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The infographic Family of Functioning Indicators (FaFI)

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Abstract We present the Family of Functioning Indicators, useful to compare individual functioning profiles, and to show the functioning-disability continuum using numbers and colours.

Introduction

One of the main problems in functioning/disability description using ICF is to compare persons that are described using different code subsets and different ways for operationalizing the ICF functioning/disability constructs. The aim is to introduce the Family of Functioning Indicators (FaFI), useful to compare individual functioning profiles, and to show the functioning-disability continuum using numbers and colours.

Methods & Materials

The functioning/disability distinction is made on the basis of the first ICF qualifier value in the BF, BS, and AP components. Functioning is related to the qualifier values 0 and 1, whereas disability is related to the qualifier values 2, 3, and 4. BF categories were grouped into five domains. AP categories were grouped as the ICF does. Different weights were attributed to different categories, referring to a weight table used in another Italian Region that has been implementing ICF (Table 1). The weighted categories were summed up considering the distinction between functioning and disability in order to calculate indicators individually. All the indicators describing Functioning are shown in shades of green, all those describing Disability are shown in red and yellow (Figure 1).

Table 1 – ICF Components and weights

ICF Component	Groups	Selection of ICF codes	Weights
Body Functions	Neuromuscoloskeletal and movement-related Functions (NMF)	b176, b710, b730, b735, b760, b745	0,3
	Sensory Functions (SF)	b210, b230, b235, b280	0,15
	Mental Functions 1 (MF1)	b110, b122, b126, b130, b147, b152, b160, b180	0,2
	Mental Functions 2 (MF2)	b114, b117, b134, b140, b144, b156, b164, b167	0,275
	Other Functions (OF)	b310, b330, b410, b420, b430, b435, b440, b515, b525, b530, b545, b550, b555, b620, b640, b650, b810	0,075
Activities and Participation	Learning and applying knowledge	d1	0,025
	General tasks and demands	d2	0,1
	Communication	d3	0,1
	Mobility	d4	0,2
	Self-care	d5	0,25
	Domestic life	d6	0,25
	Interpersonal interactions and relationships	d7	0,025
	Major life areas	d8	0,025
	Community, social and civic life	d9	0,025

Figure 1
Disability and Functioning operationalization

Disability — Functioning

	Extent of Impairment=2,3,4 with EF	Extent of Impairment=2,3,4 without EF	Extent of Impairment=0,1 without EF	Extent of Impairment=0,1 with EF
NMF	…	…	…	…
SF	…	…	…	…
MF1	…	…	…	…
MF2	…	…	…	…
OF	…	…	…	…

Disability — Functioning

	P=2,3,4 with EF	P=2,3,4 without EF	P=0,1 without EF	P=0,1 with EF
d1	…	…	…	…
d2	…	…	…	…
d3	…	…	…	…
…	…	…	…	…
d9	…	…	…	…

Results

The infographic FaFI is composed of:

- Cumulative Functioning Ratio (CFR) in shades of red and green;
- Index of Functioning (IoF) in shades of green, comprising Index of Functioning, environment related (IoF_{ER}) in dark green; Index of functioning, environment free (IoF_{EF}) in light green;
- Index of Disability (IoD) in shades of red, comprising Index of Disability, environment related (IoD_{ER}) in red; and Index of Disability, environment free (IoD_{EF}) in yellow.

IoF is comprised of two sub-indicators: IoF with EFs presence and role, and IoF without EFs role. The first indicates how much of a role the EFs play in generating functioning. The second shows the healthy individual. Similarly, IoD is made up of two sub-indicators: IoD with EFs presence and role, and IoD without EFs role. The first indicator show how many problems still remain to be overcome despite EFs presence. The second shows the abandoned aspects.
All the indicators may be calculated separately for the BS, BF and AP components. The CFR is calculated starting from the partial FR values. Its total value is 1. The sum of IoF and IoD is 1. If IoF value is 1, then CFR value is 1. This means that the profile is green, and there is no disability in the individual profile. The higher the IoF , the better the functioning.
Five classes of «functioning» were defined by CFR or FR value ranges (Table 4).
Data were collected on 489 outpatients and some of them are shown on Tables 2 and 3.

Conclusions

The FaFI allows to compare individuals and their functioning profiles.

Figure 2 – Functioning Ratio and Disability Ratio for ICF Body Function component

