Creating a Disability Severity Indicator Using the WG-SS

Report from the Analysis Work Group

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WG Short Set

1) Do you have difficulty **seeing** even if wearing glasses?
2) Do you have difficulty **hearing** even if using a hearing aid?
3) Do you have difficulty **walking** or **climbing** stairs?
4) Do you have difficulty **remembering** or **concentrating**?
5) Do you have difficulty with (**self-care** such as) washing all over or dressing?
6) Using your usual language, do you have difficulty **communicating** (for example understanding or being understood by others)?

Response categories:

No difficulty; Some difficulty; A lot of difficulty; Cannot do at all

Disability Status Indicators

The WG-SS allows for the determination of multiple disability status indicators based on:

- how information is collated across all 6 domains and
- the choice of the threshold or cut-off.

Any disability status indicator can be used for the disaggregation of outcome indicators (like access to education or employment).

Examples of Disability Status Indicators

Four Status Indicators that vary by inclusion criteria:

DISABILITY1: Dichotomy; disability is defines as at least one domain is coded *some difficulty* or *a lot of difficulty* or *cannot do at all*.

DISABILITY2: Dichotomy; disability is defines as at least 2 domains are coded *some difficulty* or any 1 domain is coded *a lot of difficulty* or *cannot do at all.*

DISABILITY3: Dichotomy; disability is defines as any 1 domain is coded *a lot of difficulty* or *cannot do at all*.

This is the definition recommended by the WG.

DISABILITY4: Dichotomy; disability is defines as any one domain is coded *cannot do at all*.

A Dichotomy creates Equivalence within Groups

The *recommended* Disability Status Indicator is a dichotomy [with/without disability], whereby

- ALL those who responded *a lot of difficulty* or *cannot do at all* to <u>any one or more domain</u> are coded as **with disability**; and
- ALL those whose responded only *some difficulty* or *no difficulty* to <u>all 6 domains</u> are coded as **without disability**.

Disability Status Indicator using the Recommended Definition

Disability Status Indicator		
	Frequency	**Percent**
Without disability	14905	**88.8**
With disability	1872	**11.2**
Total	16777	100.0

Disability Severity Indicator #1

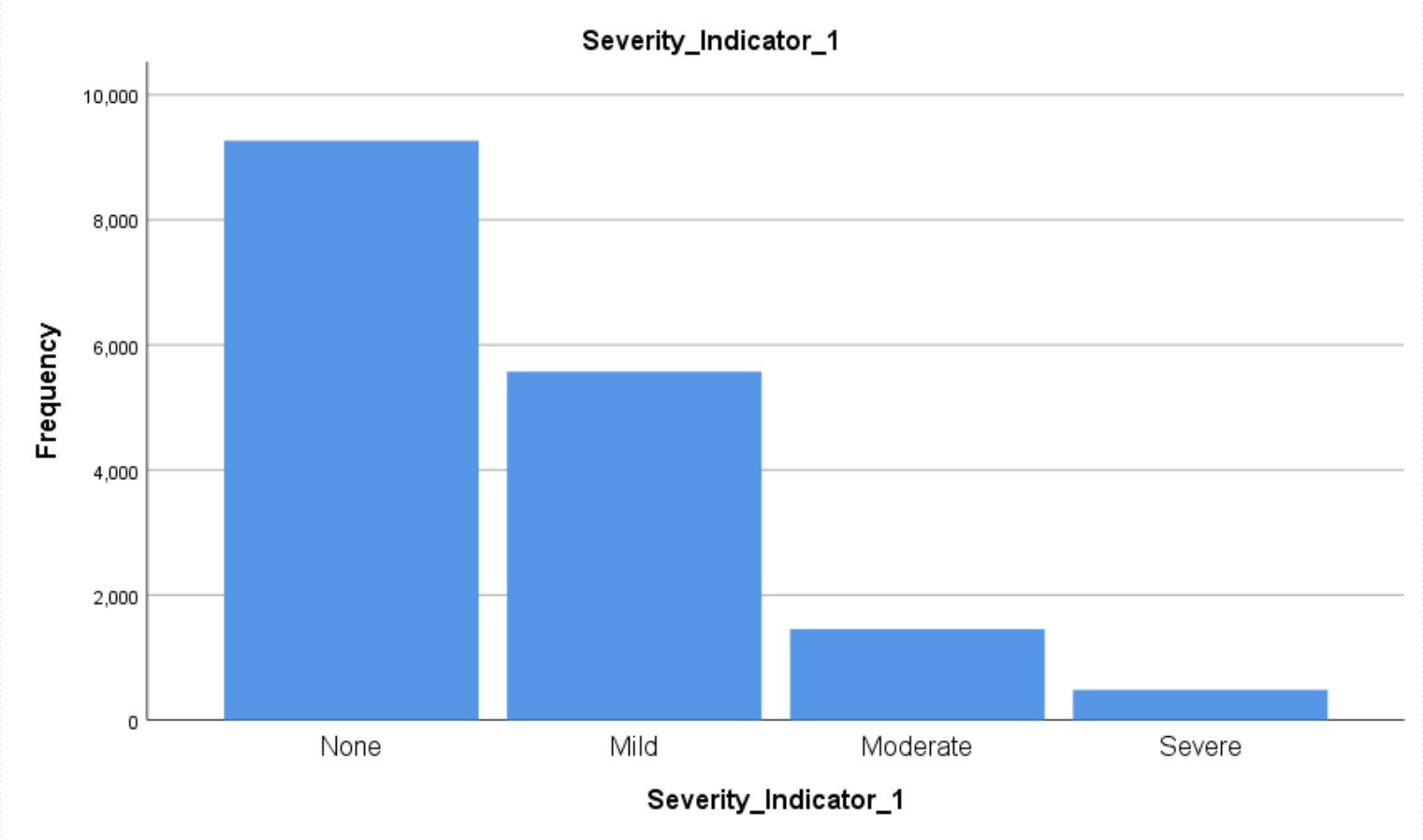
Based on Highest Level of Difficulty in Any Domain [Parsing the Dichotomy]

