NIH Toolbox

Technical Manual

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NIH Toolbox Technical Manual

Domain:

EMOTION

Subdomain:

PSYCHOLOGICAL WELL-BEING

Subdomain Component:

LIFE SATISFACTION

Measure:

NIH Toolbox General Life Satisfaction 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-3-12 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: **LIFE SATISFACTION**

Life Satisfaction is one's cognitive evaluation of life experiences and is concerned with whether people like their lives or not. In NIH Toolbox, Life Satisfaction is measured by:

NIH Toolbox General Life Satisfaction Survey

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

Section 7:   Measure Description

EMOTION Core Measure

The NIH Toolbox General Life Satisfaction Survey is a self-report measure that assesses global feelings and attitudes about one's life. A computer-adaptive test is used for adults, a separate computer-adaptive test version is used for ages 13-17, and a 5-item fixed-length form is used for ages 8-12, as well as for the Parent-Report version with ages 3-12. In addition, a fixed-length self-report form is available for ages 13-17 and 18-85, 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):

> The test directions were modified to render the measure suitable for parent administration.

Item-level changes (18-85 Self Report, 13-17 Self Report):

Item wording changed from: The *conditions* (8th grade level) of my life are excellent.

Item wording changed to: My *life situation* (6th grade level) is excellent.

Item wording changed from: In most ways my life is close to *ideal* (8th grade level).

Item wording changed to: In most ways, my life is close to *perfect* (4th grade level).

Rationale for change: Improved readability.

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

The item wording was modified to render the measure suitable for parent

administration.

Section 9: The Measure's Scoring Model

Measurement theory applied for scoring:

Rasch/Item Response Theory (IRT) – Self-Report versions

Classical Test Theory (CTT) – Parent-Report version

Rasch/IRT model employed:

Graded Response Model

CTT scoring approach employed:

Sum (raw sum of item responses)

Measure length:

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

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

Fixed (5 items, 8-12 Self Report and 3-12 Parent Report)

Fixed (18-85 Self Report, 13-17 Self Report as a supplemental measure)

Response data:

Ordinal (items have 5-point or 7-point response scales; options in each response set

range from "strongly disagree" to "strongly agree")

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, 25th/50th/75th 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 Life Satisfaction 18-85 by Age Group	General Life Satisfaction (theta)			Life Satisfaction 18-85 Unadjusted Scale Score			Life Satisfaction 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	265	0.15	1.54	265	50.92	16.68	257	49.83	16.61
30 - 39	302	0.16	1.32	302	51.05	14.29	290	49.86	14.10
40 - 49	251	-0.00	1.62	251	49.15	17.46	238	49.90	17.54
50 - 59	188	-0.14	1.72	188	47.74	19.00	173	49.83	19.49
60 - 69	163	0.02	1.60	163	49.41	17.59	152	49.87	18.43
70 - 85	240	0.10	1.04	240	50.42	11.53	216	50.03	11.66
All	1409	0.05	1.48	1409	49.78	16.12	1326	49.87	16.18

Table 2. NIH Toolbox General Life Satisfaction (theta) – Age 18-29		English			Spanish			Total			
		Males	Females	Total	Males	Females	Total	Males	Females	All
	N	60	113	173	21	71	92	81	184	265
	Mean	0.30	0.03	0.15	-0.03	0.19	0.12	0.27	0.05	0.15
	Standard Deviation	1.82	1.75	1.79	1.10	0.87	0.93	1.67	1.48	1.54
	Minimum Observed	-1.36	-2.80	-2.80	-0.87	-1.85	-1.85	-1.36	-2.80	-2.80
	25th Percentile	-0.14	-0.57	-0.43	-0.50	-0.47	-0.49	-0.21	-0.57	-0.44
	50th Percentile (Median)	0.18	-0.01	0.15	-0.35	0.18	0.04	0.15	0.04	0.11
	75th Percentile	0.61	0.56	0.61	0.07	0.73	0.64	0.61	0.61	0.61
	Maximum Observed	2.11	2.11	2.11	2.11	2.11	2.11	2.11	2.11	2.11

