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Abstract: Background/Objectives: The aim of this study is the operationalization of the International Classification of Functioning, Disability and Health in the rehabilitation care performed at the Institute of Cancer of the State of São Paulo through structuring a goal-oriented tool with relevant categories of evaluation and follow-up for cancer outpatients to be applied by physiatrists, physiotherapists, physical educators, occupational therapists, and psychologists. **Methods**: A qualitative study based on a literature review and a modified Delphi exercise, Estimate-Talk-Estimate (ETE) technique, was performed with the service's rehabilitation experts. Consensus was obtained after four rounds under the 80% agreement threshold. **Results**: Forty categories were identified for neuropsychological evaluation and thirty-three for psychoaffective support, with 12 goals. Thirty-five categories with 13 goals were accounted for physiotherapy. Physical educators identified 18 categories, with 7 goals. Occupational therapists selected 54 categories, with 10 goals. A referral for personal factors was established. Functional Assessment of Cancer Therapy-General (FACT-G) was the quality of life tool chosen to be applied. **Conclusions**: A set of relevant ICF categories was structured, tailored by a clinically meaningful routine of assessment and follow-up of cancer outpatients based on specialists' clinical practice and scientific literature. It will contribute for analyzable and more specific and quantifiable institutional health data. Its implementation and future discussion may promote the instrument's refinement for its use in this population.

Keywords: cancer care facilities; Delphi technique; disability evaluation; international classification of functioning; disability and health; neoplasms; rehabilitation; outcome assessment (healthcare); data

1. Introduction

It is estimated in Brazil, for each year of the 2023-2025 triennium, the occurrence of 483,500 new cases of cancer (except for non-melanoma skin cancer, which account for 220,500 cases per year). Female breast, prostate, colorectal and lung cancer show the highest incidence [1]. The disease and its treatment frequently result in functional impairments and limits patients' participation in their personal, family and work context. A provision of care that encompasses the transitory phases of the course of the disease, in addition to its diagnosis and treatment, contemplate rehabilitation and palliative care, both already assured by National Ordinance n.741 of 2005 [2]. Due to lack of knowledge by managers and health professionals of the concepts of disability and cancer rehabilitation [3], epidemiological data lack standardization.

Rehabilitation demands emerge according to the deficiencies arisen from the disease and its treatment and occur at different moments in a heterogeneous fashion among different types of cancer. The consequent limitations on activities and restrictions on participation unfold in the meantime. To evaluate and intervene on the patient's disabilities in the continuum of their illness [4], it is essential to build a comprehensive and interdisciplinary approach.

Functional status is a reliable indicator of health demands and outcomes. In interdisciplinary oncology care, physicians, nurses, psychologists, physical educators, physiotherapists, occupational therapists, speech therapists and others use several functioning scales, which fit according to each field of knowledge. Specific appraisals, such as neuropsychological assessment instruments, sound intangible when read by a member of the team who is not a psychologist. The International Classification of Functioning, Disability and Health [5] establishes a common language for health professionals, facilitating communication between the knowledge of each area and the outlining of rehabilitation intervention objectives.

Ensured for its standardization by Resolution n. 452 of 2012 of the Brazilian National Health Council [6], ICF is available for measurement of clinical and functional outcomes, statistical data, sociopolitical planning and as a pedagogical tool in the development of health education programs [5]. Adding adjustments to the instrument, regarding the assessment of quality of life, the outline of personal factors and the adoption of *health state* instead of a *health condition* [4], the systematization of the ICF intends to overcome fragmented care [7].

The aim of this study is to operationalize the ICF in the rehabilitation care of outpatients with cancer carried out at the Cancer Institute of the Estate of São Paulo (Instituto do Câncer do Estado de São Paulo – ICESP) through the structuring of a tool with relevant categories, whose rationale allows therapists to assess the range of impairments, limitations and restrictions of a given cancer patient and outline them as pertinent goals within the scope of the patient's health state at the beginning of the rehabilitation programme. The reapplication of the evaluation at the end of the program will imply the reading of outcomes related to functioning after the intervention.

2. Materials and Methods

The consensus process for the selection of ICF categories was performed with the modified Delphi method, also known as Estimate-Talk-Estimate (ETE). It relies on interactive rounds of voting in systematic progression to reach consensus among experts on topics where there is little or no previously supported evidence. The last round consists of a face-to-face meeting to clarify outstanding issues and justify opinions. By allowing this dialogue, participants experience greater levels of cooperation with each other and perceive effectiveness in group interaction [8,9]. Since the number of participants from each specialty is limited and insufficient for quantitative systematization, the option for face-to-face discussion proved to be more appropriate. Articles concerning similar studies with more participants were raised through literature review and brought up to the debate.

