

**The International Classification of Functioning,
Disability and Health
as the conceptual and metric reference for PROs**

Alarcos Cieza, PhD, MPH

ICF Research Branch, WHO CC FIC Germany

Institute for Health Rehabilitation Sciences

Ludwig-Maximilian University, Munich, Germany

Swiss Paraplegic Research, Switzerland

Items from patient-oriented instruments can be integrated into interval scales to operationalize categories of the International Classification of Functioning, Disability and Health

^{1,2}Cieza A., ²Hilfiker R, ³Boonen A, ⁴Chatterji S, ⁴Kostanjsek N, ⁴Üstün B, ^{1,2,5}Stucki G.

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¹ ICF Research Branch of the WHO Collaborating Center for the Family of International Classifications at the German Institute of Medical Documentation and Information (DIMDI), IHRS, Ludwig-Maximilian University, Munich, Germany

² Schweizer Paraplegiker-Forschung, Nottwil, Switzerland

³ Department of Internal Medicine, Division of Rheumatology, University Hospital Maastricht, Netherlands

⁴ Classification, Assessment, Surveys and Terminology Team, World Health Organization, Switzerland

⁵ Department of Physical Medicine and Rehabilitation, University Hospital Munich, Ludwig-Maximilian University Munich, Germany

List of

- mutually exclusive and
- cumulative exhaustive

categories which allows to unambiguously describe, classify and communicate about functioning, disability and health



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b140 Attention functions

Specific mental functions of focusing on an external stimulus or internal experience for the required period of time.

Inclusions: functions of sustaining attention, shifting attention, dividing attention, sharing attention; concentration; distractibility

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b140 Attention functions



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MFI: My thoughts easily wander

WHODASII: Concentrating on doing something for ten minutes?

SIP: I do not keep my attention on any activity for long.

The ICF as the conceptual reference framework



Generic ICF Core Set

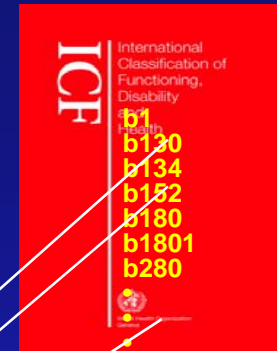
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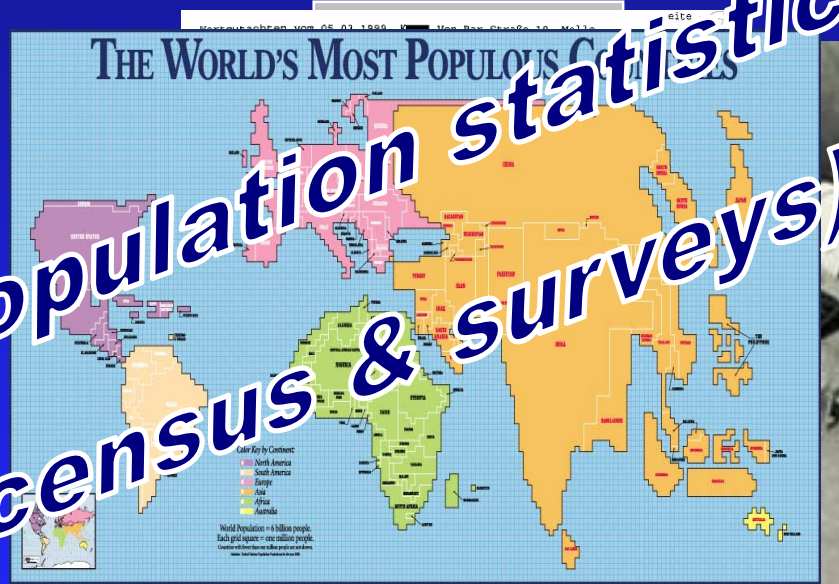
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The ICF as the conceptual reference framework



Population statistics
(census & surveys)



best answer

Zur Verkehrswertermittlung bebauter Grundstücke bieten sich im wesentlichen an,

- das Vergleichswertverfahren,
- das Ertragswertverfahren und
- das Sachwertverfahren

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SPECIAL REPORT

ICF LINKING RULES: AN UPDATE BASED ON LESSONS LEARNED

Alarcos Cieza,¹ Szilvia Geyh,¹ Somnath Chatterji,² Nenad Kostanjsek,² Bedirhan Üstün²
and Gerold Stucki^{1,3}

From the ¹ICF Research Branch, WHO FIC CC (DIMDI), Institute for Health and Rehabilitation Sciences, Ludwig-Maximilians-University Munich, Munich, Germany, ²Classification, Assessment, Surveys and Terminology Team, World Health Organization, Geneva, Switzerland and ³Department of Physical Medicine and Rehabilitation, University Hospital, Munich

