

REVIEW ARTICLE

USE OF THE INTERNATIONAL CLASSIFICATION OF FUNCTIONING, DISABILITY AND HEALTH: A LITERATURE SURVEY

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Background: In 2001 the World Health Organization adopted the International Classification of Functioning, Disability and Health (ICF) and it has since been utilized extensively.

Aim: A literature survey was undertaken to document reported use of the ICF, with regard to type of use, aims and implementation issues.

Methods: A convenience sample of 243 papers was analysed.

Results: There were few papers from developing countries, with USA and German authors responsible for almost 50% of the papers. The papers were published in 105 journals covering varying disciplines, health conditions and sectors. Problems included missing or overlapping codes, and codes that were inadequately granular. The Activity/Participation Category qualifiers presented users with the most challenges, and non-standard use of the qualifiers was often reported. The need for a category classifying Personal Factors was identified.

Conclusion: The ICF has already made a major impact on the way in which data concerning disability are conceptualized, collected and processed. Utilization in developing countries must be encouraged. The addition and clarification of certain codes should be considered by the World Health Organization. There is a clear need for a classification of personal factors to allow for complete reporting on the experience of disability.

Key words: ICF, literature review, coding, qualifiers, personal factors.

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INTRODUCTION

The World Health Organization (WHO) officially replaced the outdated International Classification of Impairment, Disability and Handicap (ICIDH) (1) with the International Classification of Functioning, Disability and Health (ICF) in 2001 (2). The ICF was developed based on the experience and feedback of stakeholders who had found the original ICIDH unsatisfactory in some way. A search of the published literature cited by PubMed indicates that in the period 2001–07 there were more than 400 papers published referencing the ICF. The ICF

has clearly fulfilled its promise and become the generally accepted framework within which to describe functioning in rehabilitation, as well as to document health and disability (3). Extensive work has been carried out on the development of core sets relevant to specific health conditions (4–7) and on the linking of information gained from measurement instruments to the ICF codes (8, 9). The ICF framework and structure have been widely described and discussed (10–12) and will not be elaborated on in this paper.

The ICF is a complex classification, representing an important conceptual framework for understanding and unpacking the experience of disability on the one hand, and a systematic classification that allows for the coding of all components of health and functioning on the other. It would be of interest to establish how the conceptual framework is interpreted and how the data collection components, the codes and the qualifiers are applied in practice.

It is anticipated by the WHO that the ICF will undergo a continuous process of updating and ultimate revision, based on input from interested parties. To this end the Functioning and Disability Reference Group (FDRG) was established in 2006 with different task groups working under its umbrella, including a task team dedicated to producing coding guidelines and a project group devoted to developing mechanisms for gathering data related to revision and updating the classification and the codes (13). There is thus an identified need for ongoing monitoring of the literature to identify aspects of the ICF that users have identified as being problematic.

The ICF was developed through extensive collaboration with stakeholders across disciplines, countries and cultures. However, it is not known whether there is continued involvement of researchers from diverse countries and cultures in the utilization and further development and use of the classification.

Several sets of guidelines are available to assist the user. Apart from the guidelines to use and coding presented within the full ICF version (2) and the on-line beginners guide (14), other comprehensive guidelines have been developed, such as the ICF Australian User Guidelines (15) and the Procedural Manual and Guide for a Standardised Application of the ICF developed under the auspices of the American Psychological Association (11). Although these guidelines are available, it is not known whether users are in fact utilizing these documents.

In order to address the above concerns a literature survey was undertaken. The objectives of this survey were as follows:

- To document the country of origin of authors and the journals in which articles were published.

- To determine the aims of the papers, e.g. to present or apply the conceptual framework or to collect and analyse data using the ICF.
- To establish the type of study designs used and the populations that were included in the studies.
- To identify problems encountered with regard to the utilization of the domain codes and of the qualifiers.
- To establish what coding guidelines were used.

METHODS

Sample

A literature survey was performed using the key words International Classification of Functioning and ICF. The databases searched were PubMed, the Cumulative Index to Nursing and Allied Health Literature (CINAHL), SwetsWise and disability-specific sources such as the Center for International Rehabilitation Research Information and Exchange database (CIRRIE). The inclusion criteria were that the paper had to have included the ICF or International Classification of Functioning, Disability and Health in the key words or the abstract of the article. The sample was limited to full papers that could be sourced by the author during the research period (March to June, 2007). Letters, discussion threads, doctoral dissertations and conference abstracts were excluded. Papers that referred to the ICIDH or ICIDH2 rather than the ICF were excluded, as were papers that referred to the framework but did not apply it explicitly to data gathering or analysis.

