

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

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Washington Group on Disability Statistics

# National Health Interview Survey

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- 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
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# Washington Group/Budapest Initiative/UNESCAP/UNICEF Question Development Matrix

		Questionnaire Topic/Type	Basic Activity Domains						Body Function Domains			Complex Activity / Participation Domains							
			Vision	Hearing	Mobility	Communication	Cognition/remembering	Upper Body	Learning/understanding	Affect (6)	Pain	Fatigue	ADL/IADL	Getting Along with People	Major Life Activities	Participation in Society			
Row																			
1	Capacity	Short Set Single Questions (1)																	
2		Extended Set Multiple Questions (1)																	
3	Performance	Use of Assistive Devices Micro-E (2)				Sign language													
4		Functioning with Assistance, Micro-E																	
5		Children and Youth (3)																	
6		Age at Onset																	
7		Cause																	
8		Duration																	
9		Impact (limit ability to carry out daily activities)																	
10		Meso-Environment (4)	Question Set currently under development																
11		Macro-Environment (5)	To be obtained through other sources, not personal survey data collections																

# WG short set of questions:

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## 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 (customary) 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

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# Rational for Extended Set Questions:

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- 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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# Vision



# 2010/11\* NHIS Questions:

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

Do you wear glasses to see far away?

Do you have difficulty clearly seeing someone's face across a room [even when wearing these glasses]?

Do you wear glasses for reading or to see up close?

Do you have difficulty clearly seeing the picture on a coin [even when wearing these glasses]?

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Do you have difficulty seeing, even when wearing glasses? (NHIS 2011)

	<b>Frequency</b>	<b>Percent</b>	<b>Valid Percent</b>
<b>No difficulty</b>	14457	86.5	88.1
<b>Some difficulty</b>	1718	10.3	10.5
<b>A lot of difficulty</b>	209	1.3	1.3
<b>Cannot do</b>	32	0.2	0.2
<b>Subtotal</b>	16416	98.3	100.0
<b>Refused/NA/DK</b>	321	1.9	
<b>Total</b>	16707	100.0	



# Hearing

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# 2010/11 NHIS Questions:

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

Do you use a hearing aid?

How often do you use your hearing aid(s)?

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)]?

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)]?

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Do you have difficulty hearing, even when using a hearing aid? (NHIS 2011)

	<b>Frequency</b>	<b>Percent</b>	<b>Valid Percent</b>
<b>No difficulty</b>	14416	86.1	87.8
<b>Some difficulty</b>	1695	10.1	10.3
<b>A lot of difficulty</b>	279	1.7	1.7
<b>Cannot do</b>	25	0.1	0.2
<b>Subtotal</b>	16415	98.1	100.0
<b>Refused/NA/DK</b>	322	1.9	
<b>Total</b>	16737	100.0	

# Crosstabulation: 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	11944	2873	178	6	15001
Some difficulty	124	719	337	11	1191
A lot of difficulty	1	11	107	22	141
Cannot do	0	0	0	25	25
Total	12069	3603	622	64	16358

# Difficulty Hearing - Gradient

	<b>Frequency</b>	<b>Percent</b>	<b>Cumulative Percent</b>
<b>1.00</b>	12068	73.8	73.8
<b>2.00</b>	3052	18.7	92.4
<b>3.00</b>	719	4.4	96.8
<b>4.00</b>	519	3.2	100.0
<b>Total</b>	16358	100.0	

# Hearing Gradient *by* Short Set Question

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- See Handout
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# Communication

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# 2010/11\* NHIS Questions:

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

Do people have difficulty understanding you when you speak?

Do you use sign language? \*

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# 2010 NHIS Probe Questions:

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Which of the following, if any, are reasons for your difficulty communicating or being understood?