Table 2. NIH Toolbox General Life Satisfaction (theta) – Age 30-39		English			Spanish			Total		
		Males	Females	Total	Males	Females	Total	Males	Females	All
	N	54	155	209	18	75	93	72	230	302
	Mean	-0.09	0.27	0.15	0.23	0.28	0.27	-0.06	0.27	0.16
	Standard Deviation	1.72	1.35	1.48	0.93	0.83	0.85	1.56	1.21	1.32
	Minimum Observed	-2.80	-2.02	-2.80	-2.43	-2.34	-2.43	-2.80	-2.34	-2.80
	25th Percentile	-0.61	-0.29	-0.42	-0.07	-0.27	-0.19	-0.61	-0.29	-0.38
	50th Percentile (Median)	0.02	0.28	0.20	0.32	0.22	0.22	0.07	0.27	0.22
	75th Percentile	0.44	0.90	0.70	0.64	0.91	0.74	0.55	0.90	0.70
	Maximum Observed	1.80	2.11	2.11	1.61	2.11	2.11	1.80	2.11	2.11

Table 2. NIH Toolbox General Life Satisfaction (theta) – Age 40-49		English			Spanish			Total		
		Males	Females	Total	Males	Females	Total	Males	Females	All
	N	61	119	180	29	42	71	90	161	251
	Mean	-0.11	0.09	0.01	-0.09	-0.10	-0.09	-0.11	0.07	-0.00
	Standard Deviation	1.98	1.74	1.83	0.99	0.79	0.87	1.72	1.55	1.62
	Minimum Observed	-2.64	-2.80	-2.80	-1.45	-1.86	-1.86	-2.64	-2.80	-2.80
	25th Percentile	-0.73	-0.51	-0.57	-0.70	-0.76	-0.72	-0.73	-0.52	-0.59
	50th Percentile (Median)	-0.18	0.05	-0.02	-0.11	-0.10	-0.11	-0.17	0.04	-0.02
	75th Percentile	0.47	0.73	0.56	0.27	0.56	0.50	0.47	0.73	0.56
	Maximum Observed	2.11	2.11	2.11	1.82	2.11	2.11	2.11	2.11	2.11

Table 2. NIH Toolbox General Life Satisfaction (theta) – Age 50-59		English			Spanish			Total		
		Males	Females	Total	Males	Females	Total	Males	Females	All
	N	57	83	140	24	24	48	81	107	188
	Mean	-0.05	-0.25	-0.14	0.06	-0.27	-0.06	-0.04	-0.25	-0.14
	Standard Deviation	2.05	1.69	1.85	1.58	0.88	1.28	1.91	1.54	1.72
	Minimum Observed	-1.93	-2.60	-2.60	-3.09	-1.52	-3.09	-3.09	-2.60	-3.09
	25th Percentile	-0.85	-0.89	-0.86	-0.75	-0.88	-0.88	-0.85	-0.89	-0.86
	50th Percentile (Median)	-0.00	-0.35	-0.14	-0.23	-0.45	-0.26	-0.00	-0.35	-0.21
	75th Percentile	0.57	0.38	0.57	0.89	-0.02	0.58	0.60	0.37	0.57
	Maximum Observed	1.68	2.11	2.11	2.11	2.11	2.11	2.11	2.11	2.11

Table 2. NIH Toolbox General Life Satisfaction (theta) – Age 60-69		English			Spanish			Total		
		Males	Females	Total	Males	Females	Total	Males	Females	All
	N	48	70	118	19	26	45	67	96	163
	Mean	0.07	-0.08	-0.01	0.32	0.21	0.27	0.09	-0.06	0.02
	Standard Deviation	1.95	1.71	1.81	0.85	0.86	0.84	1.71	1.53	1.60
	Minimum Observed	-1.43	-2.80	-2.80	-0.56	-2.07	-2.07	-1.43	-2.80	-2.80
	25th Percentile	-0.62	-0.68	-0.62	-0.11	-0.40	-0.37	-0.55	-0.68	-0.56
	50th Percentile (Median)	0.14	-0.02	0.04	0.10	0.51	0.10	0.14	0.01	0.09
	75th Percentile	0.69	0.52	0.52	0.77	0.71	0.75	0.69	0.56	0.56
	Maximum Observed	2.11	2.11	2.11	2.11	2.11	2.11	2.11	2.11	2.11

