Knowledge and use of the ICF in clinical practice by physiotherapists and occupational therapists of Minas Gerais

Conhecimento e uso da CIF na prática clínica por fisioterapeutas e terapeutas ocupacionais de Minas Gerais

Conocimiento y uso de la CIF en la práctica clínica por fisioterapeutas y terapeutas ocupacionales de Minas Gerais

Andrei Pereira Pernambuco\textsuperscript{1, 2, 3}
Raquel de Carvalho Lana\textsuperscript{1, 4}
Janaíne Cunha Polese\textsuperscript{1, 4}

\textsuperscript{1}Comissão de Saúde Funcional, Conselho Regional de Fisioterapia e Terapia Ocupacional da 4a Região (Crefito 4) - (BH), Brazil.
\textsuperscript{2}Centro Universitário de Formiga (Unifor - MG) - Formiga (MG), Brazil.
\textsuperscript{3}Universidade de Itaúna (UIT) - Itaúna (MG), Brazil.
\textsuperscript{4}Faculdade de Ciências Médicas de Minas Gerais (FCMMG) - Belo Horizonte (MG), Brazil.

ABSTRACT

This study aims to evaluate the profile and knowledge of physiotherapists and occupational therapists from Minas Gerais about the International Classification of Functioning, Disability and Health (ICF) application in professional practice, trying to understand the reason for the underutilization of this universal instrument in Brazil. Observational and cross-sectional study was conducted using an online questionnaire prepared by specialists. An email was sent to all physiotherapists and occupational therapists enrolled in the Regional Council of the 4th Region. Of 22,121 emails, 1,313 were answered. 53% of the sample had graduate certificate, 65% had between two to ten years of experience, and 62% reported that clinics and patients' houses are the places where they work. 72% of the professionals knew the ICF and 84% correctly answered the meaning of the acronym. However, 71% of professionals are unaware of the fields that make up this classification. The first contact with the ICF happened during graduation.

to 50% of professionals, and 28% had never had contact with ICF. 74% reported not using it in clinical practice. However, 82% of the participants believed that the use of ICF is viable in clinical practice. Most professionals had graduate certificate, worked in clinics and patients' homes and, although most of them claim to know the ICF, the largest portion of the sample they did not use this classification in their professional lives, even though believing the ICF use is feasible. The lack of knowledge about the ICF prevents professionals from complying with the recommendations of the World Health Organization (WHO), the Brazilian National Health Council (CNS) and COFFITO (Brazilian Federal Council of Physical Therapy and Occupational Therapy) on the adoption of this instrument in exchange of information about health and clinical practice.

**Keywords:** International Classification of Functioning, Disability and Health; Physiotherapy; Occupational Therapy; Surveys and Questionnaires

---

**RESUMEN**

El objetivo de este estudio fue evaluar el perfil y conocimiento de los fisioterapeutas (FT) y terapeutas ocupacionales (TO) de Minas Gerais sobre la Clasificación Internacional de Funcionalidad, Incapacidad e Saúde (CIF) y sobre su aplicación en la práctica profesional, en el intento de se comprender el motivo de la infratutilización de este instrumento universal en Brasil. Se realizó un estudio observacional y transversal que utilizó un cuestionario online elaborado por especialistas. Un e-mail fue enviado a todos los FT y TO inscritos en el Consejo de la 4ª Región. De los 22.121 e-mails enviados, 1.313 fueron contestados. El 53% de la muestra tiene posgrado, el 65% tenía entre dos a 10 años de experiencia, y el 97% relataram que las clínicas y domicilio de los pacientes son los lugares de trabajo. 72% de los profesionales sabían o que era la CIF y 84% responderam corretamente o significado da sigla. El 28% nunca haviam tido contato com a CIF. 74% relataram no usá-la na prática clínica. Entretanto, 82% dos participantes acreditam que o uso da CIF é viável na prática clínica. Embora a maioria dos profesionales afirmem conhecer a CIF e acreditar na viabilidad de sua utilização, fica evidente que o conhecimento dos profesionales sobre este importante instrumento ainda é limitado. O desconhecimento sobre a CIF impede que os profissionais cumpram as recomendações da Organização Mundial da Saúde (OMS), Conselho Nacional de Saúde (CNS) e CoFFITO sobre a adoção deste instrumento na troca de informações na saúde e na práctica clínica.