Instrumentation

A data-entry sheet was developed and piloted. The intention was to capture quantitative data to describe the studies and to carry out post-coding of the more qualitative aspects of coding use experience. Specific variables included details of author, journal, discipline, research design and method of data collection, sample, coding problems (post-coded), use of guidelines and qualifier usage, i.e. capacity/performance, barriers/facilitators for the Environmental factors. The author read through each article and entered information presented in each paper into the spreadsheet. Narrative data, related to problems with the use of specific codes or qualifiers were entered verbatim into the spreadsheet.

Analysis

Descriptive statistics were used to present the data. The frequency of the quantitative data, such as journal and country of origin was directly calculated. The written comments were examined to establish if there were common categories, and similar responses were collapsed into these overarching categories. In this way, categories such as missing codes, overlapping codes and insufficiently granular codes were identified and the frequency of responses calculated.

RESULTS

A total of 303 articles that included ICF in their key words or abstracts were identified and sourced. Of these, 60 did not meet the inclusion criteria. The remaining 243, written by 188 different first authors, were analysed. A list of the studies analysed is given in Appendix 1. Five authors were first author on 4 or more papers: Peterson (4 papers), Stamm (4 papers), Grill (5 papers), Stucki (8 papers) and Cieza (10 papers) and, with the exception of Peterson, all were linked to the ICF Research Branch of the WHO Collaborating Center for the Family of International Classifications at the German Institute of Medical Documentation and Information (DIMDI).

The date of publication is presented in Table I.

Table I. Date of publication. (Note: search was completed in June 2007)

Year	n (%)
2001	2 (1)
2002	9 (4)
2003	25 (10)
2004	58 (24)
2005	64 (26)
2006	61 (25)
2007	24 (10)
Total	243 (100)

The 25 countries of origin of the first authors are listed in Table II. Approximately 50% of the papers originated in either the USA or Germany, and generally English-speaking countries predominated (46%) (note that the search was limited to English language publications).

The articles were published in 105 different journals, which ranged from condition-specific (e.g. lupus), to profession-specific (e.g. *American Journal of Occupational Therapy*) and journals dedicated to rehabilitation issues (e.g. *Technology and Disability*) (Table III). *Disability and Rehabilitation* accounted for 21% of the publications, followed by the *Journal of Rehabilitation Medicine* (13%). The journals that contributed 3 or more papers (1.2%) to the database are listed in Table III. The majority of the papers were not discipline-specific, but of the 55 that were, 22 (9% of the total) were contributed by Communication Science, followed by 10 (4%) from Occupational Therapy and 8 from both Nursing and Physiotherapy (3.3% each).

The aims of the reported studies varied widely (Table IV). The most common aims were to either explain or critique the conceptual framework and/or structure of the ICF (23%) (3,

Table II. Country of origin of first author

Country	n (%)
Germany	55 (23)
USA	55 (23)
The Netherlands	21 (9)
UK	19 (8)
Canada	18 (7)
Sweden	18 (7)
Australia	13 (5)
Switzerland	8 (3)
Austria	5 (2)
Italy	5 (2)
South Africa	5 (2)
Japan	3 (1)
Norway	3 (1)
Denmark	2 (0.8)
Ireland	2 (0.8)
New Zealand	2 (0.8)
Spain	2 (0.8)
Bangladesh	1 (0.4)
Czechoslovakia	1 (0.4)
Finland	1 (0.4)
France	1 (0.4)
India	1 (0.4)
Nepal	1 (0.4)
Rwanda	1 (0.4)
Total	243 (100)

Table III. *Most common publication journals*

Journal	n (%)
Disability and Rehabilitation	50 (21)
Journal of Rehabilitation Medicine	30 (13)
Rehabilitation Education	9 (4)
Journal of Communication Disorders	5 (3)
Physical Therapy	5 (2)
Quality of Life Research	5 (2)
Australian Occupational Therapy Journal	4 (2)
Journal Rheumatology	4 (2)
Rehabilitation in Psychology	4 (2)
Annals of the Rheumatic Diseases	3 (1)
Aphasiology	3 (1)
Clinical Rheumatology	3 (1)
Physical & Occupational Therapy in Pediatrics	3 (1)
Spinal Cord	3 (1)

