ORIGINAL ARTICLE

Investigating information regarding functional capacity and quality of life in institutionalized elderly according to the ICF

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ABSTRACT

Objective: To evaluate the functional capacity and quality of life (QoL) of the institutionalized elderly from an ICF perspective. **Method:** A cross-sectional observational analytic study was conducted with 22 elderly residents (77.9 ± 9.41 years) of a long-stay care institution in Curitiba, Paraná. The following assessment instruments were applied: the Barthel Index, the Nottingham Health Profile Questionnaire, and the International Classification of Functioning, Disability, and Health (ICF). Analysis of the data was done by measures of central tendency (mean) and dispersion (standard deviation). The ICF was analyzed by the distribution of relative and absolute frequencies. **Results:** The majority of the sample had medium cognitive status and light functional dependency. The domain that most interfered with the elderly's QOL was physical ability, energy level, sleep, and emotional and social pain, respectively. The ICF frequency distribution showed aspects not observed in the conventional assessment of the participants; in particular, it showed great specificity in the following functions: mental, sensory, and pain, the digestive, metabolic, and endocrine systems, psychomotor, movement, personal care, support and relationships, and individual activities. **Conclusions:** It is expected that the ICF will be adopted and used in various areas of health, including long-stay care facilities and multidisciplinary teams, so that professionals, through a unified and standard language, may intervene in the health of the individual as a whole.

Keywords: International Classification of Functioning, Disability and Health, Quality of Life, Aged

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INTRODUCTION

The aging of the population is one of the greatest challenges facing contemporary public health. In Brazil, the number of elderly people went from 3 million in 1960 to 7 million in 1975 and 14 million in 2002-an increase of 500% in 40 years, and it is estimated that it will reach 32 million by 2020.[1,2] The aging process brings losses and gains, physical as well as cognitive, however, changes occur in all the stages of life.[3] For Cruz and Ferreira,[4] aging is individual as a natural process in the life of humans. The changes that occur are typical of normal aging and influenced by genetic and environmental factors. It is necessary to have a holistic view of "aging" and to consider the positive aspects of this process and the potential of the elderly, such as abilities in social relationships, wisdom, and experience acquired with the experiences lived in the different life stories.

Nevertheless, negative aspects also may occur such as the progressive loss of physiological[5] and functional capacities. These functional capacities indicate a new component in the elderly health model[6] and may be defined as the degree of preservation of the abilities to execute, in autonomous and independent form, the basic activities of daily living (self-care), and the instrumental activities of daily living (more complex), dependent on physical and mental abilities.[7] Considering the contextual model that involves the personal conditions of the individual, the environment in which he lives and the tasks he executes, the Functional Capacity evaluation analyzes the performance of activities and functions in different areas, among which the daily life tasks, the social interactions, the leisure activities, and other day-to-day demands[8] that, as a whole, provide aging with quality. Quality of Life (QOL)[9,10] is defined by the World Health Organization (WHO) as a perception of the individual about his position in life, according to the cultural context and the value system surrounding him and in relation to his objectives, expectations, standards, and concerns.[11]

Another aspect to be considered is that the elderly population is generally composed of elderly people from lower economic classes and with some type of disease, without the means to live alone or with their family members,[12] which may result in that person being institutionalized. Long-Stay Care Institutions (LSCI), formerly known as rest homes, are collective residences that serve independent elderly people with socioeconomic and/or family needs as well as those with difficulties in performing their activities of daily living and who need prolonged care.[13] For Freitas & Noronha,[14] the LSCI is a place to live and not a "dump" for old people. Therefore, the LSCIs should be perfect places to observe old age living. Freire & Tavares[15] point out that the institutionalized elderly almost always form a private group with their own projects, for they are away from their family, their home, their friends, and the relationships in which their life stories had been built. In addition, these elderly people show significant characteristics such as increased sedentarism, loss of autonomy, and an absence of family members, which, among other factors, contribute to the increased prevalence of morbidities and co-morbidities related to autonomy.[16]

The International Classification of Functioning, Disability and Health (ICF) is useful here, which, by means of a biopsychosocial model, was able to clarify the information on the health of the elderly with the perception that the same diagnosis may present different functional limitations.[17,18] The ICF has a decentralized view of disease and considers the human being as a whole in the diverse circumstances of health and human functioning.[19] Thus, the institutionalized elderly, in particular, must be observed with this broad view on health, through evaluations of functional capacity and quality of life, for certain preventions and the promotion of health.[20]

Therefore, the objective of the present study was to evaluate the functioning of elderly females in a long-stay care institution in Curitiba, state of Paraná, examining their functional capacity and quality of life through the ICF.