**Descriptores:** Clasificación Internacional de Funcionalidad, Incapacidad e Saúde; Fisioterapia; Terapia Ocupacional; Inquéritos e Questionários

---

**INTRODUCTION**

The International Classification of Functioning, Disability and Health (ICF) is an instrument that describes health and health-related states of people and populations in a unified and standardized manner. The ICF was established by the World Health Organization (WHO) in December 2000 after a long revision process of the International Classification of Impairments, Disabilities and Handicaps (ICIDH), initiated in 1993. In May 2001, during the 54th World Health Assembly, the ICF was approved and has been, ever since, a component of the WHO international classifications family, whose best-known and used member by health professionals is the International Statistical Classification of Diseases and Related Health Problems - - 10th Revision - (ICD-10)
Despite being a classification tool, the ICF is not restricted to this purpose, since its multidimensional and multidirectional model (FIGURE 1), based on the biopsychosocial approach, represents a new way of thinking about human functionality and disability3-6. In addition, the ICF has recognized the importance, not only in the field of Health, but also in the fields of Education, Research, Sociology, Pedagogy, Politics, Labor, Social Security, among others1,2,5.

FIGURE 1 Model of functionality, according to the ICF

The ICF is didactically organized in two sections. The first section is called: "Components of Functionality and Incapacity" and encompasses the Body Components (classification for body functions and classification for body structures) and the Components of Activity and Participation (for classification and activities and classification for participation). All components of the first section can be expressed in negative or neutral terms. The second section is called: "Components of Contextual Factors" and involves the Environmental Factors and Personal Factors, which can be expressed in positive or negative terms3. Note that all these constructs interact with each other7.

In clinical practice, the data classified by the ICF can guide the clinical thought and the decision-making done by health professionals, especially when considering that the integrative model proposed by the ICF comprises equivalently the biological, social and individual perspectives that can interfere with the health/disease process2,8. For professionals involved with the rehabilitation process, such as, physiotherapists, and occupational therapists, ICF use is even more important, after all these professions historically deal with functionality and its dysfunctions4. For physiotherapists and occupational therapists, the ICF use is very important, since it can contribute to the adoption of a holistic practice focused on the functional potentialities of the individual4,6,7.

The adoption of ICF in practice can also contribute to better clinical management, solvability and humanization, based on the real needs of patients, as determined by WHO2,9. In addition, language standardization could strengthen the participation of both professions within medical teams5. ICF use is the main gateway to health care based on the biopsychosocial model and the needs of patients, as determined by WHO4. The universal and standardized language can provide support for more individualized, assertive, resolutive and holistic decision-making and thus improve patients' adherence to the proposed treatments1,4. It can also allow the comparison of the activities carried out in different services, helping the adequacy of the services provided1,3.

Regardless of its relevance that extends beyond clinical practice, and the existence of recommendations, determinations and/or regulations of higher instances, such as the World Health Organization (WHO), the Brazilian National Health Council (CNS) and the Brazilian Federal Council of Physical Therapy and Occupational Therapy (COFFITO), the use of ICF by Brazilian physiotherapists and occupational therapists is still incipient and limited10-12. Note that, on the 54th Assembly, all WHO member countries, including Brazil, signed a document committing to use the ICF in the exchange of information on health, clinical practice, among other purposes1.

Despite the evident noncompliance with resolutions and recommendations from different backgrounds, until now no study was conducted in Brazil in order to evaluate the knowledge and ICF use by physiotherapists and occupational therapists in Brazil. In this sense, this study is justified mainly by the fact that if knowing the profile, assessing knowledge, and understanding the way in which the ICF is used by a large number of professionals, we can identify factors that may be contributing to this delay of 16 years in the adoption of the ICF in Brazil.
Thus, the objective of this study was to evaluate the profile and knowledge of physiotherapists, who work in the state of Minas Gerais, about the ICF and its application in professional practice.

**METHODOLOGY**

This is a cross-sectional study. The obtaining of interest data was conducted by an online questionnaire with multiple choice questions drawn up by experts in the field (Figure 2). The questionnaire was developed in a specific universal platform for creation and application of electronic questionnaires.