- Because you sometimes talk too fast, feel shy or have trouble expressing yourself?
  - Because of a physical problem with your mouth or tongue?
  - Because you need to understand other languages or different ways of speaking?
  - Because you have trouble hearing?
-

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

	<b>Frequency</b>	<b>Percent</b>	<b>Valid Percent</b>
<b>No difficulty</b>	15564	93.0	94.9
<b>Some difficulty</b>	705	4.2	4.3
<b>A lot of difficulty</b>	112	0.7	0.7
<b>Cannot do</b>	28	0.2	0.2
<b>Subtotal</b>	16409	98.0	100.0
<b>Refused/NA/DK</b>	328	2.0	
<b>Total</b>	16737	100.0	

# Cognition

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# 2010/11\* NHIS Questions:

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

Do you have difficulty remembering, concentrating, or both? \*

How often do you have difficulty remembering?  
(Frequency) \*

Do you have difficulty remembering a few things, a lot of things, or almost everything? (Intensity) \*

How much difficulty do you have concentrating for ten minutes?

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# 2010 NHIS Probe Questions:

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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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# Do you have difficulty remembering or concentrating? (NHIS 2010)

	<b>Frequency</b>	<b>Percent</b>	<b>Valid Percent</b>
<b>Not at all</b>	5152	19.0	76.0
<b>A little</b>	915	3.4	13.5
<b>A lot</b>	101	.4	1.5
<b>Completely</b>	3	.0	.0
<b>Refused/NA</b>	604	2.2	8.9
<b>/DK</b>			
<b>Total</b>	6775	24.9	100.0
<b>Missing</b>	20382	75.1	
<b>Total</b>	27157	100.0	

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

Count Row % Column % Total %	How much you have difficulty remembering (Intensity)				
	a few things	a lot of things	almost everything	Refused/NA/DK	Total
<b>How often have difficulty remembering (Frequency)</b>					
sometimes	<b>620</b> 93.2 86.4 66.1	<b>34</b> 5.1 27.9 3.6	<b>8</b> 1.2 14.5 .9	3	665 100.0 70.9
often	<b>89</b> 53.3 12.4 9.5	<b>66</b> 39.5 54.1 7.0	<b>12</b> 7.2 21.8 1.3	0	167 100.0 17.8
all of the time	<b>9</b> 13.6 1.3 1.0	<b>22</b> 33.3 18.0 2.3	<b>35</b> 53.0 63.6 3.7	0	66 100.0 7.0
Refused/NA/DK	0	0	0	40	32
Total	718 76.5 100.0 76.5	122 13.0 100.0 13.0	55 5.9 100.0 5.9	43 3.4 100.0 3.4	938 100.0 100.0

# Remembering gradient by Probes (NHIS 2010)

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- See handout
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# Remembering gradient *by* Short set question (NHIS 2010) (see Handout)

Count Row % Column % Total %	Remembering gradient				
	.00	1.00	2.00	3.00	Total
<b>Difficulty remembering or concentrating</b>					
<b>Not at all</b>	5152 100.0 100.0 85.2	0 0.0 0.0 0.0	0 0.0 0.0 0.0	0 0.0 0.0 0.0	5152 100.0 85.2
<b>A little</b>	0 0.0 0.0 0.0	610 76.4 98.4 10.1	106 13.3 86.2 1.8	82 10.3 53.9 1.4	798 100.0 13.2 13.2
<b>A lot</b>	0 0.0 0.0 0.0	10 10.6 1.6 .2	17 18.1 13.8 .3	67 71.3 44.1 1.1	94 100.0 1.6 1.6
<b>Completely</b>	0 0.0 0.0 0.0	0 0.0 0.0 0.0	0 0.0 0.0 0.0	3 100.0 2.0 .0	3 100.0 .0 .0
<b>Total</b>	5152 85.2 100.0 85.2	620 10.3 100.0 10.3	123 2.0 100.0 2.0	152 2.5 100.0 2.5	6047 100.0 100.0 100.0

# Pain



# 2010/11\* NHIS Questions:

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Do you have frequent pain?