METHOD

Study sample

This was a cross-sectional, observational, analytical study,[21] using a convenience sample and carried out in a Long-stay Care Institution in the city of Curitiba, state of Paraná. The entire legislation ruling ethics in research was respected.

The LSCI wing selected for the present study was the "home of flowers" and it is made up of 35 elderly women. The inclusion criteria for women volunteers were: to be aged 60 years or older and to be a resident of the LSCI. The exclusion criteria from the final sample were those who presented with limitations that made it impossible for them to communicate and express themselves during the interviews or who had a score lower than 17 in the Mini Mental State Examination (MMSE).[22,23]

Initially, the sample was composed of 35 elderly females, from which 13 were excluded: 7 refused to participate, 5 did not reach the score points needed in the MMSE, and one was absent to receive medical care. The final sample of the study was composed of 22 elderly women.

Instruments and Procedures for collecting data

Trained researchers collected the data through an individual interview with each participant, in which the subjects were asked about their characteristics and identification data. After that, the Mini Mental State Examination (MMSE) was applied to evaluate the cognitive state of the participants.[24] This test has questions grouped into 7 categories: orientation as to time, orientation as to place, immediate memory, attention and calculation, recall, language, and visual constructive capacity. The score ranges from 0 (zero) to 30 (thirty),[22,25] with the low scores indicating possible cognitive losses.[26]

Evaluation of functional capacity

Their Functional Capacity was evaluated through the Barthel Index,[27] a questionnaire with 10 items: feeding, bathing, dressing, grooming, bowels, bladder, toilet use, transfers from chair to bed, mobility, and stairs.[28] Each item was scored based on the performance of the patient being either independent, with some help, or dependent. A general score was attributed according to the points achieved in each category, depending on the time and assistance needed by each patient. The total score ranges from 0 to 100, with intervals of five points, with higher scores indicating independence.[29,27]

Evaluation of Quality of Life

To evaluate the Quality of Life (QOL), the Nottingham Health Profile Questionnaire (NHP),[30] was used. It consists of 38 items based on the ICF,[31] with 'yes' or 'no' answers. The items are divided into 6 domains: Physical ability, Energy level, Pain, Emotional reaction, Quality of sleep, and Social interaction. Each positive answer corresponds to 1 (one) and each negative answer, to 0 (zero), totaling the maximum score of 38 points. The lower the score, the better the quality of life of the individual.[30]

International Classification of Functioning, Disability and Health (ICF)

Considering the evaluations described above, the results of those methods were

analyzed to see how they could be expressed by the ICF,[32] whose general objective is to provide a unified and standardized language, defining health components and some well-being components related to health, so that the health information is precise and appropriate. The ICF is a classification and standardization instrument for data obtained in the evaluations made with the participants. As criteria for the selection of the ICF domains, the component of functioning and disability related to health was considered, that is: (1) Functions and Structures of the Body, and (2) Activities and Participation.[32]

Items considered in the first domain (Functions and Structures of the Body) were the mental, sensory and pain, digestive, metabolic and endocrine, psychomotor functions, and those related to movement. Items considered in the second domain (Activities and Participation) were self-care, support and relationships, as well as individual activities. The results of the study were evaluated and qualified according to the contextual model of the health condition analysis through the ICF. In that way, for classification, the ICF components were quantified by the percentage, according to the disability shown (ND: No Disability; LD: Light Disability; MD: Moderate Disability; SD: Serious Disability; CD: Complete Disability; NS: Not Specified; NA: Not Applicable) in each function or activity. Figure 1 shows the interactions between the ICF and the instruments applied.

Procedure for the Data Analysis

The statistical description of data was made through measures of central tendency (average) and dispersion (standard deviation). Distributions of frequency were made to analyze the prevalence of variables: cognitive analysis, functional capacity, and socio-demographic. The absolute and relative distributions of frequency were used to describe the results obtained through the ICF in relation to the functions and activities. For the statistical work, the SPSS 21.0 was used.

