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Advantages of using Expanded ICF-Environmental Factors to describe facilitators and barriers in supporting persons with disabilities

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Abstract Expanded ICF-Environmental Factors (EFs) were used to describe facilitators and barriers in 490 outpatients from Region Friuli Venezia Giulia (Italy). EFs considered as facilitators were 95%, whereas EFs considered as barriers were only 5%. The widest range of facilitators and barriers was found in males and in outpatients over 18 years. This findings gave information on both the living condition of the persons with disabilities and on the availability and amount of their supports and services, as recommended by the World Report on Disability.

Introduction

Individuals with disabilities, as stated in the World Report on Disability should be provided with a deep description of their care and living environment. The necessity to "improve the availability and quality of data on disability", through a data collection based on ICF has been further recommended. Since ICF-Environmental Factors (EFs), however, appear too general to fulfill these goals, the authors attempted to overcome ICF lack of granularity and to better assess the role of essential EFs in the definition of disability.

Thus, we aimed to describe the advantages of using Expanded ICF-EFs in order to overcome the low descriptive power of the ICF-EF component; to fulfill the recommendations of the World Report on Disability on collecting data on "the availability and sufficiency of supports and services for persons with disabilities".

Table 1: Number of ICF-EFs and related Expanded ICF-EF terms, grouped in four groups of the Individual Intervention Plan

Groups	Number of ICF-EFs per group	Expanded ICF-EFs
Products and technologies, assets	10	40 (pharmacological treatment + ISO9999 codes)
Persons close to the patient and professionals taking care of the patient	6	220 (natural languages terms)
Social, welfare, educational and labour interventions / policies	7	8 (grouped -regional social care service terms)
Health interventions / policies	1	25 (grouped-chapters of Italian Essential Levels of Health Care)

Methods & Materials

Atotal of 490 outpatients were selected from all the six Local Health Authorities of the Friuli Venezia Giulia region (Italy) during the years 2011-2013 and evaluated with the VilmaFABER™ System, an ICF-based assessment tool. Expanded ICF-EF terms were created from different medical/health classifications and terminologies, and then mapped to ICF-EF codes, further grouped in four groups of the Individual Intervention Plan (Table 1). The Expanded ICF-EF terms were then grouped in facilitators and barriers.

Table 3 – Mean, median, range and total number of Expanded ICF-EFs considered as facilitators and barriers in the total sample.

	Facilitators (N =490)	Barriers (N =490)
Mean:	99.3	5.0
Median:	77	1
Range:	0-741	0-99
Total:	*48676*	*2465*

Table 2: Number and percentages of Facilitators and Barriers in the ICF-EF categories , grouped in four groups of the Individual Intervention Plan

