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ORIGINAL RESEARCH

Health assessment instruments in Portuguese version and its comprehensiveness with ICF framework: a systematic review

Instrumentos da prática clínica com versão em português e a abrangência de seus conteúdos usando a CIF como referência: uma revisão sistemática

Instrumentos de la práctica clínica con versión en portugués y alcance de sus contenidos tomando como referencia la CIF: una revisión sistemática

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ABSTRACT | Clinical practice has been subsidized by instruments that record and allow access to information on functionality and health of individuals. One way to approach the content of the International Classification of Functioning, Disability and Health (ICF) is to use it as a reference to aid the professional in choosing the most appropriate instrument to access biopsychosocial information. We intend to identify health assessment instruments that had their content linked to the contents of the ICF and the presence of the Portuguese version of them. A systematic review was conducted of the SciELO Brazil, Lilacs and PubMed databases with the descriptors "ICF", "questionnaire" and "linking rules" in Portuguese and English. Three independent researchers performed the papers' selection, and the level of agreement was obtained by the kappa coefficient. The eligibility criteria were primary studies for questionnaires, scales, indices and checklists content linking to ICF published after 2001 in Portuguese or English. A total of 61 articles were included, of which 19 were of Brazilian origin. Given the totality of 250 instruments with ICF-related content, 158 (63.2%) presented a Portuguese-language version; just two of the 37 most cited works presented a Portuguese version. The Kappa coefficient showed significative agreement between moderate and good. This study provided an overview of the content connection between clinical practice instruments to ICF, identifying which instruments have Portuguese translation and its potential for strengthening the biopsychosocial approach.

Keywords | International Classification of Functioning, Disability and Health; ICF; Questionnaires; Review.

RESUMO | A prática clínica tem sido subsidiada por instrumentos que permitem acessar e registrar informações de funcionalidade e saúde dos indivíduos. Uma forma de conhecer qual conteúdo da Classificação Internacional de Funcionalidade, Incapacidade e Saúde (CIF) os instrumentos contemplam é usá-la como referência para auxiliar o profissional na escolha do mais adequado para acessar informações biopsicossociais. O objetivo foi identificar instrumentos da prática clínica em saúde que tiveram seu conteúdo ligado com a CIF e a existência de versão na língua portuguesa deles. Para tanto foi realizada uma revisão sistemática nas bases de dados SciELO Brasil, Lilacs e PubMed com os descritores "CIF", "questionário" e "regra de ligação" em português e inglês. Três pesquisadores independentes realizaram a seleção, e o nível de concordância foi obtido pelo coeficiente Kappa. Os critérios de elegibilidade foram: estudos primários de ligação de conteúdo de questionários, escalas, índices e *checklists* com a CIF publicados após 2001 em língua portuguesa ou inglesa. Foram incluídos 61 artigos,

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sendo 19 de origem brasileira. Dos 250 instrumentos ligados à CIF, 158 (63,2%) apresentaram versão em português sendo que dos 37 que mais se repetiram nos estudos, dois não apresentam essa versão. O coeficiente Kappa mostrou concordância entre moderada e boa (p<0,001). Este estudo apresentou um panorama da ligação de conteúdo de instrumentos da prática clínica à CIF identificando quais têm versão em língua portuguesa, o que contribuirá para o potencial fortalecimento da abordagem biopsicossocial dos profissionais de saúde.

Descritores | Classificação Internacional de Funcionalidade, Incapacidade e Saúde; CIF; Questionários; Revisão.

RESUMEN | La práctica clínica ha sido subsidiada por instrumentos que permiten acceder y registrar informaciones de funcionalidad y salud de los individuos. Una forma de conocer qué contenidos de la Clasificación Internacional de Funcionalidad, Incapacidad y Salud (CIF) los instrumentos contemplan es usarla como referencia para auxiliar al profesional en la elección del más adecuado para acceder a informaciones biopsicosociales. Lo objetivo fue identificar los instrumentos de la práctica clínica en la salud que tuviesen su contenido vinculado con el CIF y la disponibilidad de la versión en el idioma portugués. Para ello se realizó una revisión sistemática en las bases de datos SciELO Brasil, Lilacs y PubMed con las palabras clave "CIF", "cuestionario" y "reglas de vinculación "en portugués e inglés. Tres investigadores independientes realizaron la selección, y el nivel de concordancia fue obtenido por el coeficiente Kappa. Los criterios de elegibilidad fueron: estudios primarios de vinculación del contenido de cuestionarios, escalas, índices y listas de control con CIF publicados después de 2001 en el idioma portugués o Ingles. Fueron incluidos 61 artículos, siendo 19 de origen brasilero. De los 250 instrumentos con contenido relacionado a CIF, 158 (63,2%) presentaron versión en portugués, siendo que de los 37 que más se repitieron en los estudios dos no presentaron esta versión. El coeficiente Kappa mostró concordancia entre moderada y buena (p <0,001). Se ha delineado un panorama de la vinculación del contenido de instrumentos de la práctica clínica a la CIF identificando cuáles tienen versión en la lengua portuguesa y su potencial fortalecimiento del enfoque biopsicosocial.

Palabras clave | Clasificación Internacional del Funcionamiento, de la Discapacidad y de la Salud; CIF; Cuestionarios; Revisión.

INTRODUCTION

The increase in the prevalence of chronic health conditions and population aging has impacted on the morbidity, functionality and mortality of the world population in the 21st century. Maintaining health, therefore, has been a major objective for modern society[1-3].

The term functionality synthesizes the operationalization of biological health and lived health and was recognized by the World Health Organization (WHO) as the third health indicator, along with mortality and morbidity[3].

Health information records using clinical practice instruments such as questionnaires, scales, indices, and checklists have been used to support the monitoring of changes in the population's health profile. Such records support the investigation of health status, assess the impact of health conditions on the individual's life and assist the design of treatment plans and other interventions, in order to monitor the outcomes[4].

Another way to record information is through classifications, which use a globally accepted structure and include different domains in health. It also adopted as reference for a unified and consistent language for professionals in different areas[5]. The recording of information on functionality has been recommended using the International Classification of Functioning, Disability and Health (ICF), published in 2001 by the World Health Organization; and morbidity and mortality are recommended according to the International Statistical Classification of Diseases and Related Health Problems[1,3,6-8].

The joint use of these two forms of data collection allows the comparison of health records, which can ensure that a wide range of information is available in a consistent manner for health professionals and managers at different levels of healthcare[4]. As such, it is important to make available the content of the instruments, as this may contribute to the choice that best contemplates the content demanded by the context, individual care and to professionals. The ICF provides a common language for clinical practice and has become a reference for comparing the content of existing instruments and contains an exhaustive set of categories that relate the Body Functions, Body Structures, Activities and Participation of the individual to human functionality, as well as the Environmental Factors[4,9,10].

Cieza et al.[4] developed a systematic and standardized approach to link the content of clinical practice instruments with the ICF. In that study, the authors

developed rules for linking content and tested its reliability for these clinical practice instruments. They subsequently published their update in 2005[10], extending the application of the rules to other forms of health information collection such as laboratory tests, imaging tests and other clinical examinations; improvements were made in 2016[9] to strengthen the transparency of the connection process.

The use of ICF as a reference allows the selection of representative categories for a given context or situation[9,11] and assists the professional in choosing the most appropriate instrument to access information about the functional capacity of individuals[9], as the instruments are sources of information to operationalize the model proposed by CIF and at the same time are subsidies for the knowledge of their coverage on the biopsychosocial model.