Ethical Aspects

The Ethics in Research Committee from the Department of Health Sciences from the *Universidade Federal do Paraná* approved the present study (ruling CAAE 0075.091-11). All the elderly women who participated in the study signed a free and informed consent form.

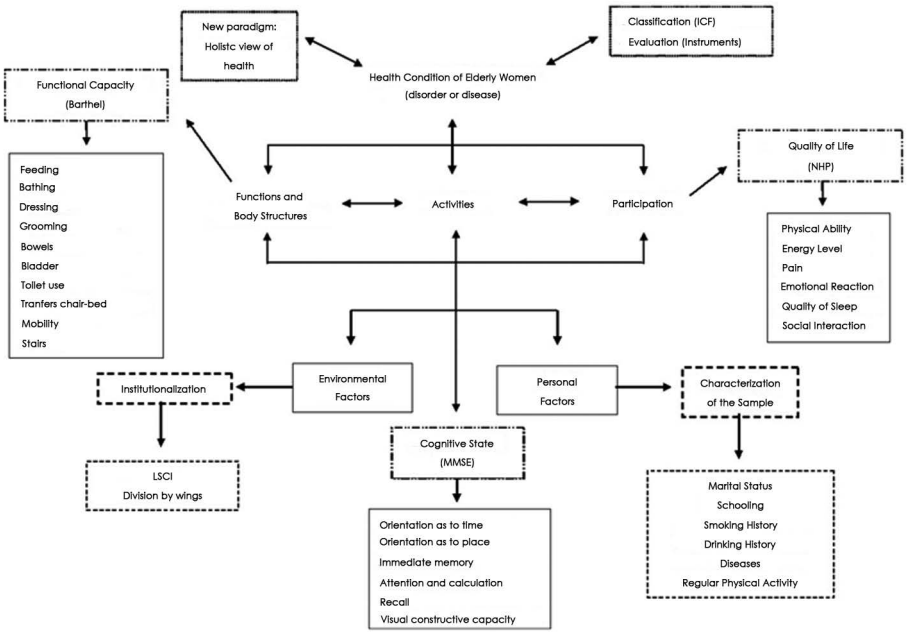

Figure 1. Interactions between the ICF and the instruments used in the study

RESULTS

Twenty-two elderly women were evaluated, with average age of 77.9 ± 9.41 years, with minimum age of 64 years and maximum of 93 years; most of them were single (54.54%), illiterate (36.36%), never smoked (72.73%) or drank (90.91%), however, all of them (100%) presented with hypertension and did not practice any physical activity (Table 1).

For the analysis of data related to the MMSE, the women were divided into groups according to schooling, in the following manner: Group 1: Illiterate (36.36%); and Group 2: women with 1 to 11 years of schooling (63.64%). This way, the overall average score for the MMSE was 20.5 ± 3; but, according to their level of schooling, Group 1 showed an average of 19.5 ± 1.6 and Group 2, an average of 21.07 ± 3.52.

The subjects were classified according to the Barthel Index (Table 2) and divided into total dependence (< 20), serious dependence (20-35), moderate dependence (40-55), light dependence (≤ 60) and independence (100). Most of the subjects, 40.90%, were classified with light dependence.

The evaluation of the data from the Nottingham Health Profile (NHP), shown in Table 3, puts the domains that mostly hinder the QOL of the elderly women in descending order as follows: physical ability, energy level, quality of sleep, pain, emotional reaction, social interaction. The greater the percentage, the worse the respective domain, that is, it is the domain that most compromises the QOL as a whole-in this case, physical ability.

Table 4 shows the values of the International Classification of Functioning, Disability, and Health (ICF) and their frequency distributions.

The mental functions referring to awareness, intellectual functions, and perception are shown as are orientations, functions of energy and of impulses, sleep, attention, memory, and emotional functions. For the sensory and pain functions, the domains of vision, vestibular system, pain, and hearing were observed.

To classify the functions of the digestive, metabolic, and endocrine systems, data were obtained on digestion and defecation, in addition to maintenance of weight and endocrine glands.

For the psychomotor functions and quality of psychomotor functions, the following were observed: functions of movement, trunk, shoulder and upper limbs, pelvis, and lower limbs. The following were considered for Personal Care: eating and drinking, fine use of hands, washing, caring for the body, dressing, moving, using some type of device to move, and caring for one's own health.

