométrica vertical ou horizontal) no máximo de carga e/ou tempo tolerados. Calcular a porcentagem da FC máx atingida pelo paciente em relação ao valor apresentado pela fórmula de Tanaka (capacidade aeróbica do paciente). Exemplo: Uma pessoa de 60 anos para atingir sua capacidade aeróbica teria sua FC máx de 166 bpm de acordo com a fórmula de Tanaka. No teste inicial realizando 10 minutos de bicicleta ergométrica com carga 5 ela chegou a 105 bpm, ou seja 63% de sua capacidade aeróbica.**
Qualificadores:		Qualificadores:	
0 – Capacidade aeróbica acima de 65%.		0 – Realiza o exercício proposto atingindo FC máx acima de 80 % de sua capacidade aeróbica.	
1 – Capacidade aeróbica de 51 a 65%.		1 – Realiza o exercício proposto atingindo FC máx entre 65 e 79 % de sua capacidade aeróbica.	
2 – Capacidade aeróbica de 26 a 50%.		2 – Realiza o exercício proposto atingindo FC máx entre 50 e 65% de sua capacidade aeróbica.	
3 – Capacidade aeróbica de 11% a 25%.		3 – Realiza o exercício proposto atingindo FC máx entre 30 a 49% de sua capacidade aeróbica.	
4 – Capacidade aeróbica menor que 10%.		4 – Realiza o exercício proposto atingindo FC máx de no máximo 30 % da FC máx de sua capacidade aeróbica.	

CÓDIGOS E QUALIFICADORES INICIAIS		CÓDIGOS E QUALIFICADORES FINAIS	
b7602	**Coordenação de movimentos voluntários - Funções associadas à coordenação dos movimentos voluntários simples e complexos, realizando movimentos em uma sequência ordenada. ESPECIFICAÇÃO: DIADOCOCINESIA.**	**b7602**	**COORDENAÇÃO DE MOVIMENTOS VOLUNTÁRIOS - Funções associadas à coordenação dos movimentos voluntários simples e complexos, realizando movimentos em uma sequência ordenada. ESPECIFICAÇÃO: Diadococinesia.**
	OBSERVAR: Cada lado avaliado isoladamente. O paciente deve permanecer sentado, se necessário com apoio dos pés e do tronco. É solicitado que realize 10 ciclos com alternância de pronação e supinação de antebraço sobre suas coxas o mais rápido e preciso possível. O movimento é demonstrado ao paciente pelo examinador em uma velocidade de aproximadamente 10 ciclos em 7 segundos. Deve-se cronometrar o tempo de execução dos movimentos.		**ANALISAR: O paciente deve permanecer sentado, se necessário com apoio dos pés e do tronco. É solicitado que realize 10 ciclos em 7 segundos com alternância de pronação e supinação de antebraços sobre suas coxas o mais rápido e preciso possível (considerar um ciclo completo quando os membros superiores retornam a posição de partida - exemplo: membro superior direito em pronação, passa para supinação e retorna para pronação). O movimento é demonstrado ao paciente pelo examinador. Deve-se cronometrar o tempo de execução dos movimentos.**
Qualificadores:		Qualificadores:	
0 – Normal, sem irregularidades (realiza em < 10s)		0 – Normal, realiza no mínimo 10 ciclos em 7 segundos.	
1 – Discretamente irregular (realiza em < 10s)		1 – Discretamente anormal, consegue realizar o movimento alternado entre os membros superiores, realiza de 6 a 9 ciclos em 7 segundos.	
2 – Claramente irregular, difícil de distinguir movimentos separados ou interrupções relevantes (realiza em < 10s		2 – Claramente anormal, em alguns momentos não consegue realizar o movimento alternado entre os membros superiores. Completa no máximo 5 ciclos em 7 segundos.	
3 – Muito irregular, difícil de distinguir movimentos separados ou interrupções relevantes (realiza em > 10s)		3 – Gravemente anormal, não consegue realizar o movimento alternado entre os membros superiores na maior parte do tempo. Completa no máximo 2 ciclos em 7 segundos.	
4 – Incapaz de completar 10 ciclos		4 – Incapaz de realizar a tarefa.	
d198	**Aprendizagem e aplicação de conhecimento, outros especificados. ESPECIFICAÇÃO: ORIENTAÇÕES GERAIS**	**d198**	**APRENDIZAGEM E APLICAÇÃO DE CONHECIMENTO, OUTROS ESPECIFICADOS. ESPECIFICAÇÃO: Orientações gerais.**
	Dividir as orientações dadas em porcentagens para pontuação adequada de compreensão e adesão.		**QUESTIONAR O PACIENTE/ ACOMPANHANTE: As orientações estão sendo realizadas em casa como solicitadas na instituição? Há alguma dificuldade na reprodução das orientações? Todas as orientações foram compreendidas? Foram realizadas na frequência solicitada?**
Qualificadores:		Qualificadores:	
0 – Compreende, reproduz corretamente e relata realizar todas as orientações dadas em casa		0 – Compreende, reproduz corretamente e relata realizar em casa todas as orientações recebidas.	
1 – Compreende, reproduz e relata dificuldade LIGEIRA para realizar todas as orientações dadas em casa (leve, pequeno, ...). Dificuldade em 5-24%		1 – Compreende, reproduz e relata dificuldade LEVE para realizar em casa todas as orientações recebidas. Deixa de realizar de 5-24% do total de orientações recebidas.	
2 – Compreende, reproduz e relata dificuldade MODERADA realizar todas as orientações dadas em casa (médio, regular, ...). Dificuldade em 25-49%		2 – Compreende, reproduz e relata dificuldade MODERADA realizar todas as orientações dadas em casa (médio, regular, ...). Dificuldade em 25-49%	
3 – Compreende, reproduz e relata dificuldade GRAVE para realizar todas as orientações dadas em casa (grande, extremo, ...). Dificuldade em 50-95%		3 – Compreende, reproduz e relata dificuldade GRAVE para realizar em casa todas as orientações recebidas. Deixa de realizar de 50-95% do total de orientações recebidas.	
4 – Relata dificuldade COMPLETA para compreender e reproduzir em casa todas as orientações dadas (total, ...) 96-100%.		4 – Não realiza as orientações em casa.	

