The Patient Reported Outcomes Measurement Information System (PROMIS)

David Cella,PhD
Northwestern University, Chicago, IL, USA
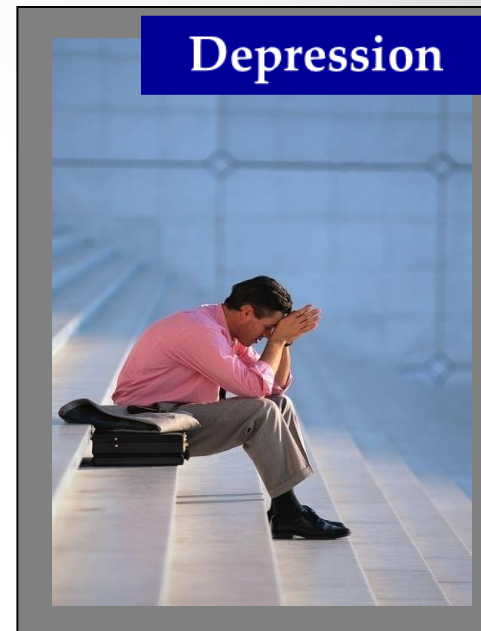
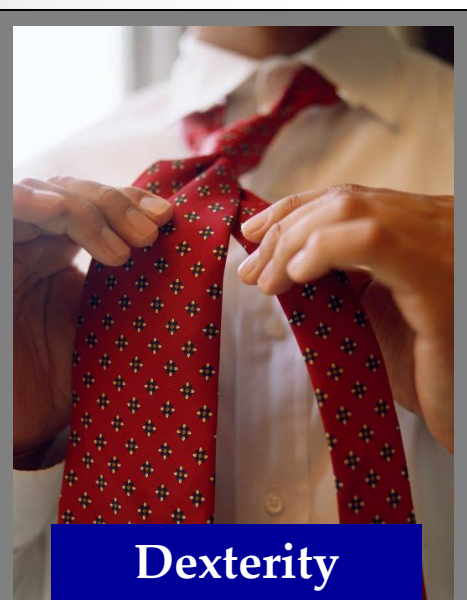# The Charge: Transform Clinical Research with Cross-cutting PROs
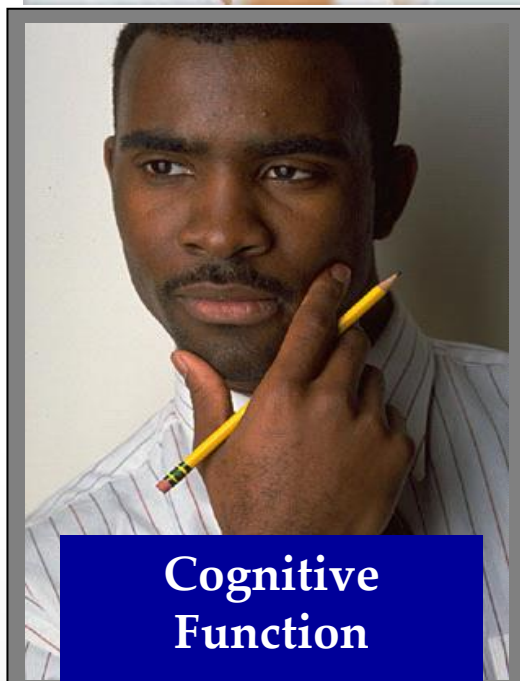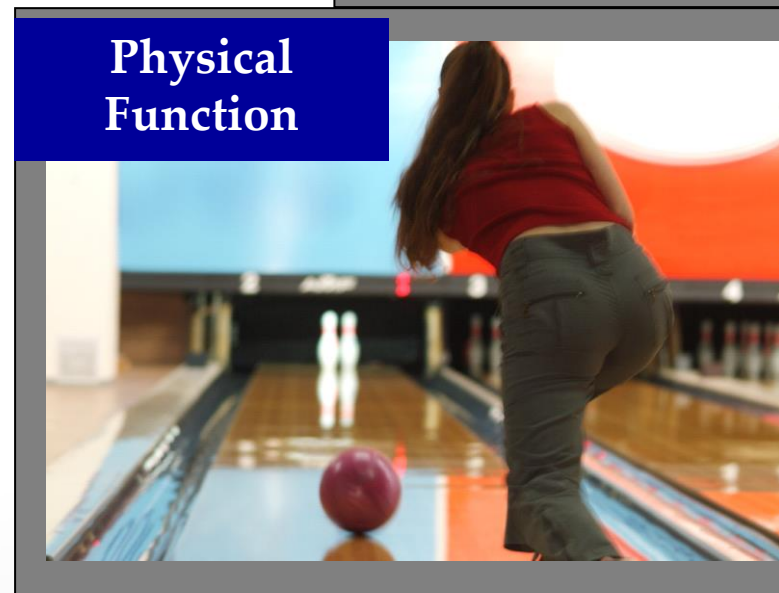
Social Function

