



## Analytic Guidelines: Creating Disability Identifiers Using the Washington Group Short Set on Functioning - Enhanced (WG-SS Enhanced) CSPRO Syntax

### Introduction

The CSPRO syntax for the WG Short Set on Functioning - Enhanced (WG-SS Enhanced) is extracted from the syntax developed for the WG Extended Set on Functioning (WG-ES).

Disability identification for the WG-SS Enhanced is based on a level of inclusion that is at least one domain/question is coded A LOT OF DIFFICULTY or CANNOT DO AT ALL – or – for the domains Anxiety or Depression, the highest level of difficulty on a four-point scale.

The WG-SS Enhanced comprises the WG-SS PLUS Upper body functioning, Anxiety and Depression: a total of 12 questions over 8 domains of functioning.

**NOTE:** For data analysis, use your standard weighting and estimation techniques.

The CSPRO syntax is based on the *variable labels* indicated in the table below. The complete WG-SS Enhanced module includes more questions than appear in this table. Disability status is determined through difficulty in the basic, universal activities *without* the use of assistive technology or other assistance. Questions on the use of medication for symptoms of anxiety or depression are not included among the analytic variables considered for the syntax.

Only those questions/variables below are used in the determination of disability identifiers.

**Ensure that you use the same *variable labels* OR revise the CSPRO syntax to reflect the *variable labels* in your database.**

The WG-SS is administered as part of the U.S. National Health Interview Survey (NHIS). The data used to prepare these guidelines come from the 2013 NHIS.

The **Washington Group Implementation Documents** cover the tools developed by the Washington Group on Disability Statistics (WG) to collect internationally comparable disability data on censuses and surveys. The documents address best practices in implementing the Short Set, Extended Set, Short Set – Enhanced, the WG / UNICEF Child Functioning Modules for children 2-4 and 5-17 years of age, and the WG / ILO LFS Disability Module, as well as other WG tools. Topics include translation, question specifications, analytic guidelines, programming code for analyses, the use of the tools for the purposes of disaggregation, and more.

To locate other WG Implementation Documents and more information, visit the Washington Group website:  
<http://www.washingtongroup-disability.com/>.

*Note to users of the U.S. NHIS: the variable names in the NHIS data file and documentation may differ from those used in this document; e.g., the self-care domain variable referenced as SC-SS in this document is referred to as UB\_SS in the NHIS data file and documentation.*

WG Extended Set Questions	Variable Label	Response Pattern
<b>VISION</b>		
<b>1. Do you have difficulty seeing even if wearing glasses?</b>	VIS_SS	1
<b>COMMUNICATION</b>		
<b>2. Using your usual language, do you have difficulty communicating (for example understanding or being understood by others)?</b>	COM_SS	1
<b>HEARING</b>		
<b>3. Do you have difficulty hearing even if using a hearing aid?</b>	HEAR_SS	1
<b>COGNITION</b>		
<b>4. Do you have difficulty remembering or concentrating?</b>	COG_SS	1
<b>SELF-CARE</b>		
<b>5. Do you have difficulty with (self-care such as) washing all over or dressing?</b>	SC_SS	1
<b>UPPER BODY</b>		
<b>6. Difficulty raising 2 liter bottle of water from waist to eye level?</b>	UB_1	1
<b>7. Degree of difficulty using hands and fingers</b>	UB_2	1
<b>MOBILITY</b>		
<b>8. Do you have difficulty walking or climbing stairs?</b>	MOB_SS	1
<b>AFFECT (ANXIETY)</b>		
<b>9. How often feel worried, nervous, or anxious?</b>	ANX_1	2
<b>10. Level of feelings when last felt worried, nervous, or anxious?</b>	ANX_3	3
<b>AFFECT (DEPRESSION)</b>		
<b>11. How often do you feel depressed?</b>	DEP_1	2
<b>12. How depressed you felt last time you were depressed?</b>	DEP_3	3

**NOTE:** **Red** refers to the Washington Group Short Set (**WG-SS**).  
**Green** refers to the Washington Group Extended Set (**WG-ES**).  
**Red** plus **Green** questions are included in the Washington Group Short Set – Enhanced (**WG-SS Enhanced**).

