

Analyses of extended set questions using the U.S. National Health Interview Survey

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National Health Interview Survey

The NHIS is a cross-sectional household survey of the civilian, non-institutionalized population of the United States, conducted annually by NCHS since 1957.

Data are collected in person from a sample based on a multistage probability design.

Annually, the sample comprises approximately 35,000 households containing about 87,500 persons per year

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

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 *disabled* includes everyone with *at least one domain* that is coded as *a lot of difficulty* or *cannot do it at all*.
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Rational for Extended Set Questions:

- 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
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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 determine the 'added value' of multiple questions.
 2. The need to be able to combine multiple indicators to form a continuum of functional difficulty.
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Vision: Extended set/Short set question

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** (NHIS 2011)

	Unweighted Frequency	Weighted Percent	Valid Percent
No difficulty	14312	87.8	89.2
Some difficulty	1711	9.4	9.5
A lot of difficulty	208	1.1	1.1
Cannot do	32	0.1	0.1
Subtotal	16263	98.4	100.0
Refused/NA/DK	277	1.6	
Total	16540	100.0	

Communication: Extended set/Short set question

1. Using your usual language, do you have difficulty communicating, for example, understanding or being understood? (SS)
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Using your usual language, do you have difficulty communicating, for example, understanding or being understood? **SS** (NHIS 2011)

	Unweighted Frequency	Weighted Percent	Valid Percent
No difficulty	15418	93.8	95.2
Some difficulty	700	3.9	4.0
A lot of difficulty	110	0.6	0.6
Cannot do	28	0.1	0.2
Subtotal	16256	98.4	100.0
Refused/NA/DK	284	1.5	
Total	16540	100.0	

Hearing: 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** (NHIS 2011)

	Unweighted Frequency	Weighted Percent	Valid Percent
No difficulty	14268	87.2	87.7
Some difficulty	1690	9.6	10.4
A lot of difficulty	279	1.6	1.7
Cannot do	25	0.1	0.2
Subtotal	16262	98.4	100.0
Refused/NA/DK	278	1.6	
Total	16540	100.0	

Difficulty hearing in a noisy room *by* quiet room (NHIS 2011)

Quiet room	Noisy room				Total
	No difficulty	Some difficulty	A lot of difficulty	Cannot do	
No difficulty	11812	2867	179	6	14864
Some difficulty	123	714	338	11	1186
A lot of difficulty	1	11	107	22	141
Cannot do	0	0	0	25	25
Total	11936	3592	624	64	16216

Hearing Indicator

	Unweighted Frequency	Weighted Percent
1: low difficulty	14679	91.5
2	1016	5.5
3	356	2.1
4: high difficulty	165	0.9
Total	16216	100.0

Hearing Indicator *by* WG-SS Question

Unweighted Count Weighted Row %	Hearing Indicator				Total
	1	2	3	4	
Difficulty hearing (SS)					
No difficulty	13658	487	52	7	14231
	96.5	3.1	0.3	0.0	
Some difficulty	952	471	228	28	1679
	59.9	25.5	13.3	1.3	
A lot of difficulty	35	56	75	105	271
	15.5	18.0	30.8	35.7	
Cannot do at all	0	0	0	25	25
	0.0	0.0	0.0	100.0	
Total	14672	1014	355	165	16206
	91.6	5.5	2.13	0.9	

Employment status last week (2010)

Unweighted Count Weighted Column %	Hearing Indicator				
	1	2	3	4	Total
not working	2156	243	95	46	2540
	35.8	54.6	68.2	89.4	38.1
working	3414	162	39	8	3623
	64.2	45.4	31.8	10.6	61.9

Cognition: 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** (NHIS 2010)

	Unweighted Frequency	Weighted Percent	Valid Percent
No difficulty	5152	76.6	83.6
Some difficulty	915	13.5	14.8
A lot of difficulty	101	1.4	1.6
Cannot do	3	0.0	0.0
Subtotal	6171	91.2	100.0
Refused/NA/DK	604	8.8	
Total	6775	100.0	

Difficulty remembering: Intensity *by* Frequency (NHIS 2010) (see Handout)

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	620	34	8	662
often	89	66	12	167
all of the time	9	22	35	66
Total	718	122	55	895

Remembering Indicator

	Unweighted Frequency	Weighted Percent
1: low difficulty	5152	83.7
2	620	9.8
3	189	2.9
4: high difficulty	86	1.3
<i>5: Concentrating only*</i>	<i>116</i>	<i>2.2</i>
Total	6163	100.0

2010 NHIS Probe Questions:

Which of the following, if any, describe your difficulty remembering?