Table 2. NIH Toolbox General Life Satisfaction (theta) – Age 70-85		English			Spanish			Total		
		Males	Females	Total	Males	Females	Total	Males	Females	All
	N	95	106	201	22	17	39	117	123	240
	Mean	0.10	0.06	0.09	0.26	0.41	0.31	0.11	0.08	0.10
	Standard Deviation	1.16	1.07	1.11	0.56	0.38	0.49	1.07	1.01	1.04
	Minimum Observed	-1.52	-2.42	-2.42	-0.96	-0.51	-0.96	-1.52	-2.42	-2.42
	25th Percentile	-0.43	-0.53	-0.44	-0.38	-0.15	-0.16	-0.43	-0.51	-0.43
	50th Percentile (Median)	0.03	-0.00	0.00	0.25	0.50	0.25	0.06	0.00	0.02
	75th Percentile	0.52	0.56	0.56	0.56	0.64	0.57	0.52	0.56	0.56
	Maximum Observed	2.46	2.11	2.46	2.46	1.93	2.46	2.46	2.11	2.46

Table 2. NIH Toolbox General Life Satisfaction (theta) – NCS Sample of Mothers		English	Spanish	All
	N	81	35	116
	Mean	0.25	0.11	0.21
	Standard Deviation	0.97	0.97	0.97
	Minimum Observed	-1.65	-1.93	-1.93
	25th Percentile	-0.43	-0.58	-0.45
	50th Percentile (Median)	0.22	0.15	0.19
	75th Percentile	0.87	0.83	0.86
	Maximum Observed	2.11	2.11	2.11

Table 2. NIH Toolbox General Life Satisfaction (theta) – NCS Sample of Pregnant Women		English	Spanish	All
	N	81	44	125
	Mean	0.31	0.29	0.30
	Standard Deviation	0.85	0.91	0.87
	Minimum Observed	-2.30	-2.34	-2.34
	25th Percentile	-0.23	-0.26	-0.25
	50th Percentile (Median)	0.43	0.30	0.38
	75th Percentile	0.81	0.72	0.73
	Maximum Observed	1.82	2.11	2.11

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, 25th/50th/75th 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 Life Satisfaction 13-17 by Age Group	General Life Satisfaction (theta)			Life Satisfaction 13-17 Unadjusted Scale Score			Life Satisfaction 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	0.21	0.48	217	52.87	5.32	209	49.93	5.43
14	234	-0.02	0.43	234	50.39	4.73	226	50.03	4.85
15	223	-0.12	0.52	223	49.28	5.62	217	49.95	5.67
16	214	-0.08	0.57	214	49.64	6.19	204	49.91	6.12
17	224	-0.05	0.47	224	50.08	5.21	216	50.11	5.37
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	-0.02	0.50	1112	50.41	5.46	1072	49.99	5.48

Table 2. NIH Toolbox General Life Satisfaction (theta) – Age 13		English			Spanish			Total		
		Males	Females	Total	Males	Females	Total	Males	Females	All
	N	115	102	217	0	0	0	115	102	217
	Mean	0.26	0.11	0.21				0.26	0.11	0.21
	Standard Deviation	0.51	0.45	0.48				0.51	0.45	0.48
	Minimum Observed	-1.52	-1.77	-1.77				-1.52	-1.77	-1.77
	25th Percentile	-0.31	-0.37	-0.34				-0.31	-0.37	-0.34
	50th Percentile (Median)	0.19	-0.03	0.09				0.19	-0.03	0.09
	75th Percentile	0.79	0.64	0.72				0.79	0.64	0.72
	Maximum Observed	2.06	2.06	2.06				2.06	2.06	2.06

Table 2. NIH Toolbox General Life Satisfaction (theta) – Age 14		English			Spanish			Total		
		Males	Females	Total	Males	Females	Total	Males	Females	All
	N	113	121	234	0	0	0	113	121	234
	Mean	0.01	-0.06	-0.02				0.01	-0.06	-0.02
	Standard Deviation	0.46	0.40	0.43				0.46	0.40	0.43
	Minimum Observed	-2.40	-3.27	-3.27				-2.40	-3.27	-3.27
	25th Percentile	-0.45	-0.59	-0.48				-0.45	-0.59	-0.48
	50th Percentile (Median)	0.01	0.01	0.01				0.01	0.01	0.01
	75th Percentile	0.35	0.41	0.39				0.35	0.41	0.39
	Maximum Observed	2.42	2.06	2.42				2.42	2.06	2.42

