

# Brazilian publications on the International Classification of Functioning

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## ABSTRACT

Considering the increase of chronic disease and life expectancy there is now an emerging interest in measuring the phenomena of functioning and disability. For nearly 30 years the World Health Organization has been developing tools for understanding and classifying these processes, currently favoring the International Classification of Functioning (ICF). The ICF proposes a paradigm shift, where the biopsychosocial model replaces the biomedical model. It is the most recent and comprehensive taxonomic model for functioning and disability and has a unified and universal perspective. **Objective:** Given the increasing interest of the scientific community in the subject, the objective of this study is to describe and classify the publications in Brazilian literature related to the ICF by areas of knowledge. **Method:** The database used was the Lilacs and Scielo. **Results:** Thirty-nine publications were selected. Most of the papers were related to original articles (51.3%) and Neurology was the field written about most. **Conclusion:** The results show an increase in the number of publications in the last five years.

**Keywords:** International Classification of Functioning, Disability and Health, Evidence-Based Practice, Data Collection, Review Literature as Topic

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## INTRODUCTION

Impairment and the measuring of disability and functionality have been themes of growing interest from the moment chronic diseases first showed high prevalence and incidence, and increasing life expectancy was seen as a phenomenon characteristic of modern societies. Disability, especially, is a subjective and ambiguous category.<sup>1</sup> In view of that, the World Health Organization (WHO) has developed models to understand and classify the phenomena of functionality, disability, and impairment.

In 1980, the WHO prepared a classification to describe the consequences of adverse health conditions or diseases, which they termed the International Classification of Impairments, Disabilities, and Handicaps (ICIDH). This classification was theoretically based on disability, divided into three dimensions, and operationalized as the consequence of a disease or lesion in a linear sequence. The consequences of the diseases manifested as damages/lesions at the physical level, which were defined as abnormalities of the body or organic structures and functions (impairments/deficiencies); disability, defined as restriction to the personal ability to perform basic tasks (disability/incapacitation); and disadvantage experienced while performing a social role (handicap/disadvantage).<sup>2</sup>

The concept of a linear causal relation model - in which the damage to a body structure or function leads to disability and that determines a disadvantage in the performance of social roles - started to suffer criticism and questioning. Within the questioning was the fixed progression of a sequence of events based on clinical impairments. Due to the need to upgrade the model, many collaborating centers of the WHO, in tandem with government and non-government organizations, including groups of people with special needs, engaged in the revision of the ICIDH.<sup>3</sup> In 2001, the WHO approved the International Classification of Functioning, Disability, and Health (ICF).<sup>4</sup> The ICF is a classification system that describes functionality and disability related to health conditions, reflecting a new approach not only focusing on the consequences of the disease, but also highlighting functionality as a health component. The theoretical ICF model improves on the ICIDH as it classifies health from the biological, individual, and social perspectives in a multidirectional way.<sup>5</sup>

The ICF was a tool created to provide a common language to describe the phenomena related to states of health and it is the most recent and comprehensive taxonomic model for functionality and disability within a universal and unified perspective. The model proposed sheds new light on impairment and disability, which overrides the predominant biomedical model.<sup>6</sup>

The information is organized in two parts with two components each. Part 1 (Functionality and Disability) consists of the Body Functions domain (b) and Body Structures (s) and Activities & Participation (d). Part 2 (Contextual Factors) is formed by Environmental Factors (e) and by Personal Factors (unclassifiable until this time), as demonstrated in Figure 1. The description of functionality involves the presence of a qualifier (that functions as a generic scale from 0 to 4, where 0 is no impairment and 4 is complete impairment). The qualifiers show the magnitude of the impairment, limitation, restriction, and barriers or facilitators to the health conditions.<sup>7</sup>

The ICF supplements the indicators that traditionally focus on deaths or morbidities. Despite the importance of mortality indicators, diagnoses, and morbidities, they are not proper evidence of the consequences of disease in individuals and in populations. The concepts shown in the classification introduce a new paradigm to think and work with impairment and disability, not only perceived as consequence of the health/disease process, but also determined by the context in the physical and social environment, by the distinct cultural perceptions and postures facing impairment, and by the availability of services and

legislation. This model of understanding functionality is more dynamic and compatible with the complexity of the health concept.<sup>8</sup>

The publication of scientific articles in international magazines related to the ICF has given prominence to the classification and has favored an increase in theoretical and clinical knowledge in the area.<sup>9</sup> In addition, reports from practical experiences have also contributed to disseminate and apply the classification,<sup>10</sup> which is standardized by the WHO. For this reason, the research and determination of scientific production on the ICF in Brazil may help to direct researchers to areas not yet explored or that need publication, thus improving the instrument for clinical and academic use in our country.