- I forget things because I am busy and have too much to remember.
 - My difficulty is getting worse.
 - My difficulty has put me or my family in danger.
 - I forget only little or inconsequential things.
 - I must write down important things, such as my address or when to take medicine, so that I do not forget.
 - My family members or friends are worried about my difficulty remembering.
 - My difficulty is normal for someone my age.
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Remembering Indicator *by* Probes

PROBES	Weighted Column percent	Remembering Indicator		
		2.00	3.00	4.00
1. Busy/too much to remember	65.7	47.8	36.1	
2. Difficulty is getting worse	20.2	42.3	68.5	
3. Difficulty is putting me/my family in danger	1.4	6.4	9.6	
4. Only forget little things	77.6	56.4	33.0	
5. Must write down important things so I don't forget	15.0	36.6	47.5	
6. Family members worried about my difficulty remembering	7.2	30.7	52.9	
7. Difficulty is normal for my age	76.4	46.6	17.5	

Effect of adding difficulty concentrating

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

1. 112 with a little difficulty on the SS question were classified as **2**
2. 4 with a lot of difficulty on the SS question were classified as **3**

Those with both remembering and concentrating difficulty were upgraded 7 individuals from **2** to **3**, and 40 individuals from **3** to **4**

Cognition Indicator

	Unweighted Frequency	Weighted Percent
1: low difficulty	5152	83.7
2	725	11.9
3	160	2.4
4: high difficulty	126	2.0
Total	6163	100.0

ADL/IADL (2010)

Unweighted Count Weighted Column %	Cognition Indicator				
	1	2	3	4	Total
Needs help with personal care	54	35	16	27	132
	0.8	5.0	8.1	20.6	1.8
Needs help with routine needs	130	74	28	49	281
	2.1	8.9	13.3	36.7	3.8

Employment status last week (2010)

Unweighted Count Weighted Column %	Cognition Indicator				
	1	2	3	4	Total
not working	1926	360	103	98	2487
	34.8	53.2	62.4	75.6	38.1
working	3225	253	53	28	3559
	65.2	46.8	37.6	24.4	61.9

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

Frequency of pain in past 3 months

Pain Intensity	Never	Some days	Most days	Every day	Total
not asked	2631	0	0	0	2631
a little	0	1442	133	112	1687
in between	0	611	213	275	1099
a lot	0	220	139	314	673
Total	2631	2273	485	701	6090

Pain Indicator

	Unweighted Frequency	Weighted Percent
1: low level	4073	66.4
2	856	15.2
3	708	11.5
4: high level	453	7.0
Total	6090	22.4

2010 NHIS Probe Questions:

Which of the following, if any, describe your pain?

- It is constantly present.
 - Sometimes I'm in a lot of pain and sometimes it's not so bad.
 - Sometimes it's unbearable and excruciating.
 - When I get my mind on other things, I am not aware of the pain.
 - Medication can take my pain away completely.
 - My pain is because of work.
 - My pain is because of exercise.
-

Pain Indicator *by* Probe Questions

Unweighted Count Weighted Column %	Pain Indicator				Total
	1	2	3	4	
Pain Probe Questions					
1. Pain is constantly present	94	221	387	371	1073
	6.8	27.6	55.5	83.5	
2. Sometimes pain is unbearable/excruciating	63	144	312	346	865
	3.9	17.4	44.6	78.4	
3. When I get my mind on other things, I am not aware of the pain	755	467	302	134	1658
	54.4	55.6	42.9	27.7	
4. Medication can take my pain away completely	733	379	237	117	1466
	53.4	45.7	32.2	23.6	
5. My pain is because of work	259	146	112	65	582
	18.9	19.0	16.3	15.0	
6. My pain is because of exercise	276	124	71	20	491
	21.4	15.6	11.0	4.3	

Employment status last week (2010)

Unweighted Count Weighted Column %	Pain Indicator				
	1	2	3	4	Total
not working	1484	369	342	32	2507
	34.0	38.4	44.6	66.4	38.1
working	2588	487	366	141	3582
	66.0	61.6	55.4	33.6	61.9

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

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	2377				2377
a little	Some of the day		1448	67	30	1545
	Most of the day		109	21	5	135
	All of the day		16	5	3	24
In between	Some of the day		677	82	19	778
	Most of the day		183	75	19	277
	All of the day		63	20	16	99
a lot	Some of the day		247	49	29	325
	Most of the day		160	115	43	318
	All of the day		92	39	56	187
Total		2377	2995	473	220	6065

Fatigue Indicator

	Unweighted Frequency	Weighted Percent
1: low level	3825	61.9
2	1034	18.0
3	839	14.2
4: high level	367	5.8
Total	6065	100.0

2010 NHIS Probe Questions:

Is your tiredness the result of any of the following?