In the Brazilian literature, there is an increasing scientific production with the ICF[12-15]; however, there is still a lack of knowledge of the instruments already linked to the ICF so that these contents contemplated in the biopsychosocial model proposed by the WHO can be operationalized.

As such, this review intends to identify the instruments of clinical health practice that had their content linked to the ICF and the presence of its Portuguese-language version.

METHODOLOGY

This is a systematic review carried out from February to March 2017 and updated in March 2019, which followed the recommendations of the Preferred Reporting Items for Systematic Reviews and Meta-Analysis[16] at both times of search when relevant.

Prospection of studies was carried out in Portuguese and English. The decision to search in the English language is justified by the fact that the ICF is a universal language, and the categories linked to an instrument in another language can be considered for the respective version in Portuguese, could be customized according to the context and need of each professional.

The databases accessed were Scientific Eletronic Library Online (SciELO Brazil), Latin American and Caribbean Health Science (Lilacs) and Medical Literature Analysis and Retrieval System Online /US National Library of Medicine (Medline / PubMed) and the descriptors are listed in Chart 1.

Chart 1. Descriptors used to seek for articles in electronic databases

Database	Descriptors
Lilacs	1st strategy: questionnaires or questionnaire or survey or surveys [words] and International Classification of Functioning, Disability and Health or ICF [words] 2nd strategy: International Classification of Functioning, Disability and Health or ICF [words] and Linking rules or linking or linking and rule [words]
Medline/ PubMed	((ICF[All Fields] OR ("international classification of functioning, disability and health"[MeSH Terms] OR ("international"[All Fields] AND "classification"[All Fields] AND "functioning"[All Fields] AND "disability"[All Fields] AND "health"[All Fields]) OR "disability and health international classification of functioning"[All Fields] OR ("international"[All Fields] AND "classification"[All Fields] AND "functioning"[All Fields] AND "disability"[All Fields] AND "health"[All Fields]) OR "international classification of functioning, disability and health"[All Fields])) AND ("surveys and questionnaires"[MeSH Terms] OR ("surveys"[All Fields] AND "questionnaires"[All Fields]) OR "surveys and questionnaires"[All Fields] OR "questionnaire"[All Fields])) AND (linking[All Fields] AND rules[All Fields])
SciELO	((questionnaires) OR (questionnaire) OR (survey) OR (surveys) OR (surveys AND questionnaires)) AND (((international classification of functioning, disability AND health) OR (icf))) OR (((international classification of functioning, disability AND health) OR (icf))) AND (((linking) AND (rules)) OR (linking) OR (linking rules)))

The search for studies on the SciELO Brazil and Lilacs databases was carried out by associating the descriptors "CIF / ICF", "questionnaire / questionnaire" and "linking rule / linking rules", and then using the descriptors separately. To complement the search, the Medline / PubMed database was accessed with the association of the three descriptors mentioned above.

The selection of studies followed the criteria: Portuguese, English or Spanish; primary study to link the content of questionnaires, scales, indexes and checklists used in clinical health practice with the ICF content; published after the establishment of the first version of the ICF in 2001[17]; instruments for evaluating people over 18 years of age.

No inclusion criteria were established for the study area or for the method used to link the instruments with the ICF in order to find ways used to make the connection. Duplicate articles, theoretical articles on development of binding rules, articles that did not explain which instruments were used (name of the instrument), articles exclusively on instrument development and articles that exclusively relate health surveys and inventories, clinical tests, laboratory tests, electronic medical records, classifications and / or scores that predict mortality.

Studies were included that also linked surveys and inventories, tests, exams, medical records, classifications and/or scores predictive of mortality to the ICF; however, only the results of such studies that linked the ICF to some specific instruments were presented.

The selection of articles was made independently and blindly by three researchers. The titles and subsequently the abstracts for the election of those to be read in full were read.

The level of agreement among researchers for the eligibility of studies was verified by the statistical Kappa coefficient, with Kappa values ranging from 0 to 1. Values below 0.20 indicate poor agreement; between 0.21 and 0.40 weak; between 0.41 and 0.61 indicate moderate agreement; between 0.61 and 0.80 good agreement; and above 0.81 very good[18].

There was a manual search for studies that dealt with the connection of instruments with the ICF in the references of systematic reviews and also in studies that linked some instruments and use of them in relation to researchers.

The following data from the studies were extracted: indexing base, authors, year of publication, clinical health practice instruments that were linked to the ICF, methodological connection procedures adopted, ICF components included in the instruments and contexts in which the studies were carried out and if the study performed the classification of the ICF categories selected from the content link of the instrument. In the case of disagreement, a consensus among researchers was established.

For instruments in English, a manual search of the literature was carried out to identify which ones had a Portuguese version. The instrument direct compatibility in response with the ICF was also manually verified, when all items of the instruments had five ordinally graded response options. The remaining response options identified were considered non-direct.

RESULTS

Sixty-one primary studies linking the content of clinical healthcare instruments with ICF were included in this review (Figure 1), 50 of which originated from electronic searches. The remaining 11 came from manual search, of which 6 were from review articles[5,13-15,19], two of them[20,21] belonging to Faria et al.[19] review and four[22-25] to Faye et al.[5] review. The other three reviews[13-15] also had their references verified, however, the primary connection studies included in them had already been captured in the electronic search. The other five studies included from the manual search came from citations in primary link studies in the electronic search[26-30].

The Kappa coefficient showed an agreement level of moderate to good ($p < 0.001$) between the three researchers, expressed by pairs of researchers the minimum and maximum values found of 0.488 (85.2%) and 0.651 (90.6%).

250 different instruments were identified, of which 158 (63.2%) Portuguese version. The number of instruments linked by each of the studies differed, with 37 (60.6%) studies linking content from 2 to 6 instruments to the ICF, 16 (26.2%) linking one, 8 (13.1%) linking 10 to 20 and a single study called 59.

Thirty-seven instruments were linked by more than one study. The SF-36 was linked by 11 of the 61 studies; END by 8; DASH by 7; BI and NHP for 6 studies each; EQ-5D, MMSE and SSQol for 4; DRS, FAI, GOS, HADS, SIP and WHOQOL-BREAF by 3 and ABC, BBS, BDI, CIQ, COPM, EORTCQLQ-C30, FAM, FSS, HRSD, MAS, MI, mRS, NEADL, NIHSS, QuickDASH, RMA, RMI, RS, SA-SIP30, SIS, SPADI, SSQ, SSS, WHOdas 2.0 and WAIS-R for 2 studies each. Of these, the NEADL and the SIP did not present a Portuguese version. The CDIP-58 did not have a Portuguese version either.

As for the connection methodology, 1 study used only the refinement of the connection rules[9], 2 studies used the rules proposed by Cieza et al.[4] and Cieza et al.[10] and its refinement[9], 78.7% (n=48) of the studies used the rules proposed by Cieza et al.[4] and Cieza et al.[10] and the others used consensus or other methodologies. In addition, most studies were inserted in the context of Neurology and Orthopedics. Of the total studies, 19 were Brazilian publications.

The Activities and Participation component (d) was the most contemplated (93.4%, n=57) in the studies, followed by Body Functions (81.9%, n=50), Environmental Factors (55.7% n=34) and, Body Structures (16.3%, n=10). Six studies covered all components of the ICF.

