

Data production and analysis



Mitchell Loeb

National Center for Health Statistics, USA and
Washington Group on Disability Statistics

WG short set of questions:

Because of a Health problem:

- 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 - no difficulty; Yes - some difficulty;
Yes - a lot of difficulty; Cannot do at all

What can the WG SS produce?

Domain specific outputs:

- different categorizations on each domain
- a summary score for each individual domain of functioning
- continuum of functioning on each of the 6 domains

Overall outputs:

- a set of disability scores (based on different cut-offs) suitable for disaggregation
- a recommended disability indicator for disaggregation and international comparisons

Sample prevalence (%) by domain and degree of difficulty

At least:

Core Domain	Some difficulty	A lot of difficulty	Unable To do it
Vision	4.7	2.6	0.5
Hearing	3.7	2.3	0.5
Mobility	5.1	3.8	0.8
Remembering	2.0	1.5	0.3
Self-Care	2.0	1.3	0.4
Communicating	2.1	1.4	0.5

Defining an overall disability continuum and a disability dichotomy

The WG questions fulfil two specific data needs:
to describe disability data as a continuum of functioning from no difficulty to some difficulty, a lot of difficulty and unable to do at all, and

to define a cut-off (or a set of cut-offs) that can be agreed upon internationally in order to disaggregate other information (e.g. access to education, employment) by disability status

Disability prevalences Zambia (n=28189; ages 5+) (2006)

Person with disability has:	n	%
at least 1 Domain is 'some difficulty'	4053	14.5
at least 2 Domains are 'some difficulty'	3090	11.0
at least 1 Domain is 'a lot of difficulty'	2368	8.5
at least 1 Domain is 'unable to do it'	673	2.4

Disability prevalences USA (n=16777; ages 18+) (NHIS: 2013)

Person with disability has:	n	%
at least 1 Domain is 'some difficulty'	7511	41.9
at least 2 Domains are 'some difficulty'	3672	19.6
at least 1 Domain is 'a lot of difficulty'	1872	9.5
at least 1 Domain is 'unable to do it'	465	2.2

WG Recommendation:

For purposes of reporting and generating internationally comparable data, the WG has recommended the following cutoff be used to define the population of persons with disabilities:

- The sub-population identified as *with disability* includes those with *at least one domain* that is coded as *a lot of difficulty* or *cannot do it at all*.

Creating the WG disability dichotomy

- Responses to the 6 questions range from 1: no difficulty to 4: cannot do at all
- If responses at all 6 questions are 1 or 2 – i.e. the person has no difficulty or only some difficulty over the 6 domains, then the individual is considered as *without disability*.
- If any one (or more) of the 6 domain responses is 3: a lot of difficulty or 4: cannot do at all – then the person is considered as *with disability*.

SPSS syntax

See handout

Disability by sex: (ages 18+) (NHIS: 2013)

% with Disability

Syntax:	Person with disability has at least:	Total	Male	Female
Disability 1	1 Domain 'some difficulty'	41.9	39.0	42.0
Disability 2	2 Domains 'some difficulty'	19.6	17.4	20.5
Disability 3	1 Domain 'a lot of difficulty'	9.5	8.5	9.9
Disability 4	1 Domain 'unable to do it'	2.2	2.0	2.2

WG Extended Set: Rationale

- 1) To include additional domains that were not included in the Short Set (upper body functioning, affect, pain, and fatigue)
- 2) To include more information per domain (for example, use of assistive devices/aids, and functioning with and without assistance)
- 3) To develop a single measure, per domain, for un-accommodated functioning
- 4) To use the additional information per domain to develop a continuum of functioning that would supplement the Short Set

Going from SS to Extended set

What are the challenges going from a single question per domain to multiple questions per domain?

1. The need to create domain specific indicators for domains with more than one question.
2. The need to be able to combine multiple indicators to form a continuum of functional difficulty.
3. The need to determine the 'added value' of multiple questions and the additional domains.

Vision: Short/Extended set questions

1. Do you have difficulty seeing, even when wearing glasses? (SS)

Initial analyses using proposed extended set questions (difficulty with near and far vision) did not create a continuum of functioning, so the questions were not included in the Extended set.