**Response patterns:**

	<b>Pattern 1</b>	<b>Pattern 2</b>	<b>Pattern 3*</b>
1	No difficulty	Daily	A little
2	Yes, Some difficulty	Weekly	A lot
3	Yes, A lot of difficulty	Monthly	Somewhere in between a little and a lot
4	Cannot do at all	A few times a year	
5		Never	
7	Refused	Refused	
8	Not ascertained	Not ascertained	
9	Don't know	Don't know	

**\* IN THE SYNTAX BELOW, NOTE THAT ITEMS WITH RESPONSE PATTERN 6 (ANX\_3 AND DEP\_3) ARE RECODED TO PLACE “SOMEWHERE BETWEEN” NUMERICALLY IN-BETWEEN “A LITTLE” AND “A LOT”.**

The CSPRO syntax presented below includes a couple of elements that were particular to the content of the WG-SS Enhanced.

First, it was important to determine single domain-specific identifiers for those domains of functioning that included multiple questions (upper body functioning, anxiety and depression). For example, upper body functioning includes two questions, each eliciting specific and unique actions: difficulty raising a bottle of water from waist to eye level (arms/shoulders), and difficulty using hands and fingers. Those two questions were analyzed and combined to produce a single upper body indicator with four levels of difficulty ranging from 1 - low difficulty to 4 - high difficulty – not unlike the categorical responses to the single WG-SS questions: no difficulty, some difficulty, a lot of difficulty and cannot do at all. As with the upper body domain, other WG-SS Enhanced domains anxiety and depression have different response patterns that do not readily ‘translate’ into the usual WG response pattern. For these domains of functioning, a similar 4-scale response pattern was produced and annotated as level 1 through 4, where 1 is the lowest level of difficulty and 4 is the highest.

Second, individual domain indicators were assessed to determine the appropriate cut-off for inclusion into an overall disability identifier – for the purposes of estimating prevalence and disaggregating outcome indicators by disability status.

**NOTE:**

For all variables, codes (7) *Refused*, (8) *Not Ascertained*, and (9) *Don't know*, are recoded to **Missing**.

## CSPRO WG-SS Enhanced Syntax Annotated with Output Tables

Actual CSPRO syntax is indented and are in **Bold text**.

NOTE: For data analysis, use your standard weighting and estimation techniques.

NOTE: Frequency distributions are generated using the "Tabulate Frequencies" option in CSPro ([https://www.csprousers.org/help/CSFreq/introduction\\_to\\_tabulate\\_frequencies.html](https://www.csprousers.org/help/CSFreq/introduction_to_tabulate_frequencies.html))

This will be noted in the syntax below with: **Tabulate Frequencies**.

NOTE: : Cross tabulations are generated using the "Create a Tabulation Application " option in CSPro ([https://www.csprousers.org/help/GetStart/exercise\\_05\\_01\\_create\\_a\\_tabulation\\_application.html](https://www.csprousers.org/help/GetStart/exercise_05_01_create_a_tabulation_application.html) )

This will be noted in the syntax below with: **Cross Tabulations**.

*Step 1: Generate frequency distributions on each of the six domain variables.*

VIS\_SS is the WG-SS **Vision** question.

```
PROC VISION  
IF VIS_SS IN 1, 2, 3, 4 THEN Vision=VIS_SS;  
ELSEIF VIS_SS IN 7, 8, 9 THEN Vision=NotAppl;  
ENDIF;
```

**Tabulate Frequencies.**

### **Vision: Degree of difficulty seeing**

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	No difficulty	13690	79.0	81.6	81.6
	Some difficulty	2708	15.6	16.2	97.8
	<b>A lot of difficulty</b>	<b>333</b>	<b>1.9</b>	<b>2.0</b>	<b>99.8</b>
	<b>Cannot do at all</b>	<b>36</b>	<b>.2</b>	<b>.2</b>	<b>100.0</b>
	Total	16767	96.8	100.0	
Missing	559	3.2			
Total	17326	100.0			

HEAR\_SS is the WG-SS **Hearing** question.

```
PROC HEARING  
IF HEAR_SS IN 1, 2, 3, 4 THEN Hearing =HEAR_SS;  
ELSEIF HEAR_SS IN 7, 8, 9 THEN Hearing = NotAppl;  
ENDIF;
```

**Tabulate Frequencies.**

**Hearing: Degree of difficulty hearing**

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	No difficulty	13680	79.0	81.6	81.6
	Some difficulty	2753	15.9	16.4	98.0
	<b>A lot of difficulty</b>	<b>310</b>	<b>1.8</b>	<b>1.8</b>	<b>99.9</b>
	<b>Cannot do at all</b>	<b>23</b>	<b>.1</b>	<b>.1</b>	<b>100.0</b>
	Total	16766	96.8	100.0	
Missing		560	3.2		
Total		17326	100.0		

MOB\_SS is the WG-SS **Mobility** question.