Table 1. Socio-demographic characteristics, history of smoking and drinking, diseases, and practice of physical activity of the elderly women residing in the Institution

Variables	n	%
Marital status		
Single	12	54.54
Married	3	13.64
Widowed	5	22.73
Divorced	2	09.09
Schooling		
Illiterate	8	36.36
Incomplete Junior High	6	27.27
Complete Junior High	7	31.82
Incomplete High School	1	04.54
History of smoking		
Yes	6	22.27
No	16	72.73
History of drinking		
Yes	2	09.09
No	20	90.91
Diseases		
Hypertension	22	100.00
Diabetes	3	13.63
Others	5	22.73
Regular Physical Activity		
Yes	0	00.00
No	22	100.00

Table 2. Classificação de acordo com o índice de Barthel

		n	%
< 20	Total Dependence	1	04.54
20-35	Serious Dependence	2	09.09
40-55	Moderate Dependence	2	09.09
≤ 60	Light Dependence	9	40.90
100	Independent	8	36.36

Table 3. Scores from the Nottingham Health Profile (NHP) related to the percentage of each subarea that interferes most with the quality of life of the participants

NHP Subareas	%
Physical Ability	55.68
Energy Level	48.48
Quality of sleep	44.54
Pain	42.61
Emotional Reaction	38.88
Social Interaction	37.27

The following were observed for Support and Relationships: people in positions of authority, family, friends, acquaintances, caregivers and personal assistants, health professionals, and other professionals who provided health-related services.

The functions of individual attitudes show health professionals, and other professionals who provided health-related services, such as caregivers and personal assistants, friends, and family members.

DISCUSSION

The functional capacity and quality of life are basic attributes of the human being that suffuse all the phases of his life and, as humans age, there are structural and functional changes in the organism, which, added to low levels of physical activity, may lead to a decline in functional capacity, compromising the performance of the activities of daily living[33] and facilitating the development of chronic diseases, which all contribute to the aging process. In the same way, chronic diseases may lead to the disuse of physiological functions, which can create more problems.[34]

The present study shows that the elderly women residing in the LSCI in question were single, illiterate, all presented with hypertension, and none practiced any physical activity. These results are corroborated by other studies,[35,36,37] and show the need for intervention programs to reduce sedentarism among the institutionalized elderly. As for the values found in the MMSE, it was shown that elderly women with more schooling had better averages (21.07 ± 3.52), which was also found in similar studies.[38,39] This result demonstrates that it is not only the lack of motor independence that determines the institutionalization of the elderly, but that cognitive aspects are also taken into consideration by family members and/or by those responsible.[37]

Davim et al.[35] verified in their study that the LSCIs are in poor financial condition, conflicting family contact, and have limited or absent leisure activities, among other factors. These characteristics are similar to the present study, and they influence the functional capacity and quality of life of those who live in these long-stay care institutions.

In regard to their Functional Capacity, the results from the present study indicated a higher percentage of women with light dependence, showing that they live independently, implying a good capacity to perform their activities of daily living. Confirming this information, the study by Converso and Iartelli[3,7] made with institutionalized elderly, pointed out that the majority of those evaluated were independent (75.65%).

Although the majority of the elderly in this study showed light dependence, when evaluating their quality of life, the domain that mostly hindered their lives was physical ability. In this aspect, it is noteworthy that none of the women practiced any physical activity, which can be related to the low performanc-

Table 4. Frequency Distribution (%) and number of elderly women (n) of the functions and activities according to the ICF