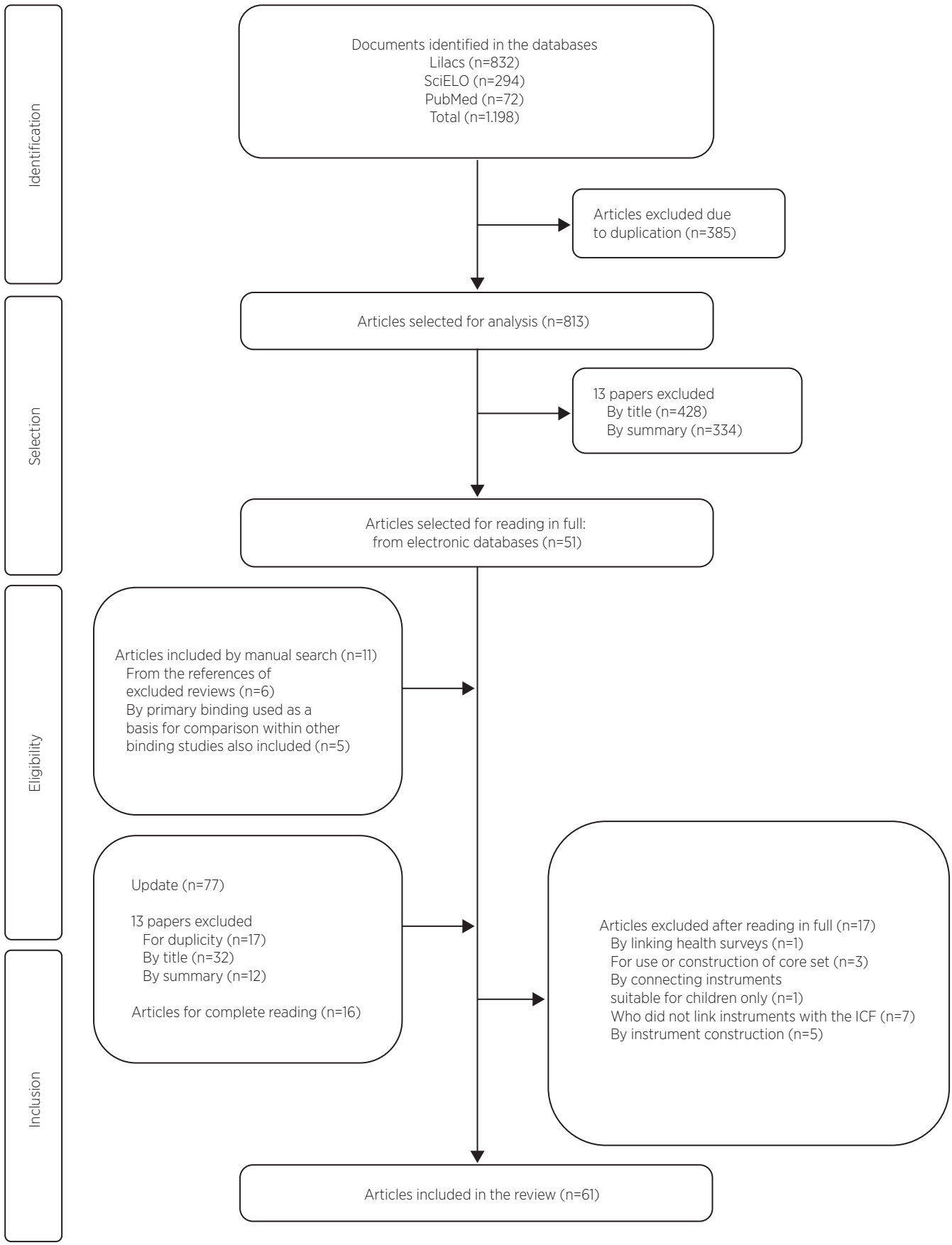

Figure 1. Flowchart of the selection and inclusion of articles

Regarding the way to express the results, there were studies that demonstrated the connection of each item of the instruments to each selected CIF category[31-55]. Philbois et al.[56] and Gomes et al.[57] linked instrument items to ICF components. Campos et al.[58] also demonstrated the connection of each item of the instruments to the ICF categories, however, these categories came from the core set for AVE and not from the complete ICF.

Other studies presented the ICF categories that were linked to each instrument, without specifying which item the category referred to[10,20,21,25,27,28,30,59-71]. However, Carvalho et al.[62] also demonstrated that these categories came from the core set for breast cancer.

Studies that linked more than one instrument expressed as a result the linking of each item to each category to one of the linked instruments[72-75].

Some studies have focused on only one component of the ICF. Alvarelhão et al.[76] and Guscia et al.[23] demonstrated the number of categories of Environmental Factors linked to each instrument. Dixon et al.[26], Moura et al.[54] and Prodinger et al.[69] demonstrated the number of categories of Activities and Participation. In addition to the Activities and Participation categories, Van der Mei et al.[77] presented the percentage of categories identified in the other components. Roe et al.[29] presented the chapters of each component contained in the instruments.

Fréz et al.[78] linked the ICF categories to the eight domains of the SF-36 questionnaire. Geyh et al.[22] and Scheuringer et al.[24] presented the categories and their frequency of appearance for the total of connected instruments. De Pauw et al.[79] presented in a similar way, but presented the frequency of the chapters of Body Function and Activity and Participation.

Among the 250 instruments identified, 17.2% (n=43) showed direct compatibility of the response option of all items of the instrument with the ICF and most of it (82.8% n=207) non-direct compatibility.

Regarding the classification of the ICF categories, only 6 Brazilian studies used the qualifiers[40.49.53.54.61.78].

The data presented here are summarized in Chart 2.

Chart 2. Articles included in this research, their country of origin, contexts, instruments with content related to the ICF, methodological procedure used for it and components of the ICF contemplated by the connection in each article

Author (country)	Context	Instruments that had the content connected to the ICF	Procedure Connection	CIF components
Dahlgren et al.[36] (Sweden)	Neurology	KB (Klein-Bell Activities of Daily Living Scale)	Cieza et al., 2005	b, d, e
Fréz et al.[39] (Brazil)		FIM (Functional Independence Measure)*	Cieza et al., 2005	b, d, e
Silva et al.[49#] (Brazil)		NHP (Nottingham Health Profile)* SSQoL (Stroke Specific Quality of Life Scale)*†	Cieza et al., 2005	d
Koopman et al.[41] (Netherlands)		FSS (Fatigue Severity Scale)* CIS20-F (Checklist Individual Strength- sub-scale subjective experience of fatigue)*	Cieza et al., 2005	b, d
Berzina et al.[32] (Switzerland)		mRS (The Modified Rankin Scale)*	Cieza et al., 2005	b, d, e
Prodinger et al.[69] (Germany)		SF-36 (Short Form Health Survey)* WHODAS 2.0 (WHO Disability Schedule 2.0)* SIS 3.0 (Stroke Impact Scale 3.0)*†	Cieza et al., 2002; Cieza et al., 2005; Cieza et al., 2016	d
Sigl et al.[67] (Germany)	Orthopedics	BASFI (Bath Ankylosing Spondylitis Functional Index)* DFI (Dougados Functional Index)* HAQ-S (Health Assessment Questionnaire modified for the spondyloarthropathies)* RLDQ (Revised Leeds Disability Questionnaire)*	Cieza et al., 2002	b, d, e
Sigl et al.[73] (Germany)		NASS (North American Spine Society Lumbar Spine Outcome Assessment Instrument) ODI (Oswestry Low Back Disability Questionnaire)* † RMDQ (Roland Morris Disability Questionnaire)*	Cieza et al., 2002	b, d, e
Drummond et al.[38] (Brazil)		DASH (Disabilities of the Arm, Shoulder and Hand)* †	Cieza et al., 2005	b, d
Dixon et al.[26] (Scotland)		DASH (Disabilities of the Arm, Shoulder and Hand) *†	Degree of agreement among raters	d
Alviar et al.[60] (Australia)		OHS (Oxford Hip Score)† OKS (Oxford Knee Score)* † HOOS (Hip Dysfunction and Osteoarthritis Outcome Score)† KOOS (Knee Injury and Osteoarthritis Outcome Score)* † AIMS (Arthritis Impact Measurement Scales)* †	Cieza et al., 2005	b, s, d, e