In the past 3 months, how often did you have pain?

\*

Thinking about the last time you had pain, how long did the pain last? \*

Thinking about the last time you had pain, how much pain did you have? \*

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# 2010 NHIS Probe Questions:

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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 Intensity *by* Frequency of pain in past 3 months

Pain Intensity	Frequency of pain in past 3 months					
	Never	Some days	Most days	Every day	R/DK/NA	Total
not asked	2631	0	0	0	605	3236
a little	0	1442	133	112	4	1691
closer to a little	0	199	40	36	0	275
in the middle	0	303	118	143	0	564
closer to a lot	0	109	55	96	0	260
a lot	0	220	139	314	0	673
R/DK/NA	0	16	1	8	41	66
Total	2631	2289	486	709	650	6775

# Pain - Gradient

	Frequency	Percent	Valid Percent	Cumulative Percent
<b>1.00</b>	<b>4272</b>	15.7	<b>70.1</b>	70.1
<b>2.00</b>	<b>624</b>	2.3	<b>10.2</b>	80.4
<b>3.00</b>	<b>590</b>	2.2	<b>9.7</b>	90.1
<b>4.00</b>	<b>604</b>	2.2	<b>9.9</b>	100.0
Total	<b>6090</b>	22.4	<b>100.0</b>	
Missing	21067	77.6		
Total	27157	100.0		

# Pain Gradient *by* Probe Questions

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- See Handout

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# Fatigue

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# 2010/11 NHIS Questions:

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In the past 3 months, how often did you feel very tired or exhausted?

Thinking about the last time you felt very tired or exhausted, how long did it last?

Thinking about the last time you felt this way, how would you describe the level of tiredness?

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# 2010 NHIS Probe Questions:

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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?
-

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

Level of tiredness	How long it lasted	How often felt very tired					Total
		Never	Some days	Most days	Every day	refused	
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
closer to a little	Some of the day		252	20	4		276
	Most of the day		33	8	2		43
	All of the day		9	2	1		12
	Don't know		1	0	0		1
exactly in the middle	Some of the day		321	43	11	1	376
	Most of the day		98	35	10	0	143
	All of the day		37	11	9	0	57
closer to a lot	Some of the day		98	17	4		119
	Most of the day		49	29	7		85
	All of the day		16	6	6		28
a lot	Some of the day		247	49	29	0	325
	Most of the day		160	115	43	1	319
	All of the day		92	39	56	0	187
	Don't know		2	1	0	1	4
R/DK/NA			35	10	4	54	7
Total		2377	3023	478	224	57	6159

# Fatigue - Gradient

	Frequency	Percent	Valid Percent	Cumulative Percent
<b>1.00</b>	<b>4077</b>	15.0	<b>67.3</b>	67.3
<b>2.00</b>	<b>657</b>	2.4	<b>10.8</b>	78.1
<b>3.00</b>	<b>919</b>	3.4	<b>15.2</b>	93.3
<b>4.00</b>	<b>403</b>	1.5	<b>6.7</b>	100.0
Total	<b>6056</b>	22.3	<b>100.0</b>	
Missing	21101	77.7		
Total	27157	100.0		

# Fatigue – Gradient *by* Probes

N		Fatigue gradient				Total
PROBES	Column %	0.00	1.00	2.00	3.00	4.00
Too much work or exercise	(13)	844	327	427	114	1725
		49.6%	49.8%	46.5%	28.3%	
Not getting enough sleep	(15)	845	366	586	216	2028
		49.7%	55.7%	63.8%	53.6%	
<b>A physical or health-related problem</b>	(11)	344	232	372	270	<b>1229</b>
		<b>20.2%</b>	<b>35.3%</b>	<b>40.5%</b>	<b>67.0%</b>	
Tiredness result of <b>stress</b>	(3)	60	29	48	48	<b>188</b>
		<b>1.5%</b>	<b>4.4%</b>	<b>5.2%</b>	<b>11.9%</b>	
Tiredness because of other	(0)	20	7	11	2	40
		.5%	1.1%	1.2%	.5%	

# Anxiety

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# 2010/11 NHIS Questions:

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Frequency:

How often do you feel worried, nervous or anxious?

