

# NIH Toolbox



## Technical Manual

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# **NIH Toolbox Technical Manual**

**Domain:**

**EMOTION**

**Subdomain:**

**PSYCHOLOGICAL WELL-BEING**

**Subdomain Component:**

**POSITIVE AFFECT**

**Measure:**

**NIH Toolbox Positive Affect Survey**

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This Technical Manual contains the following informational sections:

**Section 1: Introduction to NIH Toolbox**

**Section 2: Validation**

**Section 3: Norming**

**Section 4: NIH Toolbox and the National Children's Study (NCS)**

**Section 5: Domain Definition**

**Section 6: Subdomain and Subdomain Component Definitions**

**Section 7: Measure Description**

**Section 8: Post-Validation/Post-Norming Changes to the Measure**

**Section 9: The Measure's Scoring Model**

**Section 10: Measure Norms-18-85 Self Report**

**Section 11: Measure Norms-13-17 Self Report**

**Section 12: Measure Norms-8-12 Self Report**

**Section 13: Measure Norms-8-12 Parent Report**

**Section 14: Measure Norms-3-7 Parent Report**

## **Section 1: Introduction to NIH Toolbox**

NIH Toolbox is a multidimensional set of brief measures assessing cognitive, emotional, motor, and sensory function from ages 3-85. This suite of on-line and royalty-free measures can be administered to study participants 3 to 85 years of age in two hours or less, across diverse study designs and settings.

### **What is the NIH Toolbox?**

The NIH Toolbox provides a standard set of royalty-free, brief, and comprehensive assessment tools that can be used by researchers and clinicians in a variety of settings, with a particular emphasis on measuring outcomes in longitudinal epidemiologic studies and prevention or intervention trials across the lifespan (ages 3-85). The battery ensures that assessment methods and results can be used for comparisons across existing and future studies and provides a “common currency” for the study of neurological research that promotes economies of scale and enhanced efficiency in measurement. The NIH Toolbox can be used to monitor neurological and behavioral function over time and measure key constructs across developmental stages. This facilitates the study of functional changes across the lifespan, including evaluating intervention and treatment effectiveness.

## **The NIH Toolbox Batteries**

The basic NIH Toolbox can be administered within two hours and divides tests into four domain batteries: Cognition, Emotion, Motor, and Sensation. In addition, within some domains, there are supplemental measures that are available to be administered.

## **Selection of the NIH Toolbox Domains and Subdomains**

Four domains were selected for the NIH Toolbox: Cognition, Emotion, Motor, and Sensation. Subdomain selection was based upon literature reviews, expert interviews, and multiple formal Requests for Information (RFI) of NIH-funded researchers. Initial literature and database reviews and an RFI identified the subdomains for inclusion in the NIH Toolbox, existing measures relevant to the project goals, and criteria for instrument selection. NIH Project Team members, external content experts, and contract scientists met at a follow-up consensus meeting to discuss potential subdomains along with the criteria affecting instrument selection, creation, and norming. Additional expert interviews were undertaken to gather more detailed information from clinical and scientific experts to help further refine the list of possible subdomains. A second consensus group meeting was held and results directed the decision for the final NIH Toolbox to assess four core domain areas (cognitive, emotional, motor, and sensory health and function).

## **Selection of Measures for the NIH Toolbox**

More than 1,400 existing measures were identified and evaluated for potential inclusion in the NIH Toolbox. The selection criteria included a measure's applicability across the life span,

psychometric soundness, brevity, ease of use, applicability in diverse settings and with different groups, and lack of intellectual property constraints. There was also a preference for instruments that were already validated and normed for use with individuals between 3 and 85 years old. Results of the instrument selection process yielded draft development plans established for the NIH Toolbox measures.

### **Early Childhood Use**

NIH Toolbox measure development focused special attention on assessing young children, to ensure that all tests given are developmentally appropriate for ages 3-7. A special team of early childhood assessment consultants was engaged to provide testing guidelines for the very young, to offer input on measure development, and to review all NIH Toolbox measures to ensure they fit the needs of young children. Advanced statistical methods were used to emphasize continuity of measurement, allowing Toolbox users to confidently conduct longitudinal measurement from age 3 through the life span while assessing the same domain constructs.

## **Section 2: Validation**

Validation studies were conducted for all NIH Toolbox Emotion domain measures, to assure that these important tools for research met rigorous psychometric standards. Studies were

conducted across the entire age range and were statistically compared against “gold standard” measures wherever available.

For specifics regarding Emotion domain measure validation, see Salsman et al., Emotion Assessment using the NIH Toolbox, *Neurology*, in press. This manuscript describes measure development studies undertaken (e.g., expert panels for content development and validation; cognitive interviews; small and large-scale pilot testing) and psychometric characteristics (e.g., internal consistency and test-retest reliability; convergent and divergent validity).

## **Section 3:     Norming**

NIH Toolbox conducted a large national standardization study in both English and Spanish languages to allow for normative comparisons on each assessment. A sample of 4,859 participants, ages 3-85 – representative of the U.S. population based on gender, ethnicity, race, and socioeconomic status – was administered all of the NIH Toolbox measures at sites around the country (n = 2,917 English-speaking children, ages 3-17; n = 496 Spanish-speaking children, ages 3-7; n = 1,038 English-speaking adults, ages 18-85; n = 408 Spanish-speaking adults, ages 18-85). NIH Toolbox normative scores are now available for each year of age from 3 through 17, as well as for age ranges 18-29, 30-39, 40-49, 50-59, 60-69, and 70-85, allowing for targeted and accurate comparisons to the U.S. population.

Specifics regarding NIH Toolbox norming sampling methods (e.g., stratification by age, gender, and language preference; sampling a minimum of 25-100 individuals per targeted demographic and language subgroup) and norming analytic methods (e.g., post-stratification adjustment using iterative proportional fitting, i.e., “raking”) can be found in the following publication: Beaumont et al., Norming Plans for the NIH Toolbox, *Neurology*, in press.

## **Section 4: NIH Toolbox and the National Children’s Study (NCS)**

In collaboration with NIH Toolbox scientists, NCS investigators selected measures from PROMIS and NIH Toolbox for a Maternal Health Profile, the Maternal Self-Reported Health Battery. This profile assesses Physical Health (Physical function, Fatigue, Sleep disturbance, Sleep-related impairment), Mental Health (Anger, Anxiety, Depression, Positive affect, Perceived stress, Self-efficacy), and Social Health (Social support and companionship, Social isolation). The Maternal Self-Reported Health Battery was field tested in fall 2011, using an online sample of 1000 women (200 pre-conception, 150 pregnant women (50 per trimester), and 650 mothers with a child between 0-36 months of age). In addition, NIH Toolbox norming was jointly sponsored by the NCS and included: 3,413 children in single-year age bands (from 3-17 years); 1,446 adults in seven age bands, including the mothers of children also being tested; and 105 pregnant women. The NIH Toolbox sampling plan matched distributions of race/ethnicity and level of education for each age band.

## **Section 5: Domain Definition**

### **Domain: EMOTION**

Emotion refers to any strong feelings, as of joy, sorrow, or fear. Emotion is an affective state of consciousness in which joy, sorrow, fear, hate, or the like, is experienced, as distinguished from cognitive and volitional states of consciousness. Emotions can be negative and distressing, or positive emotions can be reflections of well-being in our lives, and positive social relationships can buffer stress and enhance health. The NIH Toolbox Emotion domain includes four major subdomains: Psychological Well-Being, Negative Affect, Stress and Self-Efficacy, and Social Relationships. Measures include both self-report and, for certain ages, parent-report versions.