EF categories and corresponding elements of the Ongoing Intervention Plan using VilmaFABER	Facilitators — Number of times (%) that the elements of the Ongoing Intervention Plan and other EFs are considered Facilitators	Barriers — Number of times (%) that the elements of the Ongoing Intervention Plan and other EFs are considered Barriers
Health interventions / policies		
e580 - Health services, systems and policies	4659 (9,7)	62 (3,2)
Social, welfare, educational and labour interventions / policies		
e525 - Housing services, systems and policies	44 (0,1)	6 (0,3)
e540 - Transportation services, systems and policies	19 (0,0)	8 (0,4)
e555 - Associations and organizational services, systems and policies	91 (0,2)	1 (0,1)
e565 - Economic services, systems and policies	5 (0,0)	8 (0,4)
e570 - Social security services, systems and policies	1955 (4,1)	64 (3,3)
e575 - General social support services, systems and policies	3827 (7,9)	72 (3,7)
e585 - Education and training services, systems and policies	1442 (3,0)	26 (1,3)
e590 - Labour and employment services, systems and policies	151 (0,3)	16 (0,8)
Persons close to the patient and professionals taking care of the patient		
e310 - Immediate family	11621 (24,1)	951 (49,1)
e315 - Extended family	329 (0,7)	36 (1,9)
e320 - Friends	432 (0,9)	34 (1,8)
e325 - Acquaintances, peers, colleagues, neighbours and community members	332 (0,7)	33 (1,7)
e330 - People in positions of authority	1087 (2,3)	10 (0,5)
e335 - People in subordinate positions	38 (0,1)	0 (0)
e340 - Personal care providers and personal assistants	2715 (5,6)	29 (1,5)
e355 - Health professionals	7212 (15,0)	12 (0,6)
e360 - Other professionals	3400 (7,1)	7 (0,4)
Products and technologies, assets		
e110 - Products or substances for personal consumption	5066 (10,5)	316 (16,3)
e115 - Products and technology for personal use in daily living	1423 (3,0)	145 (7,5)
e135 - Products and technology for employment	1 (0,0)	15 (0,8)
e120 - Products and technology for personal indoor and outdoor mobility and transportation	1237 (2,6)	29 (1,5)
e125 - Products and technology for communication	651 (1,4)	15 (0,8)
e130 - Products and technology for education	33 (0,1)	0 (0)
e140 - Products and technology for culture, recreation and sport	14 (0,0)	5 (0,3)
e155 - Design, construction and building products and technology of buildings for private use	24 (0,0)	25 (1,3)
e165 - Assets	340 (0,7)	7 (0,4)

Results

Expanded ICF-EF terms related to the outpatient sample were more than 400 out of a total of 5224 terms provided by the thesaurus used by the VilmaFABER™ system (9.5%). The ICF categories considered in the sample were almost 20 out of 24 total ICF-EF categories (83%) (Table 1). Consequently, the Expanded ICF-EFs were 20-fold as higher as ICF-EF categories. EFs considered as facilitators were 95%, whereas EFs considered as barriers were only 5%. The immediate family was both the most common facilitator and barrier. The group describing persons close to the patient and professionals taking care of the patient were also the most common facilitators (56.5%) and barriers (57.5%) (Table 2).
The range of facilitators and barriers, calculated at individual level, was wide (0-741 and 0-99, respectively) (Table 3). A wider range was found in males compared to females (Table 4), and in the age group ≥ 18 years compared to < 18 years (Table 5).

Table 4: Mean, median, range and total number of Expanded ICF-EFs considered as facilitators and barriers in males and females

	Facilitators		Barriers	
	Males (N = 297)	Females (N = 193)	Males (N = 297)	Females (N = 193)
Mean:	101.6	95.8	5.6	4.1
Median:	77	79	1	1
Range:	0-741	0-594	0-99	0-40
Total:	*30187*	*18489*	*1679*	*786*

Conclusions

The Expanded ICF-EFs allowed a better description of the environment in order to identify its influence on functioning and disability.
A plethora of different terms, however, corresponded only to 10% of all Expanded ICF-EF terms provided by the VilmaFABERTM thesaurus. Consequently, only the EFs essential to the patient's care were highlighted. This allowed a detailed description of the care and living environment of each patient, otherwise unfeasible using only the standard ICF terminology. Expanded ICF-EFs, hence, differed significantly from standard ICF-EFs in terms of quality and quantity. This was in agreement with the need of expanding the granularity of ICF. Facilitators were 95% of the Expanded terms. Furthermore, facilitators and barriers were wide-ranging, particularly in males outpatients and in outpatients over 18. This gave information on both the living condition of the persons with disabilities and on the availability and amount as well as the efficiency and efficacy, of their supports and services, as recommended by the World Report on Disability.

Table 5: Mean, median, range and total number of Expanded ICF-EFs considered as facilitators and barriers in age groups <18 and ≥ 18 years

	Facilitators		Barriers	
	< 18 (N = 174)	≥18 (N = 316)	< 18 (N = 174)	≥18 (N = 316)
Mean:	126.9	84.1	4.1	5.5
Median:	106	65.5	0	1
Range:	13-496	0-741	0-81	0-99
Total:	*22089*	*26587*	*711*	*1754*

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