CÓDIGOS E QUALIFICADORES INICIAIS		CÓDIGOS E QUALIFICADORES FINAIS	
d4106	**Mudar o centro de gravidade do corpo - Mudar ou mover o peso do corpo de uma posição para outra enquanto sentado, de pé ou deitado, como por exemplo, mudar o apoio de um pé para o outro enquanto de pé.**	**d4106**	**APRENDIZAGEM E APLICAÇÃO DE CONHECIMENTO, OUTROS ESPECIFICADOS. ESPECIFICAÇÃO: Orientações gerais.**
	OBSERVAR: A capacidade de manter ou mudar o centro de gravidade do corpo sem alterar a base de suporte. Escolher a postura e descrever como paciente a mantém.		**QUESTIONAR O PACIENTE/ ACOMPANHANTE: As orientações estão sendo realizadas em casa como solicitadas na instituição? Há alguma dificuldade na reprodução das orientações? Todas as orientações foram compreendidas? Foram realizadas na frequência solicitada?**
Qualificadores:		Qualificadores:	
0 – Consegue manter centro de gravidade adequado dentro da base de suporte;		0 – Consegue alternar a descarga de peso na postura solicitada e distribuir de forma simétrica para manter o centro de gravidade adequado dentro da base de suporte.	
1 – Necessita de supervisão para restaurar o centro de gravidade dentro da base de suporte sem compensações;		1 – Necessita de supervisão (dicas verbais) para alternar a descarga de peso na postura solicitada e distribuir de forma simétrica para restaurar o centro de gravidade dentro da base de suporte sem compensações.	
2 – Consegue manter centro de gravidade dentro da base de suporte com auxílio de suportes externos ou grandes compensações		2 – Consegue alternar a descarga de peso na postura solicitada e tenta distribui-la de forma simétrica dentro da base de suporte somente com auxílio de suportes externos (tala de lona, espelho ou grandes compensações).	
3 – Consegue manter centro de gravidade adequado dentro da base de suporte com auxílio de terceiros;		3 –Consegue alternar a descarga de peso na postura solicitada e tenta distribui-la de forma simétrica para manter centro de gravidade adequado dentro da base de suporte somente com auxílio de terceiros.	
4 – Não consegue manter centro de gravidade adequado dentro da base de suporte		4 – Não consegue alternar a descarga de peso e reajustá-la para manter centro de gravidade adequado dentro da base de suporte.	