1. **What is your graduation course?**
   - ( ) Physical Therapy
   - ( ) Occupational Therapy

2. **Which is your higher degree?**
   - ( ) Graduation
   - ( ) Specialization
   - ( ) Master’s degree
   - ( ) Doctoral degree

3. **How long have you graduated?**
   - ( ) Less than 2 years
   - ( ) Between 2 and 5 years
   - ( ) Between six and 10 years
   - ( ) Between 11 and 15 years
   - ( ) Between 16 and 20 years
   - ( ) More than 20 years

4. **Where do you act professionally?**
   - ( ) Clinics
   - ( ) Office
   - ( ) Hospital
   - ( ) University
   - ( ) Primary Healthcare Unit
   - ( ) Patient’s house

5. **Do you know the ICF?**
   - ( ) Yes
   - ( ) No

6. **What is the meaning of the acronym “ICF”?**
   - ( ) International Physiotherapy Classification
   - ( ) Integrated Physical Therapy Clinics
   - ( ) International Classification of Functioning, Disability and Health
   - ( ) International Classification of Function, Activity and Participation

7. **When was your first contact with the ICF?**
   - ( ) Never
   - ( ) Graduation
   - ( ) Specialization
   - ( ) Masters or Doctorate
   - ( ) Clinical Practice
   - ( ) Courses

8. **Do you use the ICF? If yes, in which area?**
   - ( ) I do not use
   - ( ) Clinic
   - ( ) Research
   - ( ) Teaching

9. **Among the options below, which is not a component of ICF?**
   - ( ) Activity of daily living
   - ( ) Activity and participation
   - ( ) Body functions
   - ( ) Body structures
   - ( ) Environmental factors

10. **Do you believe that the use of ICF is feasible in clinical practice?**
    - ( ) Yes
    - ( ) No
    Justify your answer: ___________________________
To access the questionnaire, an electronic link was sent to all 20,286 physiotherapists and 1,835 occupational therapists enrolled in Minas Gerais state. The link to the questionnaire was also circulated through social media and fan pages of CREFITO, to achieve the greatest number of professionals. When accessing the link, the professionals could find information about the purposes of the research, nature of their participation, confidentiality, and about the risks and benefits inherent to the research through an informed consent with the questionnaire. In accordance with resolution 466/12 of the Brazilian National Council of Health, this study was approved by the Committee of Ethics in Research with Humans, by the number 871,639.

The questionnaire was made up of 10 multiple choice questions regarding professional training and basic knowledge about the ICF. On some issues, the participant could select more than one answer. The data relating to the responses were real-time recorded by online software used for the development of the questionnaire. Descriptive statistics were used for the characterization of the professionals and their replies obtained by the questionnaire. The data are presented as measures of frequency, percentage and absolute number for categorical variables. For better understanding, they were also presented in graphic format and tables. All analyses were performed using the software GraphPad v. 5.0.

RESULTS

It was sent 22,121 emails to physiotherapists and occupational therapists in the state of Minas Gerais, Brazil. Of these, 1,313 were answered by the professionals. Among the respondents, 85% were physiotherapists and 15% were occupational therapists. The number of professionals who responded to the questionnaire amounted to 6% of rehabilitation professionals enrolled in the professional state board.

The characteristics about the formation of the professionals are shown in Figure 3. We observe that about half of the sample who participated in the study had some specialization course (53%), and only a few (1%) reported having a doctorate. Regarding the time after the degree formation, approximately 65% of professionals had two to ten years of formation. From 2051 responses, the majority (62%) showed that most of the professionals work in clinics or patients’ houses.

Regarding the knowledge of the professionals about the ICF, most of them (72%, 944 professionals) knew the instrument. Additionally, 1,090 participants (84%) knew the meaning of the acronym ICF. However, a question that sought to know if the participants had familiarity with the classification, requesting that they defined, from the options, which was not a field of ICF, showed that most professionals (71%, 936 professionals) selected incorrect options. Detailed answers to this question are shown in Figure 3.
According to most participants, the first contact with the ICF happened during undergraduate studies (50%). Importantly, more than a quarter of the professionals (28%) reported that they had never had contact with ICF. Figure 5A describes when the first contact of professionals with the classification was. Regarding the ICF use, 74% reported not using it, 21% reported using the ICF in clinical practice, 6% reported using it in research, and 5% reported using it in teaching practice (Figure 5B). Finally, 82% of the participants believed that the use of ICF is viable in clinical practice.
DISCUSSION

This was the first study in Brazil that demonstrated the profile of a large sample of rehabilitation professionals and evaluated the knowledge and use of ICF in the clinical practice of these professionals. The ICF use is recommended by WHO (Resolution 54.21/2001), determined by CNS (Resolution 452/2012) and regulated by COFFITO (Resolution 370/2009) as a statistical instrument, research tool, clinical tool, social and pedagogical policy. However, we observe that in Brazil there is a noncompliance with such resolutions, and that the ICF is practically neglected in the thought process and clinical decision-making by several health professionals. This study sought to identify factors that hamper the adoption of ICF by physiotherapists and occupational therapists in one of the major states of the Federation by the analysis of the profile and knowledge about the ICF, as well as its practical use by professionals.