11, 16–70) and to apply the ICF concepts to either discipline- or condition-specific management or surveys of clients (27%) (17, 21, 59, 68, 71–134). The next most common stated aim was to link the ICF to new or existing measures of functional ability to allow for recoding of retrospective or prospective data collected with instruments such as the Functional Independence Measure (FIM™) or Short Form 36 (SF-36) (21%) or to explore how the ICF concepts are incorporated into existing measures (8, 9, 135–184). The German ICF Collaborating Centre produced most of the 38 (16%) papers dealing with the identification and validation of core sets for different disease states (4–7, 9, 93, 185–217). The ICF was applied with the aim of collecting data on functional status in 10% of the papers (218–240) and there were few papers on the psychometric properties of the classification, (3%) (80, 148, 241–247).

It was difficult to identify the precise study design in some of the papers as several utilized mixed methodologies. Qualitative methods included interviews, focus groups and case studies, whereas the most commonly utilized quantitative methodology was descriptive survey. The most frequent system that was investigated was the musculo-skeletal system (13%) and there were papers on rheumatoid arthritis, osteo-arthritis and ankylosing spondylitis. (Table V). Neurological conditions (11%) included stroke, spinal cord injuries and Alzheimer's disease.

Three major problem areas were identified with regard to coding: missing codes, overlapping codes and lack of differentiation of lower order codes (lack of granularity). The lack of 51 specific codes was identified by the authors (Table VI), the most commonly cited lack was to do with the respiratory system.

Table IV. *Broad aims of the studies*

Aim*	n (%)
Explain conceptual framework	56 (23)
Apply concepts to management	67 (28)
Link to existing instruments	51 (21)
Core sets	38 (16)
Data collection using ICF	22 (9)
Psychometric properties	8 (3)
Missing/unclear/other	3 (1)

*Note that some studies had more than one aim.

ICF: international classification of functioning, disability and health.

Table V. *Specific health conditions*

Condition	n (%)
Musculo-skeletal	32 (13)
Neurological	26 (11)
Children with disability	23 (9)
Speech and language	16 (7)
Disabled adults	18 (8)
Geriatric	9 (4)
Psychiatric	7 (3)
Intellectual impairment	4 (2)
Visually impaired	4 (2)
Cancer	3 (1)
HIV	3 (1)
Cerebral palsy	2 (1)
Respiratory	2 (1)
Other	7 (3)
Missing/Not applicable	87 (35)
Total	243 (100)

Some codes were incorrectly identified as lacking by the authors (e.g. aphasia, b167, Mental functions of language; fitness, d570 looking after one's health) and these were not included.

As listed in Table VII, 10 overlapping codes were identified in 7 papers (11, 201, 202, 224, 233, 240, 245) and in some cases it was queried if one or the other or both codes should be used. Nine papers reported lack of specificity (granularity) and the need to link several items from other linked instruments to a single ICF code, especially emotional functions (154, 155, 183, 224, 231) and pain (154, 176, 189, 210, 245).

Several authors mentioned that it was difficult to code the time dimension, this included loss of time (10, 155, 183, 189, 220, 245), change over time, deterioration over time and time management (183, 220). The lack of codes for personal factors was noted in several papers (82, 145, 191, 212, 215, 223) and the difficulty of coding general health condition (248) and perception of self-health (82, 155) was also reported. One author suggested that the ICF include a subjective dimension, which would include such items as satisfaction with body functions and structures, with activities and with participation (66). The inability to code subjective experiences was also noted by another researcher (231).

Qualifiers were only used or discussed as per defined usage in 34 (14%) of the papers. The use of qualifiers was regarded as the most difficult part of training people to use the ICF (43), although one author reported the qualifiers to be useful and reliable (147) (Table VIII).

There was little consensus regarding the distinction between Activity/Participation codes (136) with some authors making no distinction between the two (138) and others suggesting that the two are distinct and should be separate (241). Chapireau suggests that the options presented in the ICF booklet make this more difficult to code (39).