Appendix 2 - Relevance of the items presented to the judges, categorized as external and internal judges, indicating the items that were included in the final tool

1 - Adult/elderly instrument

ICF CODES	Adult/Elderly Instrument						
	Internal		External		Total		
	N	% (CI95%)	N	% (CI95%)	N	% (CI95%)	Applicable
Body Functions (b)							
b1266 CONFIDENCE	16	76.2 (55.4-90.3)	6	85.7 (49.9-98.4)*	23	79.3 (62.2-90.9)	No
b1268 TEMPERAMENT AND PERSONALITY FUNCTIONS, OTHER SPECIFIED	8	36.4 (18.9-57.1)	3	42.9 (13.9-76.5)*	11	37.9 (22.1-56.0)	No
b1565 VISUOSPATIAL PERCEPTION	22	100 (100-100)	7	100 (100-100)	29	100 (100-100)	Yes
b260 PROPRIOCEPTIVE FUNCTION	22	100 (100-100)	7	100 (100-100)	29	100 (100-100)	Yes
b265 TOUCH FUNCTION	22	100 (100-100)	7	100 (100-100)	29	100 (100-100)	Yes
b2801 PAIN IN BODY PART	22	100 (100-100)	7	100 (100-100)	29	100 (100-100)	Yes
b289 SENSATION OF PAIN, OTHER SPECIFIED AND UNSPECIFIED	22	100 (100-100)	7	100 (100-100)	29	100 (100-100)	Yes
b4202 MAINTENANCE OF BLOOD PRESSURE	22	100 (100-100)	7	100 (100-100)	29	100 (100-100)	Yes
b4352 FUNCTIONS OF LYMPHATIC VESSELS	22	100 (100-100)	7	100 (100-100)	29	100 (100-100)	Yes
b4402 DEPTH OF RESPIRATION	22	100 (100-100)	7	100 (100-100)	29	100 (100-100)	Yes
b4408 RESPIRATION FUNCTIONS, OTHER SPECIFIED	22	100 (100-100)	7	100 (100-100)	29	100 (100-100)	Yes
b450 ADDITIONAL RESPIRATORY FUNCTIONS	22	100 (100-100)	7	100 (100-100)	29	100 (100-100)	Yes
b4550 GENERAL PHYSICAL ENDURANCE	22	100 (100-100)	7	100 (100-100)	29	100 (100-100)	Yes
b4551 AEROBIC CAPACITY	22	100 (100-100)	7	100 (100-100)	29	100 (100-100)	Yes
b4552 FATIGUABILITY	22	100 (100-100)	7	100 (100-100)	29	100 (100-100)	Yes
b7100 MOBILITY OF A SINGLE JOINT	21	95.5 (80.7-99.5)	7	100 (100-100)*	28	96.6 (85.0-99.6)	Yes
b7300 POWER OF ISOLATED MUSCLES AND MUSCLE GROUPS	22	100 (100-100)	7	100 (100-100)	29	100 (100-100)	Yes
b7351 TONE OF MUSCLES OF ONE LIMB	22	100 (100-100)	7	100 (100-100)	29	100 (100-100)	Yes
b7401 ENDURANCE OF MUSCLE GROUPS	19	90.5 (72.8-98.0)	7	100 (100-100)*	28	96.6 (85.0-99.6)	Yes
b755 INVOLUNTARY MOVEMENT REACTION FUNCTIONS	22	100 (100-100)	7	100 (100-100)	29	100 (100-100)	Yes
b7600 CONTROL OF SIMPLE VOLUNTARY MOVEMENTS	22	100 (100-100)	7	100 (100-100)	29	100 (100-100)	Yes
b7602 COORDINATION OF VOLUNTARY MOVEMENTS	22	100 (100-100)	7	100 (100-100)	29	100 (100-100)	Yes
b7603 SUPPORTIVE FUNCTIONS OF ARM OR LEG	22	100 (100-100)	7	100 (100-100)	29	100 (100-100)	Yes
b7651 TREMOR	22	100 (100-100)	7	100 (100-100)	29	100 (100-100)	Yes
b770 GAIT PATTERN FUNCTIONS	22	100 (100-100)	7	100 (100-100)	29	100 (100-100)	Yes
b789 MOVEMENT FUNCTIONS, OTHER SPECIFIED AND UNSPECIFIED	22	100 (100-100)	7	100 (100-100)	29	100 (100-100)	Yes