Osteoarthritis: Weigl et al. 2003

Osteoporosis: Borchers et al. 2004

Occupation-based instrument: Salar et al. 2005

Low Back Pain: Sigurdson et al. 2005

Arthritis (spondylitis): Salar et al. 2005

Stroke: Geyh et al. 2007

Generic instruments: Cieza et al. 2005

> 25 publications

The ICF as the conceptual reference framework

The ICF as the metric reference



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The ICF Qualifier as the metric reference



ICF Qualifier

0 NO problem (none, absent, negligible,...)	0-4%
1 MILD problem (slight, low,...)	5-24%
2 MODERATE problem (medium, fair...)	25-49%
3 SEVERE problem (high, extreme,...)	50-95%
4 COMPLETE problem (total,...)	96-100%

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Yes,

we can use the ICF qualifier
as the metric reference for
clinical tests, if the results are
reported in an **interval scale**

ICF Qualifier

0 NO problem (none, absent, negligible,...)

1 MILD problem (slight, low,...)

2 MODERATE problem (medium, fair...)

3 SEVERE problem (high, extreme,...)

4 COMPLETE problem (total,...)

0-4%

5-24%

25-49%

50-95%

96-100%

ICF Qualifier



← **0** NO problem (none, absent, negligible,...) **0-4%**

← **1** MILD problem (slight, low,...) **5-24%**

← **2** MODERATE problem (medium, fair...) **25-49%**

← **3** SEVERE problem (high, extreme,...)

50-95%

← **4** COMPLETE problem (total,...)

96-100%

b280 Pain

VAS-Pain



← **0** NO problem (none, absent, negligible,...)

0-4%

← **1** MILD problem (slight, low...)

5-24%

← **2** MODERATE problem (medium, fair...)

25-49%

← **3** SEVERE problem (high, extreme,...)

50-95%

← **4** COMPLETE problem (total,...)

96-100%

Interval scale

The ICF Qualifier as the metric reference



RAQoL

HAQ

SF-36

EQ-5D

MFI

CES-D

INSTRUCTIONS: This survey asks for your views about your health. This information will help keep track of how you feel and how well you are able to do your usual activities.

Answer every question by marking the answer as indicated. If you are unsure about how to answer a question, please give the best answer you can.

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Yes,

we can use the ICF qualifier as the metric reference for questionnaires, if we can build an interval scale with the items addressing a determined ICF category

Questionnaires

- The Rheumatoid Arthritis Quality of Life (RAQoL) Questionnaire
- The Health Assessment Questionnaire (HAQ)
- The Medical Outcomes Study Short Form 36 (SF-36)
- The European Quality of Life Instrument (EQ-5D)
- The Multidimensional Fatigue Inventory (MFI)
- The Center for Epidemiological Studies Depression Scale (CES-D)

122 Patients with RA



RAQoL

HAQ

SF-36

EQ-5D

MFI

CES-D

INSTRUCTIONS: This survey asks for your views about your health. This information will help keep track of how you feel and how well you are able to do your usual activities.

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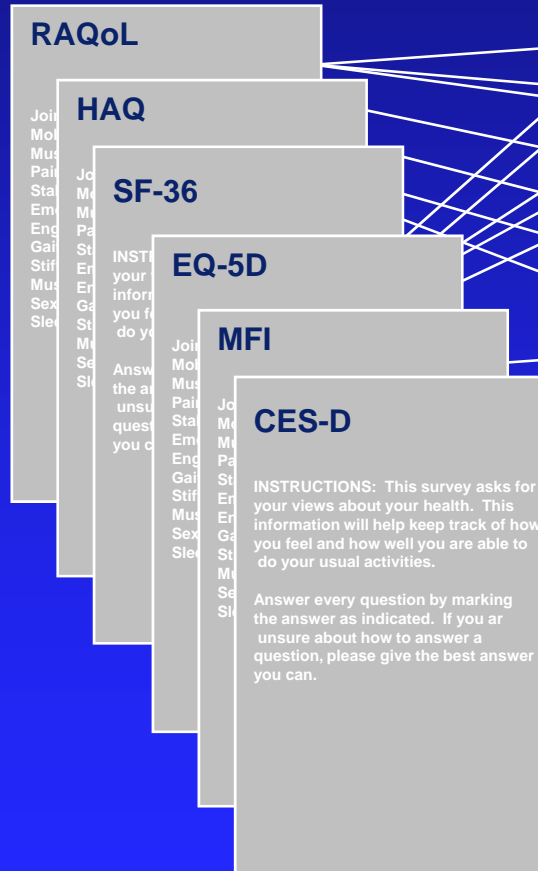
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Energy and drive functions



b130=19 Items



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b130 Energy and drive functions

MFI-20

I feel fit.

I feel very active.

I feel tired.

I am rested.