(continues)

Chart 2. Continuation

Author (country)	Context	Instruments that had the content connected to the ICF	Procedure Connection	CIF components
Arumugam et al.[31] (Canada)	Orthopedics	WLQ-26 (26-Item Work Limitations Questionnaire)* †	Cieza et al., 2005	b, d, e
Roe et al.[29] (Norway)	Orthopedics	Constant (Constant Murley shoulder Score) ASES (American Shoulder and Elbow Surgeons Standardized form for Assessment of the Shoulder)* UCLA (University of California at Los Angeles shoulder rating Scale)* DASH (Disability of the Arm, Shoulder and Hand)* † SST (Simple Shoulder Test)* SPADI (Shoulder Pain and Disability Index)* WORC (Western Ontario Rotator Cuff Index)* SRQ (Shoulder Rating Questionnaire)* SDQ (Shoulder Disability Questionnaire) OSS (Oxford Shoulder Score)* † WOSI (Western Ontario Shoulder Instability Index)* QuickDASH (Shortened version of Disabilities of the Arm, Shoulder and Hand) * † Penn (Penn shoulder score)* SF-36 (36-item Short-Form Health Survey)* SF-12 (12-Item Short-Form Health Survey)* JCQ (Job Content Questionnaire)* Nordic (Standardized Nordic questionnaires for the analysis of musculoskeletal symptoms)* EQ-5D (European Quality of Life Instrument-5D)* FABQ (Fear-Avoidance Beliefs Questionnaire)* 4DSQ (Four-Dimensional Symptom Questionnaire)†	Cieza et al., 2005	b, s, d, e
Fréz et al.[78#] (Brazil)	Orthopedics	SF-36 (36-item Short-Form Health Survey)*	Agreement	b, s, d
Forget e Higgins[64] (Canada)	Orthopedics	DASH (Disabilities of the Arm, Shoulder and Hand)* † QuickDASH (shortened version of Disabilities of the Arm, Shoulder and Hand)* † PRWE (Patient rated wrist evaluation) PRWHE (Patient rated wrist/hand evaluation) PEM (Patient Evaluation Measure) MHQ (MHQ Michigan Hand Questionnaire)† UEFI (Upper extremity functional index)* †	Cieza et al., 2005	b, d
Vincent et al.[51] (Canada)	Orthopedics	PREE (Patient Rated Elbow Evaluation)* pASES-e (American Shoulder and Elbow Surgeons Society – Elbow Form)*	Cieza et al., 2005	b, d
Nicol et al.[45] (Switzerland)	Orthopedics	BQ (Bournemouth Questionnaire)*	Cieza et al., 2005	b, d
Philbois et al.[56] (Brazil)	Orthopedics	SPADI (Shoulder Pain and Disability Index)* DASH (Disabilities of the Arm, Shoulder and Hand)* †	Degree of agreement among raters	b, s, d
Fréz et al.[65] (Brazil)	Orthopedics	AMP (Amputee Mobility Predictor)* PEQ (Prosthesis Evaluation Questionnaire)* HAI (Hill Assessment Index) SAI (Stair Assessment Index)	Cieza et al., 2005	e
De Pauw et al.[79] (Belgium)	Orthopedics	TWSTRS (Toronto Western Spasmodic Torticollis Rating Scale)* CDIP-58 (Cervical Dystonia Impact Profile) †	Cieza et al., 2002 Cieza et al., 2005	b, d
Weigl et al.[52] (Germany)	Rheumatology	WOMAC (Western Ontario and McMaster Universities)* † LAI (Lequesne Algofunctional Index)*	Cieza et al., 2005	b, d, e
Stamm et al.[75] (Austria)	Rheumatology	COPM (Canadian Occupational Performance Measure)* AMPS (Assessment of Motor and Process Skills) SODA (Sequential Occupational Dexterity Assessment)	Cieza et al., 2002	b, d
Stucki e Cieza[30] (Germany)	Rheumatology	HAQ-DI (Health Assessment Questionnaire Disability Index)* AIMS2 (Arthritis Impact Measurement Scales 2)*† SF-36 (36-item Short-Form Health Survey)*	Cieza et al., 2002	b, d
Stamm et al.[74] (Austria)	Rheumatology	HAQ (Health Assessment Questionnaire)* AUSCAN Index* † Cochin Scale (Cochin Rheumatoid Hand Disability Scale)* FIHOA (Functional Index of Hand Osteoarthritis)* SACRAH (Score for Assessment and Qualification of Chronic Rheumatoid Affections of the Hands Questionnaire) AIMS2-SF (Arthritis Impact Measurement 2 Scales short form)*†	Cieza et al., 2005	b, d, e

(continues)

Chart 2. Continuation

Author (country)	Context	Instruments that had the content connected to the ICF	Procedure Connection	CIF components
Prodinger et al.[72] (Austria)	Rheumatology	FIQ (Fibromyalgia Impact Questionnaire)* MPQ (McGill Pain Questionnaire)* SF-MPQ (Short Form McGill Pain Questionnaire)* BPI (Brief Pain Inventory)* LANSS (Leeds Assessment of Neuropathic Symptoms and Signs Pain Scale)* FACIT-FS (Functional Assessment of Chronic Illness Therapy)*† FACIT-F (Functional Assessment of Chronic Illness Therapy–Fatigue)*† FSS (Fatigue Severity Scale)* MFI-20 (Multidimensional Fatigue Inventory)* MAF (Multidimensional Assessment of Fatigue) MOS (Sleep scale from Medical Outcomes Study) SF-36 (36-item Short-Form Health Survey)* ASEX (Arizona Sexual Experiences Scale)* BDI (Beck Depression Inventory)* HADS (Hospital Anxiety and Depression Scale)* HRSD (Hamilton Rating Scale for Depression)*	Cieza et al., 2005	b, s, d, e
Rat et al.[47] (France)		OAKHQOL (Osteoarthritis Knee and Hip Quality of Life)	Cieza et al., 2005	b, d, e
Milman et al.[66] (Canada)		BVAS (Birmingham Vasculitis Activity Score)* BVASv3 (Birmingham Vasculitis Activity Score version 3)* BVAS/WG (Birmingham Vasculitis Activity Score for granulomatosis with polyangiitis)* VDI (Vasculitis Damege Index) SF-36 (36-item Short-Form Health Survey)*	Cieza et al., 2005	b, s, d
Moura et al.[54#] (Brazil)		SALSA (Screening of Activity Limitation & Safety Awareness)*	Not explained	d
Bladh et al.[33] (Sweden)	Gerontology	FES-I (Falls Efficacy Scale–International)† FES(S) (Swedish version of the Falls Efficacy Scale) † ABC (Activities-specific Balance Confidence Scale)* SAFFE (modified Survey of Activities and Fear of Falling in the Elderly)†	Cieza et al., 2005	b, d
Marques et al.[43] (Portugal)		EASY-Care Standard*	Cieza et al., 2005	b, s, d, e
Dahlgren et al.[36] (Sweden)	Neurology	KB (Klein-Bell Activities of Daily Living Scale)	Cieza et al., 2005	b, d, e
Fréz et al.[39] (Brazil)		FIM (Functional Independence Measure)*	Cieza et al., 2005	b, d, e
Silva et al.[49#] (Brazil)		NHP (Nottingham Health Profile)* SSQoL (Stroke Specific Quality of Life Scale)*†	Cieza et al., 2005	d
Koopman et al.[41] (Netherlands)		FSS (Fatigue Severity Scale)* CIS20-F (Checklist Individual Strength- sub-scale subjective experience of fatigue)*	Cieza et al., 2005	b, d
Berzina et al.[32] (Switzerland)		mRS (The Modified Rankin Scale)*	Cieza et al., 2005	b, d, e
Prodinger et al.[69] (Germany)		SF-36 (Short Form Health Survey)* WHODAS 2.0 (WHO Disability Schedule 2.0)* SIS 3.0 (Stroke Impact Scale 3.0)*†	Cieza et al., 2002; Cieza et al., 2005; Cieza et al., 2016	d
Sigl et al.[67] (Germany)	Orthopedics	BASFI (Bath Ankylosing Spondylitis Functional Index)* DFI (Dougados Functional Index)* HAQ-S (Health Assessment Questionnaire modified for the spondyloarthropathies)* RLDQ (Revised Leeds Disability Questionnaire)*	Cieza et al., 2002	b, d, e
Sigl et al.[73] (Germany)		NASS (North American Spine Society Lumbar Spine Outcome Assessment Instrument) ODI (Oswestry Low Back Disability Questionnaire)* † RMDQ (Roland Morris Disability Questionnaire)*	Cieza et al., 2002	b, d, e
Drummond et al.[38] (Brazil)		DASH (Disabilities of the Arm, Shoulder and Hand)* †	Cieza et al., 2005	b, d
Dixon et al.[26] (Escotland)		DASH (Disabilities of the Arm, Shoulder and Hand) *†	Degree of agreement among raters	d