ICF CODES	Adult/ Elderly Instrument						
	Internal		External		Total		
	N	% (CI95%)	N	% (CI95%)	N	% (CI95%)	Applicable
Activities and participation (d)							
b820 REPAIR FUNCTIONS OF THE SKIN	22	100 (100-100)	7	100 (100-100)	29	100 (100-100)	Yes
d1558 OTHER SPECIFIED ACQUIRING SKILLS	22	100 (100-100)	7	100 (100-100)	29	100 (100-100)	Yes
d198 OTHER SPECIFIED LEARNING AND APPLYING KNOWLEDGE	22	100 (100-100)	7	100 (100-100)	29	100 (100-100)	Yes
d220 UNDERTAKING MULTIPLE TASKS	22	100 (100-100)	7	100 (100-100)	29	100 (100-100)	Yes
d4100 LYING DOWN	21	100 (100-100)	7	100 (100-100)	28	100 (100-100)	Yes
d4102 KNEELING	19	90.5 (72.8-98.0)	6	85.7 (49.9-98.4)*	25	89.3 (74.1-96.9)	No
d4103 SITTING	21	100 (100-100)	7	100 (100-100)	28	100 (100-100)	Yes
d4104 STANDING	21	100 (100-100)	7	100 (100-100)	28	100 (100-100)	Yes
d4105 BENDING	21	100 (100-100)	7	100 (100-100)	28	100 (100-100)	Yes
d4106 SHIFTING THE BODY'S CENTRE OF GRAVITY	21	100 (100-100)	7	100 (100-100)	28	100 (100-100)	Yes
d4107 ROLLING OVER	21	100 (100-100)	7	100 (100-100)	28	100 (100-100)	Yes
d4108 OTHER SPECIFIED CHANGING BASIC BODY POSITION	12	57.1 (36.2-76.3)	4	57.1 (23.5-86.1)*	16	57.1 (38.9-74.0)	No
d4153 MAINTAINING A SITTING POSITION	21	100 (100-100)	7	100 (100-100)	28	100 (100-100)	Yes
d4154 MAINTAINING A STANDING POSITION	21	100 (100-100)	7	100 (100-100)	28	100 (100-100)	Yes
d4155 MAINTAINING HEAD POSITION	22	100 (100-100)	6	85.7 (49.9-98.4)*	26	92.9 (79.0-98.5)	Yes
d4158 MAINTAINING A BODY POSITION, OTHER SPECIFIED	21	100 (100-100)	7	100 (100-100)	28	100 (100-100)	Yes
d4200 TRANSFERRING ONESELF WHILE SITTING	21	100 (100-100)	7	100 (100-100)	28	100 (100-100)	Yes
d429 CHANGING AND MAINTAINING BODY POSITION, OTHER SPECIFIED AND UNSPECIFIED	21	100 (100-100)	7	100 (100-100)	28	100 (100-100)	Yes
d4452 REACHING	21	100 (100-100)	7	100 (100-100)	28	100 (100-100)	Yes
d4458 HAND AND ARM USE, OTHER SPECIFIED	21	100 (100-100)	7	100 (100-100)	28	100 (100-100)	Yes
d4502 WALKING ON DIFFERENT SURFACES	21	100 (100-100)	7	100 (100-100)	28	100 (100-100)	Yes
d4503 WALKING AROUND OBSTACLES	21	100 (100-100)	7	100 (100-100)	28	100 (100-100)	Yes
d4508 WALKING, OTHER SPECIFIED	21	100 (100-100)	7	100 (100-100)	28	100 (100-100)	Yes
d4551 CLIMBING	21	100 (100-100)	7	100 (100-100)	28	100 (100-100)	Yes
d4552 RUNNING	18	85.7 (66.6-95.8)	6	85.7 (49.9-98.4)*	24	85.7 (69.5-95.0)	No
d4553 JUMPING	18	81.8 (62.4-93.5)	5	71.4 (35.2-93.5)*	22	78.6 (61.1-90.5)	No
d4558 MOVING AROUND, OTHER SPECIFIED	12	57.1 (36.2-76.3)	3	42.9 (13.9-76.5)*	15	53.6 (35.5-70.9)	No
d4600 MOVING AROUND WITHIN THE HOME	21	100 (100-100)	7	100 (100-100)	28	100 (100-100)	Yes
d4601 MOVING AROUND WITHIN BUILDINGS OTHER THAN HOME	21	100 (100-100)	7	100 (100-100)	28	100 (100-100)	Yes