#### **PSYCHOLOGICAL WELL-BEING**

##### **POSITIVE AFFECT**

Measured by:

NIH Toolbox Positive Affect Survey

##### **LIFE SATISFACTION**

Measured by:

NIH Toolbox General Life Satisfaction Survey

NIH Toolbox Domain-Specific Life Satisfaction Survey (Supplemental Measure)

## **MEANING AND PURPOSE**

Measured by:

NIH Toolbox Meaning and Purpose Survey

## **NEGATIVE AFFECT**

### **ANGER**

Measured by:

NIH Toolbox Anger-Affect Survey

NIH Toolbox Anger-Hostility Survey

NIH Toolbox Anger-Physical Aggression Survey

NIH Toolbox Anger Survey

### **FEAR**

Measured by:

NIH Toolbox Fear-Affect Survey

NIH Toolbox Fear-Somatic Arousal Survey

NIH Toolbox Fear-Over Anxious Survey

NIH Toolbox Fear Survey

NIH Toolbox Fear-Separation Anxiety Survey

## **SADNESS**

Measured by:

NIH Toolbox Sadness Survey

NIH Toolbox Apathy Survey (Supplemental Measure)

## **STRESS AND SELF-EFFICACY**

### **PERCEIVED STRESS**

Measured by:

NIH Toolbox Perceived Stress Survey

### **SELF-EFFICACY**

Measured by:

NIH Toolbox Self-Efficacy Survey

### **COPING STRATEGIES**

Measured by:

NIH Toolbox Emotion Control Survey (Supplemental Measure)

## **SOCIAL RELATIONSHIPS**

### **PERCEIVED SOCIAL SUPPORT**

Measured by:

NIH Toolbox Emotional Support Survey

NIH Toolbox Instrumental Support Survey

NIH Toolbox Maternal Relationship Survey (Supplemental Measure)

NIH Toolbox Paternal Relationship Survey (Supplemental Measure)

NIH Toolbox Positive Parental Relationship Survey (Supplemental Measure)

NIH Toolbox Negative Parental Relationship Survey (Supplemental Measure)

## **COMPANIONSHIP**

Measured by:

NIH Toolbox Friendship Survey

NIH Toolbox Loneliness Survey

NIH Toolbox Social Withdrawal Survey

NIH Toolbox Positive Peer Interaction Survey

## **SOCIAL DISTRESS**

Measured by:

NIH Toolbox Perceived Rejection Survey

NIH Toolbox Perceived Hostility Survey

NIH Toolbox Peer Rejection Survey

NIH Toolbox Sibling Rejection Survey (Supplemental Measure)

## **POSITIVE SOCIAL DEVELOPMENT**

Measured by:

NIH Toolbox Empathic Behaviors Survey

## **EMOTION Batteries**

There are two NIH Toolbox Emotion Batteries – a self-report battery and a parent-report battery. The self-report battery is available for ages 8-85 and includes all age-specified measures in the Psychological Well-Being, Negative Affect, Stress and Self-Efficacy, and Social Relationships domains, as indicated. The parent-report battery is available for ages 3-12 and includes all age-specified measures in the Psychological Well-Being, Negative Affect, Stress and Self-Efficacy, and Social Relationships domains, as indicated. There are individual scores provided for each individual battery measure, as described, but no composite scores.

## **Section 6: Subdomain and Subdomain Component Definitions**

### **Subdomain: PSYCHOLOGICAL WELL-BEING**

Psychological Well-Being includes both hedonic and eudaimonic aspects of well-being. Hedonic aspects are more subjective and experiential and emphasize pleasure and positive affect (happiness, serenity, cognitive engagement). Eudaimonic well-being is more evaluative in nature and emphasizes fulfillment and purpose (e.g., meaning, life satisfaction). NIH Toolbox includes measures for three components of psychological well-being: Positive Affect, Life Satisfaction, and Meaning and Purpose.

### **Subdomain Component: POSITIVE AFFECT**

Positive Affect refers to feelings that reflect a level of pleasurable engagement with the environment, such as happiness, joy, excitement, enthusiasm, and contentment. In NIH Toolbox, Positive Affect is measured by:

NIH Toolbox Positive Affect Survey

## Section 7: Measure Description

### EMOTION Core Measure

The NIH Toolbox Positive Affect Survey is a self-report measure that assesses both activated (i.e., happiness, joy) as well as unactivated (i.e., serenity, peace) aspects of Positive Affect.

Computer-adaptive testing versions are used for ages 13-17 and 18-85; a 12-item fixed-length form is used for ages 8-12, and a computer-adaptive test is used for the Parent-Report version with ages 3-7. In addition, fixed-length forms are available for ages 18-85 Self-Report and ages 3-12 Parent-Report, as *supplemental measures*.

## Section 8: Post-Validation/Post-Norming Changes to the Measure

In addition to those changes previously reported on during the measure's development and validation phases (Salsman et al., Emotion Assessment using the NIH Toolbox, *Neurology*, in press), the following changes have been made to this measure:

Test administration changes (8-12 Parent Report, 3-7 Parent Report):

Directions changed from: You will see a set of statements that describe children's reactions to a number of situations. We would like you to tell us what your child's reaction is likely to be in those situations. There are of course no "correct" ways of

reacting; children differ widely in their reactions, and it is these differences we are trying to learn about. Please read each statement and decide whether it is a “true” or “untrue” description of your child’s reaction within the past six months. If you cannot answer one of the items because you have never seen the child in that situation, for example, if the statement is about the child’s reaction to your singing and you have never sung to your child, then circle NA (not applicable). (These directions have a Lexile = 1170, i.e., 10<sup>th</sup> grade level.)

Directions changed to: You will see statements that describe children’s reactions to different situations. We would like you to tell us what your child’s reaction would be in those situations. Select the best answer based on your child’s behavior within the past six months. If you cannot answer one of the items because you have never seen your child in that situation, then select NA (not applicable).

Rationale for change: Improved readability. These directions now have a Lexile = 1000 (i.e., 6<sup>th</sup>/7<sup>th</sup> grade level).

Item-level changes (8-12 Parent Report, 3-7 Parent Report):

Item context changed from: You will see statements that describe children's reactions to different situations. We would like you to tell us what your child's reaction would be in those situations. Select the best answer based on your child's behavior within the past six months. If you cannot answer one of the items because you have never seen your child in that situation, then select NA (not applicable).

Item context changed to: You will see statements that describe children's reactions to different situations. We would like you to tell us what your child's reaction would be in those situations. Select the answer that best describes how true each statement is for your child. If you cannot answer one of the items because you have never seen your child in that situation, then select NA (not applicable).

Rationale for change: Standardizes item contexts within the Emotion domain, while remaining consistent with a dispositional orientation.

## **Section 9: The Measure's Scoring Model**

Measurement theory applied for scoring:

Rasch/Item Response Theory (IRT)

Rasch/IRT model employed:

Graded Response Model

Measure length:

Variable (computer-adaptive test, 18-85 Self Report and 13-17 Self Report)

Fixed (12 items, 8-12 Self Report)

Variable (computer-adaptive test, 3-7 Parent Report version)

Fixed (18-85 Self Report and 3-12 Parent Report, as supplemental measures)

Response data:

Ordinal (items have a 5-point response scale; options range from 1 “not at all” to 5 “very much”)

Scores computed/available\*:

Rasch/IRT Theta Score

Age-Adjusted Scale Score (mean=50, standard deviation=10)

Fully Adjusted Scale Score (mean=50, standard deviation=10)

Unadjusted Scale Score (mean=50, standard deviation=10)

National Percentile Rank (corresponds to the Age-Adjusted Scale Score)

\*Details on these scores and their interpretations are available in the NIH Toolbox Scoring and Interpretation Guide.