Table 2. NIH Toolbox General Life Satisfaction (theta) – Age 15		English			Spanish			Total		
		Males	Females	Total	Males	Females	Total	Males	Females	All
	N	111	112	223	0	0	0	111	112	223
	Mean	-0.03	-0.25	-0.12				-0.03	-0.25	-0.12
	Standard Deviation	0.47	0.55	0.52				0.47	0.55	0.52
	Minimum Observed	-1.86	-2.95	-2.95				-1.86	-2.95	-2.95
	25th Percentile	-0.63	-0.97	-0.71				-0.63	-0.97	-0.71
	50th Percentile (Median)	0.01	-0.13	-0.08				0.01	-0.13	-0.08
	75th Percentile	0.52	0.52	0.52				0.52	0.52	0.52
	Maximum Observed	2.06	2.06	2.06				2.06	2.06	2.06

Table 2. NIH Toolbox General Life Satisfaction (theta) – Age 16		English			Spanish			Total		
		Males	Females	Total	Males	Females	Total	Males	Females	All
	N	107	107	214	0	0	0	107	107	214
	Mean	0.01	-0.22	-0.08				0.01	-0.22	-0.08
	Standard Deviation	0.57	0.56	0.57				0.57	0.56	0.57
	Minimum Observed	-1.92	-2.92	-2.92				-1.92	-2.92	-2.92
	25th Percentile	-0.44	-0.82	-0.74				-0.44	-0.82	-0.74
	50th Percentile (Median)	0.06	-0.32	-0.07				0.06	-0.32	-0.07
	75th Percentile	0.58	0.42	0.54				0.58	0.42	0.54
	Maximum Observed	2.06	2.06	2.06				2.06	2.06	2.06

Table 2. NIH Toolbox General Life Satisfaction (theta) – Age 17		English			Spanish			Total		
		Males	Females	Total	Males	Females	Total	Males	Females	All
	N	111	113	224	0	0	0	111	113	224
	Mean	-0.07	-0.01	-0.05				-0.07	-0.01	-0.05
	Standard Deviation	0.47	0.48	0.47				0.47	0.48	0.47
	Minimum Observed	-2.06	-3.05	-3.05				-2.06	-3.05	-3.05
	25th Percentile	-0.57	-0.69	-0.62				-0.57	-0.69	-0.62
	50th Percentile (Median)	-0.07	0.08	-0.02				-0.07	0.08	-0.02
	75th Percentile	0.38	0.58	0.48				0.38	0.58	0.48
	Maximum Observed	1.89	2.06	2.06				1.89	2.06	2.06

Figure 1
Least Squares Means

Mean Unadjusted Scale Score
With 95% Confidence Limits
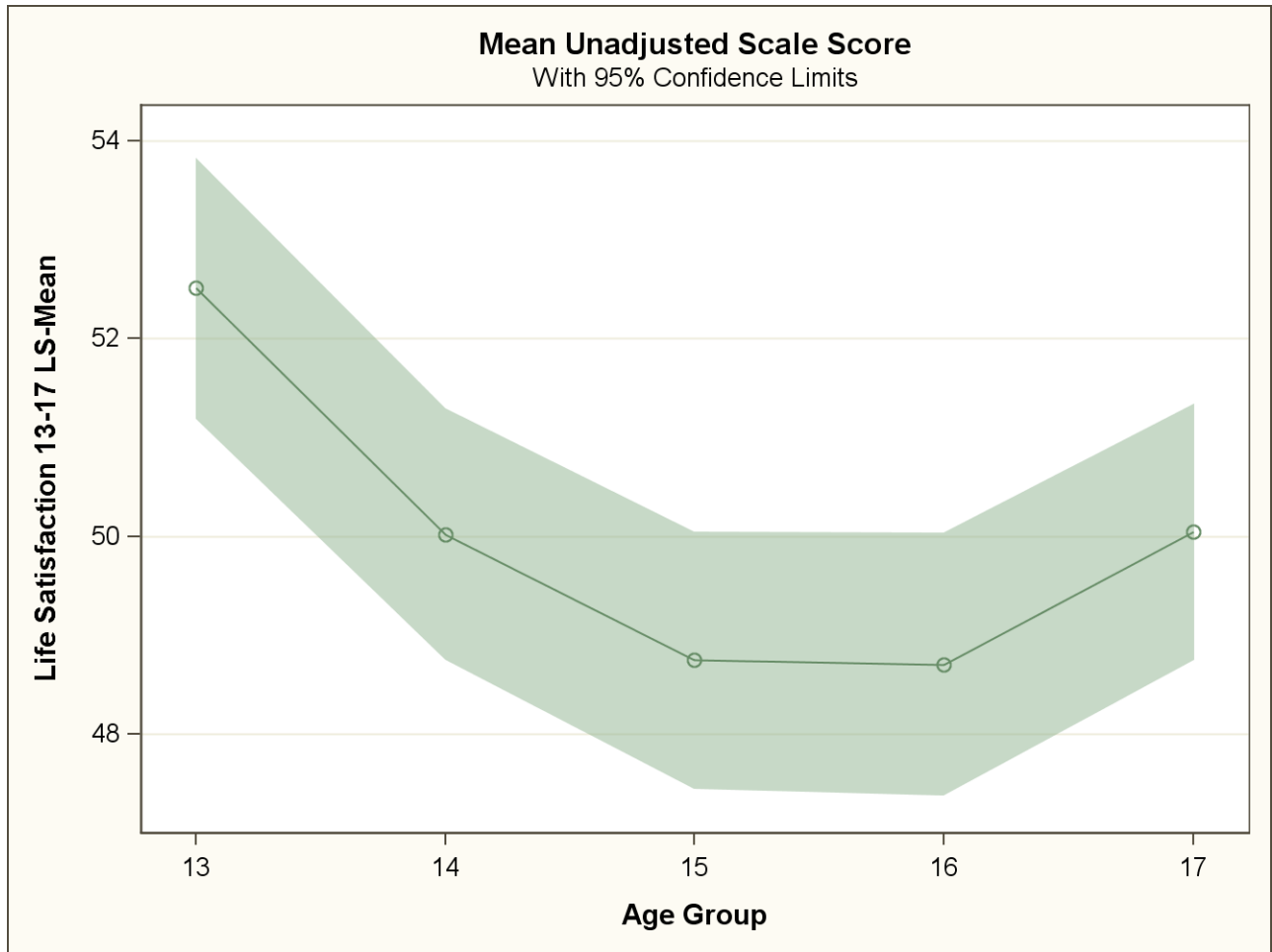
Section 12:   Measure Norms-8-12 Self Report