There were similar differences in opinion regarding the use of the capacity and performance qualifiers (Table IX). Some researchers felt that they were useful tools to understand the effect of therapy; whereas others pointed out that it was very difficult to define a "standard environment" (11, 39). In addition there were varying interpretations: capacity is ability to

Table VI. Factors for which only a general code, or no suitable code, could be found

Broad category	Unable to code (Ref)	Frequency	
Health condition	Co-morbidities (212)	1	
	Disease management (210)	1	
	Side-effects of medication (183)	1	
	Current treatment (183)	1	
	General healthy (248)	1	
Body structure	Body composition (194)	1	
Body function	<i>Mental state</i>		
	Appearance, self image (220)	1	
	Auto-mutilation (224)	1	
	Choosing not to do activities due to health condition (10, 218)	2	
	Feeling restless (224)	1	
	Neglect (224)	1	
	Passive activity, e.g. daytime sleep or doing nothing (221, 224)	2	
	Stigma (220)	1	
	Suicidal thoughts (152)	1	
	<i>Respiratory</i>		
	Need more specification (183)	1	
	Cyanosis/ "paleness" (224, 231)	2	
	Production of/type of sputum (183, 224)	2	
	<i>Movement-related functions</i>		
	Influence of compensatory movements (215)	1	
	Morning stiffness/joint stiffness (109, 176)	2	
	Muscle coordination (215)	1	
	Muscular balance (215)	1	
	Dynamic posture (215)	1	
	Activities	Developmental milestones (10, 220)	2
		Falling and fear of falling (215)	1
		Reaching for high objects (248)	1
		Turning head (e.g. while driving) (109, 248)	2
	Environmental	Urge to move (224)	1
		Employers policies (224)	1
	Personal factors	General lack (82, 145, 191, 212, 215, 223)	6
		Automatic activation (41)	1
Autonomy (41)		1	
Perception of own health and QoL (147, 155, 218)		3	
Life traumas (224)		1	
Loss of control, helplessness, dependence (189, 224, 235)		3	
Loss of future plans (152, 224)		2	
Lying to achieve goals (150)		1	
Personal resources (153)		1	
Psychological status (212)		1	
Satisfaction (152)		1	
Self realization (145)		1	
Smoking/drinking (152)		1	
Subjective experience (41, 82)		2	
Intrapersonal performance (150)		1	
"mind" concept (150)		1	
Volition subsystem (150)		1	
Genetic factors (194)		1	
Coping strategies (212)		1	
Time dimension	Time dimension (10, 155, 183, 189, 220, 245)	6	
	History of substance abuse (245)	1	
	Time loss (10, 218)	2	
	Potential problems (153, 231, 233)	3	
	Change in functional status (220, 223)	2	
Space dimension	Experience of space (150)	1	
Total		80	

QoL: quality of life.

Table VII. Problems with specific codes

	Frequency
<i>Overlapping codes</i>	
s4101(arteries)/b415 (blood vessel functions) (245)	1
b122 (global psychosocial)/b117 (intellectual functions) (202)	1
b140 (attention functions)/d160(attention functions) (11)	1
b160 (thought functions)/d163 (thinking) (11)	1
b16711 (expression of written language)/d170 (writing) (11)	1
b550 (Fever: thermoregulatory functions)/b435 (immunological system functions) (201)	1
b810 (protective)/b820 (repair function of skin) (224)	1
d350 (conversation)/d355 (discussion) (11)	1
e4 (attitudes)/e3 (support and relationships) (233, 240)	2
Total	10
<i>Several items linked to one b code</i>	
b1300 (energy level) (155)	1
b152 (emotional functions) (154, 155, 183, 224, 231)	5
b5252 (frequency of defecation (constipation or diarrhoea)) (231)	1
b280 (pain) (154, 176, 189, 210, 245)	5
b460 (dyspnoea and wheezing) (183)	1
d570 (looking after one's health) (224)	1
Total	14

function in an optimal environment (50) or within an environmentally adjusted environment (39); capacity equates to can do, whereas performance implies does do (164); capacity can be equated to activity, whereas performance can be equated to participation (24, 145). The qualifiers were taken by some authors to refer to the amount of assistance required (245) or amount of time difficulty was experienced (242) rather than the amount of difficulty that is experienced with each item. Very few papers mentioned whether capacity was measured with or without aids or assistance.

With regard to the Environmental Factors, one paper mentioned that the qualifiers are not reliable and that the e3 and e4 domains are weak (80). Two papers mentioned the problem of the same factor being both a facilitator and a barrier for different categories and at different times (233, 240). One paper queried whether each independent code, each component and capacity/performance should be coded for separately in the e codes (44). Three papers only reported barriers and excluded facilitators (130, 212, 240) and one did not use the qualifiers but dichotomized the codes (240).