Physically, I feel only able to do a little.

Physically, I can take on a lot.

Physically, I feel I am in bad condition.

I tire easily.

Physically, I feel I am in excellent condition.

CES-D

I did not feel like eating; my appetite was poor.

I felt that everything I did was an effort.

I could not get “going”.

SF-36

Did you have a lot of energy?

Did you feel worn out?

Did you feel tired?

RAQOL

I have to go to bed earlier than I would like to.

It's too much effort to go out and see people.

I have to keep stopping what I am doing, to rest.

I feel tired whatever I do.

Yes,

we can use the ICF qualifier as the metric reference for questionnaires, if we can build an interval scale with the items addressing a determined ICF category

b130 Energy and drive functions

MFI-20

I feel fit.

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SF-36

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Did you feel tired?

RAQOL

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It's too much effort to go out and see people.

I have to keep stopping what I am doing, to rest.

I feel tired whatever I do.

Can we build an **interval scale** with the items addressing b130 Energy and drive ?

If yes,
how can we use the **ICF** qualifier as the metric reference ?



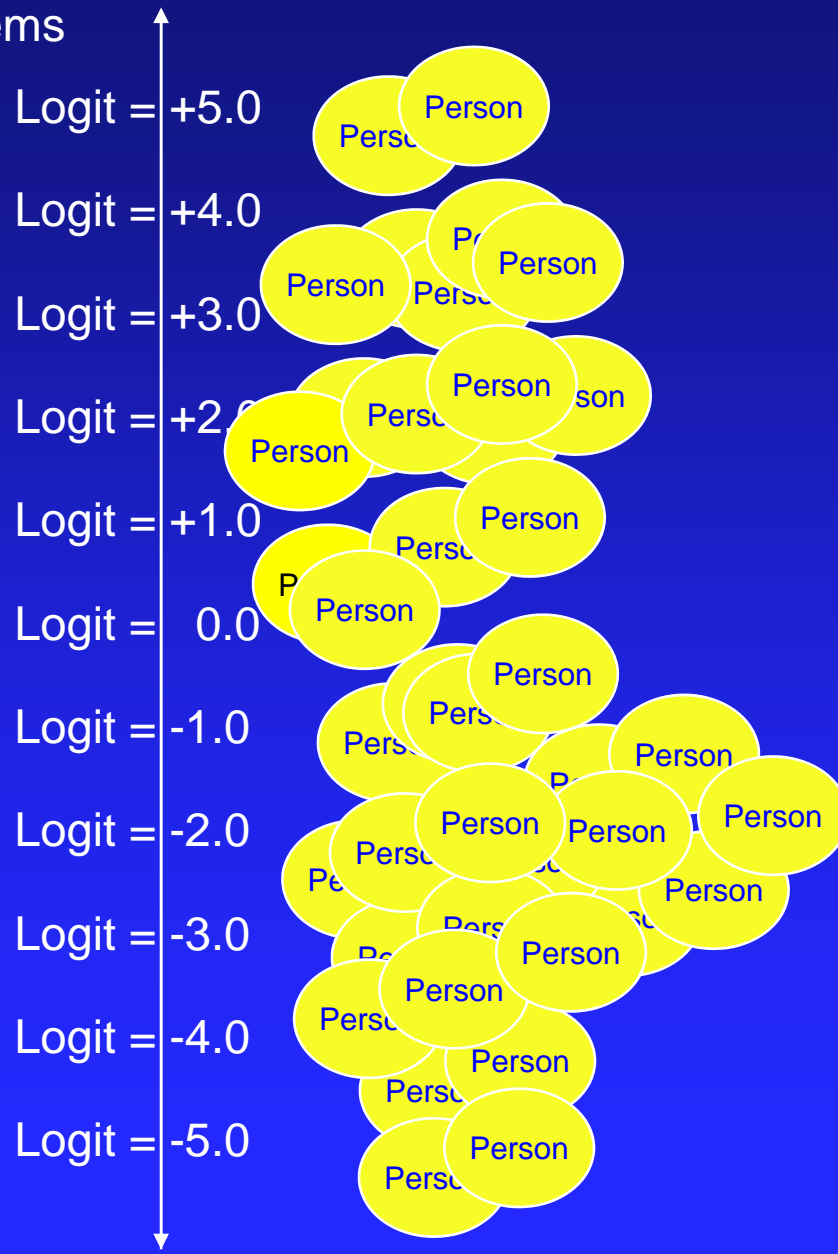
Rasch model
for ordered response options

b130 Energy and drive

Position of the items

Position of the persons

Position of the response options of the items

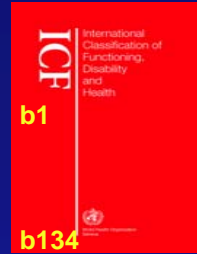


RAQoL 25: It's too much effort to go out and see people.
CES-D 20: I could not get "going".
CES-D 07: I felt that everything I did was an effort.