Going beyond a Dichotomy to Include Severity

Disability Severity Indicator #1 with 4 categories:

1. those who responded *cannot do at all* to any domain are coded as **severe**;
2. those whose highest level of difficulty was *a lot of difficulty* on at least one domain are coded as **moderate**;
3. those whose highest level of difficulty was *some difficulty* on at least one domain are coded as **mild**; and
4. those who responded *no difficulty* to ALL 6 domains are coded as **none**.

Distribution of Scores for Severity Indicator #1



Disability Severity Indicator #1 Based on Highest Level of Difficulty in Any Domain

WG SS: Disability Status Indicator

Severity Indicator #1	Without disability	With disability	Total	Percent	
None	9266	0	9266	**55.2**	**88.8**
Mild	5639	0	5639	**33.6**	
Moderate	0	1407	1407	**8.4**	**11.2**
Severe	0	465	465	**2.8**	
Total	14905	1872	16777	100.0	

Continued Problems of Equivalence

Severity Indicator #1 differentiates *without disability* into **none** and **mild**; and *with disability* into **moderate** and **severe**.

It does not, however, capture the fullness of the continuum – and problems of equivalence remain:

- someone with only one domain coded *some difficulty* has the same severity grade as someone with 6 domains coded *some difficulty*.
- someone with only one domain coded *a lot of difficulty* has the same severity grade as someone with 6 domains coded as *a lot of difficulty;* or 3 *a lot* and 3 *some;* or 4 *a lot* and 2 *no difficulty…*

The Challenge…

…how to:

- utilize ALL the information in ALL the 6 domains of functioning to construct a Severity Continuum,
- create more discrete severity groups and reduce the effects of equivalence, and
- operationalize a mathematical approach that avoids creating ‘weights’.

Disability Severity Indicator #2

Based on assigning a numerical score to each response category:

No difficulty	= 0
Some difficulty	= 1
A lot of difficulty	= 2
Cannot do at all	= 3