Pain

Depression

Dexterity

Cognitive Function

Physical Function

PROMIS Cooperative Group 2004-2015 Highlights

- > 250 Investigators
- > 50 research protocols aligned with evolving PROMIS standards
- > 50 grants
  - Roadmap/Common Fund
  - Individual Institutes
  - PCORI, DoD, VA, US Army, CDC, multiple foundations, industry
- > 50,000 people have provided data
  - Adults and Children
  - English, Spanish, Chinese and other languages
  - Qualitative and quantitative

PROMIS Measures

- ## Adult Health Measures
  - More than 1,300 individual items (questions)
  - 71 distinct item banks or scales
  - 20 languages

- ## Pediatric Health Measures
  - More than 250 items (questions)
  - 40 distinct banks or scales
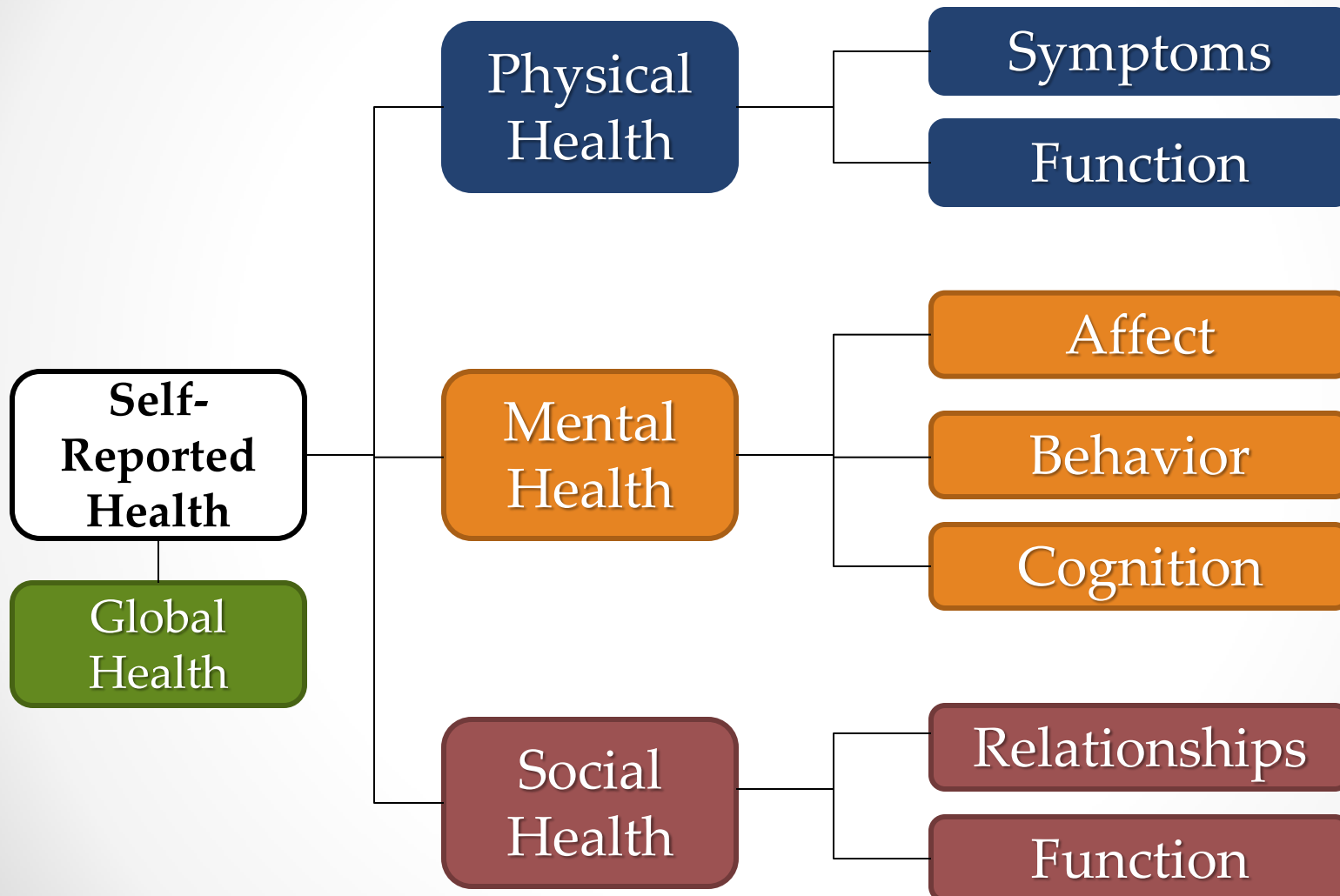 - 10 languages