ICF CODES	Adult/ Elderly Instrument						
	Internal		External		Total		
	N	% (CI95%)	N	% (CI95%)	N	% (CI95%)	Applicable
d4602 MOVING AROUND OUTSIDE THE HOME AND OTHER BUILDINGS	21	100 (100-100)	7	100 (100-100)	28	100 (100-100)	Yes
d4608 MOVING AROUND INDIFFERENT LOCATIONS, OTHER SPECIFIED	21	100 (100-100)	7	100 (100-100)	28	100 (100-100)	Yes
d4609 MOVING AROUND IN DIFFERENT LOCATIONS, UNSPECIFIED	21	100 (100-100)	7	100 (100-100)	28	100 (100-100)	Yes
d465 MOVING AROUND USING EQUIPMENT	21	100 (100-100)	7	100 (100-100)	28	100 (100-100)	Yes
d4701 USING PRIVATE MOTORIZED TRANSPORTATION	21	100 (100-100)	7	100 (100-100)	28	100 (100-100)	Yes
d4702 USING PUBLIC MOTORIZED TRANSPORTATION	21	100 (100-100)	7	100 (100-100)	28	100 (100-100)	Yes
Environmental Factors (e)							
e1208 PRODUCTS AND TECHNOLOGY FOR PERSONAL INDOOR AND OUTDOOR MOBILITY AND TRANSPORTATION, OTHER SPECIFIED	21	100 (100-100)	7	100 (100-100)	28	100 (100-100)	Yes

Note: ICF = International Classification of Functioning, Disability and Health. *Items showing differences in their evaluation between internal and external judges. Their values were used to calculate the Cohen's kappa coefficient of interrater agreement within each age group. The highest values of relevance attributed to the items are highlighted in bold.

2 - Pediatric instrument

ICF CODES	Pediatric Instrument						
	Internal		External		Total		
	N	% (CI95%)	N	% (CI95%)	N	% (CI95%)	Applicable
Body Functions (b)							
b1266 CONFIDENCE	22	100 (100-100)	7	100 (100-100)	29	100 (100-100)	Yes
b1268 TEMPERAMENT AND PERSONALITY FUNCTIONS, OTHER SPECIFIED	22	100 (100-100)	7	100 (100-100)	29	100 (100-100)	Yes
b1565 VISUOSPATIAL PERCEPTION	21	95.5 (80.7-99.5)	7	100 (100-100)*	28	96.6 (85.0-99.6)	Yes
b260 PROPRIOCEPTIVE FUNCTION	22	100 (100-100)	6	85.7 (49.9-98.4)*	26	89.7 (74.9-97.0)	No
b265 TOUCH FUNCTION	22	100 (100-100)	6	85.7 (49.9-98.4)*	26	89.7 (74.9-97.0)	No
b2801 PAIN IN BODY PART	22	100 (100-100)	6	85.7 (49.9-98.4)*	26	89.7 (74.9-97.0)	No
b289 SENSATION OF PAIN, OTHER SPECIFIED AND UNSPECIFIED	22	100 (100-100)	6	85.7 (49.9-98.4)*	26	89.7 (74.9-97.0)	No
b4202 MAINTENANCE OF BLOOD PRESSURE	21	100 (100-100)	6	85.7 (49.9-98.4)*	23	79.3 (62.2-90.9)	No
b4352 FUNCTIONS OF LYMPHATIC VESSELS	21	95,5 (80,7-99,5)	5	71.4 (35.2-93.5)*	24	82.8 (66.3-93.1)	No
b4402 DEPTH OF RESPIRATION	22	100 (100-100)	7	100 (100-100)	29	100 (100-100)	Yes
b4408 RESPIRATION FUNCTIONS, OTHER SPECIFIED	22	100 (100-100)	7	100 (100-100)	29	100 (100-100)	Yes
b450 ADDITIONAL RESPIRATORY FUNCTIONS	22	100 (100-100)	7	100 (100-100)	29	100 (100-100)	Yes