**PROC MOBILITY**

**If MOB\_SS in 1, 2, 3, 4 then** Mobility=MOB\_SS;

**Elseif MOB\_SS in 7, 8, 9 then** Mobility= **NotAppl**;

**Endif**;

**Tabulate Frequencies.**

**Mobility: Degree of difficulty walking or climbing steps**

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	No difficulty	13424	77.5	80.1	80.1
	Some difficulty	2165	12.5	12.9	93.0
	<b>A lot of difficulty</b>	<b>792</b>	<b>4.6</b>	<b>4.7</b>	<b>97.7</b>
	<b>Cannot do at all</b>	<b>380</b>	<b>2.2</b>	<b>2.3</b>	<b>100.0</b>
	Total	16761	96.7	100.0	
Missing		565	3.3		
Total		17326	100.0		

COM\_SS is the WG-SS **Communication** question.

**PROC COMMUNICATION**

**If COM\_SS in 1, 2, 3,4 then** Communication =COM\_SS;

**Elseif COM\_SS in 7, 8, 9 then** Communication = **NotAppl**;

**Endif**;

**Tabulate Frequencies.**

**Communication: Degree of difficulty communicating using usual language**

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	No difficulty	15874	91.6	94.7	94.7
	Some difficulty	745	4.3	4.4	99.2
	<b>A lot of difficulty</b>	<b>94</b>	<b>.5</b>	<b>.6</b>	<b>99.7</b>
	<b>Cannot do at all</b>	<b>43</b>	<b>.2</b>	<b>.3</b>	<b>100.0</b>
	Total	16756	96.7	100.0	
Missing		570	3.3		
Total		17326	100.0		

SC\_SS is the WG-SS **Self-care** question.

```
PROC Self_Care
If SC_SS in 1, 2, 3, 4 then Self_Care=SC_SS;
Elseif SC_SS in 7, 8, 9 then Self_Care= NotAppl;
EndIf;
```

**Tabulate Frequencies.**

**Self\_Care: Degree of difficulty with self-care**

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	No difficulty	16029	92.5	95.7	95.7
	Some difficulty	544	3.1	3.2	98.9
	<b>A lot of difficulty</b>	<b>114</b>	<b>.7</b>	<b>.7</b>	<b>99.6</b>
	<b>Cannot do at all</b>	<b>68</b>	<b>.4</b>	<b>.4</b>	<b>100.0</b>
	Total	16755	96.7	100.0	
Missing		571	3.3		
Total		17326	100.0		

COG\_SS is the WG-SS **Cognition** question.

```
PROC COGNITION
If COG_SS in 1, 2, 3, 4 then COGNITION =COG_SS;
Elseif COG_SS in 7, 8, 9 then COGNITION = NotAppl;
EndIf;
```

**Tabulate Frequencies.**

**Cognition: Degree of difficulty remembering or concentrating**

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	No difficulty	13719	79.2	81.9	81.9
	Some difficulty	2632	15.2	15.7	97.6
	<b>A lot of difficulty</b>	<b>382</b>	<b>2.2</b>	<b>2.3</b>	<b>99.9</b>
	<b>Cannot do at all</b>	<b>20</b>	<b>.1</b>	<b>.1</b>	<b>100.0</b>
	Total	16753	96.7	100.0	
Missing		573	3.3		
Total		17326	100.0		

**UPPER BODY**

Step 2. Generate frequency distributions and cross-tabulations for Upper body domain questions and determine the Upper Body Indicator.

UB\_1 is Difficulty raising 2 liter bottle of water from waist to eye level.

UB\_2 is Difficulty using hands and fingers

First, calculate frequency distributions on the two extended set questions.

**If** UB\_1 **in** 1, 2, 3, 4 **then** UB\_1\_R=UB\_1;  
**Elseif** UB\_1 **in** 7, 8, 9 **then** UB\_1\_R= **NotAppl**;  
**EndIf**;

**Tabulate Frequencies.**

**If** UB\_2 **in** 1, 2, 3, 4 **then** UB\_2\_R=UB\_2;  
**Elseif** UB\_2 **in** 7, 8, 9 **then** UB\_2\_R= **NotAppl**;  
**EndIf**;

**Tabulate Frequencies.**

**UB\_1\_R: Diff raising 2 liter bottle of water from waist to eye level**

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	No difficulty	15677	90.5	93.6	93.6
	Some difficulty	743	4.3	4.4	98.0
	A lot of difficulty	167	1.0	1.0	99.0
	Cannot do at all	166	1.0	1.0	100.0
	Total	16753	96.7	100.0	
Missing		573	3.3		
Total		17326	100.0		

### UB\_2\_R: Degree of difficulty using hands and fingers

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	No difficulty	15199	87.7	90.7	90.7
	Some difficulty	1229	7.1	7.3	98.1
	A lot of difficulty	255	1.5	1.5	99.6
	Cannot do at all	70	.4	.4	100.0
	Total	16753	96.7	100.0	
Missing		573	3.3		
Total		17326	100.0		

Step 3. Generate a cross-tabulation of the two Upper body Extended Set questions: UB\_2\_R and UB\_1\_R.