## Section 10: Measure Norms-18-85 Self Report

The following Tables and Figure present NIH Toolbox normative data associated with this measure:

**Table 1. Measure Raw/Computed Score, Unadjusted Scale Score, and Fully Adjusted Scale Score Summary (N, Mean, Standard Deviation) by Age Group (18-29, 30-39, 40-49, 50-59, 60-69, 70-85, All)**

**Table 2. Measure Raw/Computed Score Statistics (N, Mean, Standard Deviation, Minimum/Maximum Observed, 25<sup>th</sup>/50<sup>th</sup>/75<sup>th</sup> Percentile) per Age Group (18-29, 30-39, 40-49, 50-59, 60-69, 70-85, All)**

**Figure 1. Measure Mean Unadjusted Scale Scores across All Age Groups (18-29, 30-39, 40-49, 50-59, 60-69, 70-85)**

Table 1. NIH Toolbox Positive Affect 18-85 by Age Group	Positive Affect (theta)			Positive Affect 18-85 Unadjusted Scale Score			Positive Affect 18-85 Fully Adjusted Scale Score		
	N	Mean	SD	N	Mean	SD	N	Mean	SD
Age Group									
3	0			0			0		
4	0			0			0		
5	0			0			0		
6	0			0			0		
7	0			0			0		
8	0			0			0		
9	0			0			0		
10	0			0			0		
11	0			0			0		
12	0			0			0		
13	0			0			0		
14	0			0			0		
15	0			0			0		
16	0			0			0		
17	0			0			0		
18 - 29	264	0.19	1.77	264	52.01	18.05	257	49.78	17.30
30 - 39	302	0.02	1.41	302	50.21	14.70	290	49.87	15.09
40 - 49	251	-0.03	1.61	251	49.86	16.70	238	50.11	16.45
50 - 59	188	-0.04	1.74	188	49.66	18.14	173	49.89	18.56
60 - 69	163	-0.03	1.71	163	49.66	17.68	152	49.83	18.10
70 - 85	240	-0.06	1.13	240	49.22	11.75	216	49.90	12.31
All	1408	0.02	1.57	1408	50.28	16.20	1326	49.90	16.21

[illegible]

Table 2. NIH Toolbox Positive Affect (theta) – Age 30-39		English			Spanish			Total		All
		Males	Females	Total	Males	Females	Total	Males	Females	
	N	54	155	209	18	75	93	72	230	302
	Mean	-0.04	0.01	-0.01	0.11	0.24	0.21	-0.02	0.04	0.02
	Standard Deviation	1.97	1.46	1.60	0.99	0.81	0.84	1.77	1.28	1.41
	Minimum Observed	-1.89	-2.44	-2.44	-2.45	-2.39	-2.45	-2.45	-2.44	-2.45
	25th Percentile	-0.76	-0.46	-0.64	-0.01	-0.29	-0.28	-0.74	-0.45	-0.55
	50th Percentile (Median)	-0.15	-0.01	-0.03	-0.01	0.12	0.08	-0.12	0.02	-0.01
	75th Percentile	0.88	0.49	0.60	0.90	0.76	0.83	0.88	0.56	0.63
	Maximum Observed	1.99	1.99	1.99	1.40	1.99	1.99	1.99	1.99	1.99

Table 2. NIH Toolbox Positive Affect (theta) – Age 40-49		English			Spanish			Total		All
		Males	Females	Total	Males	Females	Total	Males	Females	
	N	61	119	180	29	42	71	90	161	251
	Mean	-0.01	0.00	-0.00	-0.19	-0.30	-0.25	-0.03	-0.02	-0.03
	Standard Deviation	2.13	1.66	1.83	0.90	0.79	0.83	1.82	1.49	1.61
	Minimum Observed	-3.03	-1.89	-3.03	-1.85	-2.08	-2.08	-3.03	-2.08	-3.03
	25th Percentile	-0.56	-0.47	-0.53	-0.72	-0.88	-0.72	-0.56	-0.52	-0.55
	50th Percentile (Median)	0.05	-0.02	-0.01	-0.16	-0.23	-0.18	0.02	-0.07	-0.01
	75th Percentile	0.47	0.36	0.45	0.05	0.07	0.07	0.45	0.36	0.42
	Maximum Observed	1.99	1.99	1.99	1.99	1.39	1.99	1.99	1.99	1.99

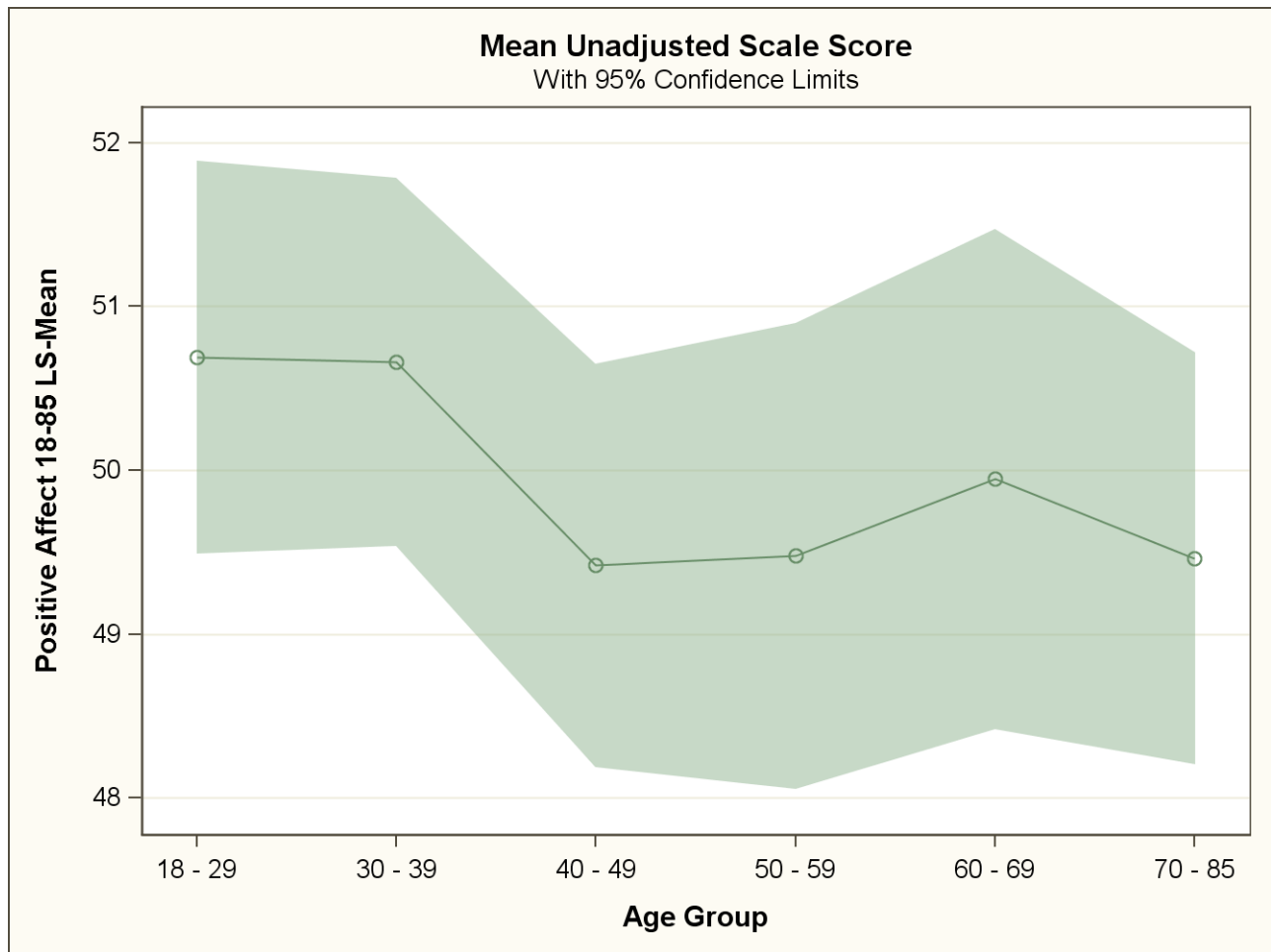
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<b>Table 2. NIH Toolbox Positive Affect (theta) – NCS Sample of Mothers</b>		<b>English</b>	<b>Spanish</b>	<b>All</b>
	N	81	35	116
	Mean	0.08	0.02	0.06
	Standard Deviation	0.96	0.95	0.95
	Minimum Observed	-2.30	-2.39	-2.39
	25th Percentile	-0.47	-0.68	-0.54
	50th Percentile (Median)	0.08	-0.11	0.04
	75th Percentile	0.52	0.55	0.53
	Maximum Observed	1.99	1.99	1.99