The study took place at the Cancer Institute of the State of São Paulo Rehabilitation Centre. Initially, as seen in Figure 1, in a pre-round, the construction of the questionnaires was elaborated individually between the facilitator and a volunteer professional from each expertise area, based on the evaluations routinely applied. Separate panels were sent by email to all professionals. Those who responded within 60 days were elected as participants. Inclusion criteria for professionals involved: (1) working for more than 3 years in cancer rehabilitation; (2) knowledge of the ICF; and (3) acting in the treatment of patients with problems related to the three major demands in rehabilitation: musculoskeletal, neurological, and cardiorespiratory. Because it is a technical exploration, without bioethical conflict nor direct involvement of patients, it was not imperative to obtain the ethics board's approval for this study. Members were instructed to fill in anonymously and independently. A copy of the ICF in Portuguese was available throughout the rounds for consultation. After reviewing the first series of responses, a second email with personalized questionnaires aimed at discrepancies was sent. All participants responded to the second stage within 30 days. The final results were shared in a discussion circle to align disagreements. Consensus was established for the

created construct, but the participants' opinion converged on the need to carry out a new round related to an absent content in the first questionnaires. The facilitator created a new questionnaire on this topic based on the literature. Participants responded within 15 days. The frequencies obtained did not require a new interrogation.
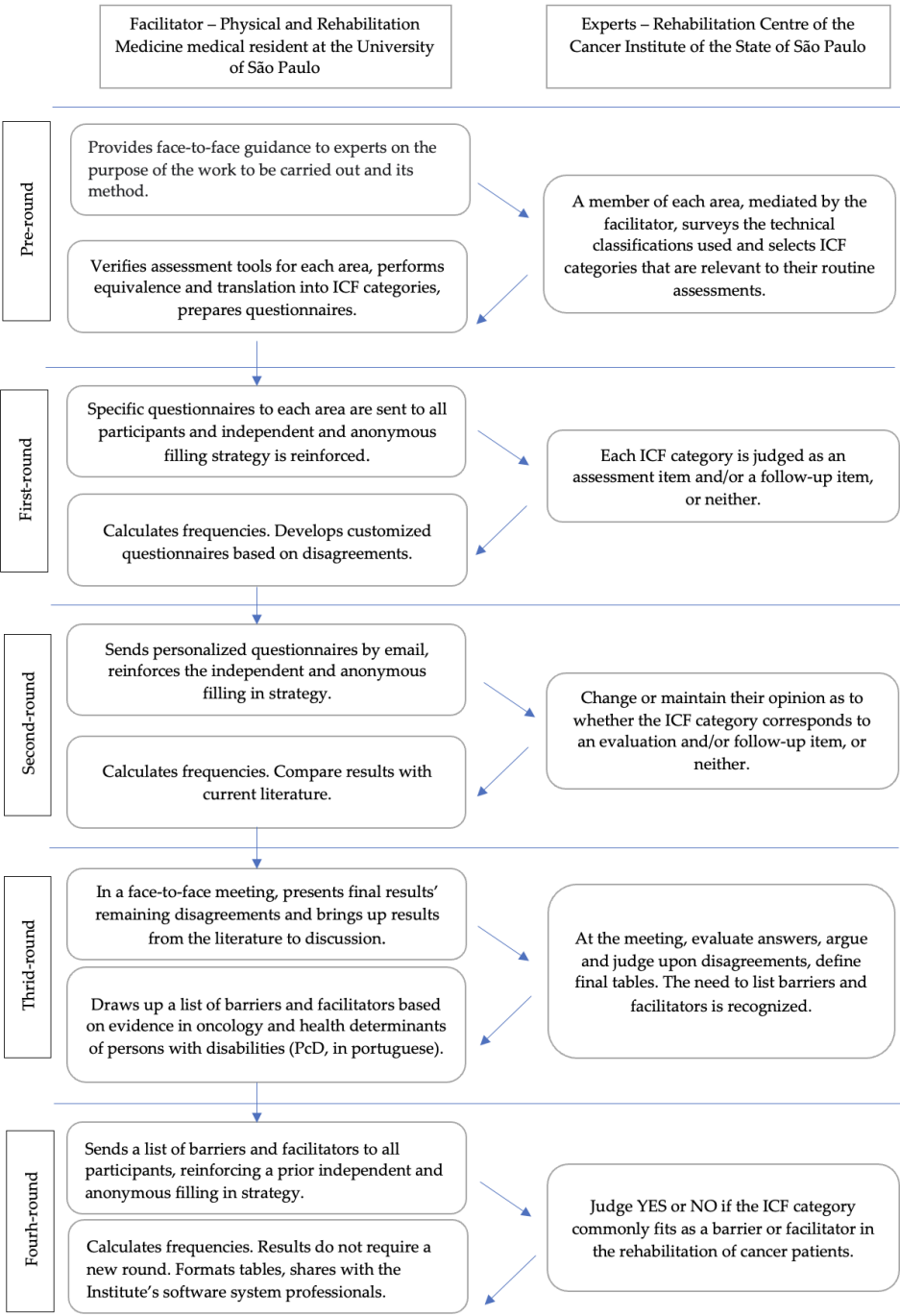

Figure 1. Delphi flowchart.

2.1. Delphi Rounds

2.1.1. Pre-Round

For the construction of the questionnaire, all the applied classifications were raised to establish their equivalence and quantitative translation to the Likert scale adopted by the ICF (0-4). The layout of the questionnaire respected the therapists' usual sequence of use. In addition to this matching, mediated by the facilitator, each volunteer professional examined ICF categories that potentially fit into clinical practice and perhaps had not been included in the panel.

2.1.2. First-Round

The created questionnaires containing the list of categories were sent in Excel table format to all therapists of the rehabilitation centre. Making observations and suggestions on the choice of categories was granted. At the end of the deadline set for sending responses, three psychologists, four physiotherapists, five occupational therapists, two physical educators and two respiratory physiotherapists joined the survey, just over two thirds of the centre's professionals.

2.1.3. Second Round

Since it consists of a small number of professionals, the percentage of disagreement for each category in the first round was not shared. At this stage, the obtained results were compared to those found in scientific publications. Categories conceived in the literature that had not been contemplated or elected by professionals were selected for discussion.