PROMIS is

Domain-specific;
not Disease-specific

A domain is the specific feeling, function, or perception you want to measure.

Cuts across different diseases

PROMIS Domain Framework

An item bank is a large collection of items measuring a single domain.

Any and all items can be used to provide a score for that domain.
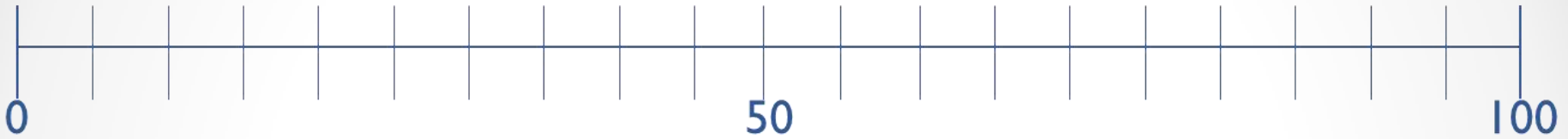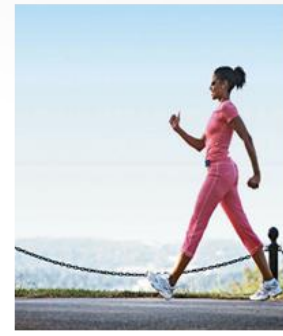
Physical Functioning Item Bank

| Item 1 | Item 2 | Item 3 | Item 4 | Item 5 | Item 6 | Item 7 | Item 8 | Item 9 | Item n |
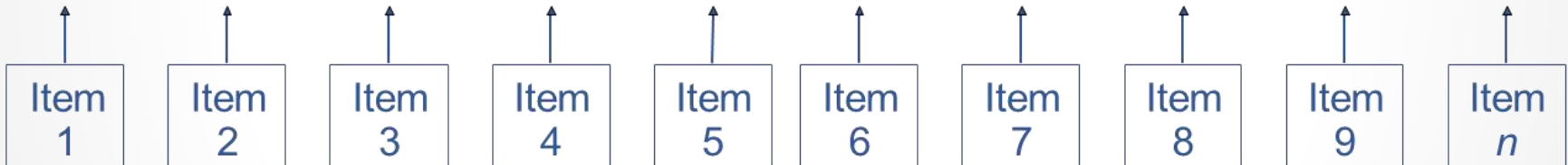
Are you able to get in and out of bed?
Are you able to stand without losing your balance for 1 minute?
Are you able to walk from one room to another?
Are you able to walk a block on flat ground?
Are you able to run or jog for two miles?
Are you able to run five miles?

The PROMIS Metric

- ## T Score
  - Mean = 50
  - SD = 10

- ## Referenced to the US General Population

PROMIS Basic Tools

Global Health Index

- Global-10

Derived from Item Banks

- Computerized Adaptive Testing (CAT)
  - Dynamic testing averaging 4-5 items per domain
- Fixed Length Forms
  - By individual domain (4-10 items)
  - 7-domain health profiles (-29, -43, -57)

CAT Graph

Your scores for the CATs you completed are shown below.