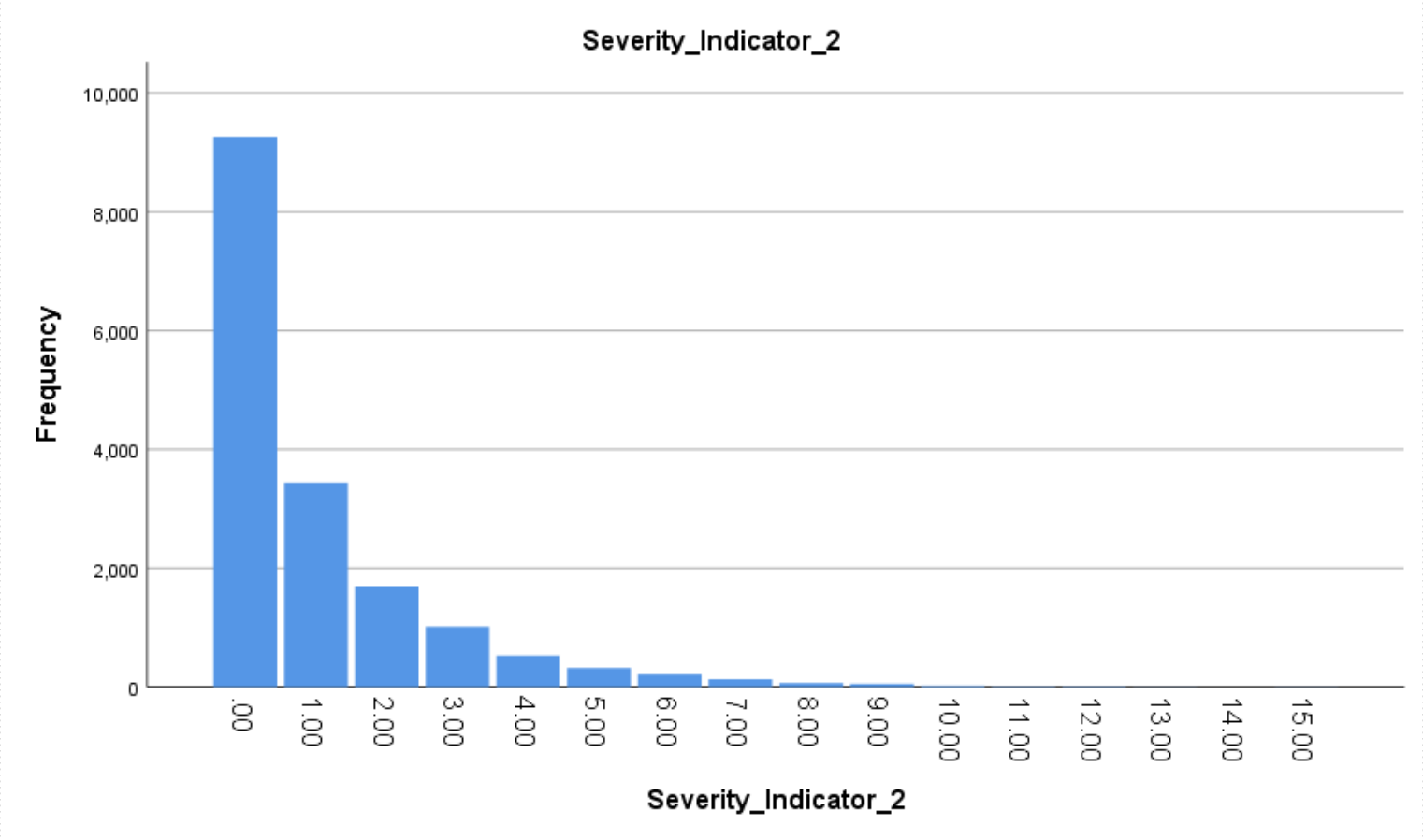
Scoring for Severity Indicator #2

Each individual has 6 responses [one for each of 6 domains] and the overall severity score for each person is based on the sum of the 6 response scores.

Someone who has 6 responses of *no difficulty* is assigned a score of 6*0=0.

Someone who has 6 responses of *cannot do at all* is assigned a score of 6*3=18.

Distribution of Scores for Severity Indicator #2



Examples of Individual Disability Severity Scores

No difficulty = 0 Some = 1 A lot = 2 Cannot do = 3

Example	Seeing	Hearing	Mobility	Cognition	Communication	Self care	Severity Score
1	**0**	**0**	**0**	**0**	**0**	**0**	**0**
2	**3**	**3**	**3**	**3**	**3**	**3**	**18**
3	**3**	**3**	**2**	**2**	**3**	**1**	**14**
4	**0**	**0**	**0**	**1**	**1**	**1**	**3**
5	**0**	**0**	**3**	**0**	**0**	**0**	**3**
6	**1**	**1**	**2**	**1**	**1**	**1**	**7**
7	**3**	**3**	**0**	**0**	**0**	**0**	**6**

Assessing Equivalence

A person with 3 *somes* [3*1=3] and 3 *nones* [3*0=0] [Row 4/previous slide] had the same overall score 3 [3+0] as a person with 1 *cannot do* [1*3=3] and 5 *nones* [5*0=0] [Row 5/previous slide].

And another example, a person with 1 *a lot* [1*2=2] and 5 *somes* [5*1=5] [Row 6/previous slide] scored 7 [2+5], which is higher than a person with 2 *cannot do* [2*3=6] and 4 *nones* [4*0=0] [Row 7/previous slide] whose score is 6 [6+0].