Do you have difficulty seeing, even when wearing glasses? **SS** (2013)

	Unweighted Frequency	Weighted Percent
No difficulty	13690	82.9
Some difficulty	2708	15.1
A lot of difficulty	333	1.8
Cannot do	36	0.2
Total	16767	100.0

Communication: Short/Extended set questions

1. Using your usual language, do you have difficulty communicating, for example, understanding or being understood? (SS)

Using your usual language, do you have difficulty communicating, for example, understanding or being understood? **SS** (2013)

	Unweighted Frequency	Weighted Percent
No difficulty	15874	95.2
Some difficulty	745	4.1
A lot of difficulty	94	0.5
Cannot do	43	0.2
Total	16756	100.0

Hearing: Short/Extended set questions

1. Do you have difficulty hearing, even when using a hearing aid? (**SS**)
2. Do you have difficulty hearing what is said in a conversation with one other person in a quiet room [even when wearing your hearing aid(s)]?
3. Do you have difficulty hearing what is said in a conversation with one other person in a noisier room [even when wearing your hearing aid(s)]?

Analyses were conducted on Q2 and Q3.

Do you have difficulty hearing, even when using a hearing aid? **SS** (2013)

	Unweighted Frequency	Weighted Percent
No difficulty	13680	82.8
Some difficulty	2753	15.4
A lot of difficulty	310	1.7
Cannot do	23	0.1
Total	16766	100.0

Difficulty hearing in a noisy room *by* quiet room (NHIS 2013)

Quiet room	Noisy room				Total
	No difficulty	Some difficulty	A lot of difficulty	Cannot do	
No difficulty	11603	3373	253	8	15237
Some difficulty	94	809	388	24	1315
A lot of difficulty	0	8	138	16	162
Cannot do	0	0	0	23	23
Total	11697	4190	779	71	16737

Hearing Indicator (2013)

	Unweighted Frequency	Weighted Percent
1: low difficulty	14976	90.6
2	1156	6.2
3	404	2.2
4: high difficulty	201	1.0
Total	16737	100.0

Cognition: Short/Extended set questions

1. Do you have difficulty remembering or concentrating? (**SS**)
2. Do you have difficulty remembering, concentrating, or both?
3. How often do you have difficulty remembering? (Frequency)
4. Do you have difficulty remembering a few things, a lot of things, or almost everything? (Intensity)

Analyses conducted on Q2, Q3 and Q4

Do you have difficulty remembering or concentrating? **SS** (2013)

	Unweighted Frequency	Weighted Percent
No difficulty	13719	83.2
Some difficulty	2632	14.7
A lot of difficulty	382	2.0
Cannot do	20	0.1
Total	16753	100.0

Difficulty remembering: Intensity *by* Frequency (NHIS 2013)

How much you have difficulty remembering (Intensity)

How often do you have difficulty remembering (Frequency)	a few things	a lot of things	almost everything	Total
sometimes	1788	105	20	1913
often	279	197	34	510
all of the time	51	84	80	215
Total	2118	386	134	2638

Remembering Indicator

	Unweighted Frequency	Weighted Percent
1: low difficulty	13719	83.2
2	2172	12.1
3	197	1.1
4: high difficulty	270	1.4
<i>5: Concentrating only*</i>	388	2.2
Total	16746	100.0

Effect of adding difficulty concentrating

*388 individuals with 'concentrating only' were allocated as follows:

1. 357 with a little difficulty on the SS question were classified as **2**
2. 30 with a lot of difficulty on the SS question were classified as **3**
3. 1 with cannot do on the SS question was classified as **4**

Those with both remembering and concentrating difficulty were upgraded 36 individuals from **2** to **3**, and 125 individuals from **3** to **4**

Cognition (2013)

	Unweighted Frequency	Weighted Percent
1: low difficulty	13719	83.2
2	2449	13.8
3	226	1.2
4: high difficulty	352	1.8
Total	16746	100.0

Mobility: Short/Extended set questions

SS Do you have any difficulty walking or climbing steps?

1. Do you have difficulty walking 100 yards on level ground, that would be about the length of one football field or one city block [without the use of your aid]?
2. Do you have difficulty walking a third of a mile on level ground, that would be about the length of five football fields or five city blocks [without the use of your aid]?
3. Do you have difficulty walking up or down 12 steps [without the use of your aid]?