2.1.4. Third Round

Under 80% cut-off, consensus was established on body functions (b) and activities (d). Insufficiency of environmental factors (e) was noticed. Literature was reviewed aiming the emergence of these categories. Beyond those previously observed in the first review, which dealt exclusively with cancer patients [10-12], at this second moment, national publications exploring the barriers and facilitators regarding the reality of the cancer patient as a person with disability in Brazil were appreciated [13,14].

2.1.5. Fourth Round

Percentage of inclusion of the categories was satisfactory, above 80%, involving all 16 professionals. Categories were incorporated into the final panel of each specialty.

3. Results

3.1. Filling in Strategy

The rehabilitation centre is set up with a gym and activity rooms. Patients qualify for outpatient rehabilitation depending on the initial assessment by the physiatrist and the program's prescription includes pertinent therapeutic modalities. Programs are expected to last an average of 10 weeks.

If the therapist is in doubt as in how to classify a category, since it is not strictly based on an objective measurement instrument, the patient can be asked, through the ICF scale, to what degree his disability, limitation or restriction impairs him in that category [15].

Each panel allows the chief complaint reported by the patient to be selected among the established categories. If it is not on the panel, the professional can select it directly from the Brazilian version of ICF or create it using the specification resources. Categories that do not apply to the patient's repertoire of disabilities, will be marked as so.

The established goals for each therapeutic approach largely identify with those found in the brief core sets for breast cancer and for head and neck cancer developed by the ICF Research Branch [16,17]. They sometimes differ at the choice of levels of a category; or the absence of categories that better fit the pathology of the head and neck, appreciated by the speech therapy team in a parallel

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study; and, at those that regard body structures' categories that will be evaluated by physicians, both physiatrists and oncologists, on their medical appointments.

Physiatrists will fill in the taxonomy of deficiencies in body structures (s), regarding those associated with the side affected by the tumor and complications arising from its extension and treatment. An exception is the assessment of the structures of the trunk, muscles, ligaments, and fascia, which will be carried out by both physiatrists and physiotherapists since this analysis permeates the scope of their care.

Categories simultaneously present in different panels, such as looking after one's health, found in the physiotherapy and occupational therapy panels, if qualified differently between the teams, will appear notified as pending inconsistency and will be discussed and further qualified in a team's meeting.

Sensation of pain or its subcategories are present in all questionnaires, comprise objective and subjective components and are susceptible to oscillations. Reported discordant values will be maintained, respecting the subject's perception at the time of his answer. If present, it will be classified by the ICF scale (0-4) in intensity (fullness), frequency and emotional dimension, broken down by the respective categories (b280, b289, b298). There will be a gap available in the template for in-depth descriptions.

The structuring of the use of the ICF in our oncology rehabilitation program consists of a resource for common use among professionals involving goals that can be achieved through therapies. Structural changes, such as recovery of reproductive functions in the case of breast cancer, among other categories such as menstruation functions or procreation functions, do not apply to our proposal.

3.2. Goal ICF Categories

The consensus obtained by each expert group after the fourth Delphi round is seen in Tables 1, 2, 3, 11 and 15. All categories configure evaluation items and those highlighted in colours, follow-up items.

3.2.1. Psychology

There are 12 potential goals, if applicable: *pain* control; *sleep* quality; *body image*; *vigour*, *motivation*, *impulse controlling*; *appropriateness* and *regulation of emotions*; *handling stress and other psychological demands*; managing *relationships*; *social participation*; lastly, adaptation facing one's own *cognitive deficit*.

Table 1. Relevant categories for neuropsychology, with therapeutic goals highlighted in blue.

Neuropsychology

ICF Code		ICF Category
2º level	3º level	
b114		Orientation functions
	b1140	Orientation to time
	b1141	Orientation to place
	b1142	Orientation to person
	b1400	Sustaining attention
	b1401	Shifting attention
	b1402	Dividing attention
b144		Memory functions
	b1440	Short-term memory
	b1441	Long-term memory
	b1600	Pace of thought
	b1601	Form of thought

	b1602		Content of thought
	b1603		Control of thought
b164			Higher-level cognitive functions
	b1640		Abstraction
	b1641		Organization and planning
	b1642		Time management
	b1643		Cognitive flexibility
	b1645		Judgement
	b1646		Problem-solving
b117			Intellectual functions
b147			Psychomotor functions
		b16700	Reception of spoken language
		b16710	Expression of spoken language
		b16701	Reception of written language
		b16711	Expression of written language
	b1672		Integrative language functions
b176			Mental function of sequencing complex movements
	b1560		Auditory perception
	b1561		Visual perception
	b1564		Tactile perception
	b1565		Visuospatial perception
b172			Calculation functions
d155			Acquiring skills
d160			Focusing attention
d166			Reading
d170			Writing
d172			Calculating
d175			Solving problems

Table 2. Relevant categories for psychology, with therapeutic goals highlighted in blue.