Do you take medication for these feelings?

Intensity:

Thinking about the last time you felt worried, nervous or anxious, how would you describe the level of these feelings?

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# 2010/11\* NHIS Probe Questions:

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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. \*
-



# 2010/11\* NHIS Probe Questions:

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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.
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# Challenges to combining the questions into a definition of anxiety

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- The frequency variable: it was related to other variables in a dose-response so how should we choose a cut-point?
  - Medication variable: what did taking medication for anxiety mean? Should everyone reporting medication use be considered anxious?
  - The intensity variable: should people who felt “a little” anxious be included in the anxious category?
-

# Frequency variable

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- Use *daily* and *weekly* because if *monthly* is included the prevalence becomes unrealistically high.
  - Prevalence for *daily* and *weekly* = 20.3%
-

# Intensity variable

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- Take out people who said they feel “a little” anxious
  - Prevalence for daily/weekly excluding a little = 11.8%
-

# Medication variable

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- Medication is an accommodation.  
(Prevalence of taking medication is 9.2%)
  - Add everyone who takes medication to the people who have anxiety daily or weekly, excluding "a little."
  - Prevalence = 16.6%
-

# Characteristics of persons with anxiety *by* various definitions

	Daily or weekly		Daily or weekly, excluding a little		Daily or weekly, excluding a little, plus medication users	
	N	1237	4886	712	5409	1002
	Yes	No	Yes	No	Yes	No
K6 score						
0	8.3	52.3	5.7	48.4	9.2	50.2
1-2	14.3	24.5	9.8	24.1	13.6	24.2
3-5	27.7	15.8	24.2	17.5	25.8	16.8
6-12	35.5	6.9	39.1	9.1	35.2	8.2
13+ (SPD)	14.2	0.5	21.1	0.9	16.2	0.7
Difficulty remembering or concentrating	36.9	11.0	42.9	12.7	40.5	11.5
Frequent pain	43.6	18.1	49.6	19.7	48.1	18.3

# Characteristics of persons with anxiety *by* various definitions

	Daily or weekly		Daily or weekly, excluding a little		Daily or weekly, excluding a little, plus medication users	
	N	1237	4886	712	5409	1002
	Yes	No	Yes	No	Yes	No
Difficulty relaxing at home	5.7	0.6	7.5	0.9	6.1	0.8
Difficulty participating in social activities	13.6	2.8	18.3	3.2	16.1	2.9
Bed days past yr						
0	50.9	67.7	46.4	66.7	46.5	67.8
1-7	32.8	27.1	33.6	27.6	35.0	26.9
8-14	4.6	2.0	4.8	2.3	4.7	2.2
15+	11.6	3.1	15.2	3.5	13.8	3.1

# Probe questions

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- Asked only of persons who reported daily, weekly or monthly anxiety or who reported taking medication for anxiety
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# Probe questions

	Daily or weekly		Daily or weekly, excluding a little		Daily or weekly, excluding a little, plus medication users	
	N	1237	4886	712	5409	1002
	Yes	No	Yes	No	Yes	No
Sometimes feelings so intense my chest hurts and have trouble breathing	18.5	6.3	25.4	7.3	21.1	6.4
Feelings interfere with life	59.2	28.1	72.0	33.4	65.4	28.7
Told by medical professional that I have anxiety	34.9	21.5	45.6	20.8	49.0	9.8
Positive feelings – help me accomplish goals & be productive	37.5	46.4	32.7	45.4	36.0	45.8

# Depression

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# 2010/11 NHIS Questions:

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Frequency:

How often do you feel depressed?

Do you take medication for depression?

Intensity:

Thinking about the last time you felt depressed, how depressed did you feel?