(continues)

Chart 2. Continuation

Author (country)	Context	Instruments that had the content connected to the ICF	Procedure Connection	CIF components
Alviar et al.[60] (Australia)	Orthopedics	OHS (Oxford Hip Score)† OKS (Oxford Knee Score)* † HOOS (Hip Dysfunction and Osteoarthritis Outcome Score)† KOOS (Knee Injury and Osteoarthritis Outcome Score)* † AIMS (Arthritis Impact Measurement Scales)* †	Cieza et al., 2005	b, s, d, e
Arumugam et al.[31] (Canada)		WLQ-26 (26-Item Work Limitations Questionnaire)* †	Cieza et al., 2005	b, d, e
Roe et al.[29] (Norway)		Constant (Constant Murley shoulder Score) ASES (American Shoulder and Elbow Surgeons Standardized form for Assessment of the Shoulder)* UCLA (University of California at Los Angeles shoulder rating Scale)* DASH (Disability of the Arm, Shoulder and Hand) * † SST (Simple Shoulder Test)* SPADI (Shoulder Pain and Disability Index)* WORC (Western Ontario Rotator Cuff Index)* SRQ (Shoulder Rating Questionnaire)* SDQ (Shoulder Disability Questionnaire) OSS (Oxford Shoulder Score)* † WOSI (Western Ontario Shoulder Instability Index)* QuickDASH (Shortened version of Disabilities of the Arm, Shoulder and Hand) * † Penn (Penn shoulder score)* SF-36 (36-item Short-Form Health Survey)* SF-12 (12-Item Short-Form Health Survey)* JCQ (Job Content Questionnaire)* Nordic (Standardized Nordic questionnaires for the analysis of musculoskeletal symptoms)* EQ-5D (European Quality of Life Instrument-5D)* FABQ (Fear-Avoidance Beliefs Questionnaire)* 4DSQ (Four-Dimensional Symptom Questionnaire)†	Cieza et al., 2005	b, s, d, e
Fréz et al.[78#] (Brazil)		SF-36 (36-item Short-Form Health Survey)*	Agreement	b, s, d
Forget e Higgins[64] (Canada)		DASH (Disabilities of the Arm, Shoulder and Hand)* † QuickDASH (shortened version of Disabilities of the Arm, Shoulder and Hand)* † PRWE (Patient rated wrist evaluation) PRWHE (Patient rated wrist/hand evaluation) PEM (Patient Evaluation Measure) MHQ (MHQ Michigan Hand Questionnaire)† UEFI (Upper extremity functional index)* †	Cieza et al., 2005	b, d
Vincent et al.[51] (Canada)	Orthopedics	PREE (Patient Rated Elbow Evaluation)* pASES-e (American Shoulder and Elbow Surgeons Society – Elbow Form)*	Cieza et al., 2005	b, d
Nicol et al.[45] (Switzerland)		BQ (Bournemouth Questionnaire)*	Cieza et al., 2005	b, d
Philbois et al.[56] (Brazil)		SPADI (Shoulder Pain and Disability Index)* DASH (Disabilities of the Arm, Shoulder and Hand)* †	Degree of agreement among raters	b, s, d
Fréz et al.[65] (Brazil)		AMP (Amputee Mobility Predictor)* PEQ (Prosthesis Evaluation Questionnaire)* HAI (Hill Assessment Index) SAI (Stair Assessment Index)	Cieza et al., 2005	e
De Pauw et al.[79] (Belgium)		TWSTRS (Toronto Western Spasmodic Torticollis Rating Scale)* CDIP-58 (Cervical Dystonia Impact Profile) †	Cieza et al., 2002 Cieza et al., 2005	b, d
Weigl et al.[52] (Germany)	Rheumatology	WOMAC (Western Ontario and McMaster Universities)* † LAI (Lequesne Algofunctional Index)*	Cieza et al., 2005	b, d, e
Stamm et al.[75] (Austria)		COPM (Canadian Occupational Performance Measure)* AMPS (Assessment of Motor and Process Skills) SODA (Sequential Occupational Dexterity Assessment)	Cieza et al., 2002	b, d
Stucki e Cieza[30] (Germany)		HAQ-DI (Health Assessment Questionnaire Disability Index)* AIMS2 (Arthritis Impact Measurement Scales 2)*† SF-36 (36-item Short-Form Health Survey)*	Cieza et al., 2002	b, d

(continues)