Analyses conducted on Q2, Q3 and Q4

Do you have difficulty walking or climbing steps? **SS** (2013)

	Unweighted Frequency	Weighted Percent
No difficulty	13424	83.0
Some difficulty	2465	11.3
A lot of difficulty	792	3.9
Cannot do	380	1.8
Total	16761	100.0

Difficulty walking 1/3 mile *by* difficulty walking 100 yards (NHIS 2013)

Difficulty walking 100 yards	Difficulty walking 1/3 mile				Total
	No difficulty	Some difficulty	A lot of difficulty	Cannot do	
No difficulty	12950	819	63	39	13871
Some difficulty	72	810	343	142	1367
A lot of difficulty	3	21	301	166	491
Cannot do (380)	0	0	0	0	0
Total	13025	1650	707	347	15729

Walking Indicator

	Unweighted Frequency	Weighted Percent
1: low difficulty	13769	88.0
2	1288	7.0
3	364	1.8
4: high difficulty	631	3.2
Total	16052	100.0

Adding difficulty with 'steps'

Amount of difficulty walking up or down 12 steps						
Walking Indicator	Not at all	A little	A lot	Completely	Don't know	Total
1	13048	645	55	17	4	13769
2	370	767	135	16	0	1288
3	43	106	200	14	1	364
4	40	132	87	225	0	484
	13501	1650	477	272	5	15905

Mobility Indicator (2013)

	Unweighted Frequency	Weighted Percent
1: low difficulty	13697	87.7
2	1192	6.5
3	516	2.5
4: high difficulty	647	3.3
Total	16052	100.0

Upper body: Short/Extended set questions

1. Do you have difficulty with self-care, such as washing all over or dressing? **SS**
2. Do you have difficulty raising a 2 liter bottle of water or soda from waist to eye level?
3. Do you have difficulty using your hands and fingers, such as picking up small objects, for example, a button or pencil, or opening or closing containers or bottles?

Note: Q2 & Q3 are used for the upper body indicator. Q1 remains the self-care indicator.

Do you have difficulty with self-care, such as washing all over or dressing? **SS** (2013)

	Unweighted Frequency	Weighted Percent
No difficulty	16029	96.2
Some difficulty	544	2.9
A lot of difficulty	114	0.6
Cannot do	68	0.3
Total	16755	100.0

Difficulty lifting 2 liter bottle *by* difficulty using hands/fingers (NHIS 2013)

Amount of difficulty using hands/fingers	Amount of difficulty raising 2 liter bottle				Total
	No difficulty	Some difficulty	A lot of difficulty	Cannot do	
No difficulty	14786	309	58	44	15197
Some difficulty	782	355	51	40	1228
A lot of difficulty	98	73	51	33	255
Cannot do	9	5	7	49	70
Total	15675	742	167	166	16750

Upper body Indicator (2013)

	Unweighted Frequency	Weighted Percent
1: low difficulty	14786	89.5
2	1446	7.8
3	331	1.7
4: high difficulty	187	0.9
Total	16750	100.0

Pain: Extended set questions

1. In the past 3 months, how often did you have pain? (Intensity)
2. Thinking about the last time you had pain, how much pain did you have? (Frequency)

Pain Intensity *by* Frequency of pain in past 3 months (2013)

Frequency of pain in past 3 months

Pain Intensity	Never	Some days	Most days	Every day	Total
not asked	6636	0	0	0	6636
a little	0	4136	323	401	4860
in between	0	1772	624	896	3292
a lot	0	645	278	944	1867
Total	6636	6553	1225	2241	16655

Pain Indicator (2013)

	Unweighted Frequency	Weighted Percent
1: low level	11095	68.3
2	3442	20.1
3	1174	6.6
4: high level	944	5.1
Total	16655	100.0

Fatigue: Extended set questions

1. In the past 3 months, how often did you feel very tired or exhausted? (Frequency)
2. Thinking about the last time you felt very tired or exhausted, how long did it last? (Duration)
3. Thinking about the last time you felt this way, how would you describe the level of tiredness? (Intensity)