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, 25th/50th/75th 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 Life Satisfaction 8-12 by Age Group	General Life Satisfaction (theta)			Life Satisfaction 8-12 Unadjusted Scale Score			Life Satisfaction 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	190	-0.37	0.53	190	48.19	6.31	181	50.76	6.88
9	211	-0.11	0.47	211	51.00	5.61	198	49.94	5.33
10	227	-0.12	0.43	227	50.85	5.04	209	50.22	5.25
11	212	-0.09	0.41	212	51.42	5.24	200	49.98	4.76
12	215	-0.21	0.44	215	49.87	5.27	205	50.32	5.44
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	1055	-0.18	0.46	1055	50.30	5.51	993	50.24	5.54

Table 2. NIH Toolbox General Life Satisfaction (theta) – Age 8	English			Spanish			Total		
	Males	Females	Total	Males	Females	Total	Males	Females	All
N	93	97	190	0	0	0	93	97	190
Mean	-0.46	-0.26	-0.37				-0.46	-0.26	-0.37
Standard Deviation	0.62	0.42	0.53				0.62	0.42	0.53
Minimum Observed	-3.11	-2.70	-3.11				-3.11	-2.70	-3.11
25th Percentile	-1.30	-0.69	-0.96				-1.30	-0.69	-0.96
50th Percentile (Median)	-0.45	-0.45	-0.45				-0.45	-0.45	-0.45
75th Percentile	0.45	0.29	0.33				0.45	0.29	0.33
Maximum Observed	1.08	1.54	1.54				1.08	1.54	1.54

Table 2. NIH Toolbox General Life Satisfaction (theta) – Age 9		English			Spanish			Total		
		Males	Females	Total	Males	Females	Total	Males	Females	All
	N	107	104	211	0	0	0	107	104	211
	Mean	-0.05	-0.21	-0.11				-0.05	-0.21	-0.11
	Standard Deviation	0.53	0.40	0.47				0.53	0.40	0.47
	Minimum Observed	-2.89	-3.11	-3.11				-2.89	-3.11	-3.11
	25th Percentile	-0.49	-0.73	-0.59				-0.49	-0.73	-0.59
	50th Percentile (Median)	0.11	-0.05	-0.04				0.11	-0.05	-0.04
	75th Percentile	0.60	0.30	0.56				0.60	0.30	0.56
	Maximum Observed	1.21	1.08	1.21				1.21	1.08	1.21