The present study seeks to review and classify, by areas of knowledge, the publications referring to the International Classification of Functioning, Disability, and Health in the domestic literature.

## METHOD

This study is a descriptive literature review based on secondary data. The database used for research was *Literatura Latino-Americana e do Caribe em Ciências da Saúde* (LILACS) (Latin-American and Caribbean Health Sciences Literature) and the Scientific Electronic Library Online (SciELO). The data was collected during the month of January 2013. The consultation process used the International Classification of Functioning and ICF descriptors in the title and/or abstract. The period considered

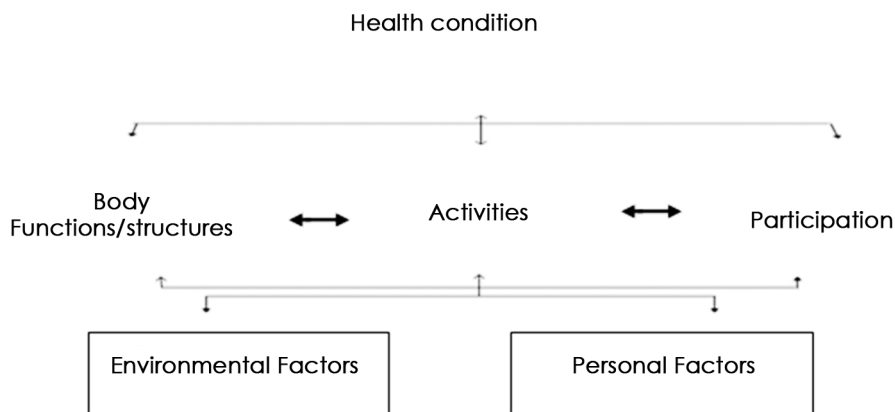


Figure 1. ICF concept interaction model

was between January, 2002 to December, 2012, for the ICF was officially published by the WHO in 2001 and translated into Portuguese in 2003.

For consultation, 111 publications were found. The abstracts were read and 39 of these were selected (Chart 1). The criteria considered for inclusion were that they be: 1) original publications, conceptual, methodological, theses, dissertations, editorials, and reviews; 2) published in Portuguese; and 3) published on the utilization of the ICF as a tool or that they explore its concepts and properties. Studies that did not relate to the health area were excluded.

## RESULTS

From the 39 publications selected, there were 36 scientific articles, 2 doctoral theses, and 1 master's dissertation. The descriptive analysis of the studies selected is shown in Chart 1.

While analyzing the distribution by theme, we can observe the predominance of publications that represent original articles (51.3%), as shown in Chart 2. In the field of rehabilitation, the neurology area had the most publications. Another area such as oncology, relevant to people with disabilities and impairments, had only one article. Other areas no less important such as cardiology and pneumology had no publications. The classification by theme is shown in Figure 2.

The number of publications can be seen to grow in the last ten years, with the year 2008 having the highest number of publications, followed by 2010, as shown in Figure 3. In relation to the design of the study, of the 20 original articles and studies, 15 were observational, descriptive, and transversal. Only a little more than half of those 15 indicated the design of the study in the abstract and/or complete text.

## DISCUSSION

The ICF appears in the rehabilitation world arena as a promising tool and with great potential for adhesion and applicability. Although there is an increase in the number of publications related to this classification in Brazil, their number is small when com-

pared to other countries, especially in Europe. The small number of Dissertations and Theses using the ICF is noteworthy (only 4), and all of them come from the same institution. This confirms the eminent need to include the ICF in the agenda of post-graduate health programs (especially those on rehabilitation).

A few years after the publication of the ICF, the WHO acknowledged that the classification in its original format, with 1454 categories, was too slow and impractical for daily use. It suggested that brief lists with relevant concepts should be developed for specific conditions of health and chronic situations. The Core Sets, as they are known, aim to encourage health professionals to use the tool and to make the access to the ICF more practical and easier. There are two versions of the document: comprehensive and brief, with the first recommended for investigation and the second, for use in clinical practice. There are models for stroke, chronic obstructive pulmonary disease, obesity, coronary disease, orthopedic conditions, among others already published and some that are being developed.<sup>50</sup> In a bibliographic review by Santana,<sup>41</sup> it is pointed out that most researchers believe that the creation of brief lists is a good way to apply the classification practically. According to the author's review, there is no documentation on regions or countries that use the ICF in its complete form, and its epidemiological use is little explored.