Psychology		
ICF Code		**ICF Category**
2º level	**3º level**	
b280		Sensation of pain
b289		*Frequency of pain*
b298		*Emotional dimension of pain*
	b1801	Body image
	b1343	Quality of sleep
b126		Temperament and personality functions
	b1300	Vigour
	b1301	Motivation
	b1304	Impulse control
	b1520	Appropriateness of emotion
	b1521	Regulation of emotion
	b1644	Insight
d240		Handling stress and other psychological demands
d177		Making decisions

7

d710		Basic interpersonal interactions
d720		Complex interpersonal interactions
d660		Assisting others
d750		Informal social relationships
d760		Family relationships
d770		Intimate relationships
d839		Education
	d8451	Maintaining a job
d870		Economic self-sufficiency
d930		Religion and spirituality
d920		Recreation and leisure
d910		Community life
e310		Immediate family
e315		Extended family
e320		Friends
e325		Acquaintances, peers colleagues, neighbours and community members
e330		People in positions of authority
e340		Personal care providers and personal assistants
e360		Other professionals (social workers)
e450		Individual attitudes of health professionals
e460		Societal attitudes
e465		Social norms, practices and ideologies

Specific categories designed by our team are displayed in italic.

Neuropsychological inquiry, if pertinent, approaches cognitive functions by specific tests as seen Table A1. The election of a test is personalized after cognitive screening and considers personal factors related to schooling, socioeconomic and cultural context. Data analysis obtained by the psychologist is carried out in quantitative and qualitative ways. It was decided not to equate the quotients of each test to the ICF categories in a strictly quantitative manner, but rather to grant this translation to the professional.

The patient's subjective understanding of his illness process is of fundamental importance for the psychological approach. This perception is explored throughout the psychotherapy sessions and the deconstruction of misconceptions that may correspond to obstacles for the patient to cope positively with their rehabilitation care is carried out respecting the sociocultural repertoire of each subject. The option of registering such passages in an additional gap is contemplated, allowing the deepening of qualitative research on content analysis in the future [18]. Based on this strategy, it is possible to presuppose elements that may correspond to singular personal factors that are critical to the rehabilitation process.

Table 3. Relevant categories for physiotherapy, with therapeutic goals highlighted in green.

Physiotherapy		
ICF Code		**ICF Category**
2º level	**3º level**	
	b2801	Pain in body part
	b2800	Generalized pain
b289		*Frequency of pain*

b298		Emotional dimension of pain
b265		Touch function (sensory functions)
b810		Protective functions of the skin (trophic functions)
b820		Repair functions of the skin (cicatrisation)
b840		Sensation related to the skin (paresthesia)
	b1801	Body image
s730._7		Fluid accumulation in the upper extremity
s750._7		Fluid accumulation in the lower leg
	s7702._8	Muscles
	s7703._5	Extra-articular ligaments, fasciae, extramuscular aponeuroses, retinacula, septa, bursae, (adherences)
b710		Mobility of joint functions (range of motion)
b735		Muscle tone functions
b730		Muscle power functions
	b4552	Fatigue
s760._6		Structure of trunk (hyperkyphosis, hyperlordosis, scoliosis)
	b7355	Tone of muscles of trunk
b260		Proprioceptive function
	b7150	Stability of a single joint (shoulder subluxation)
	b7603	Supportive functions of arm and leg (control and coordination)
b770		Gait pattern functions
b755		Involuntary movement reaction functions (Berg Balance Scale)
d415		Maintaining a body position
d410		Changing basic body position
d420		Transferring oneself
	d4551	Stairs
d469		Walking and moving, other specified
d230		Carrying out daily routine
d570		Looking after one's health
	e1151	Assistive products and technology for personal use in daily living
	e1201	Products and technology for personal indoor and outdoor mobility and transportation
e540		Transportation services, systems and policies
	e1602	Products and technology of urban land development

Specific categories designed by our team are displayed in italic.

3.2.2. Physiotherapy

There are 13 potential goals, if applicable: *pain* control, reduction/control of *lymphedema*, improvement of *adhesions*, gain/maintenance of *range of motion*, control of *muscle tone*, gain/maintenance of *muscle strength*, *postural control*, autonomy and safety during *transfers*, *gait pattern* improvement, *endurance*, decrease in *fatigue*, autonomy and safety in *carrying out daily activities*, lastly, *self-care*.

The assessment of muscle tone in patients with spasticity will be supported by the modified Ashworth scale, computing the functional muscle group that most leads to the disability, as seen in Table 4. The same rational is valid for the modified Medical Research Council (mMRC) muscle strength grading (Table 5), for example, selecting strength of hip and the knee extensors in a patient

with hemiparesis, having gait as a perspective. Structural categories such as those dealing with hemi, para or tetraplegia and amputations were eliminated because we believe they are better described by the International Classification of Diseases (ICD).

Table 4. Conversion table for ICF and Modified Ashworth Scale.

ICF	Modified Ashworth Scale	
b735		Muscle tone functions
0	0	No increase in muscle tone
1	1	Slight increase in muscle tone, manifested by a catch and release or by minimal resistance at the end of the ROM when the affected part(s) is moved in flexion or extension
2	1+	Slight increase in muscle tone, manifested by a catch, followed by minimal resistance throughout the remainder (less than half) of the ROM
3	2 to 3	More marked increase in muscle tone throughout most of the ROM, but affected part(s) easily moved / Considered increase in muscle tone, passive movement is difficult
4	4	Affected part(s) rigid in flexion or extension

ROM: Range of motion.

Table 5. Conversion table for ICF and Muscle Strength grading – mMRC.

ICF	The modified Medical Research Council muscle strength grading - mMRC	
b730		Muscle power functions
0	5 and -5	Normal strength against full resistance
1	+4 and 4	Active movement against moderate or strong resistance
2	-4 and +3	Active movement against slight or transient resistance
3	3, -3 and 2	Active movement throughout partial or full ROM without resistance, or, active movement with gravity eliminated
4	1 and 0	Flicker or trace contraction (palpable or visible), or, no contraction (total paralysis)

ROM: Range of motion.