How long it lasted *by* How often felt very tired *by* Level of tiredness (2013)

Level of tiredness: <i>Intensity</i>	How long it lasted: <i>Duration</i>	How often felt very tired: <i>Frequency</i>				Total
		Never	Some days	Most days	Every day	
not asked	not asked	5619				5619
a little	Some of the day		4066	264	124	4454
	Most of the day		252	73	27	352
	All of the day		68	15	18	101
In between	Some of the day		2224	400	166	2790
	Most of the day		497	266	123	886
	All of the day		194	71	84	349
a lot	Some of the day		536	165	84	785
	Most of the day		297	255	160	712
	All of the day		237	118	230	585
Total		5619	8371	1627	1016	16633

Fatigue Indicator (2013)

	Unweighted Frequency	Weighted Percent
1: low level	9949	61.1
2	3864	22.7
3	2312	13.4
4: high level	508	2.8
Total	16633	100.0

Anxiety: Extended set questions

1. How often do you feel worried, nervous or anxious? (Frequency)
2. Thinking about the last time you felt worried, nervous or anxious, how would you describe the level of these feelings? (Intensity)
3. Do you take medication for these feelings?

Challenge to combining the questions into a single anxiety indicator

- Medication variable: what did taking medication for anxiety mean? Should everyone reporting medication use be considered anxious?
- Medication is an accommodation. (Prevalence of taking medication is 9.2%)
- What kind of medication are they taking?
- Are people reporting their anxiety with or without medication?

Anxiety: Frequency by Intensity (2013)

How often feel worried/nervous/anxious: *Frequency*

Level of feeling last time: <i>Intensity</i>	Frequency					Total
	Daily	Weekly	Monthly	A few times a year	Never	
Not asked	0	0	0	0	6638	6638
A little	489	887	897	3417	44	5734
In between	589	725	535	1221	16	3086
A lot	548	256	123	248	13	1188
Total	1626	1868	1555	4886	6711	16646

Anxiety Indicator (2013)

	Unweighted Frequency	Weighted Percent
1: low level	11597	70.2
2	3656	22.1
3	845	4.9
4: high level	548	2.9
Total	16646	100.0

Depression: Extended set questions

1. How often do you feel depressed? (Frequency)
2. Thinking about the last time you felt depressed, how depressed did you feel? (Intensity)
3. Do you take medication for depression?

Challenge to combining the questions into a single depression indicator

- Medication variable: what did taking medication for depression mean? Should everyone reporting medication use be considered depressed?
- Medication is an accommodation. (Prevalence of taking medication is 8.5%)
- What kind of medication are they taking?
- Are people reporting their depression with or without medication?

Depression: Frequency by Intensity (2013)

Level of feeling last time: <i>Intensity</i>	How often feel depressed: <i>Frequency</i>					Total
	Daily	Weekly	Monthly	A few times a year	Never	
Not asked	0	0	0	0	9785	9785
A little	161	346	548	2708	72	3835
In between	209	384	378	1042	35	2048
A lot	381	191	112	248	35	967
Total	751	921	1038	3998	9927	16635

Depression Indicator (2013)

	Unweighted Frequency	Weighted Percent
1: low level	13925	84.6
2	1929	11.2
3	400	2.2
4: high level	381	2.0
Total	16635	100.0

Disability prevalence: WG Extended set (18 years of age and over)

		Weighted %
1	Short Set (SS) questions	9.5
2	ES1: SS plus <u>Hearing-indicator, Mobility-indicator, Cognition-indicator</u>	12.7
3	ES2: ES1 plus <u>Upper Body-indicator</u>	13.2
4	ES3: Pain, Fatigue, Anxiety, Depression (3/4)	24.9
5	ES4: Pain, Fatigue, Anxiety, Depression (4)	8.5
6	ES5: Pain, Fatigue (4)	6.5
7	ES6: Anxiety, Depression (4)	3.4
8	ES7a: ES2 plus ES4 -PFAD (4)	17.2
9	ES7b: ES2 plus ES6 -AD (4)	14.8
10	SS8: SS plus <u>Upper Body-indicator</u>	10.0
11	SS9: SS8 plus ES4	14.7
12	SS10: SS8 -SS+UB plus ES6 -AD (4)	11.9