There is a discussion in the scientific community on the use of Core Sets highlighting that they could return to the biomedical model because it focuses on the disease and not on the functioning.<sup>13</sup> Core Sets are tools that can be used as a model to understand functioning and also as a statistical and epidemiological tool.<sup>51</sup> Therefore, the decision to use the ICF, complete or by the Core Sets, is a personal decision and depends on the interest of the user, the institution, and on the objective.

Our results point to a great number of original studies (about 50%) that reflect the overcoming of the initial phase of publication of works related to the classification that focused on the properties and applications of the tool. In addition, in some studies the ICF application methodology was not clearly defined, which may reflect the persistence of the difficulties found in the

clinical application and use of the qualifiers. When analyzing the study design of the original articles, we observed that most of the articles (75%) were observational, descriptive, and transversal studies. No study mentioned a follow-up on the population studied.

On an individual level, some applications of the ICF may serve to trace the level of functioning, to plan an individual treatment, to aid communication between health professionals, and in the self-evaluation among users, while on the social level, they can help develop social policies to evaluate needs and the environmental impact of architectural designs so as to implement accessibility. On the institutional level, it may direct educational and training purposes, the planning of resources and development, and the evaluation of management and outcomes.<sup>2</sup> Another way to use the ICF is through the Checklist.\* The document also facilitates the use of the instrument and consists of the selection of 125 categories from the 1454 present in the original document.<sup>1</sup>

Important areas of rehabilitation such as pneumology, cardiology, and sports medicine, among others, have not yet been contemplated with publications. The fact of the ICF being recent and also its complexity in classifying multifactorial phenomena such as functioning and disability contribute to the absence of publications in some areas. Therefore, there is a great need to divulge and disseminate the tool among all the areas of health, since the ICF brings a change in paradigm, leaving the biomedical model and moving towards a more advanced model of understanding of functioning, the biopsychosocial model.

One of the limitations of the present study was not reviewing studies made in Brazil by Teixeira-Salmella,<sup>4</sup> Faria-Fontini,<sup>52</sup> and Riberto,<sup>53,54</sup> that may have been published in international magazines.

There are some difficulties in the implementation of the ICF due to the tool proposing *what* to evaluate and not *how* to evaluate, for the appropriate instruments depend on the user and purpose, and there will always be many ways of measuring, which indicates the need to further refine and modify the classification. Another limiting aspect is that the qualifiers require standardization and show some difficulty in

\* [www.fsp.usp.br/~cbcd/Material/CHECKLIST\\_DA\\_CIF.pdf](http://www.fsp.usp.br/~cbcd/Material/CHECKLIST_DA_CIF.pdf)

**Chart 1.** Distribution of articles published according to their authors, year of publication, periodical/institution, category, and objectives (in descending chronological order)