The descriptions found in walking (d450) and moving around using equipment (d465) do not fit the reality of cancer patients who perform independent walking, which may have its covered distance reduced due to fatigue; nor those who move with a walking aid, dependent or not on third parties. A framework was elaborated that better fits this logic, as seen in Tables 6 and 7: walking, other specified (d4508) and walking and moving, other specified (d469), respectively. The quality of gait pattern functions (b770) will respect the observation of cadence, tonus, and stability (Table 8). Berg's balance scale was mirrored in ICF categories (0-4) (b755) (Table 9).

Table 6. Walking, other specified.

ICF	
d4508	**Walking, other specified**
0	Walks for long distances (>1km)
1	Walks for short distances (<1km) without the aid of a walker, crutches or a cane
2	Walks for short distances (<1km) with the aid of a walker, crutches or a cane
3	Walks only indoors or therapeutically
4	Bedridden, doesn't walk

Table 7. Walking and moving, other specified.

ICF	
d4508	**Walking and moving, other specified**
	Lately, using a cane, crutches, a walker or a wheelchair, you:
0	Move around throughout a long distance outdoors
1	Move around throughout a short distance outdoors
2	Move around most of the time indoors
3	Move around least of the time indoors and demand assistance from other people
4	Demand assistance from other people to move around

Table 8. Gait pattern functions, interpretation.

ICF	
b770	**Gait pattern functions**
	Considering the risk of falling:
0	No impairments in cadence, muscle tone or stability
1	Decrease in cadence, minor muscle tone impairment, minimaly compromised stability
2	Decrease in cadence, moderate muscle tone impairment, moderately compromised stability
3	Significant muscle tone impairment, severely compromised stability
4	Doesn't assume orthostatic posture

Table 9. Conversion table for ICF and Berg Balance Scale.

ICF	Berg Balance Scale	
b755		Involuntary movement reaction functions
0	4	No balance impairment
1	3	Mild balance impairment
2	2	Moderate balance impairment
3	1	Severe balance impairment
4	0	Complete balance impairment

In the skin and sensitivity matter, the rationale for the defined categories contemplates conditions in which there is a sensory deficit, neuropathic aspect or trophic change resulting from surgical wounds, radiotherapy, or lymphedema. Functions of the immune system, vessels and lymph nodes will be evaluated and graded by the medical team, as they include immunity, metastases to the lymphatic system, number of affected lymph nodes, impairment of lymph vessels, among other aspects. It is up to physiotherapists and occupational therapists to classify upper limb lymphedema according to the fifth Expert Committee on Filariasis of the World Health Organization Technical Report Series paired for category s730.7: Fluid accumulation in the upper extremity and s750.7, for lower extremity (Table 10).

Table 10. Conversion table for ICF and Lymphoedema – Expert Committee on Filariasis.

ICF	Expert Committee on Filariasis – WHO Technical Report Series	
s730._7		Structure of the upper extremity, fluid congestion
0	-	No structural alteration of the lymphatic system
1	0	Subclinical lymphoedema
2	1	Overnight reversible lymphoedema
3	2	Irreversible lymphoedema, but manageable by appropriate therapeutic measures
4	3	Irreversible lymphoedema along with either one complication such as fibrosis, papillomatosis, keratosis, lymphatic fistulae or angiomas

Fifth report of the WHO Committee on Filariasis; 1991.

3.2.3. Physical Education

There are 7 potential goals, if applicable: *pain* control, improvement of *fatigue* and *aerobic capacity*, improvement of *respiratory muscle strength*, gain/maintenance of *global muscle strength*, adherence to recommendations for *healthy eating* and *maintenance of physical activity* after the program.

Table 11. Relevant categories for physical education, with therapeutic goals highlighted in yellow.

Physical education

ICF Code 2º level	3º level	ICF Category
b280		Sensation of pain
b289		*Frequency of pain*
b298		*Emotional dimension of pain*
	b4552	Fatigue
	b4100	Heart rate
	b4101	Heart rhythm
	b4202	Maintenance of blood pressure
b445		Respiratory muscle functions (manuovacuometry)
b450		Additional respiratory functions (cough efficiency)
b460		Sensations associated with cardiovascular and respiratory functions (dyspnoea)
b730		Muscle power functions (Grip dynamometer)
b530		Weight maintenance functions (BMI)
	d5708	*Healthy eating*
d598		*Practice of physical activity*
	d4508	*Walking*
	d9201	Sports
	d9208	*Practicing adaptive sports* (Recreation and leisure, other specified)
	e1401	Assistive products and technology for culture, recreation and sport

Specific categories designed by our team are displayed in italic.

The mMRC dyspnea scale will be translated to the ICF (b460) as described in Table 12. Exercise performance has been linked to respiratory muscle strength [19], a contributor to the feeling of dyspnea. When there is a clinical indication of strengthening this muscle chain, respiratory

physiotherapists work together with physical educators. Functions of the respiratory muscles (b445) will be measured by a digital manuvacuometer.

Table 12. Conversion table for ICF and Dyspnea Scale – mMRC.