The syntax below produces a cross-tabulation of the two Extended Set questions: UB\_1\_R: *Difficulty raising a 2 liter bottle of water from waste to eye level* UB\_2\_R: *Difficulty using hands and fingers* to determine a single UPPER BODY INDICATOR (UB\_INDICATOR).

#### Cross Tabulations.

		UB_1_R: Diff raising 2 liter bottle of water from waist to eye level				Total
		No difficulty	Some difficulty	A lot of difficulty	Cannot do at all	
UB_2_R: Difficulty using hands and fingers	Degree of difficulty	14786	309	58	44	15197
	using hands and fingers	782	355	51	40	1228
		98	73	51	33	255
		9	5	7	49	70
Total		15675	742	167	166	16750

Step 4. Create an UPPER BODY INDICATOR (UB\_INDICATOR) based on the two additional upper body questions UB\_2\_R and UB\_3\_R.

Syntax below creates UB\_INDICATOR based on the distribution in the cross-tabulation above.

```

PROC UB_INDICATOR
if UB_1_R = 4 or UB_2_R = 4 then UB_INDICATOR = 4;
elseif UB_INDICATOR <> 4 and (UB_1_R = 3 or UB_2_R = 3) then UB_INDICATOR = 3;
elseif UB_INDICATOR <> 4 and UB_INDICATOR <> 3 and (UB_1_R = 2 or UB_2_R = 2)
then UB_INDICATOR = 2;
elseif UB_INDICATOR <> 4 and UB_INDICATOR <> 3 and UB_INDICATOR <> 2 and
(UB_1_R = 1 or UB_2_R = 1) then UB_INDICATOR = 1;
endif;

```



## Tabulate Frequencies.

		UB_INDICATOR			
		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	1.00	14790	85.4	88.3	88.3
	2.00	1448	8.4	8.6	96.9
	3.00	331	1.9	2.0	98.9
	4.00	187	1.1	1.1	100.0
	Total	16756	96.7	100.0	
Missing		570	3.3		
Total		17326	100.0		

## ANXIETY

Step 5. Generate frequency distribution on ANX\_1.

First, calculate frequency distributions on ANX\_1: *How often do you feel worried, nervous or anxious?*

**if** ANX\_1 **in** 1, 2, 3, 4 **then** ANX\_1\_R = ANX\_1;  
**elseif** ANX\_1 **in** 7, 8, 9 **then** ANX\_1\_R=NotAppl;  
**endif**;

## Tabulate Frequencies.

		ANX_1_R: How often feel worried, nervous, or anxious?			
		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Daily	1632	9.4	9.8	9.8
	Weekly	1872	10.8	11.2	21.0
	Monthly	1558	9.0	9.3	30.4
	A few times a year	4898	28.3	29.4	59.7
	Never	6714	38.8	40.3	100.0
	Total	16674	96.2	100.0	
Missing		652	3.8		
Total		17326	100.0		

Step 6. The syntax below recodes ANX\_3 into ANX\_3Y

1) to create a NOT ASKED category based on those who responded NEVER to ANX\_1\_R and

2) to place "SOMEWHERE BETWEEN" numerically in-between "A LITTLE" and "A LOT".

**if** ANX\_3R = 1 **then** ANX\_3Y = 1;  
**elseif** ANX\_3R = 2 **then** ANX\_3Y = 3;  
**elseif** ANX\_3R = 3 **then** ANX\_3Y = 2;  
**elseif** ANX\_3R **in** 7, 8, 9 **then** ANX\_3Y = NotAppl;  
**endif**;

Recode ANX\_3Y to 0 (not asked) If ANX\_1 is 5 (Never).

```
if ANX_1 =5 then ANX_3Y=0;
endif;
```

### Tabulate Frequencies.

#### ANX\_3Y: Level of feelings last time felt worried/nervous/anxious

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Not asked	6714	38.8	40.3	40.3
	A little	5700	32.9	34.2	74.5
	In between a little and a lot	3076	17.8	18.5	92.9
	A lot	1176	6.8	7.1	100.0
	Total	16666	96.2	100.0	
Missing		660	3.8		
Total		17326	100.0		

Step 7. Generate a cross-tabulation of the anxiety Extended Set questions: ANX\_1\_R and ANX\_3Y.