Chart 2. Continuation

Author (country)	Context	Instruments that had the content connected to the ICF	Procedure Connection	CIF components
Stamm et al.[74] (Austria)	Rheumatology	HAQ (Health Assessment Questionnaire)* AUSCAN Index* † Cochin Scale (Cochin Rheumatoid Hand Disability Scale)* FIHOA (Functional Index of Hand Osteoarthritis)* SACRAH (Score for Assessment and Qualification of Chronic Rheumatoid Affections of the Hands Questionnaire) AIMS2-SF (Arthritis Impact Measurement 2 Scales short form)*†	Cieza et al., 2005	b, d, e
Prodinger et al.[72] (Austria)		FIQ (Fibromyalgia Impact Questionnaire)* MPQ (McGill Pain Questionnaire)* SF-MPQ (Short Form McGill Pain Questionnaire)* BPI (Brief Pain Inventory)* LANSS (Leeds Assessment of Neuropathic Symptoms and Signs Pain Scale)* FACIT-FS (Functional Assessment of Chronic Illness Therapy)*† FACIT-F (Functional Assessment of Chronic Illness Therapy–Fatigue)*† FSS (Fatigue Severity Scale)* MFI-20 (Multidimensional Fatigue Inventory)* MAF (Multidimensional Assessment of Fatigue) MOS (Sleep scale from Medical Outcomes Study) SF-36 (36-item Short-Form Health Survey)* ASEX (Arizona Sexual Experiences Scale)* BDI (Beck Depression Inventory)* HADS (Hospital Anxiety and Depression Scale)* HRSD (Hamilton Rating Scale for Depression)*	Cieza et al., 2005	b, s, d, e
Rat et al.[47] (France)		OAKHQOL (Osteoarthritis Knee and Hip Quality of Life)	Cieza et al., 2005	b, d, e
Milman et al.[66] (Canada)		BVAS (Birmingham Vasculitis Activity Score)* BVASv3 (Birmingham Vasculitis Activity Score version 3)* BVAS/WG (Birmingham Vasculitis Activity Score for granulomatosis with polyangiitis)* VDI (Vasculitis Damege Index) SF-36 (36-item Short-Form Health Survey)*	Cieza et al., 2005	b, s, d
Moura et al.[54#] (Brazil)		SALSA (Screening of Activity Limitation & Safety Awareness)*	Not explained	d
Bladh et al.[33] (Sweden)	Gerontology	FES-I (Falls Efficacy Scale–International)† FES(S) (Swedish version of the Falls Efficacy Scale) † ABC (Activities-specific Balance Confidence Scale)* SAFFE (modified Survey of Activities and Fear of Falling in the Elderly)†	Cieza et al., 2005	b, d
Marques et al.[43] (Portugal)		EASY-Care Standard*	Cieza et al., 2005	b, s, d, e
Vincent et al.[51] (Canada)	Orthopedics	PREE (Patient Rated Elbow Evaluation)* pASES-e (American Shoulder and Elbow Surgeons Society – Elbow Form)*	Cieza et al., 2005	b, d
Nicol et al.[45] (Switzerland)		BQ (Bournemouth Questionnaire)*	Cieza et al., 2005	b, d
Philbois et al.[56] (Brazil)		SPADI (Shoulder Pain and Disability Index)* DASH (Disabilities of the Arm, Shoulder and Hand)* †	Degree of agreement among raters	b, s, d
Fréz et al.[65] (Brazil)		AMP (Amputee Mobility Predictor)* PEQ (Prosthesis Evaluation Questionnaire)* HAI (Hill Assessment Index) SAI (Stair Assessment Index)	Cieza et al., 2005	e
De Pauw et al.[79] (Belgium)		TWSTRS (Toronto Western Spasmodic Torticollis Rating Scale)* CDIP-58 (Cervical Dystonia Impact Profile) †	Cieza et al., 2002 Cieza et al., 2005	b, d
Weigl et al.[52] (Germany)	Rheumatology	WOMAC (Western Ontario and McMaster Universities)* † LAI (Lequesne Algofunctional Index)*	Cieza et al., 2005	b, d, e
Stamm et al.[75] (Austria)		COPM (Canadian Occupational Performance Measure)* AMPS (Assessment of Motor and Process Skills) SODA (Sequential Occupational Dexterity Assessment)	Cieza et al., 2002	b, d

(continues)

Chart 2. Continuation

Author (country)	Context	Instruments that had the content connected to the ICF	Procedure Connection	CIF components
Stucki e Cieza[30] (Germany)		HAQ-DI (Health Assessment Questionnaire Disability Index)* AIMS2 (Arthritis Impact Measurement Scales 2)*† SF-36 (36-item Short-Form Health Survey)*	Cieza et al., 2002	b, d
Stamm et al.[74] (Austria)		HAQ (Health Assessment Questionnaire)* AUSCAN Index* † Cochin Scale (Cochin Rheumatoid Hand Disability Scale)* FIHOA (Functional Index of Hand Osteoarthritis)* SACRAH (Score for Assessment and Qualification of Chronic Rheumatoid Affections of the Hands Questionnaire) AIMS2-SF (Arthritis Impact Measurement 2 Scales short form)*†	Cieza et al., 2005	b, d, e
Prodinger et al.[72] (Austria)	Rheumatology	FIQ (Fibromyalgia Impact Questionnaire)* MPQ (McGill Pain Questionnaire)* SF-MPQ (Short Form McGill Pain Questionnaire)* BPI (Brief Pain Inventory)* LANSS (Leeds Assessment of Neuropathic Symptoms and Signs Pain Scale)* FACIT-FS (Functional Assessment of Chronic Illness Therapy)*† FACIT-F (Functional Assessment of Chronic Illness Therapy–Fatigue)*† FSS (Fatigue Severity Scale)* MFI-20 (Multidimensional Fatigue Inventory)* MAF (Multidimensional Assessment of Fatigue) MOS (Sleep scale from Medical Outcomes Study) SF-36 (36-item Short-Form Health Survey)* ASEX (Arizona Sexual Experiences Scale)* BDI (Beck Depression Inventory)* HADS (Hospital Anxiety and Depression Scale)* HRSD (Hamilton Rating Scale for Depression)*	Cieza et al., 2005	b, s, d, e
Rat et al.[47] (France)		OAKHQOL (Osteoarthritis Knee and Hip Quality of Life)	Cieza et al., 2005	b, d, e
Milman et al.[66] (Canada)		BVAS (Birmingham Vasculitis Activity Score)* BVASv3 (Birmingham Vasculitis Activity Score version 3)* BVAS/WG (Birmingham Vasculitis Activity Score for granulomatosis with polyangiitis)* VDI (Vasculitis Damege Index) SF-36 (36-item Short-Form Health Survey)*	Cieza et al., 2005	b, s, d
Moura et al.[54#] (Brazil)		SALSA (Screening of Activity Limitation & Safety Awareness)*	Not explained	d
Bladh et al.[33] (Sweden)	Gerontology	FES-I (Falls Efficacy Scale–International)† FES(S) (Swedish version of the Falls Efficacy Scale) † ABC (Activities-specific Balance Confidence Scale)* SAFFE (modified Survey of Activities and Fear of Falling in the Elderly)†	Cieza et al., 2005	b, d
Marques et al.[43] (Portugal)		EASY-Care Standard*	Cieza et al., 2005	b, s, d, e
Araujo et al.[61#] (Brazil)	Gerontology	BI (Barthel Index)* NHP (Nottingham Health Profile)* MMSE (Mini-Mental State Examination)*	Agreement	b, d
Eckert e Lange[63] (Germany)		7-Day PAR (7-Day Physical Activity Recall Scale) AAS (Australian Activity Survey) Baecke modified (Baecke modified physical activity questionnaire for the elderly)* Brunel PAQ (Brunel lifestyle physical activity Questionnaire) CHAMPS (Community Healthy Activities Model Program for Seniors) EPAQ2 (European Physical Activity Questionnaire – second version) EPIC-s (The European Prospective Investigation into Cancer Study-Short Form) GPAQ (Global Physical Activity Questionnaire)*	Cieza et al., 2005	d

(continues)