ICF	The modified Medical Research Council dyspnea scale – mMRC	
b460		Sensations associated with cardiovascular and respiratory functions
0	0	Not troubled by breathlessness except on strenuous exercise
1	1	Short of breath when hurrying or walking up a slight hill
2	2	Walks slower than contemporaries on the level because of breathless or has to stop for breath when walking at own pace
3	3	Stops for breath after walking 100m or after a few minutes on the level
4	4	Too breathless to leave the house or breathless when dressing or undressing

Aerobic capacity will be assessed through the 6-minute walk test [20]. Timed-Up-and-Go functional mobility test [21] will be applied to individuals over 60 years of age and to those who are frail, regardless of categorization by the ICF. The application of the scale (0-4) for these values is not feasible. Body Mass Index (BMI) and the simplified International Physical Activity Questionnaire (IPAQ) shall be classified as ICF categories, as well (Tables 13 and 14).

Table 13. Conversion table for ICF and Body Mass Index – BMI.

ICF	Body Mass Index – BMI	
b530	Weight maintenance functions	
0	Between 18,5 and 24,9	Eutrophic
1	Between 25 and 29,9	Overweight
2	Between 17 and 18,49; 30 and 34,9	Underweight I; obese I
3	Between 16 and 16,9; 35 and 39,9	Underweight II; obese II
4	Below 16; equal and/or above 40	Underweight III, obese III

Table 14. Conversion table for ICF and International Physical Activity Questionnaire – IPAQ – simplified.

ICF	International Physical Activity Questionnaire – IPAQ - simplified
d598	Practice of physical activity, other specified*
0	Very active, performs more than 150min/week
1	Active, follows recommendation of 150min/week
2	Irregularly active, performs a little less than <150min/week
3	A bit active, performs less than 75min/week or very irregularly
4	Sedentary, doesn't practice physical activity

WHO, 1998.

For dietary instruction, the ten recommendations for healthy eating in the Food Guide for the Brazilian Population, prepared by the Brazilian Ministry of Health in partnership with the Pan American Health Organization/World Health Organization (PAHO/WHO) and the University of São Paulo (USP) in 2015, will be shared via audiovisual content: video and pdf file. At the post-program follow-up, we will question adherence to the recommendations.

3.2.4. Occupational Therapy

There are 10 potential goals, if applicable: *pain* control, gain/maintenance of *range of motion* and *muscle strength*, *use of the hand and arm*, *acquisition of skills*, autonomy and safety in *carrying out the daily routine* and *housework* tasks, return/adaptation to *school and/or work*, lastly, *self-care*.

Table 15. Relevant categories for occupational therapy, with therapeutic goals highlighted in red.

Occupational therapy		
ICF Code		**ICF Category**
2º level	**3º level**	
	b2801	Pain in body part
b289		*Frequency of pain*
b298		*Emotional dimension of the pain*
b840		Sensation related to the skin
b265		Touch function
	b2700	Sensitivity to temperature
	b2703	Sensitivity to noxious stimulus
b710		Mobility of joint functions
	b7158	*Stability of joint functions (shoulder)*
	b7301	Power of muscles of the affected limb
	b7308	*Power of muscles of non-affected limb*
b755		Involuntary movement reaction functions
	b7602	Coordination of voluntary movements
b260		Proprioceptive function
	b1565	Visuospatial perception
d445		Hand and arm use (dominant)
d440		Fine hand use (dominant)
	d4458	*Hand and arm use (non-dominant)*
	d4408	*Fine hand use (non-dominant)*
d155		Acquiring skills
d550		Eating
d560		Drinking
d510		Washing oneself
d520		Caring for body parts
d540		Dressing
d230		Carrying out daily routine
d640		Doing housework
d630		Preparing meals
d650		Caring for household objects
	d3600	Using a cell phone
	d3601	Using computers
d620		Acquisition of goods and services
d860		Basic economic transactions
	d4751	Driving a car or other motorized vehicles
	d4702	Using public motorized transportation

d839		Education	
d850		Remunerative employment	
d855		Non-remunerative employment	
	d9202	Arts and culture	
	d9203	Crafts	
	d9205	Socializing	
	d9300	Organized religion	
d570		Looking after one's health	
e520		Open space planning services	
e555		Associations and organizational services, systems and policies	
	e1401	Assistive products and technology for culture, recreation and sport	
	e1650	Financial assets	
e570		Social security services, systems and policies	
e585		Education and training services, systems and policies	
e590		Labour and employment services, systems and policies	
	e1151	Assistive products and technology for personal use in daily living	
e560		Media services, systems and policies	
e150		Design, construction and building products and technology of buildings for public use	
e155		Design, construction and building products and technology of buildings for private use	

Specific categories designed by our team are displayed in italic.

The scoring logic of activities of daily living (ADL) is similar to the Functional Independence Measure as seen in Table 16. As for instrumental activities of daily living (IADL), using the cell phone (d3600) and using the computer (d3601) were included, found in the study by Becker et al. (22). Moving around outside the home and other buildings (d4602) and, within buildings other than home (d4601), were not included because they are already contemplated in walking and moving, other specified (d469). Universal accessibility should be distinguished for public and private use buildings (e150, e155). The assessment of the impact of the quality of urban land development, such as curb cuts and ramps (e1602) will be the attributed to physiotherapists.

Table 16. Conversion table for ICF and Functional Independence Measure (FIM).