SF-36 9g: Did you feel worn out?
MFI 2: Physically, I feel only able to do a little.
SF-36 9e: Did you have a lot of energy?
MFI 5: I feel tired.
MFI 3: I feel very active.
MFI 8: Physically, I can take on a lot.

MFI 1: I feel fit.
MFI 12: I am rested.
MFI 16: I tire easily.
RAQoL 10: I have to keep stopping what I am doing, to rest.
SF 36 9i: Did you feel tired?
RAQoL 21: I feel tired whatever I do.
MFI 20: Physically, I feel I am in an excellent condition.

CES-D_02: I did not feel like eating; my appetite was poor.
RAQoL_1: I have to go to bed earlier than I would like to.
MFI_14: Physically, I feel I am in bad condition.



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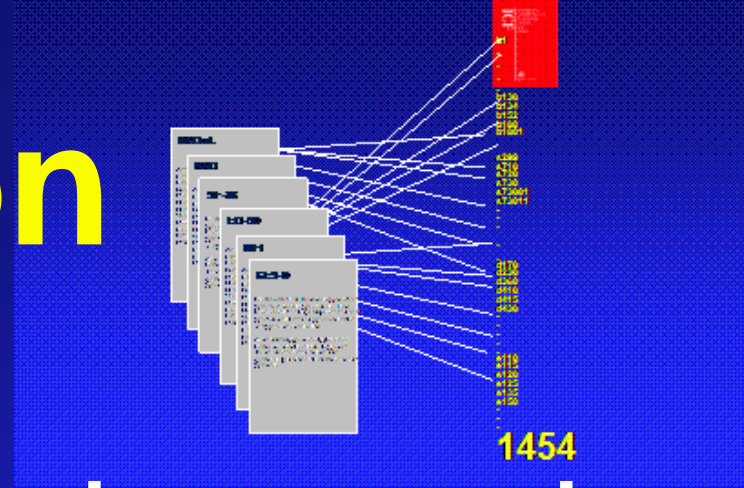
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First conclusion



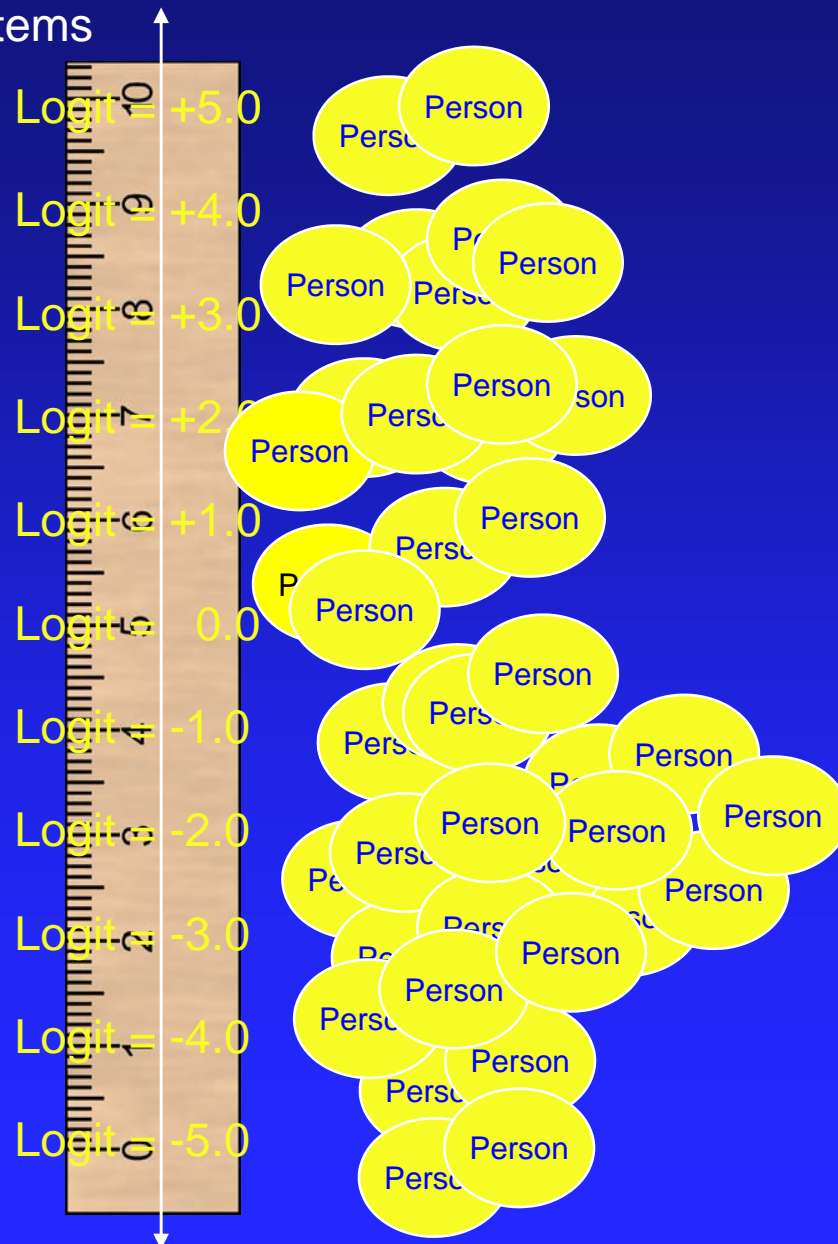
Rasch analyses can be used to study the validity of the content mapping between items and ICF categories