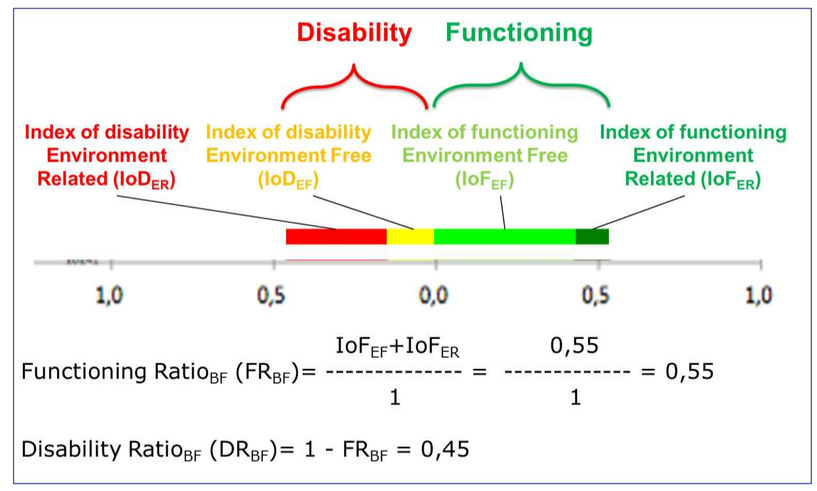


Figure 3 – Functioning Ratio and Disability Ratio for ICF Activities and Participation component

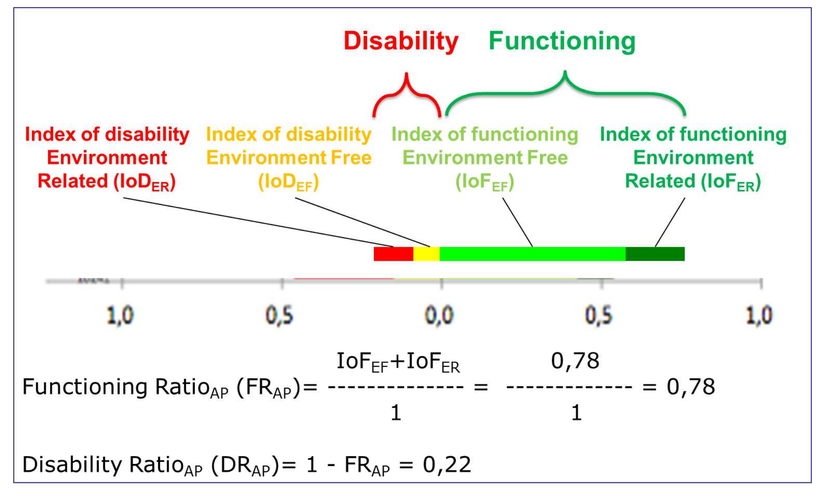


Figure 4 – CFR and CDR calculation: example

Cumulative Functioning Ratio (CFR)= $(FR_{BF}+FR_{AP})/2 = (0,55+0,78)/2 = 0,665$

Cumulative Disability Ratio (CDR)= 1 - CFR = 0,335

Table 4 – The VilmaFABER$_{TM}$ EcoLabel

Number of "world spheres"	FR or CFR values
	FR or CFR = 1
	1 < FR or CFR > 0.86
	0.86 < FR or CFR > 0.71
	0.71 < FR or CFR > 0.55

Table 2 – Comparison between groups by disability certification, FR$_{AP}$ and VilmaFABER$_{TM}$ EcoLabel (N=173, age < 18 years)

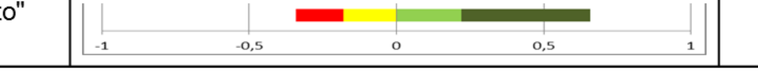
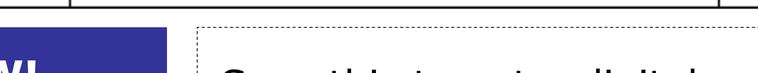
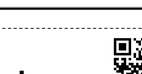
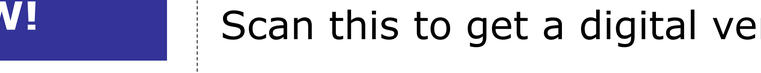
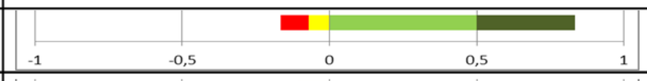
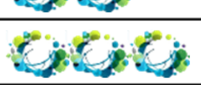
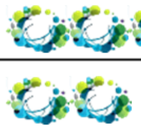
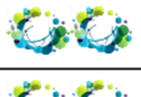
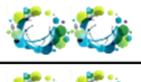
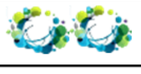
Grouping criteria	Functionig Ratio$_{AP}$	EcoLabel
Without disability certification (N=97)		
"Invalidità civile" plus "indennità di accompagnamento" (N=6)		
Handicap certification (N=33)		
"Invalidità civile" plus "indennità di accompagnamento" and "Handicap grave" (N=37)		

Table 3 – Comparison between groups by disability certification, FR$_{AP}$ and VilmaFABER$_{TM}$ EcoLabel (N=316, age = 18-65 years)

Grouping criteria	Functionig Ratio$_{AP}$	EcoLabel
Without disability certification (N=116)		
"Invalidità civile" alone (N=11)		
"Invalidità civile" plus "indennità di accompagnamento" (N=34)		
"Invalidità civile 34-99%" (N=41)		
Handicap certification (N=6)		
"Invalidità civile" alone and Handicap certification (N=16)		
"Invalidità civile" plus "indennità di accompagnamento" and "Handicap grave" (N=92)		

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