ICF	FIM	Functional Independence Measure	International Classification of Functioning, Disability and Health
0	**7**	Complete independence	No problem
1	6	Modified independence	Mild problem
2	5-4	Supervision/Minimal assistance	Moderate problem
3	3-2	Moderate assistance/Maximal assistance	Severe problem
4	1	Total assistance	Complete problem
d550		Eating	Eating
d560			Drinking
d520		Grooming	Caring for body parts
d510		Bathing	Washing oneself
d540		Dressing upper body/lower body	Dressing

d5300	Toileting/Bladder management	Regulating urination
d5301	Toileting/Bowel management	Regulating defecation
d420	Mobility/Transfer	Transferring oneself
d4508	Locomotion: Walk	*Walking*
d465	Locomotion: Wheelchair	*Moving around using equipment*
d4551	Locomotion: Stairs	Going up and down stairs
b1670	Comprehension	Reception of language
b1671	Expression	Expression of language
d175	Problem solving	Solving problems
d710	Social interaction	Basic interpersonal interactions
b144	Memory	Memory functions

Specific categories designed by our team are displayed in italic.

3.3. Personal Factors

There is no taxonomy for this session. Personal factors are set as: identification, comorbidities, risk factors and attitudes towards limitations, for instance, coping, hopelessness, guilt [23]. Such behavioral and attitudinal aspects towards the disease, among other contextual circumstances, can be described if they stand out in the team's view as relevant for the rehabilitation process of a given patient. They should not be mistaken as temperament and personality functions (b126). The latter will be evaluated by psychologists in a generic way at a second level and the goal chosen within this perspective is handling stress and other psychological demands (d240) [16,17].

3.4. Quality of Life

The Functional Assessment of Cancer Therapy-General (FACT-G) instrument was chosen for application to be answered at the beginning and at the follow-up of the program, 6 months later. The answers to this questionnaire, once provided by the patient, can be discussed in their equivalence to those obtained by the therapists, with the ease of using the same rating scale (0-4). It is worth mentioning that not all propositions of the quality of life tool can be equated with the ICF. This instrument "has singular and subjective contours of the chronic disease experience, not prone to codification" [4,24].

FACT-G takes into account satisfaction with the treatment and sets oncology approach in a contextualized, first-person manner, being sensitive to key topics and those of delicate access, such as sexuality and terminality. It is feasible for people with little or no education. We opted for this tool over the European Organization for the Research and Treatment of Cancer Quality of Life Questionnaire Core 30, since almost all questions about functioning present in this instrument mirror the categories verified objectively by therapists in our panels, except for symptoms' interrogation, which ought to be addressed by the medical team. There is no superiority of one over the other [25].

4. Discussion

4.1. Capacity and Performance

The commitment involved in the construction and implementation of this tool aims measuring outcomes of the proposed goals. As previously mentioned, the categories in bold in the panels configure potential goals to be set for the rehabilitation program, if applicable, and correspond to those chosen for sequential computation at the beginning of the therapeutic program, at its end - around 10 weeks later -, and later, 6 months after the intervention by a physiatrist. For the categories of structures, functions and environmental factors, the *Phillips Tasy* system will compute the code immediately after the category, as instructed in the ICF. Example: b114 Orientation functions. For a given patient, it may be filled in at the initial assessment as b114.2, moderate limitation; at the final assessment as b114.1, mild limitation; and 6 months later, remain as b114.1, mild limitation of the orientation functions.

Regarding filling in the activity and participation categories, the concepts of *capacity* and *performance* will play a key role. At the initial assessment, both qualifiers will be filled in equally, understanding that the individual's performance is strongly correlated with his *capacity* prior to the intervention. At the final evaluation of the program, the data is computed in the *Phillips Tasy* system regarding the capacity qualifier, a concept that can be inferred in the rehabilitation centre scenario. Six months later, through the patient's report to the reassessment in a medical consultation, the system will then compute the *performance* qualifier, dealing with what he effectively performs in his environment. Example: d420.PC *Transferring oneself* (P: performance, C: capacity). Time 0: d420.33 Severe limitation to transfer, severe difficulty in transferring. Time 1: d420.P1 Unqualified performance, slight difficulty in transferring. Time 2: d420.11 Slight limitation to transfer, slight difficulty to transfer (skilled ability as noted at time 1). It shouldn't be a burden to therapists to complete it as it's shown, since it will be the computerized system that sets up the information in this fashion.

The identification of obstacles to performance, through the investigation of barriers and facilitators, is trustworthy to the patient's reality and discerns agents and elements co-responsible for the success of rehabilitation. The range of this information allows the reassessing health professional to outline the next steps in rehabilitation, considering whether a new intervention is pertinent or whether it has exhausted its possibilities in the face of barriers of another sort. For example, individual attitudes of strangers (e445) were a main barrier found in a study designed by Tomandl et al. [26] with elderly adults. A strategy like ours also allows the selection of further goals that are less "deficit-oriented", signing for other society's sectors the demands of the persons with disabilities outside the healthcare context. If there has been progression of the patient's disease with regression in functioning, the need for reintervention is assessed, assuming that there has been loss of previously acquired capacity. Similar temporal application is performed for standard sets [27,28], but without description of analysis of potential barriers or facilitators.

The Rehabilitation System Diagnosis and Dialogue framework (RESYST) exists as an ongoing effort of a human rights based indicator, with the format of a concept mapping, with the purpose of "help governments and those seeking to support them, strengthen policy surveillance to gain a clearer and more comprehensive picture of the main weaknesses in rehabilitation services and align national strategies with obligations and commitments on disability rights and inclusion, thus leading to better and more equitable outcomes for all" [29] . Customizing the needs of a person with disability in a tailor-made functioning coded framework might, allied to a similar coded society tool, bring dynamism to a time-consuming interaction with societal services.