b130 Energy and drive

Position of the items

Position of the persons

Position of the response categories of the items



RAQoL 25: It's too much effort to go out and see people.
CES-D 20: I could not get "going".
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RAQoL_1: I have to go to bed earlier than I would like to.
MFI_14: Physically, I feel I am in bad condition.

Transformation table

MFI-20

I feel fit.

I feel very active.

I feel tired.

I am rested.

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Physically, I can take on a lot.

~~Physically, I feel I am in bad condition.~~

I tire easily.

Physically, I feel I am in excellent condition.

CES-D

~~I did not feel like eating; my appetite was poor.~~

I felt that everything I did was an effort.

I could not get "going".

SF-36

Did you have a lot of energy?

Did you feel worn out?

Did you feel tired?

RAQOL

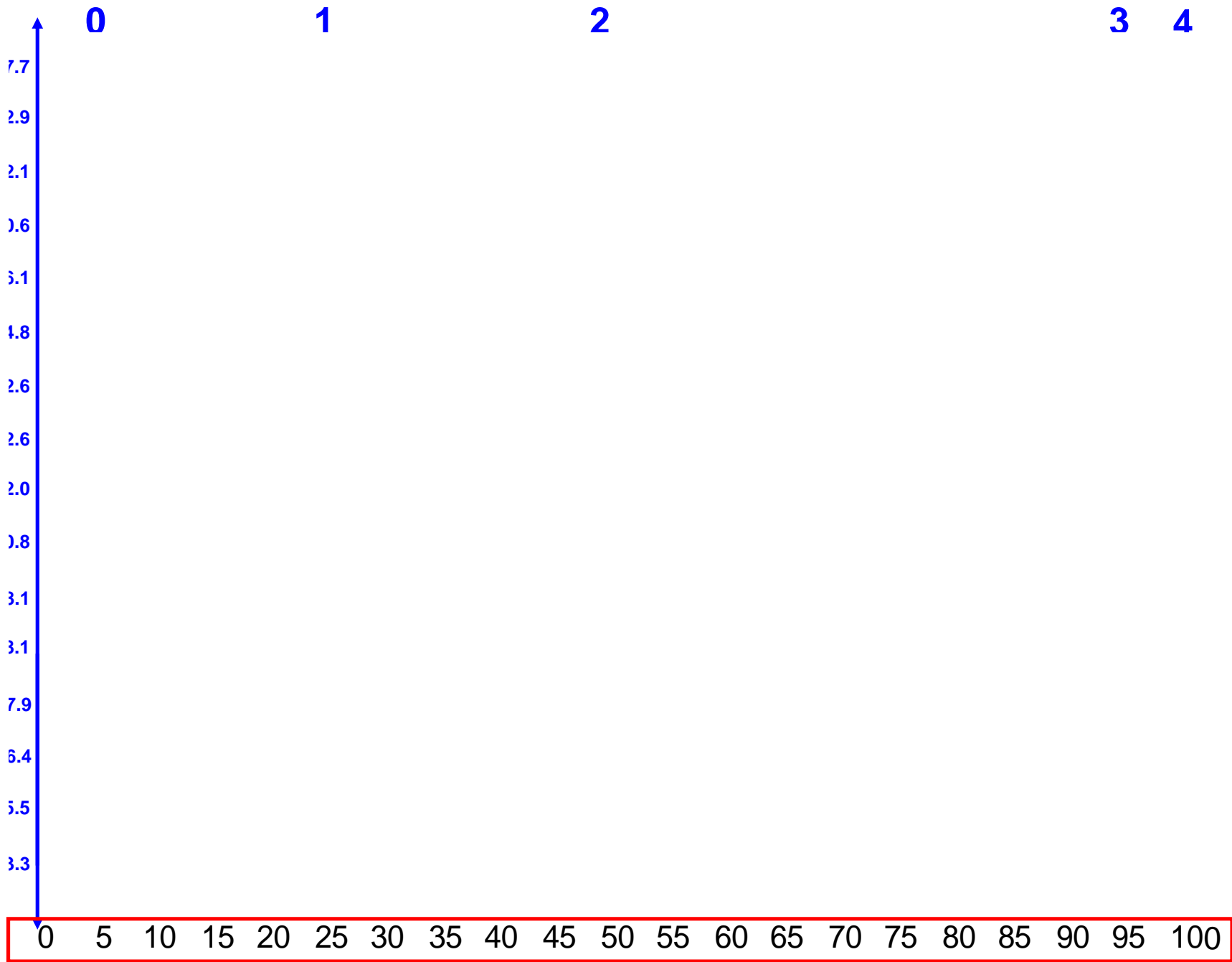
~~have to go to bed earlier than I would like to~~