- Too much work or exercise?
 - Not getting enough sleep?
 - A physical or health-related problem?
 - Something else?
-

Fatigue Indicator *by* Probes

Unweighted Count Weighted Column %	Fatigue Indicator				Total
	1	2	3	4	
Fatigue Probe Questions					
1. A physical or health-related problem	290	340	340	249	1219
	18.3	31.5	38.3	69.3	
2. Fatigue results from stress	53	44	51	38	186
	1.4	4.1	5.4	8.3	
3. too much work or exercise	705	512	394	103	1714
	49.8	51.1	50.2	29.8	
4. not getting enough sleep	686	603	532	200	2021
	49.3	61.7	66.4	53.6	

Employment status last week (2010)

Unweighted Count Weighted Column %	Fatigue Indicator				
	1	2	3	4	Total
not working	1586	388	323	201	2498
	38.5	34.3	35.2	52.8	38.1
working	2238	646	516	166	3566
	61.5	65.7	64.8	47.2	61.9

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?
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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%)
-

Frequency of Anxiety by Anxiety Intensity and Use of Meds

Take meds for these feelings	Level of feeling last time: <i>Intensity</i>	How often feel worried/nervous/anxious: <i>Frequency</i>					Total
		Daily	Weekly	Monthly	A few times a year	Never	
Yes	A little	45	57	34	36	16	188
	In between	66	80	34	34	4	218
	A lot	92	33	7	10	6	148
No	Not asked	0	0	0	0	2449	2449
	A little	134	281	373	0	0	788
	In between	103	191	138	0	0	432
	A lot	84	63	20	0	0	167
Total		524	705	606	80	2475	4390

Anxiety Indicator

	Unweighted Frequency	Weighted Percent
1: low level	2449	55.5
2	531	12.2
3	415	9.4
4: high level	995	22.9
Total	4390	100.0

2010 NHIS Probe Questions:

Which of the following statements, if any, describe your feelings of being worried, nervous, or anxious?

- My feelings are caused by the type and amount of work I do.
 - Sometimes the feelings can be so intense that my chest hurts and I have trouble breathing.
 - These are positive feelings that help me to accomplish goals and be productive. *
 - The feelings sometimes interfere with my life, and I wish that I did not have them. *
-

2010 NHIS Probe Questions:

Which of the following statements, if any, describe your feelings of being worried, nervous, or anxious?

- If I had more money or a better job, I would not have these feelings.
 - Everybody has these feelings. They are part of life and are normal.
 - I have been told by a medical professional that I have anxiety.
-

Probe questions

- Asked only of persons who reported daily, weekly or monthly anxiety or who reported taking medication for anxiety
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Anxiety Indicator *by* Probes

Anxiety Probe Questions	Unweighted Count		Anxiety Indicator			
	Weighted Column %		1	2	3	4
Sometimes feelings so intense my chest hurts and have trouble breathing			28	33	218	279
			6.2	6.8	21.1	
Feelings interfere with life			112	150	634	896
			23.2	36.0	65.4	
Told by medical professional that I have anxiety			45	53	484	582
			9.2	10.6	48.9	
Supplementary NHIS questions						
K6 Score: Serious Psychological Distress	18	13	18	176	225	
	0.5	1.8	3.3	16.7		
Unable to participate in social activities	40	10	9	82	141	
	1.3	1.0	1.8	7.4		

Employment status last week (2010)

Unweighted Count Weighted Column %	Anxiety Indicator				
	1	2	3	4	Total
not working	1017	196	154	520	1887
	38.3	35.8	32.9	47.6	39.6
working	1431	335	261	475	2502
	61.7	64.2	67.1	52.4	60.4

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%)
-

Frequency of Depression by Depression Intensity and Use of Meds

Take meds for these feelings	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	
Yes	A little	25	39	42	59	18	183
	In between	42	43	45	46	5	181
	A lot	84	34	12	22	6	158
No	Not asked	0	0	0		3506	3506
	A little	41	98	200		0	339
	In between	30	76	89		0	195
	A lot	49	43	38		0	130
Total		271	333	426	127	3535	4692

Depression Indicator

	Unweighted Frequency	Weighted Percent
1: low level	3506	75.4
2	327	7.2
3	139	2.5
4: high level	720	14.8
Total	4692	100.0

2010 NHIS Probe Questions:

Which of the following statements, if any, describe your feelings of being depressed?

- My feelings are caused by the death of a loved one.
 - Sometimes the feelings can be so intense that I cannot get out of bed.
 - The feelings sometimes interfere with my life, and I wish that I did not have them. *
-

2010 NHIS Probe Questions:

Which of the following statements, if any, describe your feelings of being depressed?