Table 2. NIH Toolbox General Life Satisfaction (theta) – Age 10		English			Spanish			Total		
		Males	Females	Total	Males	Females	Total	Males	Females	All
	N	116	111	227	0	0	0	116	111	227
	Mean	-0.06	-0.21	-0.12				-0.06	-0.21	-0.12
	Standard Deviation	0.47	0.38	0.43				0.47	0.38	0.43
	Minimum Observed	-1.94	-2.47	-2.47				-1.94	-2.47	-2.47
	25th Percentile	-0.52	-0.79	-0.63				-0.52	-0.79	-0.63
	50th Percentile (Median)	-0.05	-0.25	-0.12				-0.05	-0.25	-0.12
	75th Percentile	0.73	0.53	0.56				0.73	0.53	0.56
	Maximum Observed	1.12	1.06	1.12				1.12	1.06	1.12

Table 2. NIH Toolbox General Life Satisfaction (theta) – Age 11		English			Spanish			Total		
		Males	Females	Total	Males	Females	Total	Males	Females	All
	N	104	108	212	0	0	0	104	108	212
	Mean	-0.05	-0.14	-0.09				-0.05	-0.14	-0.09
	Standard Deviation	0.42	0.41	0.41				0.42	0.41	0.41
	Minimum Observed	-2.13	-2.31	-2.31				-2.13	-2.31	-2.31
	25th Percentile	-0.48	-0.70	-0.63				-0.48	-0.70	-0.63
	50th Percentile (Median)	-0.12	-0.16	-0.14				-0.12	-0.16	-0.14
	75th Percentile	0.56	0.56	0.56				0.56	0.56	0.56
	Maximum Observed	1.12	1.54	1.54				1.12	1.54	1.54

Table 2. NIH Toolbox General Life Satisfaction (theta) – Age 12		English			Spanish			Total		
		Males	Females	Total	Males	Females	Total	Males	Females	All
	N	100	115	215	0	0	0	100	115	215
	Mean	-0.15	-0.28	-0.21				-0.15	-0.28	-0.21
	Standard Deviation	0.46	0.41	0.44				0.46	0.41	0.44
	Minimum Observed	-2.08	-1.96	-2.08				-2.08	-1.96	-2.08
	25th Percentile	-0.67	-1.00	-0.77				-0.67	-1.00	-0.77
	50th Percentile (Median)	-0.14	-0.39	-0.28				-0.14	-0.39	-0.28
	75th Percentile	0.33	0.34	0.34				0.33	0.34	0.34
	Maximum Observed	1.08	1.08	1.08				1.08	1.08	1.08

Figure 1
Least Squares Means

Section 13: Measure Norms-3-12 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 (3, 4, 5, 6, 7, 8, 9, 10, 11, 12, All)**

Table 2. **Measure Raw/Computed Score Statistics (N, Mean, Standard Deviation, Minimum/Maximum Observed, 25th/50th/75th Percentile) per Age Group (3, 4, 5, 6, 7, 8, 9, 10, 11, 12, All)**

Figure 1. **Measure Mean Unadjusted Scale Scores across All Age Groups (3, 4, 5, 6, 7, 8, 9, 10, 11, 12)**

Table 1. NIH Toolbox Life Satisfaction Parent 3-12 by Age Group	General Life Satisfaction Parent Report (raw score)			Life Satisfaction Parent 3-12 Unadjusted Scale Score			Life Satisfaction Parent 3-12 Fully Adjusted Scale Score		
	N	Mean	SD	N	Mean	SD	N	Mean	SD
Age Group									
3	212	22.45	1.50	212	54.44	5.05	193	49.26	4.15
4	237	22.28	1.46	237	53.76	4.83	220	49.42	4.23
5	220	22.19	1.51	220	53.48	5.04	198	49.59	4.50
6	217	21.89	1.67	217	52.59	5.41	197	49.66	5.00
7	255	21.54	1.53	255	51.33	4.84	231	49.72	4.93
8	207	21.53	1.74	207	51.22	5.23	199	49.95	5.32
9	212	21.51	1.64	212	51.23	5.22	201	49.83	5.09
10	234	20.47	1.80	234	47.89	5.28	216	50.29	5.99
11	213	20.33	1.89	213	47.61	5.58	204	50.76	6.48
12	215	20.36	1.89	215	47.72	5.62	205	50.57	6.51
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	2222	21.46	1.71	2222	51.15	5.36	2064	49.90	5.28