The syntax below produces a cross-tabulation of ANX\_1\_R: *How often you felt worried, nervous or anxious* (a measure of frequency) and ANX\_3Y: *The level of those feeling the last time you felt worried, nervous or anxious* (a measure of intensity) – used to determine a single ANXIETY INDICATOR (ANX\_INDICATOR).

### Cross Tabulations.

ANX_3Y: Level of feelings last time felt worried, nervous or anxious	ANX_1_R: How often feel worried, nervous or anxious?					
	Daily	Weekly	Monthly	A Few Times A Year	Never	Total
Not asked	0	0	0	0	6714	6714
A little	489	887	897	3417	0	5690
In between a little and a lot	589	725	535	1221	0	3070
A lot	548	256	123	248	0	1175
Total	1626	1868	1555	4886	6714	16649

Step 8. Create an ANXIETY INDICATOR (ANX\_INDICATOR) based on the two anxiety questions ANX\_1\_R and ANX\_3Y.

Syntax below creates ANX\_INDICATOR based on the distribution in the cross-tabulation above.

```
PROC ANX_INDICATOR
if ANX_1_R = NotAppl or ANX_3Y = NotAppl then ANX_INDICATOR = NotAppl;
```

```

elseif (ANX_3Y <= 4 and (ANX_1_R = 4 or ANX_1_R = 5)) then ANX_INDICATOR=1;
elseif ((ANX_1_R = 3) or (ANX_1_R < 3 and ANX_3Y=1) or (ANX_1_R = 2 and ANX_3Y =
2)) then ANX_INDICATOR = 2;
elseif ((ANX_1_R = 1 and ANX_3Y = 2) or (ANX_1_R = 2 and ANX_3Y = 3)) then
ANX_INDICATOR = 3;
elseif (ANX_1_R = 1 and ANX_3Y = 3) then ANX_INDICATOR = 4;
endif;

```

**Tabulate Frequencies.**

		ANX_INDICATOR			
		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	1.00	11600	67.0	69.7	69.7
	2.00	3656	21.1	22.0	91.6
	3.00	845	4.9	5.1	96.7
	4.00	548	3.2	3.3	100.0
	Total	16649	96.1	100.0	
Missing		677	3.9		
Total		17326	100.0		

**DEPRESSION**

Step 9. Generate frequency distribution on DEP\_1.

First, calculate frequency distributions on DEP\_1: *How often do you feel depressed?*

**PROC DEP\_1\_R**

```

if DEP_1 in 1, 2, 3, 4, 5 then DEP_1_R = DEP_1;
elseif DEP_1 in 7, 8, 9 then DEP_1_R = NotAppl;
else DEP_1_R = NotAppl;
endif;

```

**Tabulate Frequencies.**

**DEP\_1\_R: How often do you feel depressed?**

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Daily	756	4.4	4.5	4.5
	Weekly	926	5.3	5.6	10.1
	Monthly	1038	6.0	6.2	16.3
	A few times a year	4012	23.2	24.1	40.4
	Never	9929	57.3	59.6	100.0
	Total	16661	96.2	100.0	
Missing		665	3.8		
Total		17326	100.0		

Step 10. The syntax below recodes DEP\_3 into DEP\_3Y to place “SOMEWHERE BETWEEN” numerically in-between “A LITTLE” and “A LOT”. It also creates the category NOT ASKED, if DEP\_1 is NEVER (1)

```
PROC DEP_3Y
if DEP_3R = 1 then DEP_3Y = 1;
elseif DEP_3R = 2 then DEP_3Y = 3;
elseif DEP_3R = 3 then DEP_3Y = 2;
elseif DEP_3R in 7, 8, 9 then DEP_3Y = NotAppl;
endif;
if DEP_1 =5 then DEP_3Y=0;
endif;
```

**Tabulate Frequencies.**

**DEP\_3Y: Level of feelings last time felt depressed**

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Not asked	9929	57.3	59.6	59.6
	A little	3775	21.8	22.7	82.3
	In between a little and a lot	2016	11.6	12.1	94.4
	A lot	935	5.4	5.6	100.0
	Total	16655	96.1	100.0	
Missing		671	3.9		
Total		17326	100.0		

Step 11. Generate a cross-tabulation of the depression Extended Set questions: DEP\_1\_R and DEP\_3Y.

The syntax below produces a cross-tabulation of DEP\_1\_R: *How often do you feel depressed* (a measure of frequency) and DEP\_3Y: *The level of those feeling the last time you felt depressed* (a measure of intensity) – used to determine a single DEPRESSION INDICATOR (DEP\_INDICATOR).