Alternative scoring baselines for severity

- In place of [0/1/2/3] for *no difficulty/some difficulty/ a lot of difficulty/cannot do*, other baselines were tested:
  - [1/2/3/4], [0/4/8/12], [0/1/4/8], [0/1/6/12],
  - [0/6/12/18], [0/8/16/24], [1/5/9/13],
  - [1/7/13/19] and [1/9/17/25].
- None of these produced results that were fully logical and reasonable for reasons similar to those indicated above [see previous slide].

Disability Severity Indicator #3

Based on assigning a numerical score to each response category:

No difficulty	= 0
Some difficulty	= 1
A lot of difficulty	= 6
Cannot do at all	= 36

Matrix for Severity Indicator #3

# of domains	No difficulty	Some difficulty	A lot of difficulty	Cannot do at all
1	0	1	6	36
2	0	2	12	72
3	0	3	18	108
4	0	4	24	144
5	0	5	30	180
6	0	6	36	216

Scoring for Severity Indicator #3

Someone who has 6 responses of *no difficulty* is assigned a score of 6*0=0.

Someone who has 6 responses of *cannot do at all* is assigned a score of 6*36=216.

Examples of Individual Disability Severity Scores

No difficulty = 0 Some = 1 A lot = 6 Cannot do = 36

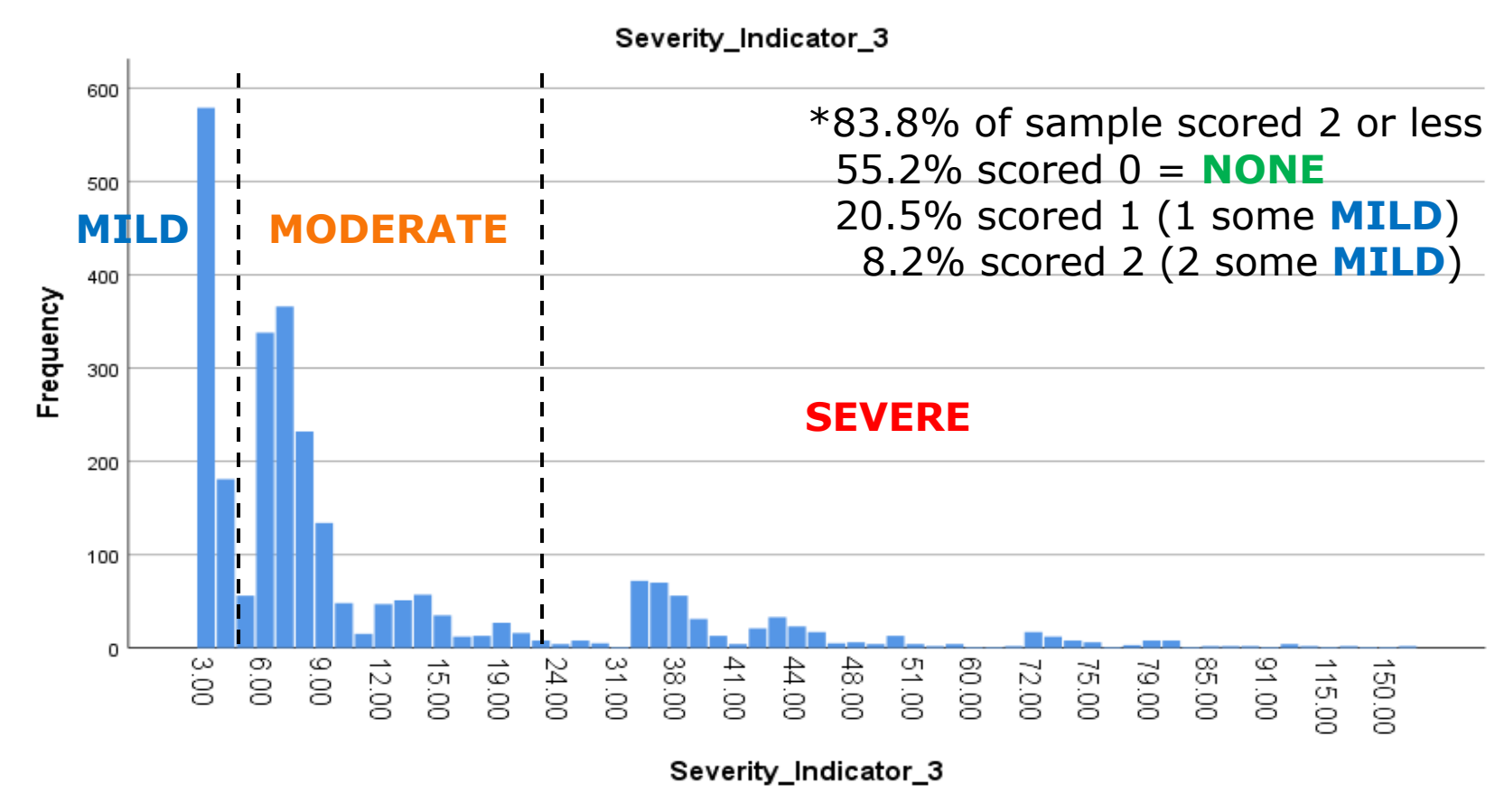
Example	Seeing	Hearing	Mobility	Cognition	Communi cation	Self care	Severity Score
1	**0**	**0**	**0**	**0**	**0**	**0**	**0**
2	**36**	**36**	**36**	**36**	**36**	**36**	**216**
3	**36**	**36**	**6**	**6**	**36**	**1**	**121**
4	**0**	**0**	**0**	**1**	**1**	**1**	**3**
5	**0**	**0**	**36**	**0**	**0**	**0**	**36**
6	**1**	**1**	**6**	**1**	**1**	**1**	**11**
7	**36**	**36**	**0**	**0**	**0**	**0**	**72**