Table 2. NIH Toolbox General Life Satisfaction Parent Report (raw score) – Age 3		English			Spanish			Total		
		Males	Females	Total	Males	Females	Total	Males	Females	All
	N	59	53	112	51	49	100	110	102	212
	Mean	22.68	23.43	22.96	20.68	20.64	20.66	22.24	22.81	22.45
	Standard Deviation	1.68	1.23	1.50	1.50	1.03	1.28	1.67	1.27	1.50
	Minimum Observed	17.00	18.00	17.00	10.00	13.00	10.00	10.00	13.00	10.00
	25th Percentile	21.00	22.00	21.00	19.00	19.00	19.00	20.00	21.00	21.00
	50th Percentile (Median)	23.00	25.00	24.00	21.00	21.00	21.00	23.00	24.00	23.00
	75th Percentile	25.00	25.00	25.00	24.00	23.00	23.00	25.00	25.00	25.00
	Maximum Observed	25.00	25.00	25.00	25.00	25.00	25.00	25.00	25.00	25.00

Table 2. NIH Toolbox General Life Satisfaction Parent Report (raw score) – Age 4		English			Spanish			Total		
		Males	Females	Total	Males	Females	Total	Males	Females	All
	N	66	67	133	49	55	104	115	122	237
	Mean	22.66	22.90	22.76	19.68	20.57	20.06	22.16	22.47	22.28
	Standard Deviation	1.82	1.29	1.57	1.11	0.93	1.03	1.69	1.21	1.46
	Minimum Observed	14.00	16.00	14.00	11.00	12.00	11.00	11.00	12.00	11.00
	25th Percentile	21.00	21.00	21.00	18.00	18.00	18.00	20.00	21.00	21.00
	50th Percentile (Median)	24.00	24.00	24.00	20.00	21.00	20.00	23.00	23.00	23.00
	75th Percentile	25.00	25.00	25.00	22.00	23.00	22.00	25.00	25.00	25.00
	Maximum Observed	25.00	25.00	25.00	25.00	25.00	25.00	25.00	25.00	25.00

Table 2. NIH Toolbox General Life Satisfaction Parent Report (raw score) – Age 5		English			Spanish			Total		
		Males	Females	Total	Males	Females	Total	Males	Females	All
	N	65	66	131	44	45	89	109	111	220
	Mean	22.38	22.87	22.58	20.09	20.61	20.30	21.99	22.49	22.19
	Standard Deviation	1.72	1.41	1.58	1.43	0.94	1.20	1.69	1.31	1.51
	Minimum Observed	15.00	16.00	15.00	11.00	15.00	11.00	11.00	15.00	11.00
	25th Percentile	20.00	21.00	20.00	18.00	19.00	18.00	20.00	20.00	20.00
	50th Percentile (Median)	23.00	24.00	23.00	21.00	21.00	21.00	22.00	23.00	23.00
	75th Percentile	25.00	25.00	25.00	23.00	23.00	23.00	25.00	25.00	25.00
	Maximum Observed	25.00	25.00	25.00	25.00	25.00	25.00	25.00	25.00	25.00

Table 2. NIH Toolbox General Life Satisfaction Parent Report (raw score) – Age 6		English			Spanish			Total		
		Males	Females	Total	Males	Females	Total	Males	Females	All
	N	62	62	124	42	51	93	104	113	217
	Mean	22.31	22.53	22.40	19.37	19.99	19.64	21.80	22.02	21.89
	Standard Deviation	1.83	1.74	1.78	1.31	1.11	1.20	1.77	1.57	1.67
	Minimum Observed	15.00	14.00	14.00	9.00	11.00	9.00	9.00	11.00	9.00
	25th Percentile	20.00	20.00	20.00	18.00	18.00	18.00	20.00	20.00	20.00
	50th Percentile (Median)	23.00	24.00	23.00	20.00	20.00	20.00	22.00	23.00	23.00
	75th Percentile	25.00	25.00	25.00	22.00	23.00	22.00	24.00	25.00	25.00
	Maximum Observed	25.00	25.00	25.00	25.00	25.00	25.00	25.00	25.00	25.00

Table 2. NIH Toolbox General Life Satisfaction Parent Report (raw score) – Age 7	English			Spanish			Total		
	Males	Females	Total	Males	Females	Total	Males	Females	All
N	83	80	163	46	46	92	129	126	255
Mean	21.51	22.37	21.84	19.78	19.90	19.82	21.26	22.00	21.54
Standard Deviation	2.04	1.19	1.69	1.14	0.90	1.02	1.80	1.16	1.53
Minimum Observed	13.00	16.00	13.00	10.00	9.00	9.00	10.00	9.00	9.00
25th Percentile	20.00	21.00	20.00	18.00	18.00	18.00	20.00	20.00	20.00
50th Percentile (Median)	22.00	23.00	22.00	20.00	20.00	20.00	21.00	22.00	22.00
75th Percentile	24.00	24.00	24.00	22.00	22.00	22.00	24.00	24.00	24.00
Maximum Observed	25.00	25.00	25.00	25.00	25.00	25.00	25.00	25.00	25.00