<b>Table 2. NIH Toolbox Positive Affect (theta) – NCS Sample of Pregnant Women</b>		<b>English</b>	<b>Spanish</b>	<b>All</b>
	N	81	43	124
	Mean	0.10	0.18	0.13
	Standard Deviation	0.87	0.90	0.88
	Minimum Observed	-2.00	-2.00	-2.00
	25th Percentile	-0.34	-0.29	-0.34
	50th Percentile (Median)	-0.01	0.03	0.01
	75th Percentile	0.48	0.59	0.57
	Maximum Observed	1.99	1.99	1.99

**Figure 1**  
**Least Squares Means**



## Section 11: Measure Norms-13-17 Self Report

The following Tables and Figure present NIH Toolbox normative data associated with this measure:

**Table 1. Measure Raw/Computed Score, Unadjusted Scale Score, and Fully Adjusted Scale Score Summary (N, Mean, Standard Deviation) by Age Group (13, 14, 15, 16, 17, All)**

**Table 2. Measure Raw/Computed Score Statistics (N, Mean, Standard Deviation, Minimum/Maximum Observed, 25<sup>th</sup>/50<sup>th</sup>/75<sup>th</sup> Percentile) per Age Group (13, 14, 15, 16, 17, All)**

**Figure 1. Measure Mean Unadjusted Scale Scores across All Age Groups (13, 14, 15, 16, 17)**

Table 1. NIH Toolbox Positive Affect 13-17 by Age Group	Positive Affect (theta)			Positive Affect 13-17 Unadjusted Scale Score			Positive Affect 13-17 Fully Adjusted Scale Score		
	N	Mean	SD	N	Mean	SD	N	Mean	SD
Age Group									
3	0			0			0		
4	0			0			0		
5	0			0			0		
6	0			0			0		
7	0			0			0		
8	0			0			0		
9	0			0			0		
10	0			0			0		
11	0			0			0		
12	0			0			0		
13	217	0.33	0.54	217	53.27	5.26	209	49.94	5.25
14	234	-0.13	0.48	234	48.75	4.77	226	50.13	4.99
15	223	-0.09	0.55	223	49.16	5.47	217	50.04	5.70
16	214	-0.02	0.57	214	49.80	5.63	204	49.96	5.65
17	224	0.06	0.55	224	50.67	5.44	216	50.15	5.40
18 - 29	0			0			0		
30 - 39	0			0			0		
40 - 49	0			0			0		
50 - 59	0			0			0		
60 - 69	0			0			0		
70 - 85	0			0			0		
All	1112	0.03	0.54	1112	50.29	5.38	1072	50.04	5.39

Table 2. NIH Toolbox Positive Affect (theta) – Age 13		English			Spanish			Total		All
		Males	Females	Total	Males	Females	Total	Males	Females	
	N	115	102	217	0	0	0	115	102	217
	Mean	0.40	0.19	0.33				0.40	0.19	0.33
	Standard Deviation	0.56	0.51	0.54				0.56	0.51	0.54
	Minimum Observed	-2.22	-1.84	-2.22				-2.22	-1.84	-2.22
	25th Percentile	-0.24	-0.67	-0.38				-0.24	-0.67	-0.38
	50th Percentile (Median)	0.24	0.22	0.23				0.24	0.22	0.23
	75th Percentile	1.06	0.98	1.01				1.06	0.98	1.01
	Maximum Observed	1.87	1.87	1.87				1.87	1.87	1.87

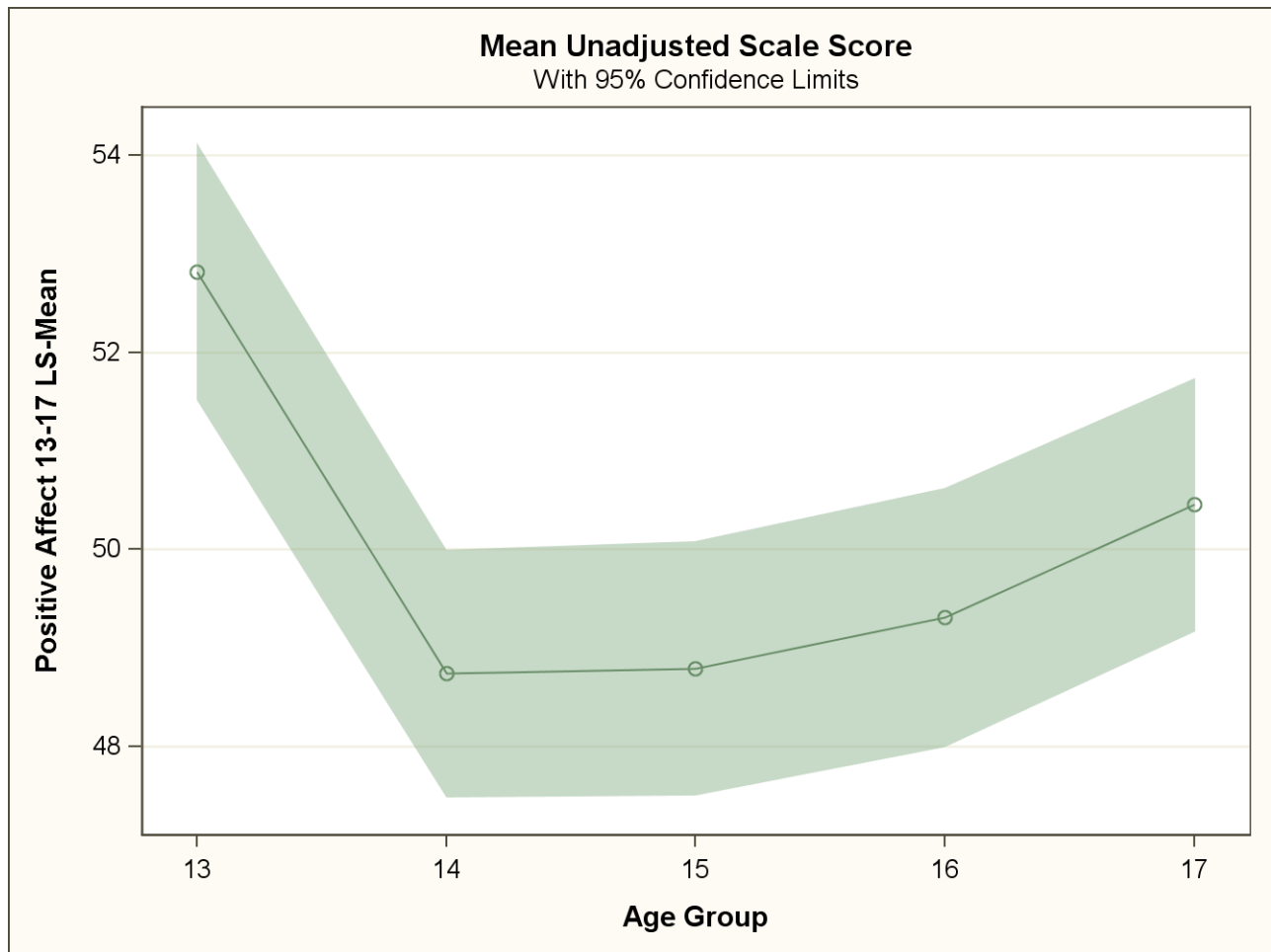
Table 2. NIH Toolbox Positive Affect (theta) – Age 14		English			Spanish			Total		All
		Males	Females	Total	Males	Females	Total	Males	Females	
	N	113	121	234	0	0	0	113	121	234
	Mean	-0.18	-0.04	-0.13				-0.18	-0.04	-0.13
	Standard Deviation	0.48	0.48	0.48				0.48	0.48	0.48
	Minimum Observed	-1.89	-2.79	-2.79				-1.89	-2.79	-2.79
	25th Percentile	-0.68	-0.84	-0.78				-0.68	-0.84	-0.78
	50th Percentile (Median)	-0.27	-0.05	-0.17				-0.27	-0.05	-0.17
	75th Percentile	0.27	0.71	0.46				0.27	0.71	0.46
	Maximum Observed	1.87	1.87	1.87				1.87	1.87	1.87