Reference	Year	Periodical/Institution	Category	Study Design	Objective
Faria et al. <sup>11</sup>	2012	Revista Panamericana de Saúde Pública (Pan-American Health Magazine)	Methodological	Not applicable	To identify which ICF categories of participation have been already systematically related to the concepts measured by the items in these measuring instruments for Quality of Life Related to Health and to suggest a way to use them to evaluate/characterize this component in individuals impaired by a stroke
Cardoso et al. <sup>12</sup>	2012	Fisioterapia em Movimento (Physiotherapy in Movement)	Methodological	Not applicable	To associate the ICF subcategories to the items of a test to evaluate motor delay in children from 4 to 8 years old and to determine whether the test items fit into the ICF structure
Campos et al. <sup>13</sup>	2012	Revista Brasileira de Fisioterapia (Brazilian Physiotherapy Magazine)	Original	Observational, descriptive, transversal (not given by the authors)	To compare the instruments to evaluate sleep, cognition, and function with the respective ICF core set for this pathology in stroke patients
Vall et al. <sup>14</sup>	2011	Arquivos de Neuropsiquiatria (Neuropsychiatry Archives)	Original	Observational, descriptive, transversal (given by the authors)	To evaluate the functioning of patients with spinal cord injury
Riberto <sup>15</sup>	2011	Revista Brasileira de Enfermagem (Brazilian Nursing Magazine)	Methodological	Not applicable	To enumerate and describe the ICF core sets already available in the literature, discussing particularities related to its use
Riberto <sup>16</sup>	2011	Coluna/Columna (Column/Columna)	Original	Observational, descriptive, transversal (not given by the author)	To empirically validate the ICF core set for low back pain and to describe the functioning of a sample of patients with non-specific chronic mechanical low back pain
Toldra et al. <sup>17</sup>	2010	Revista Brasileira de Saúde Ocupacional (Brazilian Occupational Health Magazine)	Original	Exploratory, empirical, qualitative (given by the authors)	The ICF was used to identify the facilitators and barriers to workers returning to work, monitoring them during a long period of unsuccessful treatment in an occupational therapy group at a Worker's Health Reference Center (CRST), and to contribute by the use of this tool in the surveying and understanding of the workers' needs
Nubila <sup>18</sup>	2010	Revista Brasileira de Saúde Ocupacional (Brazilian Occupational Health Magazine)	Conceptual	Not applicable	Technical note on the ICF
Machado & Scramin <sup>19</sup>	2010	Revista da Escola de Enfermagem (Nursing School Magazine)	Original	Exploratory, empirical, qualitative (given by the author)	To identify ICF elements applicable to the home care of quadriplegic males in order to reduce their dependence on their parents' help for their daily life activities and self-care
Castaneda & Plácido <sup>20</sup>	2010	Acta Fisiátrica (Journal of Physiatrics)	Methodological	Not applicable	To establish the connection between the King's Health Questionnaire and the CIF
Faria et al. <sup>21</sup>	2010	Fisioterapia & Pesquisa (Physiotherapy & Research)	Original	Observational, descriptive, transversal (given by the authors)	To compare hemiparetic patients with and without a history of falls in the last six months (fallers and non-fallers) according to the ICF components
Nickel et al. <sup>22</sup>	2010	Acta Fisiátrica (Journal of Physiatrics)	Original	Observational, descriptive, transversal (given by the authors)	To evaluate the occupational performance of subjects diagnosed with Parkinson's disease (PD) through the application of the Canadian Occupational Performance Measure (COPM)
Fenley et al. <sup>23</sup>	2009	Acta Fisiátrica (Journal of Physiatrics)	Original	Observational, descriptive, transversal (not given by the authors)	To evaluate the limitation of activities and social participation among individuals with diabetes mellitus type
Brasileiro et al. <sup>24</sup>	2009	Revista Brasileira de Enfermagem (Brazilian Nursing Magazine)	Original	Observational, descriptive, transversal (given by the authors)	To describe the characteristics of a group of children with cerebral palsy in an institution in Fortaleza as to their capacity to perform tasks and participate in daily life activities using the International Classification of Functioning, Disability, and Health
Andrade et al. <sup>25</sup>	2009	Terapia Manual (Manual Therapy)	Methodological	Not applicable	To propose an evaluation model for functioning based on the categories of activity, participation, and environmental factors of the brief Core Set for stroke in hemiparetic individuals
Sampaio & Luz <sup>26</sup>	2009	Cadernos de Saúde Pública (Public Health Brochures/Notes?)	Conceptual	Not applicable	To describe the ICF model and to analyze the reach of the biopsychosocial theory in exploring the relationship between the impairment and disability categories, as well as the universal character of the WHO's proposal
Mângia <sup>27</sup>	2008	Revista de Terapia Ocupacional (Occupational Therapy Magazine)	Conceptual	Not applicable	To present the International Classification of Functioning, Disability and Health - ICF - and some subjacent underlying discussions
Buchalla & Cavalheiro <sup>28</sup>	2008	Acta Fisiátrica (Journal of Physiatrics)	Original	Integrative and narrative review of the literature (given by the authors)	To propose an AIDS core set developing two preliminary stages of the model proposed to build these instruments
Castro et al. <sup>29</sup>	2008	Acta Fisiátrica (Journal of Physiatrics)	Original	Observational, descriptive, transversal (not given by the authors)	To present the distribution of frequency of the ICF categories of the brief Core Set for Muscular Dystrophy, with serious impairment in a group of patients with their quality of life very affected by diabetes