Chart 2. Continuation

Author (country)	Context	Instruments that had the content connected to the ICF	Procedure Connection	CIF components
	Gerontology	IPAQ-Long (International Physical Activity Questionnaire – Long Version)* MLTPAQ (Minnesota Leisure Time Physical activity Questionnaire)* PAQ-M (Morgenstern Physical Activity Questionnaire) PASE (Physical activity scale for the elderly)* RAPA (Rapid Assessment of Physical Activity)* SBAS (Stanford Brief Activity Survey) SQUASH (Short Questionnaire to assess health-enhancing physical activity) YPAS (Yale Physical Activity Survey) Zutphen (Physical Activity Questionnaire from the Zutphen)		
Josino et al.[40#] (Brazil)		FIM (Functional Independence Measure)*	Not explained	d, b
Gomes et al.[57] (Brazil)		IADL (Lawton – Brody Instrumental Activities Of Daily Living Scale)* GFFI (General functional fitness index)* HAQ (Health Assessment Questionnaire)*	Not explained	b, s, d, e
Castaneda e Plácido[35] (Brazil)	Oncology	KHQ (King's Heath Questionnaire)*	Cieza et al., 2005	b, d, e
Van der Mei et al.[77] (Netherlands)		FLIC (Functional Living Index-Cancer)† RSCL (Rotterdam Symptom Checklist)* CARES-SF (Cancer Rehabilitation Evaluation System-Short Form)† SLDS-C (Satisfaction with Life Domains Scale for Cancer) EORTCQLQ-C30 (European Organization for Research and Treatment of Cancer core Quality of Life Questionnaire)* FACT-G (Functional Assessment of Cancer Therapy-General)* QOL-CS (Quality of Life-Cancers Survivors instrument) CPILS (Cancer Problems in Living Scale) QLACS (Quality of Life in Adult Cancer Survivor Scale) IOCv2 (Impact of Cancer version 2)	Cieza et al., 2005	d
Carvalho et al.[62] (Brazil)		WHOQOL-BREF (26-items version of the WHO Quality of Life Assessment)* † DASH (Disabilities of the Arm, Shoulder and Hand)* † SSQ (Social Support Questionnaire)*	Agreement	b, d, e
Carvalho et al.[34] (Brazil)		WHOQOL-BREF (26-items version of the WHO Quality of Life Assessment)*† DASH (Disabilities of the Arm, Shoulder and Hand)*† SSQ (Social Support Questionnaire)*	Not explained	b, d, e
Letellier et al.[42] (Canada)		EORTCQLQ-C30 (European Organization for Research and Treatment of Cancer core Quality of Life Questionnaire)* EORTCQLQ-BR23 (European Organization for Research and Treatment of Cancer core Quality of Life Questionnaire)*	Cieza et al., 2005	b, d
Schönrich et al.[25] (Germany)	Gastroenterology	AR (Adequate Relief) IBS–QOL (Irritable Bowel Syndrome–Quality of Life)* † IBS–SQ (Irritable Bowel Syndrome–Symptom Questionnaire)	Cieza et al., 2002	b, d, e
Reichel et al.[48] (Germany)		CDAI (Crohn's Disease Activity Index)* HBI (Harvey-Bradshaw Index)*	Cieza et al., 2005	b
Stucki et al.[68] (Switzerland)	Pulmonology	SGRQ (St. George's respiratory Questionnaire)* † CRQ-SAS (Chronic respiratory questionnaire, standardized version)* PFSDQ-M (Pulmonary functional status & dyspnea questionnaire, modified version)* † PFSS (Pulmonary functional status Scale)* † BPQ (Breathing problems Questionnaire)* SOLDQ (Seattle obstructive lung disease Questionnaire)* QOL-RIQ (Quality of life for respiratory illness Questionnaire) AQ20 (Airway questionnaires 20)* LCADL (London chest activity of daily living Scale)* MRF28 (Maugeri Foundation respiratory failure Questionnaire) CCQ (Clinical chronic obstructive pulmonary disease Questionnaire)* †	Cieza et al., 2002	b, d, e

(continues)

Chart 2. Continuation

Author (country)	Context	Instruments that had the content connected to the ICF	Procedure Connection	CIF components
Raggi e Leonardi[46] (Italy)	Neuromuscular	ACTIVLIM questionnaire	Cieza et al., 2005	d
Zaponi et al.[53#] (Brazil)	Cardiology	MLHFQ (Minnesota Living with Heart Failure Questionnaire)*	Cieza et al., 2005	b, d, e
Dantas et al.[70] (Brazil)	Urology	ICIQ (International Consultation on Incontinence Questionnaire)* KHQ (King's Health Questionnaire)* IQOL (Incontinence Quality of Life Questionnaire) * BSQ (Bristol Symptoms Questionnaire)*	Cieza et al., 2002; Cieza et al., 2005; Cieza et al., 2016	b, d, e, s
Cieza et al.[10] (Germany)	Unspecified	SF-36 (36-item Short-Form Health Survey)* NHP (Nottingham Health Profile)* QL-I (Spitzer's Quality of Life Index)* WHOQOL-BREF (26-items version of the WHO Quality of Life Assessment)* † WHODAS II (WHO Disability Assessment Schedule)* † EQ-5D (European Quality of Life Instrument – 5D)*	Cieza et al., 2002	b, d, e
Grill et al.[27] (Germany)		FAM (Functional Assessment Measure)* FIM (Functional Independence Measure)* BI (Barthel index)*	Cieza et al., 2002	b, d, e
Guscia et al.[23] (Australia)		CDER (Client Development Evaluation Report) DDP (Developmental Disability Profile) DD-SNAP (Developmental Disabilities Support Needs Assessment Profile) Supports Intensity Scale BI (Barthel Index)* CHART (Craig Handicap Assessment and Reporting Technique) DRS (Disability Rating Scale)* FIM (Functional Independence Measure)* RUG-ADL (Resource Utilization Groups – ADL)† CAN (Camberwell Assessment of Need)* HoNOS (Health of the Nation Outcome Scales)† HoNOS-65+ (Health of the Nation Outcome Scales – 65+) LSP (Life Skills Profile)* CANDID (Camberwell Assessment of Need for Adults with Developmental and Intellectual Disabilities) HoNOS-LD (Health of the Nation Outcome Scales for people with Learning Disabilities)†	Cieza et al., 2002	e
Alvarelhão et al.[76] (Portugal)		CHEC (Community Health Environment Checklist) CHIEF (Craig Hospital Inventory of Environmental Factors) FABS (Facilitators and Barriers Survey) HACE (Home and Community Environment Instrument) NEWS (Neighborhood Environment Walkability Scale) MQE (Measure of the Quality of the Environment)	Cieza et al., 2005	b, d, e
Darzins et al.[37] (Australia)		PC-PART (Personal Care Participation Assessment and Resource Tool)	Cieza et al., 2005	d
Gao et al.[71] (China)		SF36 (Short Form Health Survey)* WHODAS 2.0 (WHO Disability Assessment Schedule)*† WHOQOL-100 (WHO Quality of Life-100)*† BI (Barthel index)*	Cieza et al., 2005	b, d, e
Moura et al.[55] (Brazil)		MDS (Model Disability Survey)* IF-Br (Brazilian Functioning Index)* NHS (National Health Survey)*	Cieza et al., 2016	b, d, e
Scheuringer et al.[24] (Germany)		SF-36 (36-item Short-Form Health Survey)* SIP (Sickness Impact Profile) FIM (Functional Independence Measure)* BI-ADL (Barthel Index for Activities of Daily Living)* mRS (The Modified Rankin Scale)* BI Modified (Barthel Index Modified)*† Katz ADL (Activities of Daily Living Katz-Index) FAI (Frenchay Activities Index)* NEADL (Nottingham Extended Activities of Daily Living Scale) RIC-FAS (Rehabilitation Institute of Chicago Functional Assessment Scale)		

(continues)