Table 2. NIH Toolbox Positive Affect (theta) – Age 15		English			Spanish			Total		All
		Males	Females	Total	Males	Females	Total	Males	Females	
	N	111	112	223	0	0	0	111	112	223
	Mean	-0.02	-0.18	-0.09				-0.02	-0.18	-0.09
	Standard Deviation	0.52	0.58	0.55				0.52	0.58	0.55
	Minimum Observed	-2.28	-3.49	-3.49				-2.28	-3.49	-3.49
	25th Percentile	-0.53	-0.96	-0.70				-0.53	-0.96	-0.70
	50th Percentile (Median)	0.01	-0.12	-0.02				0.01	-0.12	-0.02
	75th Percentile	0.50	0.44	0.50				0.50	0.44	0.50
	Maximum Observed	1.87	1.87	1.87				1.87	1.87	1.87

Table 2. NIH Toolbox Positive Affect (theta) – Age 16		English			Spanish			Total		All
		Males	Females	Total	Males	Females	Total	Males	Females	
	N	107	107	214	0	0	0	107	107	214
	Mean	0.06	-0.12	-0.02				0.06	-0.12	-0.02
	Standard Deviation	0.61	0.52	0.57				0.61	0.52	0.57
	Minimum Observed	-2.77	-2.33	-2.77				-2.77	-2.33	-2.77
	25th Percentile	-0.54	-0.80	-0.57				-0.54	-0.80	-0.57
	50th Percentile (Median)	-0.05	-0.24	-0.14				-0.05	-0.24	-0.14
	75th Percentile	0.62	0.64	0.64				0.62	0.64	0.64
	Maximum Observed	1.87	1.87	1.87				1.87	1.87	1.87

Table 2. NIH Toolbox Positive Affect (theta) – Age 17		English			Spanish			Total		All
		Males	Females	Total	Males	Females	Total	Males	Females	
	N	111	113	224	0	0	0	111	113	224
	Mean	0.02	0.12	0.06				0.02	0.12	0.06
	Standard Deviation	0.56	0.54	0.55				0.56	0.54	0.55
	Minimum Observed	-3.19	-2.66	-3.19				-3.19	-2.66	-3.19
	25th Percentile	-0.46	-0.65	-0.50				-0.46	-0.65	-0.50
	50th Percentile (Median)	0.04	0.12	0.10				0.04	0.12	0.10
	75th Percentile	0.50	0.92	0.70				0.50	0.92	0.70
	Maximum Observed	1.87	1.87	1.87				1.87	1.87	1.87

**Figure 1**  
**Least Squares Means**



## Section 12: Measure Norms-8-12 Self Report

The following Tables and Figure present NIH Toolbox normative data associated with this measure:

**Table 1. Measure Raw/Computed Score, Unadjusted Scale Score, and Fully Adjusted Scale Score Summary (N, Mean, Standard Deviation) by Age Group (8, 9, 10, 11, 12, All)**

**Table 2. Measure Raw/Computed Score Statistics (N, Mean, Standard Deviation, Minimum/Maximum Observed, 25<sup>th</sup>/50<sup>th</sup>/75<sup>th</sup> Percentile) per Age Group (8, 9, 10, 11, 12, All)**

**Figure 1. Measure Mean Unadjusted Scale Scores across All Age Groups (8, 9, 10, 11, 12)**

Table 1. NIH Toolbox Positive Affect 8-12 by Age Group	Positive Affect (theta)			Positive Affect 8-12 Unadjusted Scale Score			Positive Affect 8-12 Fully Adjusted Scale Score		
	N	Mean	SD	N	Mean	SD	N	Mean	SD
Age Group									
3	0			0			0		
4	0			0			0		
5	0			0			0		
6	0			0			0		
7	0			0			0		
8	184	-0.01	0.64	184	49.92	6.58	175	50.48	7.12
9	208	-0.01	0.60	208	49.80	6.08	195	49.89	6.11
10	226	0.11	0.46	226	51.15	4.70	208	49.69	4.57
11	212	-0.01	0.49	212	49.81	5.03	200	49.65	4.96
12	214	-0.06	0.43	214	49.32	4.53	204	49.92	4.60
13	0			0			0		
14	0			0			0		
15	0			0			0		
16	0			0			0		
17	0			0			0		
18 - 29	0			0			0		
30 - 39	0			0			0		
40 - 49	0			0			0		
50 - 59	0			0			0		
60 - 69	0			0			0		
70 - 85	0			0			0		
All	1044	0.00	0.53	1044	50.00	5.40	982	49.91	5.49

Table 2. NIH Toolbox Positive Affect (theta) – Age 8		English			Spanish			Total		All
		Males	Females	Total	Males	Females	Total	Males	Females	
	N	89	95	184	0	0	0	89	95	184
	Mean	-0.14	0.15	-0.01				-0.14	0.15	-0.01
	Standard Deviation	0.70	0.58	0.64				0.70	0.58	0.64
	Minimum Observed	-2.38	-2.59	-2.59				-2.38	-2.59	-2.59
	25th Percentile	-0.86	-0.66	-0.85				-0.86	-0.66	-0.85
	50th Percentile (Median)	-0.11	0.11	-0.01				-0.11	0.11	-0.01
	75th Percentile	0.63	1.10	0.86				0.63	1.10	0.86
	Maximum Observed	1.70	1.70	1.70				1.70	1.70	1.70