Severity Indicator #3

The person with 3 *somes* [3*1=3] and 3 *nones* [3*0=0] [Row 4/next slide] has an overall score 3 [3+0], while the person with 1 *cannot do* [1*36=36] and 5 *nones* [5*0=0] [Row 5/next slide] has a score of 36 [36+0].

And on the other example, a person with 1 *a lot* [1*6=6] and 5 *somes* [5*1=5] [Row 6/next slide] now scores 11 [6+5], which is less than a person with 2 *cannot do* [2*36=72] and 4 [4*0=0] *nones* [Row 7/next slide] who now scores 72 [72+0].

Distribution of Scores for Severity Indicator #3 (score >=3)*



Disability Severity Indicator Categories Based on Distribution of Severity Scores

Disability Severity Indicator #2		
	Frequency	**Percent**
None (Score = 0)	9266	**55.2**
Mild (Score = 1 to 4)	5572	**33.2**
Moderate (Score = 5 to 23)	1455	**8.7**
Severe (Score = 24+)	484	**2.9**
Total	16777	100.0

Comparison of Severity Indicators

Disability Severity Indicator #3 by Indicator #1 [Highest Level of Difficulty]

Disability Severity Indicator #3	Disability Severity Indicator #1				
	None	Mild	Moderate	Severe	Total
None	9266	0	0	0	9266
Mild	0	5572	0	0	5572
Moderate	0	**67**	1388	0	1455
Severe	0	0	**19**	465	484
Total	9266	5639	1407	465	16777

Severity Indicator #3 by WG-SS

Disability Severity Indicator #3	WG SS: Disability Status Indicator			
	Without disability	With disability	Total	**Percent**
None	9266	0	9266	**55.2**
Mild	5572	0	5572	**33.2**
Moderate	**67**	1388	1455	**8.7**
Severe	0	484	484	**2.9**
Total	14905	1872	16777	100.0

Disaggregation Using Different Disability Indicators

Disability Status [WG-SS]/Severity Indicator #3 by Outcome Indicators

	% Working	Current smoker	Covered by health insurance
Without	73.6	13.3	82.7
With	30.8	19.6	88.5
None	76.8	12.0	81.7
Mild	67.1	15.6	84.3
Moderate	35.0	20.7	87.2
Severe	13.7	14.9	93.4

Documentation Available

Analytic Guidelines

WG-SS/ES: Disability STATUS Indicators - SPSS and SAS code

Implementation Document #5a/b

Creating Disability Identifiers Using the Washington Group Short Set (WG-SS) SPSS/SAS Syntax

Implementation Document #6a/b

Creating Disability Identifiers Using the Washington Group Extended Set (WG-ES) SPSS/SAS Syntax

http://www.washingtongroup-disability.com/publications/implementing/

NEW: CSPro syntax for above available upon request

WG-SS: Stata code

NEW: Stata code for the determination of disability using the WG-SS at the recommended cut-off has been written and available upon request.

WG-SS Enhanced: additional code

NEW: SPSS code for the determination of disability status using the WG-SS Enhanced at different cut-offs has been written and available upon request.

CFM: Disability STATUS Indicators - SPSS and Stata code

Module on Child Functioning: Tabulation plans, narrative and SPSS/Stata syntaxes

https://data.unicef.org/resources/module-child-functioning-tabulation-plan-narrative/

Questions and Discussion