Of the 87 authors who drew ICF-related conclusions, the majority (55) recommended that it should be used where appropriate. Several authors recommended that the personal factors classification needs to be developed (82, 145, 191,

Table VIII. Use of qualifiers

	n (%)
Not used or mentioned	210 (86)
Used or mentioned as per manual	23 (10)
Developed own definitions of each level of qualifier (e.g. related to level of assistance) (166, 170, 226, 246)	4 (1.5)
Dichotomized (130, 202, 231, 232)	4 (1.5)
Different number of levels (130, 226)	2 (1)
Total	243 (100)

Table IX. Capacity and performance qualifiers

Aspect		n (%)
Definitions of capacity and performance	Explains difference – capacity defined as no assistance (26, 137)	2 (0.8)
	Confusion as to capacity – taken as with assistance. Grades of capacity are incorrectly taken to be grades of assistance instead of grades of difficulty without assistance (245) or % of time that task can be done (242)	2 (0.8)
	Complete overlap between capacity and performance. Only capacity used (80)	1 (0.4)
	Activity = capacity, participation = performance (24,145)	2 (0.8)
	Capacity = can do, performance = does do (164)	1 (0.4)
Environment	Difficulty with defining a standard environment	0 (0.0)
	Definitions of current environment, assistance, best/worst/typical? (11, 39)	2 (0.8)
	Highest level of functioning in neutral environment. Performance improved by environmental changes, capacity by therapy (75)	1 (0.4)
	Capacity reflects environmentally adjusted environment (39)	1 (0.4)
	One factor can be both facilitator and barrier (41)	1 (0.4)
General	Capacity – optimal environment (50)	1 (0.4)
	Correct interpretation, makes distinction	25 (10.3)
	Briefly defined	3 (1.2)
	Does not state which is being coded	2 (0.8)
	Not mentioned/no applicable	175 (72.0)
Total	Not differentiated	24 (9.9)
		243 (100.0)

212, 215, 223) and 6 authors concluded that the reliability of the classification needs to be further investigated (39, 80, 148, 190, 224, 245) (Table X).

Three papers referred to the use of the Australian ICF Users Manual (10, 15, 178) and 3 to the American Psychology Association guidelines for clinical use of the ICF (10, 11, 77), which has not yet been made publicly available.

DISCUSSION AND CONCLUSION

As the ICF aims to be a “multipurpose classification designed to serve various disciplines and different sectors” (2), it is heart-

Table X. Conclusions drawn by the authors (in papers where conclusions relevant to the ICF were stated)

Conclusion	n (%)
Recommend use	55 (63.2)
Need Personal codes (45, 82, 134, 145, 146, 155, 176, 191, 212, 223)	10 (11.5)
Needs validation/reliability testing for different usages, core sets (7, 148, 194, 201, 246)	5 (5.7)
Time component not possible to code (153, 155, 220)	3 (3.4)
Not appropriate for profession specific assessment (135, 136, 165)	3 (3.4)
Require additional codes (136, 189)	2 (2.3)
Should not be used as measurement instrument but as classification (43, 178)	2 (2.3)
Difficult to operationalize (39)	1 (1.1)
Amendments needed for children’s codes (80)	1 (1.1)
Activity and participation codes should be separated (241)	1 (1.1)
Capacity/performance most useful construct (75)	1 (1.1)
ICF more useful for electronic database than other tools (147)	1 (1.1)
Needs manual to facilitate use (178)	1 (1.1)
Qualifiers for level of assistance should be included (11)	1 (1.1)
Total	87 (100)

ening to see the spread of disciplines, specific health conditions and contexts within which the classification has been applied in the 7 years that it has been in the public domain. Although the point has been made that it cannot replace discipline-specific languages and assessment tools (10), there is an obvious place for the classification in research pertaining to individual disciplines, as well as inter-disciplinary research.

It is of concern that only 6 of the papers published were from developing countries (81, 120, 163, 168, 233, 240), with Germany and the USA responsible for almost 50% of the total. It would seem that the “information paradox” identified by WHO, the situation in which countries with the greatest health burdens and needs have the biggest information gaps (249) persists. There have been some attempts to involve developing countries in ICF-related research. The ICF Research Centre in Germany is collaborating with researchers in Brazil on the development of core codes for HIV (Chieza, personal communication) and in South Africa on the development of core codes for spinal cord injuries (Campbell, personal communication), and these initiatives need to be encouraged.