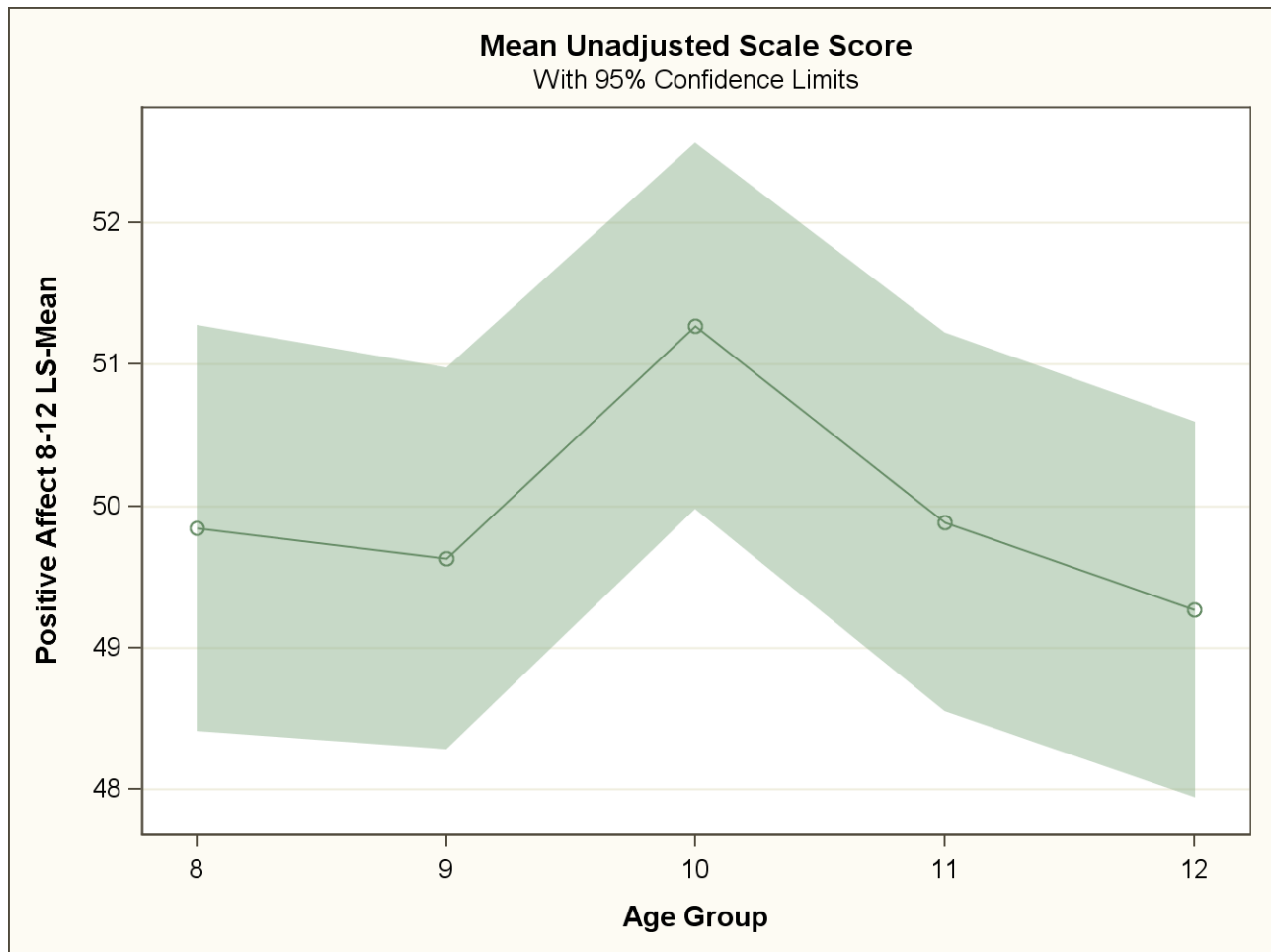
Table 2. NIH Toolbox Positive Affect (theta) – Age 9		English			Spanish			Total		All
		Males	Females	Total	Males	Females	Total	Males	Females	
	N	106	102	208	0	0	0	106	102	208
	Mean	-0.03	0.02	-0.01				-0.03	0.02	-0.01
	Standard Deviation	0.73	0.43	0.60				0.73	0.43	0.60
	Minimum Observed	-2.92	-2.88	-2.92				-2.92	-2.88	-2.92
	25th Percentile	-0.75	-0.52	-0.65				-0.75	-0.52	-0.65
	50th Percentile (Median)	0.06	-0.05	-0.01				0.06	-0.05	-0.01
	75th Percentile	0.76	0.66	0.72				0.76	0.66	0.72
	Maximum Observed	1.70	1.70	1.70				1.70	1.70	1.70

Table 2. NIH Toolbox Positive Affect (theta) – Age 10		English			Spanish			Total		All
		Males	Females	Total	Males	Females	Total	Males	Females	
	N	115	111	226	0	0	0	115	111	226
	Mean	0.16	0.05	0.11				0.16	0.05	0.11
	Standard Deviation	0.45	0.47	0.46				0.45	0.47	0.46
	Minimum Observed	-1.49	-2.86	-2.86				-1.49	-2.86	-2.86
	25th Percentile	-0.33	-0.73	-0.50				-0.33	-0.73	-0.50
	50th Percentile (Median)	0.14	0.12	0.14				0.14	0.12	0.14
	75th Percentile	0.65	0.71	0.66				0.65	0.71	0.66
	Maximum Observed	1.70	1.70	1.70				1.70	1.70	1.70

Table 2. NIH Toolbox Positive Affect (theta) – Age 11		English			Spanish			Total		All
		Males	Females	Total	Males	Females	Total	Males	Females	
	N	104	108	212	0	0	0	104	108	212
	Mean	-0.02	0.01	-0.01				-0.02	0.01	-0.01
	Standard Deviation	0.56	0.41	0.49				0.56	0.41	0.49
	Minimum Observed	-1.83	-1.95	-1.95				-1.83	-1.95	-1.95
	25th Percentile	-0.73	-0.57	-0.63				-0.73	-0.57	-0.63
	50th Percentile (Median)	-0.10	-0.15	-0.13				-0.10	-0.15	-0.13
	75th Percentile	0.56	0.48	0.53				0.56	0.48	0.53
	Maximum Observed	1.70	1.70	1.70				1.70	1.70	1.70

Table 2. NIH Toolbox Positive Affect (theta) – Age 12		English			Spanish			Total		All
		Males	Females	Total	Males	Females	Total	Males	Females	
	N	100	114	214	0	0	0	100	114	214
	Mean	-0.01	-0.13	-0.06				-0.01	-0.13	-0.06
	Standard Deviation	0.49	0.38	0.43				0.49	0.38	0.43
	Minimum Observed	-1.70	-1.81	-1.81				-1.70	-1.81	-1.81
	25th Percentile	-0.46	-0.68	-0.49				-0.46	-0.68	-0.49
	50th Percentile (Median)	-0.12	-0.16	-0.14				-0.12	-0.16	-0.14
	75th Percentile	0.44	0.27	0.31				0.44	0.27	0.31
	Maximum Observed	1.70	1.70	1.70				1.70	1.70	1.70

Figure 1  
Least Squares Means



## Section 13: Measure Norms-8-12 Parent Report

The following Tables and Figure present NIH Toolbox normative data associated with this measure:

**Table 1.** Measure Raw/Computed Score, Unadjusted Scale Score, and Fully Adjusted Scale Score Summary (N, Mean, Standard Deviation) by Age Group (8, 9, 10, 11, 12, All)

**Table 2.** Measure Raw/Computed Score Statistics (N, Mean, Standard Deviation, Minimum/Maximum Observed, 25<sup>th</sup>/50<sup>th</sup>/75<sup>th</sup> Percentile) per Age Group (8, 9, 10, 11, 12, All)