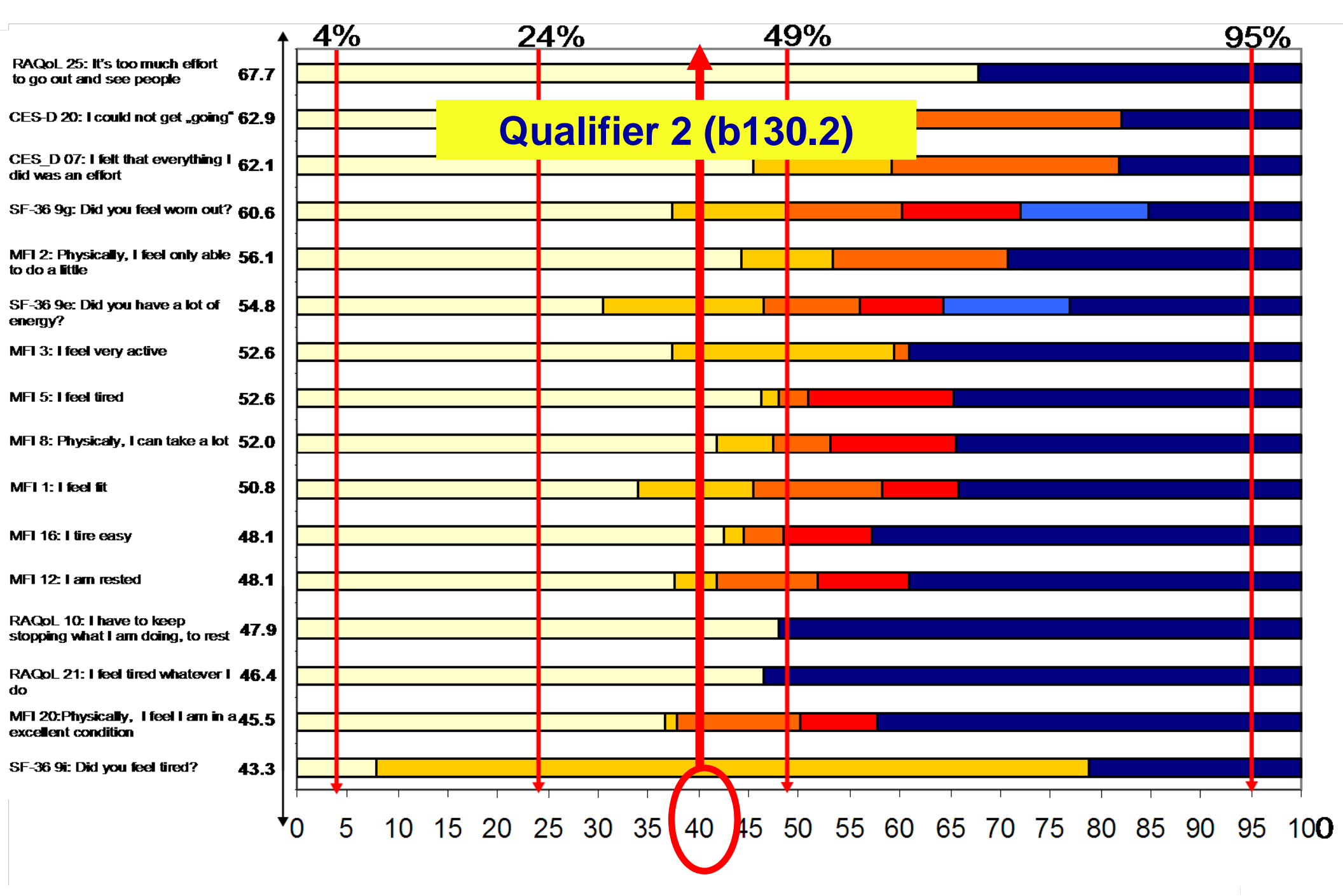
It's too much effort to go out and see people.

I have to keep stopping what I am doing, to rest.