4.2. Value in Health

In the essay by Porter & Lee [30], the person-centered medicine strategy is supported by the economic discourse. It evidences the need to equate the pertinence of the treatment offered, its quality and its results so that there is control over the costs and meaning for those involved. To this end, it is essential to set goals based on the patient's demands and to compute and computerize the obtained results. The exercise of structuring core sets and standard sets takes this premise into account.

Our construct differs from that advocated by the International Consortium for Health Outcomes Measurement (ICHOM), according to which the rationale should be designed specifically for each cancer etiology, and not directed to the therapeutic specialty. What was built is not a core set or a standard set for a disease, as this would require the participation of the oncology team in conceiving the outcomes of clinical/surgical management, it is a systematization of the use of the ICF for professionals of rehabilitation in their daily care and the definition and computerization of relevant functional results.

Patient-reported outcomes' measurement information system (PROMIS) is a dynamic tool, in many ways similar to a few ICF's application options such as WHODAS and WHOQoL. We opted to validate the patient's own customized ICF set with him at each assessment and evaluation, together with the FACT-G instrument. Approaches such as a *satisfaction with the offered service survey* might be elaborated to capture the patient's experience and apply it in the value in health equation [31].

Since its publication in 2001, the ICF intends to serve the person-centered model, however, the biomedical model deeply rooted by professionals ends up leaving its impression on the resource [32]. The chief complaint gap in the template of each specialty is unique so that rehabilitation efforts cover what is essential for each specific patient, even though we have pre-conceived functional goals, when applicable, for computerization. If the patient's main goal is incompatible with the diagnosis and prognosis, it will be identified and made evident. Clarity over the rehabilitation purpose allows therapeutical work upon it. Another foundation of the ICF that we also systematize are the barriers and facilitators in their special focus, relating them to performance. The organization of this information aims to optimize social support sectors, legitimizing demands for public policies in the field of work, social security, urban mobility, among others.

A radar chart map, grounded in the continuum of care, by the start and the subsequently follow up, may be of help to compute data in a way that categories are considered each by each. Graphically it will fit the purpose of the rehabilitation plan itself, and for research, it will allow observing the development and evolution of each category alone. It is dynamic. If a new therapy is prescribed and a new team is recruited, for example, pelvic floor physiotherapy, relevant goals are added to the patient chart. A customized chart shall allow to measure cost-effectiveness of an intervention without ceiling or floor effects [33].

The study has limitations since it's unicentric, has a small number of participants, involved no patients' inquiry and has been carried out based on a broad, but not systematic, literature review. However, other studies [34-37], such as Maritz et al. [38], explore similar interpretation of an ICF pairing, and even evidenced achievement of conceptual equivalence of instruments in interval-scaled ICF format through Rasch's model's requirements with FIM and Barthel Index. A recent study by Umemori et al. [39], involved a clinician survey aimed at conceptualizing the equivalence between FIM and ICF, with participation from 468 professionals. The results of this survey largely align with our findings. It endorses a tendency in the comprehensive operationalization of the ICF to seek classification (as it is by definition), and not remodeling of the rehabilitation services to fit its format [7,12]. The created construct allows patients to explain their goals and is based on functioning, in this sense, its centered line is the patients' purpose. The modified Delphi methodology, usually used in studies like this one [4,10,11], facilitated the exchange of opinions, even allowing the adaptation of categories, subsequently creating the *specified* ones.

The repetition of the "pain" category, arranged in the different templates will be shortened to a single one, validated with the patient at the end of the intervention [7]. A self-suggestion for optimizing pain assessment is to perform a single VAS or EVN, paired with the recent observation of the International Association for the Study of Pain (IASP), based on functional neuroimaging and other objective assessment evidence [40], in which from 1 to 5 there is no suffering necessarily implied, from 5 on there is suffering, and from 7 on there is disability (cognitive). An ICF pairing with the VAS/EVN, in which respectively, 0 is paired to 0; 1 to 1- 4; 2 to 5 – 6; 3 to 7 – 9; and 4 to 10, could agglutinate research results.

5. Conclusions

A set of relevant ICF categories was structured for the assessment and follow-up of cancer outpatients in rehabilitation care by specialists. The panels developed vary in the number of categories but are similar in terms of the totality of goals: psychology (12), physiotherapy (13), physical education (7) and occupational therapy (10). The highlighted goals are familiar to therapists and specialists, bringing up ICF not as a recent tool with new concepts, but as a pivotal classification that fits to translate what is already being done. Its use and future discussion may promote its expansion within the transdisciplinary team as well as for capturing the needs of the persons with disabilities by other society sectors.

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Appendix A

Table A1. Neuropsychological assessment tools.

Neuropsychological tests	Subtests
MoCA – Montreal Cognitive Assessment	
MMSE – Mini-mental state examination	
WAIS - Wechsler adult intelligence scale III	
	Coding
	Similarities
	Digit span
	Block design
WASI – Weschsler abbreviated scale of intelligence	
LSSI - Lipp's Stress Symptoms Inventory for Adults	
Beck Depression Inventory (BDI), Beck Anxiety Inventory (BAI), Beck Hopelessness Scale (BHS), and Beck Scale for Suicide Ideation (BSS)	
BVMT-R *Brief Visual Memory Test* (reviewed)	
Token Test (short version)	
RAVLT – Rey Auditory Verbal Learning Test	
Rey Complex Figure Test	
CDT – Clock Drawing Test	
F-A-S – Verbal Fluency Test (VFT)/Semantic Verbal Fluency Test (SVFT)	
Boston Naming Test	
Stroop Effect Test	
Color Trails Test (CTT)	
Bender Gestalt Visual-Motor Test	

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