**Cross Tabulations.**

DEP_3Y: Level of feelings last time felt depressed	DEP_1_R: How often do you feel depressed?					Total
	Daily	Weekly	Monthly	A Few Times A Year	Never	
Not asked	0	0	0	0	9929	9929
A little	161	346	548	2708	0	3763
In between a little and a lot	209	384	378	1042	0	2013
A lot	381	191	112	248	0	932
Total	751	921	1038	3998	9929	16637

Step 12. Create a DEPRESSION INDICATOR (DEP\_INDICATOR) based on the two depression questions DEP\_1\_R and DEP\_3Y.

Syntax below creates DEP\_INDICATOR based on the distribution in the cross-tabulation above.

```
PROC DEP_INDICATOR
if DEP_1_R = NotAppl or DEP_3Y = NotAppl then DEP_INDICATOR = NotAppl;
elseif (DEP_3Y <= 4 and (DEP_1_R = 4 or DEP_1_R = 5)) then DEP_INDICATOR = 1;
elseif ((DEP_1_R = 3) or (DEP_1_R < 3 and DEP_3Y=1) or (DEP_1 = 2 and DEP_3Y = 2)) then
DEP_INDICATOR = 2;
elseif ((DEP_1_R=1 and DEP_3Y=2) or (DEP_1_R=2 and DEP_3Y=3)) then DEP_INDICATOR = 3;
elseif (DEP_1_R = 1 and DEP_3Y = 3) then DEP_INDICATOR = 4;
endif;
```

**Tabulate Frequencies.**

		DEP_INDICATOR			
		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	1.00	13927	80.4	83.7	83.7
	2.00	1929	11.1	11.6	95.3
	3.00	400	2.3	2.4	97.7
	4.00	381	2.2	2.3	100.0
	Total	16637	96.0	100.0	
Missing		689	4.0		
Total		17326	100.0		

## Creating Disability Status Indicator for the WG-SS Enhanced

**WG-SS Enhanced:** WG-SS + Upper Body-indicator + Anxiety (level 4) + Depression (level 4)

The syntax below calculates the WG Short Set ENHANCED Disability Indicator (SS\_E) based on the 12 questions at the recommended cut-off. The level of inclusion is: at least 1 domain/question is coded A LOT OF DIFFICULTY or CANNOT DO AT ALL for the six short set question; severity levels 3 or 4 for the Upper body-Indicators; and severity level 4 for Anxiety- and Depression-Indicators.

```
PROC SS_E
IF VISION = NotAppl and HEARING = NotAppl and MOBILITY = NotAppl and
COMMUNICATION = NotAppl and SELF_CARE = NotAppl and COGNITION = NotAppl
and UB_INDICATOR = NotAppl and ANX_INDICATOR = NotAppl and DEP_INDICATOR
= NotAppl then SS_E = NotAppl;
elseif VISION in 3, 4 or HEARING in 3, 4 or MOBILITY in 3, 4 or COMMUNICATION in
3, 4 or SELF_CARE in 3, 4 or COGNITION in 3, 4 or UB_INDICATOR in 3, 4 or
ANX_INDICATOR = 4 or DEP_INDICATOR = 4 then SS_E = 1;
else SS_E = 2;
endif;
```

**Tabulate Frequencies.**

**SS\_E: WG-SS Enhanced Disability Indicator based on 8 domains and 12 questions**

		Frequency	Percent	Valid Percent	Weighted Estimate
Valid	WITHOUT DISABILITY	14393	83.1	85.8	87.7
	WITH DISABILITY	2384	13.8	14.2	12.3
	Total	16777	96.9	100.0	
Missing		549	3.2		
Total		17326	100.1		

## APPENDIX

### CSPRO Code Used with the 2013 NHIS Data File

#### PROC GLOBAL

#### PROC NIHS2013\_FUNCTIONING\_AND\_DISABILITY\_ENHANCEDSET\_FF

// \*The syntax below produces frequency distributions on each the six domains. Codes 7 (REFUSED), 8 (NOT ASCERTAINED) and 9 (DON'T KNOW) are INCLUDED as MISSING.;

// \*Vision;

\*\*\*\*\*;

// \*Generate frequency distribution for each domain question. Convert 7,8,9 to missing;

#### PROC VISION

If VIS\_SS in 1, 2, 3, 4 then Vision=VIS\_SS;

Elseif VIS\_SS in 7, 8, 9 then Vision=NotAppl;

Endif;

\*\*\*\*\*;

#### PROC HEARING

If HEAR\_SS in 1, 2, 3, 4 then Hearing =HEAR\_SS;