**Figure 1.** Measure Mean Unadjusted Scale Scores across All Age Groups (8, 9, 10, 11, 12)

Table 1. NIH Toolbox Positive Affect Parent 8-12 by Age Group	Positive Affect Parent Report (theta)			Positive Affect Parent 8-12 Unadjusted Scale Score			Positive Affect Parent 8-12 Fully Adjusted Scale Score		
	N	Mean	SD	N	Mean	SD	N	Mean	SD
Age Group									
3	0			0			0		
4	0			0			0		
5	0			0			0		
6	0			0			0		
7	0			0			0		
8	208	0.13	0.53	208	51.50	5.14	199	49.90	5.36
9	214	0.10	0.50	214	51.21	4.81	203	50.02	4.81
10	228	-0.06	0.58	228	49.13	5.84	211	50.23	5.91
11	213	-0.09	0.49	213	49.46	4.77	203	50.64	4.82
12	216	-0.16	0.57	216	48.42	5.87	206	50.69	6.37
13	0			0			0		
14	0			0			0		
15	0			0			0		
16	0			0			0		
17	0			0			0		
18 - 29	0			0			0		
30 - 39	0			0			0		
40 - 49	0			0			0		
50 - 59	0			0			0		
60 - 69	0			0			0		
70 - 85	0			0			0		
All	1079	-0.02	0.54	1079	49.94	5.35	1022	50.29	5.49

Table 2. NIH Toolbox Positive Affect Parent Report (theta) – Age 8		English			Spanish			Total		All
		Males	Females	Total	Males	Females	Total	Males	Females	
	N	107	101	208	0	0	0	107	101	208
	Mean	0.05	0.25	0.13				0.05	0.25	0.13
	Standard Deviation	0.59	0.46	0.53				0.59	0.46	0.53
	Minimum Observed	-2.29	-2.20	-2.29				-2.29	-2.20	-2.29
	25th Percentile	-0.65	-0.38	-0.50				-0.65	-0.38	-0.50
	50th Percentile (Median)	-0.20	0.18	-0.06				-0.20	0.18	-0.06
	75th Percentile	0.86	1.14	0.92				0.86	1.14	0.92
	Maximum Observed	1.61	1.61	1.61				1.61	1.61	1.61

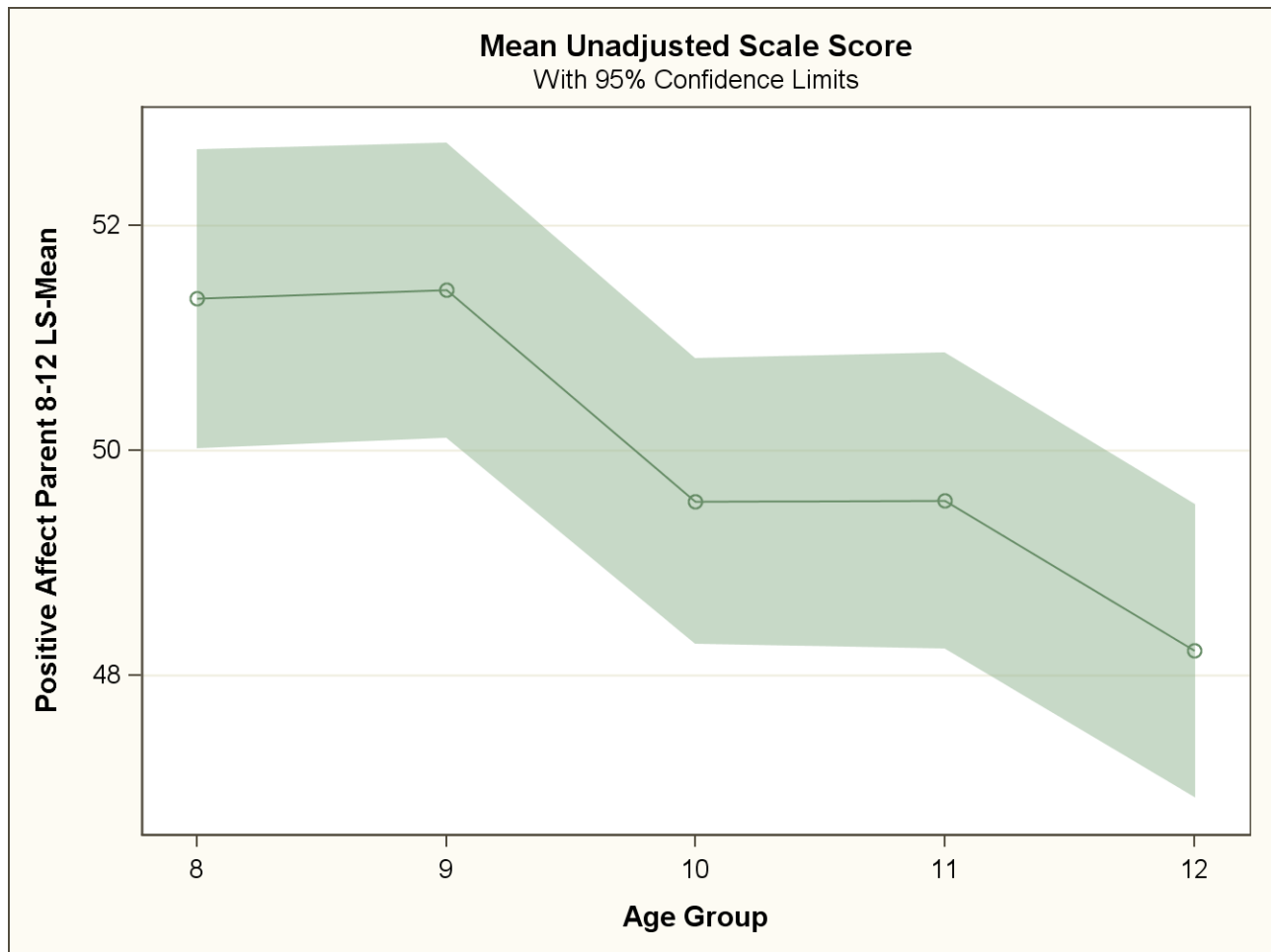
Table 2. NIH Toolbox Positive Affect Parent Report (theta) – Age 9		English			Spanish			Total		All
		Males	Females	Total	Males	Females	Total	Males	Females	
	N	108	106	214	0	0	0	108	106	214
	Mean	0.01	0.22	0.10				0.01	0.22	0.10
	Standard Deviation	0.55	0.44	0.50				0.55	0.44	0.50
	Minimum Observed	-2.11	-1.22	-2.11				-2.11	-1.22	-2.11
	25th Percentile	-0.63	-0.46	-0.57				-0.63	-0.46	-0.57
	50th Percentile (Median)	-0.18	-0.01	-0.13				-0.18	-0.01	-0.13
	75th Percentile	0.72	1.05	0.82				0.72	1.05	0.82
	Maximum Observed	1.61	1.61	1.61				1.61	1.61	1.61

Table 2. NIH Toolbox Positive Affect Parent Report (theta) – Age 10		English			Spanish			Total		All
		Males	Females	Total	Males	Females	Total	Males	Females	
	N	115	113	228	0	0	0	115	113	228
	Mean	-0.10	-0.01	-0.06				-0.10	-0.01	-0.06
	Standard Deviation	0.67	0.46	0.58				0.67	0.46	0.58
	Minimum Observed	-3.02	-1.84	-3.02				-3.02	-1.84	-3.02
	25th Percentile	-0.99	-0.64	-0.81				-0.99	-0.64	-0.81
	50th Percentile (Median)	-0.44	-0.31	-0.38				-0.44	-0.31	-0.38
	75th Percentile	0.78	0.80	0.79				0.78	0.80	0.79
	Maximum Observed	1.61	1.61	1.61				1.61	1.61	1.61