Firstly, it is necessary to emphasize that the ICF use should not be restricted to health professionals, let alone to physical therapists and occupational therapists. According to the WHO, ICF should be used by several fields, such as insurance, social policy, labor, education, health, social security, general development of legislation and environmental modification. The ICF is still considered an appropriate instrument for the development of national and international human rights law and is incorporated into the uniform rules for equal opportunities to persons with disabilities.

Only physiotherapists and occupational therapists were included in this study and their area of practice was not investigated. Most professionals had a specialization course, and professional practice location in clinical and patient houses. The results indicated that although most of the professionals have reported they knew the ICF, most of the sample was not using the ICF in their professional life, although they believed that its use is possible. These findings corroborate those of a systematic review that demonstrated, despite of how comprehensive and interesting for clinical practice the theoretical context of the ICF is, that little is known about its actual use.

The results of this study demonstrated that 62% of professionals have some specialization. Despite physiotherapy and occupational therapy are relatively new professions, we observed the increasing of technical and scientific improvement. However, the portion of professionals who only attended the undergraduate studies is also considerable. Notice that only 16% of professionals on this study have graduated in less than two years and, therefore, most of the professionals already had sufficient time to complete some specialization. We observed that only 1% of the sample was composed of professionals with doctorate. Coury and Vilella pointed out an increase of 90% in the number of doctors with a degree in physiotherapy in the last decade. This fact is added with the findings of this study: among professionals who continued their studies, 85% chose a lato sensu course. Another important fact is that professionals rarely (8%) have their first contact with the ICF during graduate studies degree (6% in lato sensu and 2% in stricto sensu), 50% of professionals had their first contact at undergraduate studies degree. Note that many professionals (28%) have never had contact with the ICF. This may be a result of the following events: professionals who graduated before 2001, before the adoption of the ICF; professionals who have not sought for continuing education; or even those who sought to improve professionally, but who did not receive information about the ICF.

There is little information in the literature regarding knowledge and use of the ICF in professional practice. We should emphasize that this study reached the main places of professional performance, not restricted to professionals working in universities, which theoretically have greater knowledge about the ICF. In a study of 587 Canadian occupational therapists, 70% of the professionals knew ICF somehow, and about 30% of them reported they used the classification in clinical practice. However, in a study of 22 physiotherapists in Israel, most professionals had familiarity with the concepts of ICF and about two-thirds of these professionals reported that used it, even partially, in their clinical practice. These previous findings agreed with the results of this study, which revealed that, although 72% of participants reported to know the ICF, only 30% used it in some way in their professional practice. The literature reports that the ICF use in clinical practice for rehabilitation professionals may be unclear and the significant use of the classification becomes difficult.

There is still a great gap between the understanding of the potential applications of ICF as a whole and its implementation in the clinical settings. In this study, most professionals (82%) believed that the use of the ICF is feasible in clinical practice. Previous study confirming these results, showed that the ICF in practice is not used by rehabilitation professionals. However, the main reasons for non-implementation of the ICF in the clinical practice are related to the extent and complexity of this instrument, a problem already recognized by the WHO. The need of change in thinking is another complicating factor, since the disease-centered model is still prevalent. We suppose that the medical model based on the disease still prevails in the academic programs, however, this is just a hypothesis. The methodology of this study was not developed to evaluate this question.

Professionals tend to have certain inability to integrate ICF into their daily routine, mainly by the following reasons: the high workload, the superficial knowledge of the instrument, the need to invest time and money to learn and use the ICF. Thus, aiming to expand the ICF use, the adoption of simple measures is
suggested, such as training towards both academic and rehabilitation professionals\textsuperscript{12}. The development of simple softwares and apps that help the professional during the process of encoding the structures and functions, activity and participation, and environmental factors involved in the context of health conditions presented by patients in clinical practice are also suggested. We should consider which part of the sample may have knowledge about the ICF and still prefer not to use it in their clinical practice for any of the reasons listed above, other than unfamiliarity. Another limitation is that the applied questionnaire addresses more knowledge related to ICF than the reasons why professionals do not use it. Thus, future studies are needed to address this question more directly. However, the high percentage of people who have never had any contact with the ICF, together with the considerable number of professionals who do not use it, by itself, already justifies research on the professionals’ knowledge about this instrument, since without the proper knowledge it is not possible to use a tool of this magnitude.