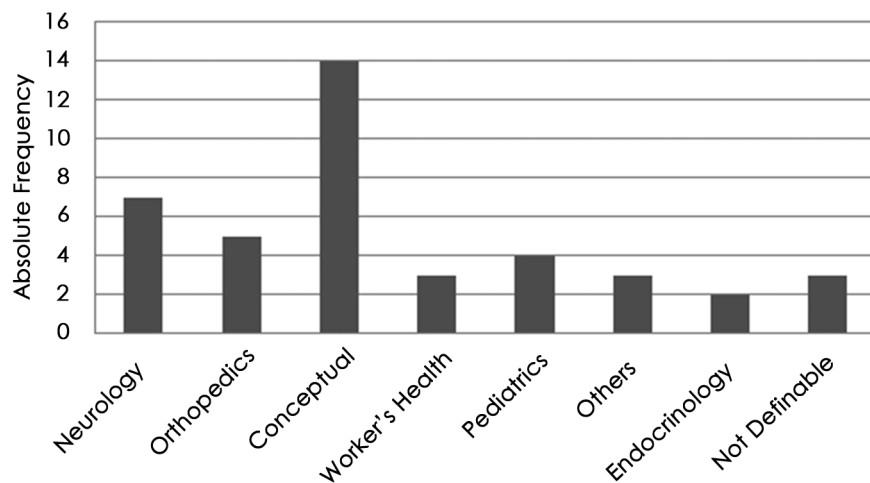
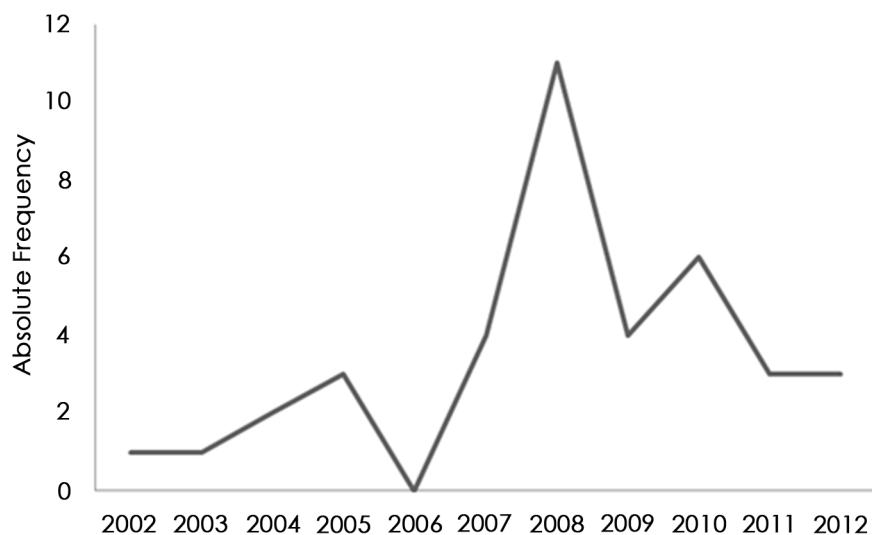
## Continued Chart 1.