ICF CODES	Pediatric Instrument						
	Internal		External		Total		
	N	% (CI95%)	N	% (CI95%)	N	% (CI95%)	Applicable
b4550 GENERAL PHYSICAL ENDURANCE	21	95.5 (80.7-99.5)	5	71.4 (35.2-93.5)*	26	8.7 (74.9-97.0)	No
b4551 AEROBIC CAPACITY	21	95.5 (80.7-99.5)	5	71.4 (35.2-93.5)*	24	82.8 (66.3-93.1)	No
b4552 FATIGUABILITY	20	95.2 (79.8-99.5)	5	71.4 (35.2-93.5)*	24	82.8 (66.3-93.1)	No
b7100 MOBILITY OF A SINGLE JOINT	21	95.5 (80.7-99.5)	7	100 (100-100)*	28	96.6 (85.0-99.6)	Yes
b7300 POWER OF ISOLATED MUSCLES AND MUSCLE GROUPS	22	100 (100-100)	7	100 (100-100)	29	100 (100-100)	Yes
b7351 TONE OF MUSCLES OF ONE LIMB	22	100 (100-100)	7	100 (100-100)	29	100 (100-100)	Yes
b7401 ENDURANCE OF MUSCLE GROUPS	19	90.5 (72.8-98.0)	5	71.4 (35.2-93.5)*	23	79.3 (62.2-90.9)	No
b755 INVOLUNTARY MOVEMENT REACTION FUNCTIONS	19	90.5 (72.8-98.0)	7	100 (100-100)*	28	96.6 (85.0-99.6)	Sim
b7600 CONTROL OF SIMPLE VOLUNTARY MOVEMENTS	22	100 (100-100)	6	85.7 (49.9-98.4)*	28	96.6 (85.0-99.6)	Sim
b7602 COORDINATION OF VOLUNTARY MOVEMENTS	19	86.4 (67.9-96.0)	5	71.4 (35.2-93.5)*	26	89.7 (74.9-97.0)	No
b7603 SUPPORTIVE FUNCTIONS OF ARM OR LEG	22	100 (100-100)	7	100 (100-100)	29	100 (100-100)	Yes
b7651 TREMOR	19	90.5 (72.8-98.0)	7	100 (100-100)*	28	96.6 (85.0-99.6)	Yes
b770 GAIT PATTERN FUNCTIONS	22	100 (100-100)	7	100 (100-100)	29	100 (100-100)	Yes
b789 MOVEMENT FUNCTIONS, OTHER SPECIFIED AND UNSPECIFIED	16	72.7 (52.2-87.7)	7	100 (100-100)*	28	96.6 (85.0-99.6)	Yes
b820 REPAIR FUNCTIONS OF THE SKIN	20	90.9 (73.9-98.1)	6	85.7 (49.9-98.4)*	28	96.6 (85.0-99.6)	Yes
Activities and participation (d)							
d1558 OTHER SPECIFIED ACQUIRING SKILLS	22	100 (100-100)	7	100 (100-100)	29	100 (100-100)	Yes
d198 OTHER SPECIFIED LEARNING AND APPLYING KNOWLEDGE	22	100 (100-100)	7	100 (100-100)	29	100 (100-100)	Yes
d220 UNDERTAKING MULTIPLE TASKS	17	81.0 (60.8-93.2)	5	71.4 (35.2-93.5)*	25	86.2 (70.5-95.2)	No
d4100 LYING DOWN	21	100 (100-100)	7	100 (100-100)	28	100 (100-100)	Yes
d4102 KNEELING	21	100 (100-100)	7	100 (100-100)	28	100 (100-100)	Yes
d4103 SITTING	21	100 (100-100)	7	100 (100-100)	28	100 (100-100)	Yes
d4104 STANDING	21	100 (100-100)	7	100 (100-100)	28	100 (100-100)	Yes
d4105 BENDING	21	95.5 (80.7-99.5)	4	57.1 (23.5-86.1)*	25	89.3 (74.1-96.9)	No
d4106 SHIFTING THE BODY'S CENTRE OF GRAVITY	21	100 (100-100)	7	100 (100-100)	28	100 (100-100)	Yes
d4107 ROLLING OVER	21	100 (100-100)	7	100 (100-100)	28	100 (100-100)	Yes
d4108 OTHER SPECIFIED CHANGING BASIC BODY POSITION	21	100 (100-100)	7	100 (100-100)	28	100 (100-100)	Yes
d4153 MAINTAINING A SITTING POSITION	21	100 (100-100)	7	100 (100-100)	28	100 (100-100)	Yes
d4154 MAINTAINING A STANDING POSITION	21	100 (100-100)	7	100 (100-100)	28	100 (100-100)	Yes
d4155 MAINTAINING HEAD POSITION	21	100 (100-100)	7	100 (100-100)	28	100 (100-100)	Yes