Table 2. NIH Toolbox Positive Affect Parent Report (theta) – Age 11		English			Spanish			Total		All
		Males	Females	Total	Males	Females	Total	Males	Females	
	N	107	106	213	0	0	0	107	106	213
	Mean	-0.13	-0.03	-0.09				-0.13	-0.03	-0.09
	Standard Deviation	0.48	0.49	0.49				0.48	0.49	0.49
	Minimum Observed	-1.68	-1.83	-1.83				-1.68	-1.83	-1.83
	25th Percentile	-0.65	-0.69	-0.67				-0.65	-0.69	-0.67
	50th Percentile (Median)	-0.36	-0.38	-0.38				-0.36	-0.38	-0.38
	75th Percentile	0.43	0.57	0.46				0.43	0.57	0.46
	Maximum Observed	1.61	1.61	1.61				1.61	1.61	1.61

Table 2. NIH Toolbox Positive Affect Parent Report (theta) – Age 12		English			Spanish			Total		All
		Males	Females	Total	Males	Females	Total	Males	Females	
	N	100	116	216	0	0	0	100	116	216
	Mean	-0.19	-0.12	-0.16				-0.19	-0.12	-0.16
	Standard Deviation	0.64	0.51	0.57				0.64	0.51	0.57
	Minimum Observed	-3.02	-2.38	-3.02				-3.02	-2.38	-3.02
	25th Percentile	-0.96	-0.75	-0.85				-0.96	-0.75	-0.85
	50th Percentile (Median)	-0.38	-0.38	-0.38				-0.38	-0.38	-0.38
	75th Percentile	0.36	0.47	0.36				0.36	0.47	0.36
	Maximum Observed	1.61	1.61	1.61				1.61	1.61	1.61

Figure 1  
Least Squares Means



## Section 14: Measure Norms-3-7 Parent Report

The following Tables and Figure present NIH Toolbox normative data associated with this measure:

**Table 1.** Measure Raw/Computed Score, Unadjusted Scale Score, and Fully Adjusted Scale Score Summary (N, Mean, Standard Deviation) by Age Group (3, 4, 5, 6, 7, All)

**Table 2.** Measure Raw/Computed Score Statistics (N, Mean, Standard Deviation, Minimum/Maximum Observed, 25<sup>th</sup>/50<sup>th</sup>/75<sup>th</sup> Percentile) per Age Group (3, 4, 5, 6, 7, All)

**Figure 1.** Measure Mean Unadjusted Scale Scores across All Age Groups (3, 4, 5, 6, 7)

Table 1. NIH Toolbox Positive Affect Parent 3-7 by Age Group	Positive Affect Parent Report (theta)			Positive Affect Parent 3-7 Unadjusted Scale Score			Positive Affect Parent 3-7 Fully Adjusted Scale Score		
	N	Mean	SD	N	Mean	SD	N	Mean	SD
Age Group									
3	109	0.26	0.58	109	52.70	5.73	106	49.33	5.49
4	132	-0.04	0.59	132	49.79	5.77	125	49.74	6.32
5	129	-0.20	0.66	129	47.91	6.59	124	50.37	7.20
6	120	-0.10	0.64	120	49.33	6.32	114	50.36	7.07
7	156	-0.22	0.58	156	48.02	5.77	147	50.53	6.49
8	0			0			0		
9	0			0			0		
10	0			0			0		
11	0			0			0		
12	0			0			0		
13	0			0			0		
14	0			0			0		
15	0			0			0		
16	0			0			0		
17	0			0			0		
18 - 29	0			0			0		
30 - 39	0			0			0		
40 - 49	0			0			0		
50 - 59	0			0			0		
60 - 69	0			0			0		
70 - 85	0			0			0		
All	646	-0.06	0.62	646	49.51	6.12	616	50.08	6.55

Table 2. NIH Toolbox Positive Affect Parent Report (theta) – Age 3		English			Spanish			Total		All
		Males	Females	Total	Males	Females	Total	Males	Females	
	N	58	51	109	0	0	0	58	51	109
	Mean	0.22	0.33	0.26				0.22	0.33	0.26
	Standard Deviation	0.65	0.50	0.58				0.65	0.50	0.58
	Minimum Observed	-1.56	-1.74	-1.74				-1.56	-1.74	-1.74
	25th Percentile	-0.69	-0.36	-0.45				-0.69	-0.36	-0.45
	50th Percentile (Median)	0.49	0.49	0.49				0.49	0.49	0.49
	75th Percentile	1.06	1.06	1.06				1.06	1.06	1.06
	Maximum Observed	1.06	1.06	1.06				1.06	1.06	1.06

Table 2. NIH Toolbox Positive Affect Parent Report (theta) – Age 4		English			Spanish			Total		All
		Males	Females	Total	Males	Females	Total	Males	Females	
	N	65	67	132	0	0	0	65	67	132
	Mean	-0.14	0.11	-0.04				-0.14	0.11	-0.04
	Standard Deviation	0.62	0.55	0.59				0.62	0.55	0.59
	Minimum Observed	-2.35	-2.35	-2.35				-2.35	-2.35	-2.35
	25th Percentile	-0.94	-0.91	-0.94				-0.94	-0.91	-0.94
	50th Percentile (Median)	-0.18	0.34	0.05				-0.18	0.34	0.05
	75th Percentile	0.49	1.06	1.06				0.49	1.06	1.06
	Maximum Observed	1.06	1.06	1.06				1.06	1.06	1.06

Table 2. NIH Toolbox Positive Affect Parent Report (theta) – Age 5		English			Spanish			Total		All
		Males	Females	Total	Males	Females	Total	Males	Females	
	N	64	65	129	0	0	0	64	65	129
	Mean	-0.35	0.01	-0.20				-0.35	0.01	-0.20
	Standard Deviation	0.72	0.57	0.66				0.72	0.57	0.66
	Minimum Observed	-2.25	-2.11	-2.25				-2.25	-2.11	-2.25
	25th Percentile	-1.12	-0.89	-1.12				-1.12	-0.89	-1.12
	50th Percentile (Median)	-0.45	0.49	-0.19				-0.45	0.49	-0.19
	75th Percentile	0.51	1.06	0.63				0.51	1.06	0.63
	Maximum Observed	1.06	1.06	1.06				1.06	1.06	1.06

Table 2. NIH Toolbox Positive Affect Parent Report (theta) – Age 6		English			Spanish			Total		All
		Males	Females	Total	Males	Females	Total	Males	Females	
	N	59	61	120	0	0	0	59	61	120
	Mean	-0.19	0.03	-0.10				-0.19	0.03	-0.10
	Standard Deviation	0.67	0.61	0.64				0.67	0.61	0.64
	Minimum Observed	-2.35	-2.58	-2.58				-2.35	-2.58	-2.58
	25th Percentile	-1.05	-0.75	-1.01				-1.05	-0.75	-1.01
	50th Percentile (Median)	-0.37	0.32	-0.26				-0.37	0.32	-0.26
	75th Percentile	1.06	1.06	1.06				1.06	1.06	1.06
	Maximum Observed	1.06	1.06	1.06				1.06	1.06	1.06

Table 2. NIH Toolbox Positive Affect Parent Report (theta) – Age 7		English			Spanish			Total		All
		Males	Females	Total	Males	Females	Total	Males	Females	
	N	80	76	156	0	0	0	80	76	156
	Mean	-0.35	0.01	-0.22				-0.35	0.01	-0.22
	Standard Deviation	0.67	0.46	0.58				0.67	0.46	0.58
	Minimum Observed	-3.02	-1.91	-3.02				-3.02	-1.91	-3.02
	25th Percentile	-1.12	-0.77	-1.12				-1.12	-0.77	-1.12
	50th Percentile (Median)	-0.40	0.07	-0.27				-0.40	0.07	-0.27
	75th Percentile	0.49	1.06	0.51				0.49	1.06	0.51
	Maximum Observed	1.06	1.06	1.06				1.06	1.06	1.06

**Figure 1**  
**Least Squares Means**