According to an integrative literature review that investigated the panorama of the ICF use in the Brazilian context, the use of the classification is still incipient, however there are signs of a growing interest in its use\textsuperscript{13}. The authors pointed out that the ICF growth potential is compatible with the demand of knowledge generated by it, in both public and private sectors\textsuperscript{13}. However, the process of the ICF use in Brazil is delayed by at least a decade. The ICF was approved and recommended in May 2001 at the 54\textsuperscript{th} World Health Assembly, and Brazil was one of the signatories\textsuperscript{1}. In 2009, the Brazilian Federal Council of Physical Therapy and Occupational Therapy (COFFITO) established a COFFITO 370/2009 resolution that decides on the use of ICF by physical and occupational therapists\textsuperscript{11}. In 2012, the Brazilian National Health Council and the Ministry of Health approved the resolution 452/12 that solves that ICF should be used in public and private services in Brazil\textsuperscript{12}. In addition, the ICF use can provide a better understanding between members of the multidisciplinary team and patients, besides leading physical therapy and occupational therapy to a stronger position within the medical community\textsuperscript{2),(14}. In clinical practice, ICF can be used in different ways, such as: codification of data collected during evaluation, periodic evolution of patients’ health status, follow-up of interventions and treatments results, health information exchange, reference and contraindication services reference, comparison of the resolution between different services and analysis of the compatibility of treatments with specific conditions, among others\textsuperscript{1}-(2). In this study, respondents were only asked whether or not they use the ICF in clinical practice. No question addressed on how those who already used the tool do it in clinical practice. In future studies this should be investigated.

Note that the professionals included in this study work one of the most developed and populous states in the country, and the reality described may not reflect the situation by professionals in other regions of Brazil. According to Ruaro et al.,\textsuperscript{13} the Federal University of Minas Gerais is the Brazilian institution that most appears in publications in international journals, and the second most prevalent among national journals\textsuperscript{13}. In this sense, we believed that the study sample may have had more contact with ICF, and, thus, the reality of other Brazilian states may be even worse. Therefore, studies covering samples representing the reality of other regions of the country are suggested.

The non-use of ICF generates damages to patients, after all, the treatment based only on the diagnosis of the disease is not able to meet all patient needs\textsuperscript{2}. It is known that patients with the same ICD have different functionality and disability, which should guide the individualized treatment\textsuperscript{3),(4}. The ICF use could still contribute to issues related to benefits granting by social security, considered at the time of public policy making and compared with the effectiveness of services, and even for the elaboration of pedagogical plans for individuals or populations in different health conditions\textsuperscript{4}.

This study has some limitations. The study design does not allow causal relationships to be performed, although this was not the goal of the study. In addition, only about 6\% of state workers responded to the virtual questionnaire. Note that it was not possible to determine what percentage of the 22,121 emails were actually received by professionals. However, the sample size of this study (1,313) cannot be disregarded, since according to previous studies, the number of online questionnaires drastically decreased over time, a fact that may be explained by the massive amount of daily incoming email\textsuperscript{12}. In addition, many professionals do not update their data along the professional board and may not have received the questionnaire.

**CONCLUSION**

According to the observed results, the non-use of the ICF by the professionals is justified mainly by the lack of knowledge of the professionals about it. To alleviate this problem, the ICF should be included into undergraduate and graduate program content, as well as training courses for professionals. Note that this study, due to its pioneering nature, still presents many unanswered questions. In this sense, the researchers’ intention was not to solve the issue of the ICF use among physical therapists and occupational therapists in Brazil, but rather to touch on a relevant issue that was being neglected by authorities, organizations and professionals in this country. Future studies should address each of the limitations presented here.

**ACKNOWLEDGMENTS**

To Creftito-4 for supporting this research.

REFERENCES


Finance source: Nothing to declare

Approved by the Research Ethics Committee of Centro Universitário de Formiga (UNIFOR-MG) no. 871.639 and CAAE 38315514.3.0000.5113.

Received: May 08, 2017; Accepted: February 02, 2018

Corresponding address: Andrei Pereira Pernambuco - Rua Araxá, 206, Morro do Sol - Itaúna (MG), Brazil - Zip Code: 35680-284 - E-mail: pernambucoap@ymail.com - Phone: +55 (37) 99905-9495

Conflict of interests: Nothing to declare

This is an open-access article distributed under the terms of the Creative Commons Attribution License