Table 2. NIH Toolbox General Life Satisfaction Parent Report (raw score) – Age 8	English			Spanish			Total		
	Males	Females	Total	Males	Females	Total	Males	Females	All
N	105	102	207	0	0	0	105	102	207
Mean	21.30	21.87	21.53				21.30	21.87	21.53
Standard Deviation	2.09	1.26	1.74				2.09	1.26	1.74
Minimum Observed	9.00	14.00	9.00				9.00	14.00	9.00
25th Percentile	20.00	20.00	20.00				20.00	20.00	20.00
50th Percentile (Median)	22.00	22.00	22.00				22.00	22.00	22.00
75th Percentile	24.00	24.00	24.00				24.00	24.00	24.00
Maximum Observed	25.00	25.00	25.00				25.00	25.00	25.00

Table 2. NIH Toolbox General Life Satisfaction Parent Report (raw score) – Age 9	English			Spanish			Total		
	Males	Females	Total	Males	Females	Total	Males	Females	All
N	106	106	212	0	0	0	106	106	212
Mean	21.58	21.41	21.51				21.58	21.41	21.51
Standard Deviation	1.95	1.27	1.64				1.95	1.27	1.64
Minimum Observed	12.00	13.00	12.00				12.00	13.00	12.00
25th Percentile	19.00	20.00	20.00				19.00	20.00	20.00
50th Percentile (Median)	22.00	22.00	22.00				22.00	22.00	22.00
75th Percentile	25.00	23.00	24.00				25.00	23.00	24.00
Maximum Observed	25.00	25.00	25.00				25.00	25.00	25.00

Table 2. NIH Toolbox General Life Satisfaction Parent Report (raw score) – Age 10	English			Spanish			Total		
	Males	Females	Total	Males	Females	Total	Males	Females	All
N	118	116	234	0	0	0	118	116	234
Mean	20.45	20.50	20.47				20.45	20.50	20.47
Standard Deviation	2.00	1.58	1.80				2.00	1.58	1.80
Minimum Observed	12.00	10.00	10.00				12.00	10.00	10.00
25th Percentile	18.00	18.00	18.00				18.00	18.00	18.00
50th Percentile (Median)	21.00	21.00	21.00				21.00	21.00	21.00
75th Percentile	23.00	23.00	23.00				23.00	23.00	23.00
Maximum Observed	25.00	25.00	25.00				25.00	25.00	25.00

Table 2. NIH Toolbox General Life Satisfaction Parent Report (raw score) – Age 11	English			Spanish			Total		
	Males	Females	Total	Males	Females	Total	Males	Females	All
N	106	107	213	0	0	0	106	107	213
Mean	20.28	20.41	20.33				20.28	20.41	20.33
Standard Deviation	2.09	1.69	1.89				2.09	1.69	1.89
Minimum Observed	8.00	8.00	8.00				8.00	8.00	8.00
25th Percentile	18.00	18.00	18.00				18.00	18.00	18.00
50th Percentile (Median)	20.00	20.00	20.00				20.00	20.00	20.00
75th Percentile	24.00	23.00	23.00				24.00	23.00	23.00
Maximum Observed	25.00	25.00	25.00				25.00	25.00	25.00

Table 2. NIH Toolbox General Life Satisfaction Parent Report (raw score) – Age 12	English			Spanish			Total		
	Males	Females	Total	Males	Females	Total	Males	Females	All
N	100	115	215	0	0	0	100	115	215
Mean	20.55	20.12	20.36				20.55	20.12	20.36
Standard Deviation	2.01	1.78	1.89				2.01	1.78	1.89
Minimum Observed	13.00	8.00	8.00				13.00	8.00	8.00
25th Percentile	18.00	18.00	18.00				18.00	18.00	18.00
50th Percentile (Median)	20.00	20.00	20.00				20.00	20.00	20.00
75th Percentile	24.00	23.00	23.00				24.00	23.00	23.00
Maximum Observed	25.00	25.00	25.00				25.00	25.00	25.00

Figure 1
Least Squares Means