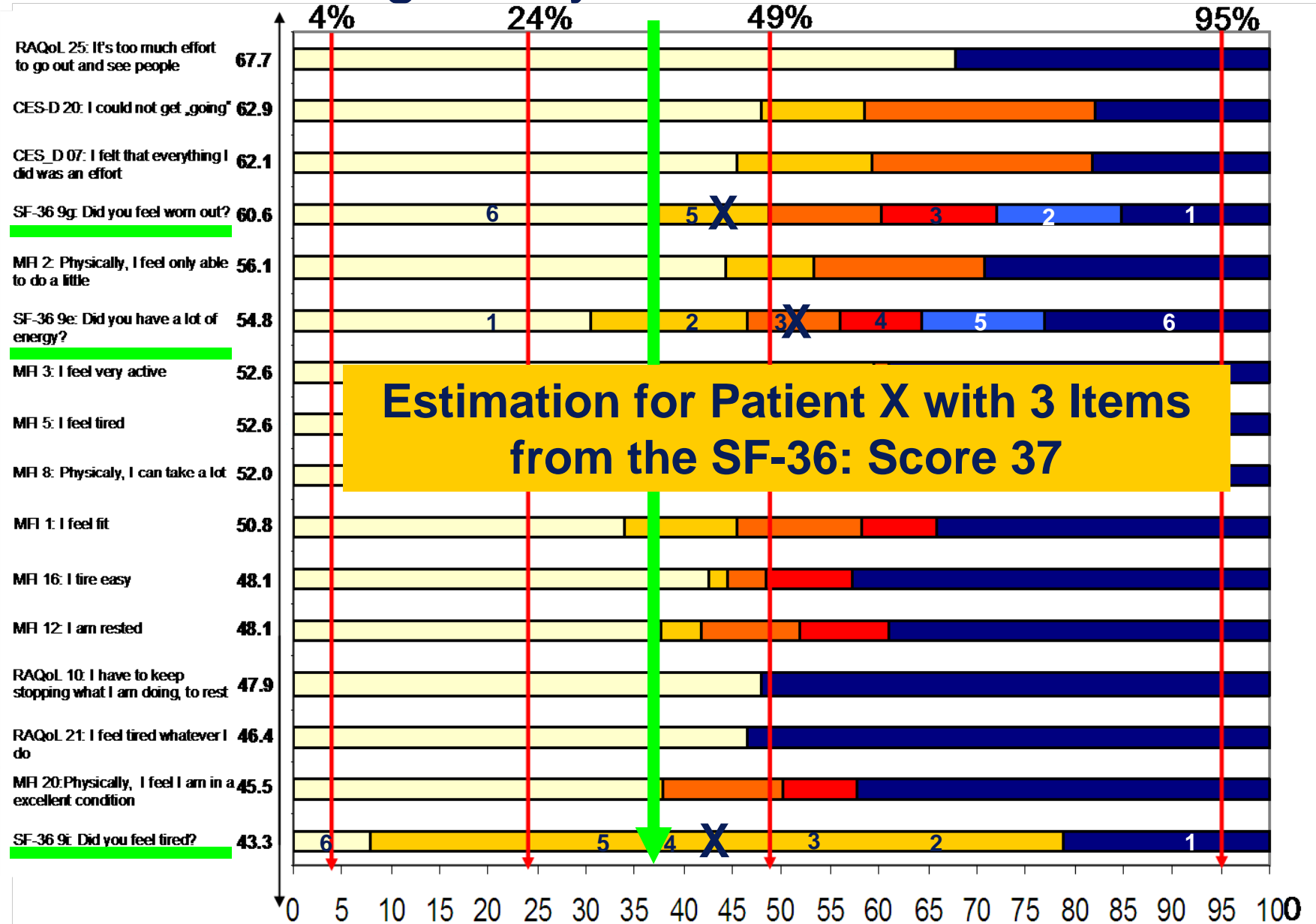
I feel tired whatever I do.

25	-0.15	52	
26	-0.05	53	
27	0.05	54	
28	0.15	54	
29	0.26	55	
30	0.36	56	
31	0.47	57	
32	0.59	58	
33	0.7	59	
34	0.82	60	
35	0.95	61	
36	1.08	62	3
37	1.22	63	
38	1.36	65	
39	1.51	66	
40	1.67	67	
41	1.84	69	
42	2.03	70	
43	2.23	72	
44	2.45	74	
45	2.7	76	
46	2.97	78	
47	3.28	81	
48	3.65	84	
49	4.1	88	
50	4.72	93	
51	5.59	100	4
25	-0.15	52	
26	-0.05	53	
27	0.05	54	
28	0.15	54	
29	0.26	55	
30	0.36	56	
31	0.47	57	
32	0.59	58	
33	0.7	59	
34	0.82	60	
35	0.95	61	
36	1.08	62	3
37	1.22	63	
38	1.36	65	
39	1.51	66	
40	1.67	67	
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42	2.03	70	
43	2.23	72	
44	2.45	74	
45	2.7	76	
46	2.97	78	
47	3.28	81	
48	3.65	84	
49	4.1	88	
50	4.72	93	
51	5.59	100	4