- If I had more money or a better job, I would not have these feelings.
 - Everybody has these feelings. They are part of life and are normal.
 - I have been told by a medical professional that I have depression.
-

Probe questions

- Asked only of persons who reported daily, weekly or monthly depression or who reported taking medication for depression
-

Depression Indicator *by* Probes

Unweighted Count Weighted Column %	Depression Indicator				Total
	1	2	3	4	
Depression Probe Questions					
Sometimes feelings so intense I can't get out of bed		28	14	185	227
		7.2	12.0	26.6	
Feelings interfere with life		129	67	466	662
		38.9	52.7	66.5	
Told by medical professional that I have depression		44	29	505	578
		14.7	25.5	57.8	
Supplementary NHIS questions					
K6 Score: Serious Psychological Distress	24	16	21	155	216
	0.6	5.3	20.6	19.5	
Unable to participate in social activities	48	7	15	66	136
	1.1	2.2	11.7	7.9	

Employment status last week (2010)

Unweighted Count Weighted Column %	Depression Indicator				
	1	2	3	4	Total
not working	1352	124	76	425	1977
	35.9	33.3	48.2	55.1	38.9
working	2153	203	63	295	2714
	64.1	66.7	51.8	44.9	61.1

Mobility: 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** (NHIS 2010)

	Unweighted Frequency	Weighted Percent	Valid Percent
No difficulty	4985	75.7	82.8
Some difficulty	758	10.4	11.4
A lot of difficulty	325	4.0	4.4
Cannot do	114	1.3	1.4
Subtotal	6182	91.4	100.0
Refused/NA/DK	593	8.6	
Total	6775	100.0	

Difficulty walking 1/3 mile *by* difficulty walking 100 yards (NHIS 2010)

Difficulty walking 100 yards	Difficulty walking 1/3 mile				Total
	No difficulty	Some difficulty	A lot of difficulty	Cannot do	
No difficulty	4812	348	28	14	5202
Some difficulty	38	252	132	60	482
A lot of difficulty	1	7	107	83	198
Cannot do (184)	0	0	0	0	0
Total	4851	607	267	157	5882

Walking Indicator

	Unweighted Frequency	Weighted Percent
1: low difficulty	5160	86.8
2	318	5.0
3	154	2.2
4: high difficulty	434	6.0
Total	6066	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	4879	250	15	7	9	5160
2	114	177	24	3	0	318
3	45	73	30	6	0	154
4	41	103	154	136	0	434
	5079	603	223	152	9	6066

Mobility Indicator

	Unweighted Frequency	Weighted Percent
1: low difficulty	5138	86.5
2	306	4.8
3	185	2.6
4: high difficulty	437	6.1
Total	6066	100.0

ADL/IADL (2010)

Unweighted Count Weighted Column %	Mobility Indicator				
	1	2	3	4	Total
Needs help with personal care	17	7	11	58	93
	0.4	1.4	4.3	14.4	1.4
Needs help with routine needs	53	18	29	137	237
	1.0	4.5	16.2	30.1	3.3

Employment status last week (2010)

Unweighted Count Weighted Column %	Mobility Indicator				
	1	2	3	4	Total
not working	1745	196	142	376	2459
	32.1	57.4	76.4	85.2	37.7
working	3392	110	43	61	3606
	67.9	42.6	23.6	14.8	62.3

Upper body: 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** (NHIS 2010)

	Unweighted Frequency	Weighted Percent	Valid Percent
No difficulty	5937	88.3	96.8
Some difficulty	175	2.2	2.4
A lot of difficulty	37	0.5	0.6
Cannot do	19	0.2	0.2
Subtotal	6168	91.2	100.0
Refused/NA/DK	607	8.8	
Total	6775	100.0	

Difficulty lifting 2 liter bottle *by* difficulty using hands/fingers (NHIS 2010)

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	5523	123	18	10	5674
Some difficulty	281	106	18	4	409
A lot of difficulty	30	13	13	7	63
Cannot do	3	2	3	8	16
Total	5837	244	52	29	6162

Upper body Indicator

	Unweighted Frequency	Weighted Percent
1: low difficulty	5523	90.3
2	510	7.9
3	92	1.4
4: high difficulty	37	0.4
Total	6162	100.0

ADL/IADL (2010)

Unweighted Count Weighted Column %	Upper body Indicator				
	1	2	3	4	Total
Needs help with personal care	41	50	27	15	133
	0.6	9.2	34.0	35.0	1.9
Needs help with routine needs	132	99	34	16	281
	2.0	16.7	40.0	34.5	3.8

Employment status last week (2010)

Unweighted Count Weighted Column %	Upper body Indicator				
	1	2	3	4	Total
not working	2067	364	78	32	2541
	34.7	67.9	79.2	91.4	38.2
working	3455	146	14	5	3620
	65.3	32.1	20.8	8.6	61.8