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# 2010/11\* NHIS Probe Questions:

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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. \*
-

# 2010/11\* NHIS Probe Questions:

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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.
-

# Challenges to combining the questions into a definition of depression

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- The frequency variable: it was related to other variables in a dose-response so how should we choose a cut-point?
  - Medication variable: what did taking medication for depression mean? Should everyone reporting medication use be considered depressed?
  - The intensity variable: should people who felt “a little” depressed be included in the depressed category?
-

# Frequency variable

---

- Use daily and weekly because if monthly is included the prevalence becomes unrealistically high.
  - Prevalence for daily and weekly = 9.2%
-

# Intensity variable

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- Take out people who said they feel “a little” depressed
  - Prevalence for daily/weekly excluding a little = 6.4%
-



# Medication variable

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- Medication is an accommodation.  
(Prevalence of taking medication is 8.5%)
  - Add everyone who takes medication to the people who have depression daily or weekly, excluding “a little.”
  - Prevalence = 11.6%
-

# Characteristics of persons with depression *by* various definitions

	Daily or weekly		Daily or weekly, excluding a little		Daily or weekly, excluding a little, plus medication users	
	N	607	5497	401	5710	732
	Yes	No	Yes	No	Yes	No
K6 score						
0	5.1	47.4	3.2	46.2	9.1	48.0
1-2	6.2	24.1	4.5	23.6	13.3	23.6
3-5	18.6	18.3	17.6	18.3	23.3	17.6
6-12	43.0	9.5	43.5	10.5	35.5	9.7
13+ (SPD)	27.1	0.8	31.2	1.3	18.8	1.2
Difficulty remembering or concentrating	45.8	13.3	49.6	14.0	44.5	12.7
Frequent pain	56.3	19.8	58.9	20.7	51.9	19.4

# Characteristics of persons with depression *by* various definitions

	Daily or weekly		Daily or weekly, excluding a little		Daily or weekly, excluding a little, plus medication users	
	N	607	5497	401	5710	732
	Yes	No	Yes	No	Yes	No
Difficulty relaxing at home	10.6	0.8	11.6	1.0	7.6	0.9
Difficulty participating in social activities	24.2	3.1	28.2	3.5	19.9	3.1
Bed days past yr						
0	42.3	66.6	41.7	65.9	41.9	67.3
1-7	32.6	27.8	31.4	28.0	34.9	27.3
8-14	6.8	2.2	7.8	2.2	6.0	2.1
15+	18.4	3.5	19.0	3.9	17.2	3.3

# Probe questions

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

# Probe questions

	Daily or weekly		Daily or weekly, excluding a little		Daily or weekly, excluding a little, plus medication users	
	N	607	5497	401	5710	732
	Yes	No	Yes	No	Yes	No
Sometimes feelings so intense I can't get out of bed	30.4	9.1	38.4	9.8	26.3	8.5
Feelings interfere with life	73.9	41.0	80.5	45.0	66.4	42.5
Told by medical professional that I have depression	60.3	41.4	67.0	41.9	72.1	17.4

# Mobility

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# 2010/11 NHIS Questions:

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Do you have any difficulty walking or climbing steps?

Do you use any equipment or receive help with walking, climbing steps, or moving around?

Do you use any of the following:

- Cane or walking stick?
  - Walker?
  - Crutches?
  - Wheelchair or scooter?
  - Prosthesis?
  - Someone's assistance?
  - Other type of equipment or help?
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# 2010/11 NHIS Questions:

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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]?

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]?

Do you have difficulty walking up or down 12 steps [without the use of your aid]?

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# 2010/11 NHIS Questions:

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Do you have difficulty walking 100 yards on level ground, that would be about the length of one football field or one city block when using your aid(s)?

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, when using your aid(s)?

Do you have difficulty walking up or down 12 steps, even when using your aid(s)?

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# Mobility analyses

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- See Handout
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