MENTAL FUNCTIONS	ND	LD	MD	SD	CD	NS	NA
Awareness	72.7 (16)	22.7 (5)	-	4.5 (1)	-	-	-
Orientation	31.8 (7)	36.4 (8)	27.3 (6)	4.5 (1)	-	-	-
Intellectual	72.7 (16)	22.7 (5)	4.5 (1)	-	-	-	-
Energy and impulses	63.6 (14)	4.5 (1)	31.8 (7)	-	-	-	-
Sleep	22.7 (5)	13.6 (3)	36.4 (8)	27.3 (6)	-	-	-
Attention	50 (11)	40.9 (9)	9.1 (2)	-	-	-	-
Memory	4.5 (1)	50 (11)	40.9 (9)	4.5 (1)	-	-	-
Emotional	36.4 (8)	54.5 (12)	9.1 (2)	-	-	-	-
Perception	72.7 (16)	22.7 (5)	-	-	-	4.5 (1)	-
SENSORY AND PAIN FUNCTIONS	ND	LD	MD	SD	CD	NS	NA
Vision/Eye sight	45.5 (10)	54.5 (12)	-	-	-	-	-
Hearing	54.5 (12)	31.8 (7)	13.6 (3)	-	-	-	-
Vestibular	9.1 (2)	68.2 (15)	9.1 (2)	4.5 (1)	-	4.5 (1)	4.5 (1)
Pain	22.7 (5)	40.9 (9)	13.6 (3)	18.2 (4)	4.5 (1)	-	-
FUNCTIONS OF THE DIGESTIVE, METABOLIC AND ENDOCRINE SYSTEMS	ND	LD	MD	SD	CD	NS	NA
Digestive	86.4 (19)	13.6 (3)	-	-	-	-	-
Defecation	77.3 (17)	13.6 (3)	-	-	9.1 (2)	-	-
Maintenance of weight	22.7 (5)	9.1 (2)	-	-	-	68.2 (15)	-
Endocrine glands	36.4 (8)	-	-	-	9.1 (2)	54.4 (8)	-
PSYCHOMOTOR FUNCTIONS	ND	LD	MD	SD	CD	NS	NA
Psychomotor control	50 (11)	4.5 (1)	22.7 (5)	18.2 (4)	4.5 (1)	-	-
Quality of psychomotor functions	40.9 (9)	22.7 (5)	22.7 (5)	9.1 (2)	4.5 (1)	-	-
MOVEMENT	ND	LD	MD	SD	CD	NS	NA
Shoulder region	72.7 (16)	13.6 (3)	9.1 (2)	-	4.5 (1)	-	-
Upper limb	72.7 (16)	13.6 (3)	9.1 (2)	-	4.5 (1)	-	-
Pelvis	50 (11)	31.8 (7)	4.5 (1)	-	13.6 (3)	-	-
Lower limb	45.5 (10)	27.3 (6)	4.5 (1)	4.5 (1)	18.2 (4)	-	-
Trunk	77.3 (17)	9.1 (2)	9.1 (2)	4.5 (1)	-	-	-
PERSONAL CARE	ND	LD	MD	SD	CD	NS	NA
Lifting and carrying objects	22.7 (5)	9.1 (2)	9.1 (2)	27.3 (6)	27.3 (6)	-	4.5 (1)
Fine use of hands	77.3 (17)	18.2 (4)	-	-	4.5 (1)	-	-
Walking	31.8 (7)	27.3 (6)	13.6 (3)	4.5 (1)	18.2 (4)	-	4.5 (1)
Moving with the help of some device	68.2 (15)	9.1 (2)	-	9.1 (2)	9.1 (2)	-	4.5 (1)
Washing oneself	72.7 (16)	-	-	4.5 (1)	22.7 (5)	-	-
Caring for the body	72.7 (16)	-	9.1 (2)	18.2 (4)	-	-	-
Care related to the excretion processes	90.9 (20)	-	-	-	9.1 (2)	-	-
Dressing oneself	72.7 (16)	-	4.5 (1)	9.1 (2)	13.6 (3)	-	-
Eating	90.9 (20)	-	-	-	9.1 (2)	-	-
Drinking	90.9 (20)	-	-	-	9.1 (2)	-	-
Caring for one's own health	9.1 (2)	45.5 (10)	18.2 (4)	18.2 (4)	9.1 (2)	-	-
SUPPORT AND RELATIONSHIPS	ND	LD	MD	SD	CD	NS	NA
Family	72.7 (16)	18.2 (4)	4.5 (1)	4.5 (1)	-	-	-
Friends	22.7 (5)	36.4 (8)	36.4 (8)	4.5 (1)	-	-	-
Acquaintances, companions, colleagues, neighbors, and community members	9.1 (2)	31.8 (7)	27.3 (6)	31.8 (7)	-	-	-
Persons in position of authority	100 (22)	-	-	-	-	-	-

es they reported in the physical domain. As pointed out by Paskulin, Vianna, and Molzahn,[40] the more the participation of the elderly in physical activities, the greater will be their satisfaction in performing their daily activities, which may contribute to increased perception of a good QOL, especially related to the physical domain that may also influence their FC. In view of this evidence, it is noted that the practice of physical activity has a fundamental role in the promotion of QOL for the elderly and that habitual physical activities can contribute to improving the perception of health, well-being, and functioning of that population.[40,41,42]