Lima et al. <sup>30</sup>	2008	Acta Fisiátrica (Journal of Physiatrics)	Original	Consultation to specialists (not given by the authors)	To present the ICF Core Set for RSI and its construction process. It is a report on the experience of preparing a Core Set from an interdisciplinary approach
Riberto et al. <sup>31</sup>	2008	Acta Fisiátrica (Journal of Physiatrics)	Original	Observational, descriptive, transversal (not given by the authors)	Description of the results of applying the ICF core set for CPS (Chronic Pain Syndrome) to a sample of 29 patients with fibromyalgia who had finished the multidisciplinary rehabilitation program
Silva et al. <sup>32</sup>	2008	Acta Fisiátrica (Journal of Physiatrics)	Original	Observational, descriptive, transversal (given by the authors)	To discuss the characteristics of physiotherapeutic training in view of the adoption and application of the ICF for functioning in the rehabilitation of orthopedic patients
Sabino et al. <sup>33</sup>	2008	Acta Fisiátrica (Journal of Physiatrics)	Original	Observational, descriptive, transversal (not given by the authors)	To analyze the difficulties found in using the ICF to codify activities/participation of patients with musculoskeletal problems in the upper limbs and lumbar region
Depolito & Leocardio <sup>34</sup>	2008	Fisioterapia & Pesquisa (Physiotherapy & Research)	Original	Observational, descriptive, transversal (given by the authors)	To report the evolution of an elder resident in a long-term care institution, describing the influence of contextual conditions in her health and to discuss the relationship between the events and her functional decline using the conceptual ICF model
Brasileiro & Moreira <sup>35</sup>	2008	Acta Fisiátrica (Journal of Physiatrics)	Original	Observational, descriptive, transversal (given by the authors)	To describe the body function alterations of children with cerebral palsy (CP) treated in a treatment and early stimulation center in the city of Fortaleza, Ceará, using the ICF
Brasileiro et al. <sup>36</sup>	2008	Acta Fisiátrica (Journal of Physiatrics)	Original	Observational, descriptive, transversal (given by the authors)	To describe the characteristics of the environmental factors that interfere with the daily life of a group of children with cerebral palsy treated in a treatment and early stimulation center using the ICF
Stucki et al. <sup>37</sup>	2008	Acta Fisiátrica (Journal of Physiatrics)	Conceptual	Not applicable	To study the challenges in organizing the Research in Human Rehabilitation and Functioning in distinct scientific areas, the development of appropriate academic training programs, and the structuring of university centers and cooperation networks from the perspective of the ICF
Nubila & Buchalla <sup>38</sup>	2008	Revista Brasileira de Epidemiologia (Brazilian Epidemiology Magazine)	Methodological	Not applicable	To associate categories of diagnostics on health states from ICD-10 with the ICF elements, offering a discussion on the possible practice from both classifications
De Carlo et al. <sup>39</sup>	2007	Medicina (Medicine)	Methodological	Not applicable	To analyze articles referring to various types of traumas and their relationship with rehabilitation programs and quality of life, the studies were divided into axes of analysis, based on the International Classification of Functioning
Araújo <sup>40</sup>	2007	USP (University of São Paulo)	Methodological	Not applicable	To review studies published on the forms of using the ICF in Physiotherapy
Diniz et al. <sup>41</sup>	2007	Cadernos de Saúde Pública (Public Health Brochures/Notes?)	Conceptual	Not applicable	Comments on the translation of the ICF into Portuguese
Nubila <sup>42</sup>	2007	USP (University of São Paulo)	Methodological	Not applicable	To present definitions of impairment, discussing the use of the ICD-10 and the ICF and the contribution of the ICF to improving the understanding of definitions of impairment based on the concept of functioning and contextual factors
Farias & Buchalla <sup>43</sup>	2005	Revista Brasileira de Epidemiologia (Brazilian Epidemiology Magazine)	Conceptual	Not applicable	To present the International Classification of Functioning, Disability, and Health (ICF), that is part of the "family" of classifications developed by the WHO
Buchalla & Araújo <sup>44</sup>	2005	Reabilitar (Rehabilitate)	Conceptual	Not applicable	Not Definable
Sampaio et al. <sup>45</sup>	2005	Revista Brasileira de Fisioterapia (Brazilian Physiotherapy Magazine)	Original	Observational, descriptive, transversal (not given by the authors)	To analyze the clinical applicability of this model and the importance of the ICF for the Brazilian physiotherapist
Nordenfelt <sup>46</sup>	2004	Texto & Contexto Enfermagem (Nursing Text & Context)	Conceptual	Not applicable	Not Definable
Sampaio <sup>47</sup>	2004	Revista Brasileira de Fisioterapia (Brazilian Physiotherapy Magazine)	Conceptual	Not applicable	To report on the first National ICF meeting
Buchalla <sup>48</sup>	2003	Acta Fisiátrica (Journal of Physiatrics)	Conceptual	Not applicable	To present the structures and uses of the ICF
Almeida <sup>49</sup>	2002	USP (University of São Paulo)	Original	Observational, descriptive, transversal (given by the authors)	To analyze the practice of using the ICF, identifying and classifying the functional state, the body structures affected, the limitations on the daily life of people with impairments to their locomotor system



**Chart 2.** Categories of Brazilian publications related to the ICF

Category	ICF	
	Absolute Frequency	Percentage of Relative Frequency
Conceptual	10	25.6
Original	20	51.3
Methodological	9	23.1
Total	39	100

**Figure 2.** Most frequent themes in the selected articles of Brazilian publications between January 2002 and December 2012 (n = 39)**Figure 3.** Articles published on the ICF theme between 2002 and 2012 (n = 39)

their psychometric characteristics. However, such difficulties and obstacles will only be solved if there is professional adhesion and the practical use of the ICF, in order to achieve greater improvement of the instrument.

## CONCLUSION

Our results indicate 39 domestic publications referring to the ICF that were within the inclusion criteria in the period investigated. Original studies represented most of the publications. Important areas of rehabilitation did not present studies on the theme. Also, no articles on the tool were found in the field of collective health. The present study points to areas of health/rehabilitation in which there are already publications on the theory and application of the ICF, providing a direction for the next studies or articles in areas not researched or reinforcing the existing lines of research. Moreover, this research divulges the knowledge already existing on the ICF in Brazil and indicates the periodicals whose editorial line is open to this theme.

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