Elseif HEAR\_SS in 7, 8, 9 then Hearing = NotAppl;

Endif;

\*\*\*\*\*;

#### PROC MOBILITY

if MOB\_SS2 in 1, 2, 3, 4 then MOBILITY = MOB\_SS2;

elseif MOB\_SS2 in 7,8,9 then MOBILITY = NotAppl;

endif;

\*\*\*\*\*;

#### PROC COMMUNICATION

If COM\_SS in 1, 2, 3,4 then Communication =COM\_SS;

Elseif COM\_SS in 7, 8, 9 then Communication = NotAppl;

Endif;

\*\*\*\*\*;

#### PROC SELF\_CARE

if UB\_SS in 1, 2, 3, 4 then SELF\_CARE= UB\_SS;

elseif UB\_SS in 7,8,9 then SELF\_CARE=NotAppl;

endif;

\*\*\*\*\*;

#### PROC COGNITION

if COG\_SS in 1, 2, 3, 4 then COGNITION = COG\_SS;

elseif COG\_SS in 7, 8, 9 then COGNITION = NotAppl;

endif;

//UPPER BODY;

//Step 2. Generate frequency distributions and cross-tabulations for Upper body domain questions  
//and determine the Upper Body Indicator.  
//UB\_1 is Difficulty raising 2 liter bottle of water from waist to eye level.;  
//UB\_2 is Difficulty using hands and fingers;

```
PROC UB_1_R
  if UB_1 in 1, 2, 3, 4 then UB_1_R = UB_1;
  elseif UB_1 in 7,8,9 then UB_1_R=NotAppl;
endif;
```

```
PROC UB_2_R
  if UB_2 in 1, 2, 3, 4 then UB_2_R = UB_2;
  elseif UB_2 in 7,8,9 then UB_2_R=NotAppl;
endif;
```

//Step 3. Generate a cross-tabulation of the two Upper body Extended Set questions: UB\_2\_R and UB\_1\_R.;  
//Step 4. Create an UPPER BODY INDICATOR (UB\_INDICATOR) based on the two additional upper body;  
// questions UB\_2\_R and UB\_3\_R.

```
PROC UB_INDICATOR
  if UB_1_R = 4 or UB_2_R = 4 then UB_INDICATOR = 4;
  elseif UB_INDICATOR <> 4 and (UB_1_R = 3 or UB_2_R = 3) then UB_INDICATOR = 3;
  elseif UB_INDICATOR <> 4 and UB_INDICATOR <> 3 and (UB_1_R = 2 or UB_2_R = 2)
  then UB_INDICATOR = 2;
  elseif UB_INDICATOR <> 4 and UB_INDICATOR <> 3 and UB_INDICATOR <> 2 and
  (UB_1_R = 1 or UB_2_R = 1) then UB_INDICATOR = 1;
endif;
```

//ANXIETY;

//Step 5. Generate frequency distribution on ANX\_1;  
//First, calculate frequency distributions on ANX\_1: How often do you feel worried, nervous or anxious?;

```
PROC ANX_1_R
  if ANX_1 in 1, 2, 3, 4 then ANX_1_R = ANX_1;
  elseif ANX_1 in 7,8,9 then ANX_1_R=NotAppl;
endif;
```

//Step 6. The syntax below recodes ANX\_3 into ANX\_3Y;  
//1) to create a NOT ASKED category based on those who responded NEVER to ANX\_1\_R and;  
//2) to place “SOMEWHERE BETWEEN” numerically in-between “A LITTLE” and “A LOT”;

```
PROC ANX_3Y
  if ANX_3R =1 then ANX_3Y = 1;
  elseif ANX_3R = 2 then ANX_3Y = 3;
  elseif ANX_3R = 3 then ANX_3Y = 2;
  elseif ANX_3R in 7,8,9 then ANX_3Y = NotAppl;
endif;
```