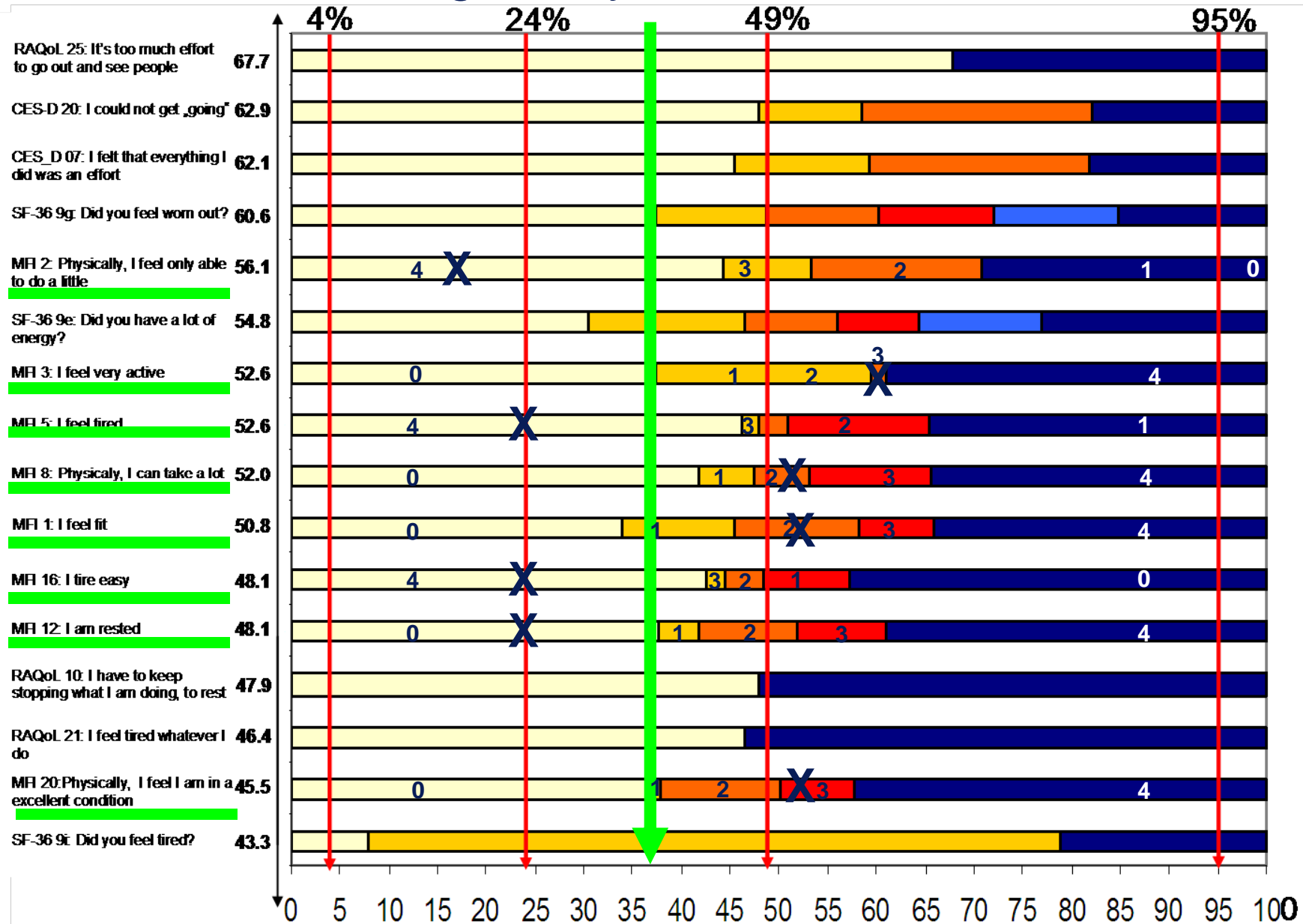




Estimation, e.g. if only Items from SF-36 available



Estimation, e.g.if only Items from MFI available



Second conclusion

The ICF qualifier can be used as the metric reference for patient reported outcomes

Further considerations / advantages

- It is not necessary to change response options of the original items
- The original items can be used within the context of their questionnaires and within the context of the ICF

Implications

- ICF provides PROMISE a conceptual framework
- ICF provides PROMISE ICF categories which are the elements of functioning, disability and health which can be operationalized based on items
- ICF provides a common platform based on which WHO and PROMISE can work together

? Yes