ICF CODES	Pediatric Instrument						
	Internal		External		Total		
	N	% (CI95%)	N	% (CI95%)	N	% (CI95%)	Applicable
d4158 MAINTAINING A BODY POSITION, OTHER SPECIFIED	20	90.9 (73.9-98.1)	6	85.7 (49.9-98.4)*	27	96.4 (84.5-99.6)	Yes
d4200 TRANSFERRING ONESELF WHILE SITTING	21	100 (100-100)	7	100 (100-100)	28	100 (100-100)	Yes
d429 CHANGING AND MAINTAINING BODY POSITION, OTHER SPECIFIED AND UNSPECIFIED	21	100 (100-100)	7	100 (100-100)	28	100 (100-100)	Yes
d4452 REACHING	21	100 (100-100)	7	100 (100-100)	28	100 (100-100)	Yes
d4458 HAND AND ARM USE, OTHER SPECIFIED	21	100 (100-100)	7	100 (100-100)	28	100 (100-100)	Yes
d4502 WALKING ON DIFFERENT SURFACES	21	100 (100-100)	7	100 (100-100)	28	100 (100-100)	Yes
d4503 WALKING AROUND OBSTACLES	21	100 (100-100)	7	100 (100-100)	28	100 (100-100)	Yes
d4508 WALKING, OTHER SPECIFIED	21	100 (100-100)	7	100 (100-100)	28	100 (100-100)	Yes
d4551 CLIMBING	21	100 (100-100)	7	100 (100-100)	28	100 (100-100)	Yes
d4552 RUNNING	18	81.8 (62.4-93.5)	**6**	**85.7 (49.9-98.4)***	26	92.9 (79.0-98.5)	Yes
d4553 JUMPING	21	100 (100-100)	7	100 (100-100)	28	100 (100-100)	Yes
d4558 MOVING AROUND, OTHER SPECIFIED	21	100 (100-100)	7	100 (100-100)	28	100 (100-100)	Yes
d4600 MOVING AROUND WITHIN THE HOME	21	100 (100-100)	7	100 (100-100)	28	100 (100-100)	Yes
d4601 MOVING AROUND WITHIN BUILDINGS OTHER THAN HOME	21	100 (100-100)	7	100 (100-100)	28	100 (100-100)	Yes
d4602 MOVING AROUND OUTSIDE THE HOME AND OTHER BUILDINGS	21	100 (100-100)	7	100 (100-100)	28	100 (100-100)	Yes
d4608 MOVING AROUND INDIFFERENT LOCATIONS, OTHER SPECIFIED	21	100 (100-100)	7	100 (100-100)	28	100 (100-100)	Yes
d4609 MOVING AROUND IN DIFFERENT LOCATIONS, UNSPECIFIED	21	100 (100-100)	7	100 (100-100)	28	100 (100-100)	Yes
d465 MOVING AROUND USING EQUIPMENT	21	100 (100-100)	7	100 (100-100)	28	100 (100-100)	Yes
d4701 USING PRIVATE MOTORIZED TRANSPORTATION	19	86.4 (67.9-96.0)	4	57.1 (23.5-86.1)*	22	78.6 (61.1-90.5)	**No**
d4702 USING PUBLIC MOTORIZED TRANSPORTATION	**21**	**95.5 (80.7-99.5)**	3	42.9 (13.9-76.5)*	24	85.7 (69.5-95.0)	**No**
Environmental Factors (e)							
e1208 PRODUCTS AND TECHNOLOGY FOR PERSONAL INDOOR AND OUTDOOR MOBILITY AND TRANSPORTATION, OTHER SPECIFIED	**20**	**90.9 (73.9-98.1)**	6	85.7 (49.9-98.4)*	26	92.9 (79.0-98.5)	Yes

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