Chart 2. Continuation

Author (country)	Context	Instruments that had the content connected to the ICF	Procedure Connection	CIF components
Scheuringer et al.[24] (Germany)	Unspecified	Karnofsky Performance Scale* FAM (Functional Assessment Measure)* A-ADL (Australian Activities of Daily Living) Lawton IADL (Lawton Instrumental Activities of Daily Living Scale)* GCS (Glasgow Coma Scale)* MMSE (Mini-Mental State Examination)* GOS (Glasgow Outcome Scale)* RLAS (Rancho Los Amigos Cognitive Functioning Scale) O-log (Orientation Log) KRS (Koma-Remissions-Skala) Mattis DRS (Mattis Dementia Rating Scale)* WMS-LMS (Wechsler Memory Scale Revised-Logical Memory Subtest)* WAIS-R (Wechsler Adult Intelligence Scale Revised)* WMS-DSS (Wechsler Memory Scale Revised-Digit Span Subtest)* LOTCA (Loewenstein Occupational Therapy Cognitive Assessment)*† GDS (Geriatric Depression Scale) STAS (Spielberger's Trait Anxiety Scale)* CES-D (Center for Epidemiological Studies – Depression Scale)* GDS-SF (Geriatric Depression Scale – Short Form)* ABS (Agitated Behaviour Scale)* BDI (Beck Depression Inventory)* HADS (Hospital Anxiety and Depression Scale)* SDS (Zung Self-Rating Depression Scale) Ashworth Spasticity Scale Modified* † BBS (Berg Balance Scale)* Brunnstrom's States of Motor Recovery* motor-FIM (Functional Independence Measure: motor score)* Fugl-Meyer Motor Assessment* RMI (Rivermead Mobility Index)* ARAT (Action Research Armtest) Buck-Gramcko-Score Functional Ambulation Classification Scale* AI (Ritchie Articular Index)* VAS (Visual Analogue Scale for Pain)* NRS (Numeric Rating Scale for Pain)* BS (Braden Scale)* NIHSS (National Institute of Health Stroke Scale)* SSS (Scandinavian Stroke Scale)* ESS (European Stroke Scale)* MI (Motricity Index)* MAS (Motor Assessment Scale)* DRS (Disability Rating Scale)* CNS (Canadian Neurological Scale)* NCSE (Neurobehavioral Cognitive Status Examination) BNIS (Barrow Neurological Institute Screen for Higher Cerebral Function) CIQ (Community Integration Questionnaire)* WNSSP (Western Neuro Sensory Stimulation Profile) QLMI (Quality of Life after Myocardial Infarction)* RPE Borg Scale (Borg's Scale for Ratings of Perceived Exertion)*	Cieza et al., 2002	b, s, d

Source: Scharan[1].
All instruments are presented with a name and abbreviation in English because not all of them have Portuguese name.
The countries described in the table refer to the address of the corresponding author contained in each of the studies, although there may be, among the studies in the table, some that had the collaboration of authors from different countries.
Components of the ICF: **b:** Body Functions; **s:** Body Structures; **d:** Activities and Participation; **e:** Environmental Factors.
* : indicates that the instrument has a Portuguese version; † : indicates that the answer options for all items of the instrument are directly compatible with the CIF qualifier (0, 1, 2, 3 and 4); # : indicates that the study performed the classification of CIF categories through the use of qualifiers.

DISCUSSION

Studies identified in the present review showed the use of the ICF as a reference for describing and identifying the functionality information collected by instruments in different contexts[5]. The number of Brazilian studies and instruments with version in the Portuguese language corroborate with Ruaro et al.[14] and Castaneda and Castro[13] on increasing scientific production related to the ICF in Brazil.

Most studies adopted the methodological process of connection, called the connection rule, proposed by Cieza et al.[4] and / or its update by Cieza et al.[10] giving it as a guide for connection content. The refinement of suchrules[9] was used by 3 studies[54,69,70]. The use of this methodological process is not mandatory, which contributes to studies that demonstrate other connection methodologies, such as consensus and the level of agreement between evaluators[61,62,78]. However, the lack of explanation to the connection method limits the reproducibility of the study, which occurred in the studies by Nickel et al.[44], Carvalho et al.[34], Josino et al.[40], Philbois et al.[56], Gomes et al.[57] and Moura et al.[54].

Two review studies on the application of ICF in Brazil identified Neurology, Orthopedics and Rheumatology as the most frequent contexts[12,14], as we found out in our study. This may be related to the fact that these contexts commonly address chronic diseases, in which functionality varies continuously. Among ICF components, Activities and Participation was the most frequently evocated, denoting it as fundamental in the assessment of functionality and disability in different contexts.

The ICF recommends the collection of information covering different health domains, represented by its components that can be operationalized through the associated use of different instruments in conjunction with other data sources, such as anamnesis, clinical tests and complementary exams[4,7,9,10,80]. This is a demonstrated among the studies included in this review, in which multiple instruments were related.

In relation to the connection results, the most complete form of all items of the questionnaires and the respective related categories was observed in studies that connected up to four instruments. This did not apply only to Prodinger et al.[69], which linked blocks of questions from the 3 instruments linked to blocks of CIF categories. All studies that linked less than 20 demonstrated at least the categories or components of the ICF per instrument. Geyh et al.[22] and Scheuringer et al.[24] linked a larger number of instruments did not clearly present the linked categories, turning out to be difficult both to apply the results and to choose the most appropriate instruments for use in clinical practice.

In relation to the repetition of instruments in the studies, a higher frequency was noticed for those of quality of life and functionality and their use in different contexts, understanding that different categories can be selected depending on the context, objective, and background of professional[9,72]. The appearances of the same instrument in different studies show relevance in the literature, including in Brazil.

Six studies generated classification of the ICF categories identified by linking the content of the instruments. Figures are in agreement with studies that described the codification operationalization of the the ICF as the small ones[12,14]. Although these identified studies classified the categories, they did not make clear the method used to code them, neither the instruments and CIF categories were applied separately, nor if the coding was generated from the responses of the instruments.

According to Cieza et al.[9], if the content, perspectives and response options are compatible, the quantitative comparison of the questionnaire results with the ICF is feasible in theory. They also encourage researchers to register the method used for coding. This may contribute to future studies on the development of methodological category coding processes. It is believed that this is a decisive point to operationalize the classification of the ICF categories.

This study revealed that most instruments do not have response options that are directly compatible with the ICF qualifiers. In light of this finding, studies should be carried out in order to investigate the psychometric relationships of the instrument's response options with the ICF qualifiers that may result in proposals for scale equivalence.

The selected studies have limitations regarding the lack of clarity to express the methodological connection process applied and results of the connection. Furthermore, studies that classifie ICF categories also did not clearly express the methodology used for such a process. These findings suggest the need for greater detail in the method and in the results of future linkage studies, improving quality and reproducibility. The present study is limited by the impossibility of manually searching for primary linkage studies in the bibliographic references contained in the supplementary material of the systematic reviews by Gradinger et al.[81] and Fayed et al.[5], which were obtained by the electronic search process. This impossibility is related to the unavailability of this material even after contacting the authors and purchase of the study from the publication source. Despite it, it is not possible to say whether these materials would enrich the findings of the present study, or if they would present instruments already contemplated in the electronic search.

This study also identified potentialities for future studies, such as the operationalization of categories with response options compatible with the ICF and with clinical practice instruments to explore and describe

the psychometric properties of the classification and the translation of instruments with higher frequency in the literature with no Portuguese version. Besides the development of studies that investigate the psychometric relationship of the response options of the instruments with the ICF qualifiers, as previously mentioned.

CONCLUSION

The identification of the instruments of clinical practice that had their contents linked to the ICF and maintain a Portuguese version can contribute to the approximation of the ICF to the Brazilian clinical practice through the use of instruments in Portuguese that already have the content connection to this classification, allowing access to the contents contemplated in the instruments and the identification of categories for a better understanding of the individuals' state of functionality, thus strengthening the biopsychosocial approach.

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