Analyzing the ICF findings, it was seen that, just like the study in question, the study by Depolito, Leocadio, and Cordeiro[18] used the ICF to discuss the probable relationship between the functional decline of the institutionalized elderly. This method was sensitive to the understanding of information related to functional capacity and quality of life of these women, as a guide to the multidimensional relationship between aging and institutionalization. In addition, it allowed the unification of language and facilitated the interpretation of relationships of more complex determination, through a detailed, objective, and contextual view, easy to understand by all the members of a multi-professional team assisting in the health of the elderly. Sampaio et al.[43] and Costa[44] presented the ICF as a WHO model, bringing a new approach that prioritizes functioning as a health component and that considers the environment as either a facilitator or barrier for the performance of actions and tasks; therefore, in the case of the participants of this study who are institutionalized, the data showed that there is an interaction between the environment and the motor function of the subjects.

Freire e Tavares point out that the institutionalized elderly almost always form a private group with their own projects, for they are away from their family, their home, their friends, the relationships in which their life stories had been built. In this way, the LSCI still poses a challenge, especially when contrasted with the proposal of promoting health.

In this context, quality of life and physical activity are strategies for promoting health for the elderly, making evident the need to guide the institutionalized elderly to the practice of functional activities in search of quality and motivations in their lives.[45,46] Finally, the health condition of the institutionalized

Continuation Table 4.

Caregivers and personal assistants	-	-	-	100 (22)	-	-	-
Health professionals	-	-	-	100 (22)	-	-	-
Other professionals who provide health related services	-	-	-	100 (22)	-	-	-
INDIVIDUAL ATTITUDES	ND	LD	MD	SD	CD	NS	NA
Family members	4.5 (1)	4.5 (1)	22.7 (5)	9.1 (2)	59.1 (13)	-	-
Friends	59.1 (13)	22.7 (5)	9.1 (2)	4.5 (1)	4.5 (1)	-	-
Caregivers and personal assistants	77.3 (17)	13.6 (3)	4.5 (1)	-	4.5 (1)	-	-
Health professionals	90.9 (20)	4.5 (1)	-	-	4.5 (1)	-	-
Health related professionals	90.9 (20)	4.5 (1)	-	-	4.5 (1)	-	-

elderly, either in function, structure, activities, or participation, is directly connected with personal and environmental factors, directed by health policies and the ICF contextual model of the health of the elderly,[47] in addition to having an interaction with what each one does to have functional health with quality and in an expanded sense of physical, mental, functional, spiritual, and social health.

This initiative matches the report by Pereira et al.[48] that points out that evaluating the life and health conditions of the elderly allows the implementation of intervention proposals, either in geriatric programs or in general social policies, in order to promote the well-being of those aging.

This work had some limitations, for only one evaluation was made of the elderly participants and the research team was formed by professional physiotherapists and did not include health professionals from other areas in the production of codes involving various constructs. However, the study reached its objective of mapping the profile of elderly women in an LSCI, classifying them according to the ICF, with emphasis on the functioning of the participants, and evaluating the cognitive state, functional capacity, and quality of life with specific instruments and directed to this population.

CONCLUSION

The interpretation and discussion of the results through the ICF theoretical model made it possible to have a broader view of the health and aging process of a population of institutionalized elderly women. These data may be used as indicators or guides to the development of strategies and proposals for interventions that may come to favor the clinical and personal demands of these people. Despite the need for a holistic vision of the aging process, the LSCIs are still constituted according to the biomedical context, leaving aside the proposal of health promoting and the positive aspects of the institutionalization process, as well as the potentialities of the elderly.

Future studies are recommended that include the development of methods of longitudinal monitoring of this population to verify what the long term institutionalization interferences are in the functioning of these elderly women. It is hoped that the ICF will be incorporated and used in various health sectors, including the LSCI, and be used by muldisciplinary teams, so that the professionals, through a unified and standardized language take health actions that consider the individual as a whole.

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