//\*Recode ANX\_3Y to 0 (not asked) if ANX\_1 is 5 (Never).;  
 if ANX\_1 =5 then ANX\_3Y=0;



```

    endif;
//Step 7. Generate a cross-tabulation of the anxiety Extended Set questions: ANX_1_R and
ANX_3Y.;

//Step 8. Create an ANXIETY INDICATOR (ANX_INDICATOR) based on the two anxiety
questions;
// ANX_1_R and ANX_3Y.;
//Syntax below creates ANX_INDICATOR based on the distribution in the cross-tabulation
above.;
PROC ANX_INDICATOR
    if ANX_1_R = NotAppl or ANX_3Y = NotAppl then ANX_INDICATOR = NotAppl;
    elseif (ANX_3Y <= 4 and (ANX_1_R = 4 or ANX_1_R = 5)) then ANX_INDICATOR=1;
    elseif ((ANX_1_R = 3) or (ANX_1_R < 3 and ANX_3Y=1) or (ANX_1_R = 2 and ANX_3Y =
2)) then ANX_INDICATOR = 2;
    elseif ((ANX_1_R = 1 and ANX_3Y = 2) or (ANX_1_R = 2 and ANX_3Y = 3)) then
ANX_INDICATOR = 3;
    elseif ( ANX_1_R = 1 and ANX_3Y = 3) then ANX_INDICATOR = 4;
    endif;
//Step 9.Generate frequency distribution on DEP_1;
//First, calculate frequency distributions on DEP_1: How often do you feel depressed?;
PROC DEP_1_R
    if DEP_1 in 1, 2, 3, 4, 5 then DEP_1_R = DEP_1;
    elseif DEP_1 in 7,8,9 then DEP_1_R = NotAppl;
    else DEP_1_R = NotAppl;
    endif;
//Step 10. The syntax below recodes DEP_3 into DEP_3Y to place “SOMEWHERE BETWEEN”
//numerically in-between “A LITTLE” and “A LOT”. It also creates the category NOT ASKED, if
//DEP_1 is NEVER (1);
PROC DEP_3Y
    if DEP_3R = 1 then DEP_3Y = 1;
    elseif DEP_3R = 2 then DEP_3Y = 3;
    elseif DEP_3R = 3 then DEP_3Y = 2;
    elseif DEP_3R in 7,8,9 then DEP_3Y = NotAppl;
    endif;

//*Recode DEP_3Y to 0 (not asked) if DEP_1 is 5 (Never).;
    if DEP_1 =5 then DEP_3Y=0;
    endif;
//Step 11. Generate a cross-tabulation of the depression Extended Set questions: DEP_1_R and
DEP_3Y.
//The syntax below produces a cross-tabulation of DEP_1_R: How often do you feel depressed (a
//measure of frequency) and DEP_3Y: The level of those feeling the last time you felt depressed (a
//measure of intensity) – used to determine a single DEPRESSION INDICATOR
(DEP_INDICATOR).

//Step 12. Create a DEPRESSION INDICATOR (DEP_INDICATOR) based on the two depression
//questions DEP_1_R and DEP_3Y.

```

*//Syntax below creates DEP\_INDICATOR based on the distribution in the cross-tabulation above.*

**PROC** DEP\_INDICATOR

```
if DEP_1_R = NotAppl or DEP_3Y = NotAppl then DEP_INDICATOR = NotAppl;  
elseif (DEP_3Y <= 4 and (DEP_1_R = 4 or DEP_1_R = 5)) then DEP_INDICATOR = 1;  
elseif ((DEP_1_R = 3) or (DEP_1_R < 3 and DEP_3Y=1) or (DEP_1 = 2 and DEP_3Y = 2))  
then DEP_INDICATOR = 2;  
elseif ((DEP_1_R = 1 and DEP_3Y = 2) or (DEP_1_R = 2 and DEP_3Y = 3)) then  
DEP_INDICATOR = 3;  
elseif (DEP_1_R = 1 and DEP_3Y = 3) then DEP_INDICATOR = 4;  
endif;
```

*//WG-SS Enhanced: WG-SS + Upper Body-indicator + Anxiety (level 4) + Depression (level 4);*

*//The syntax below calculates the WG Short Set ENHANCED Disability Indicator (SS\_E) based on;*

*//the 12 questions at the recommended cut-off. The level of inclusion is: at least 1 domain/question*

*//is coded A LOT OF DIFFICULTY or CANNOT DO AT ALL for the six short set question; severity levels 3*

*//or 4 for the Upper body-Indicators; and severity level 4 for Anxiety- and Depression-Indicators.*

**PROC** SS\_E

```
IF VISION = NotAppl and HEARING = NotAppl and MOBILITY = NotAppl and  
COMMUNICATION = NotAppl and SELF_CARE = NotAppl and COGNITION = NotAppl  
and UB_INDICATOR = NotAppl and ANX_INDICATOR = NotAppl and DEP_INDICATOR  
= NotAppl then SS_E = NotAppl;  
elseif VISION in 3, 4 or HEARING in 3, 4 or MOBILITY in 3, 4 or COMMUNICATION in  
3, 4 or SELF_CARE in 3, 4 or COGNITION in 3, 4 or UB_INDICATOR in 3, 4 or  
ANX_INDICATOR = 4 or DEP_INDICATOR = 4 then SS_E = 1;  
else SS_E = 2;  
endif;
```