As can be expected in the introductory phase of a new classification, there were many papers explaining the conceptual framework of the ICF, many of which presented the philosophical underpinnings of the classification and the structural components most succinctly. However, there were also several papers which claimed to use the ICF framework but in fact interpreted it so broadly, and in some cases incorrectly that the authors might almost be accused of jumping onto the ICF “bandwagon” without fully addressing the classification in its entirety. This raises the question of whether the WHO should have proprietary rights over the use of the ICF to the extent that if the classification is to be utilized the users are obliged to comply with the officially endorsed coding guidelines and interpretations, which are subject to rigorous scrutiny before any changes are implemented.

The papers raised many concerns regarding the codes available to the user and the lack of certain codes, the overlapping of certain codes and the lack of “granularity” of certain codes were raised as problems. A clear example is, “b1522, which corresponds to emotions that can include feelings of love, hate, anxiousness, sorrow, joy, fear and anger. The coder is left with only one choice when coding concepts as diverse as ‘anxiety’ and ‘love’. This is an example of a code that might be expanded to a finer level of granularity in a future version of the ICF framework” (245). Another example mentioned by several authors is the limited codes available for pain.

There is a lack of consensus on whether activity should be differentiated by the classification from participation or whether this should be left to the user’s discretion, as is currently the case. This was one of the relatively straightforward problems regarding the choice of codes (apart from omissions or overlap as mentioned above); the use of the qualifiers appeared to be more problematic. The qualifiers of capacity and performance add a level of complexity to the ICF, which, while supported by some, is not found to be desirable by others. Users do not always adhere to the definitions as given in the ICF Booklet (2) and the use of assistance or aids was not noted in any of the publications that reported on capacity.

In addition, the qualifier related to severity of the problem as defined was not universally applied, with some authors collapsing the different level and others dichotomizing into problem/no problem. The reliability of these qualifiers was also questioned. It would appear that the ICF is not being used exclusively as a classification and in some cases the qualifiers are being used to monitor outcome and change in status. In any case, it is essential that the reliability of the qualifiers be established and, for large-scale data collection, a collapsing of the 5 levels of the qualifier into 3 (no, some and severe problems) might enhance reliability (247), even though this could be at the expense of responsiveness.

Many papers called for the development of a classification of personal factors as the gathering of much relevant information concerning participants and clients cannot be standardized at present. In addition, there is confusion between coding attributes such as optimism, confidence and motivation (all coded under b126, Temperament and personality) under body systems rather than regarding these attributes as yet to be coded “personal factors” as discussed by Threats (133). He maintains that the function code should be used if the attribute is as a consequence of a health conditions, whereas personal factors would be present in, for example, a pre-morbid state. Despite the ethical issues surrounding the development of such a classification (35), there is a clear need to be able to understand the interaction between impairments, participation, environment and the reciprocal influence of personal attributes both by these factors and on these factors. The WHO might consider prioritizing the development of such a classification.

These are issues that need to be addressed by the WHO ICF Reference Group and a process is already underway whereby suggested minor and major amendments to the ICF can be submitted for consideration (Nenad Kostanjek, personal communication).

The major shortcoming of this survey is that the papers analysed represent a convenience sample and do not include all papers published up to and during the period of data collection. The sample may therefore be biased in some way, although the spread of journals, authors and research topics was very wide. It might be that a comprehensive, up to date review is almost impossible as the number of papers published using the ICF seems to increase exponentially. A search of PubMed performed in early January 2008, resulted in 38 publications for the last 90 days alone. It is hoped that this review, albeit incomplete, may assist in increasing the understanding of who is using the ICF, for what purposes and what problems are being encountered.

Another limitation of the study is that all data were collected by the researcher. Although the more objective data relating to the source and nature of the articles is unlikely to be affected by this, the more subjective interpretation of the narrative data concerning problems with the usage of the codes and qualifiers may be biased by the author’s own perceptions. However, comments on the paper were received by colleagues experienced in the use of the ICF and it is hoped that any bias would have been identified at this stage.

In conclusion, despite the incomplete database, this survey provides useful information. In the few short years of its existence, the ICF has made a major impact on the way in which data concerning disability is conceptualized, collected and processed. The classification is being used across disciplines, health conditions, sectors and settings. There is still a need, however, to stimulate utilization and publication in developing countries. This review reports several areas in which users have identified difficulties with the use of the classification. These include missing, overlapping or insufficiently granular codes. The use of the qualifiers in the Activities and Participation component seem to present researchers with the greatest challenges and this has led to incorrect and non-standard applications in some cases. There is a clear need for a classification of personal factors to be added to the ICF to allow for complete reporting on the experience of disability.

The WHO has set in a motion a process for updating the ICF and it is hoped that some of the issues raised in this review will be dealt with through this procedure.

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