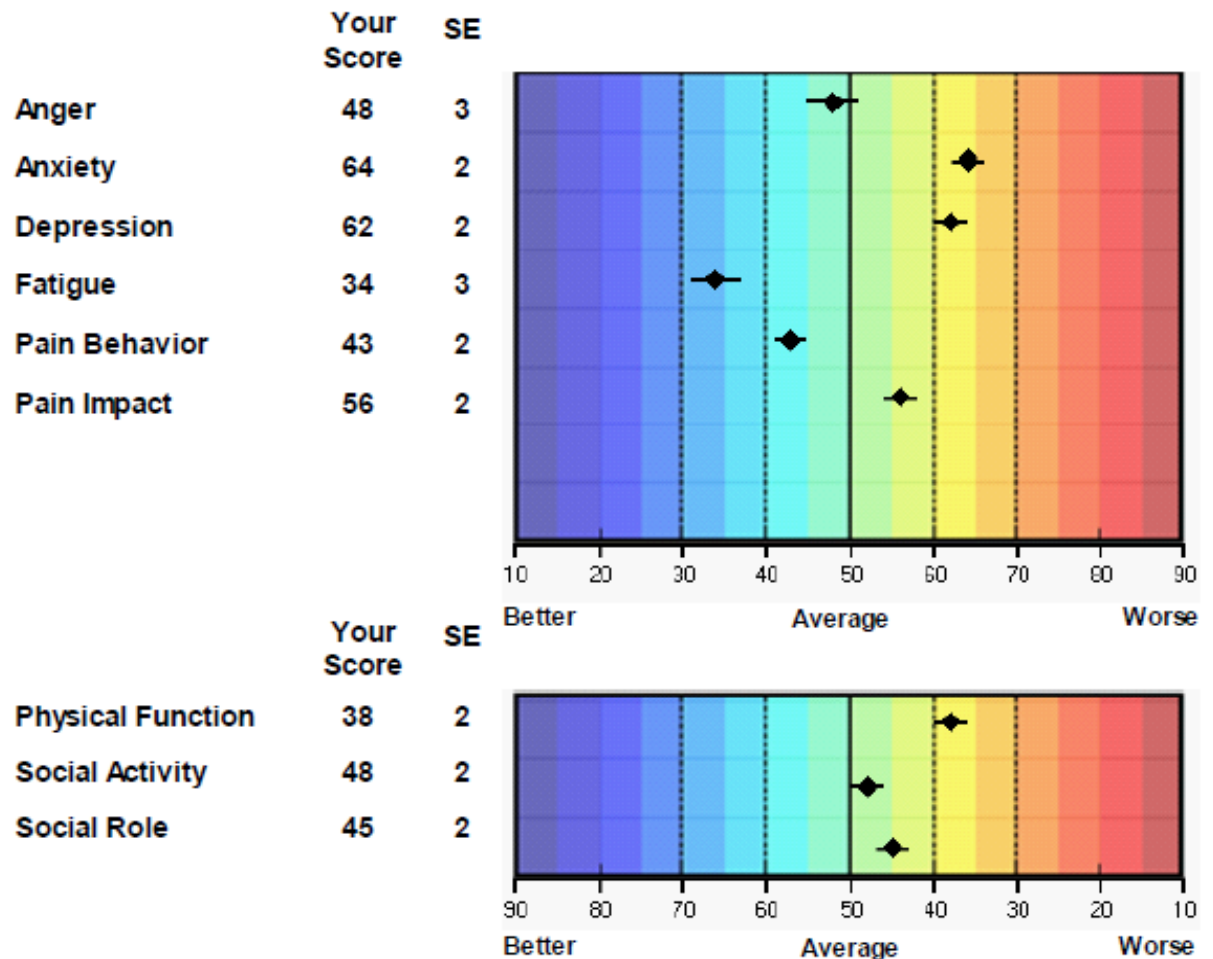The diamond ♦ is placed where we think your score lies. This diamond is placed on your T-Score, which is a standardized score that is based on an average score of 50, based on responses to the same questions in the United States general population. The T-score also has a standard deviation of 10 points, so a score of 40 or 60 represents a score that is one standard deviation away from the average score of the general US population.

The Standard Error (SE) is a statistical measure of variance and represents the possible range of your score. The lines on either side of the diamond in your profile report show the possible range of your actual score around this estimated score. It is very likely that your score is in the range of these lines.

	Your Score	SE
Anger	48	3
Anxiety	64	2
Depression	62	2
Fatigue	34	3
Pain Behavior	43	2
Pain Impact	56	2

Better   Average   Worse

	Your Score	SE
Physical Function	38	2
Social Activity	48	2
Social Role	45	2

Better   Average   Worse

PROMIS® Profile Short Forms (v1)
(29-43-57 items)

8

6

4

| Mental | Anxiety 29 |
| | Depression 28 |

Physical	Fatigue 95
	Pain Interference 41
	Sleep Disturbance 27
	Physical Function 124

| Social | Satisfaction with Roles 14 |
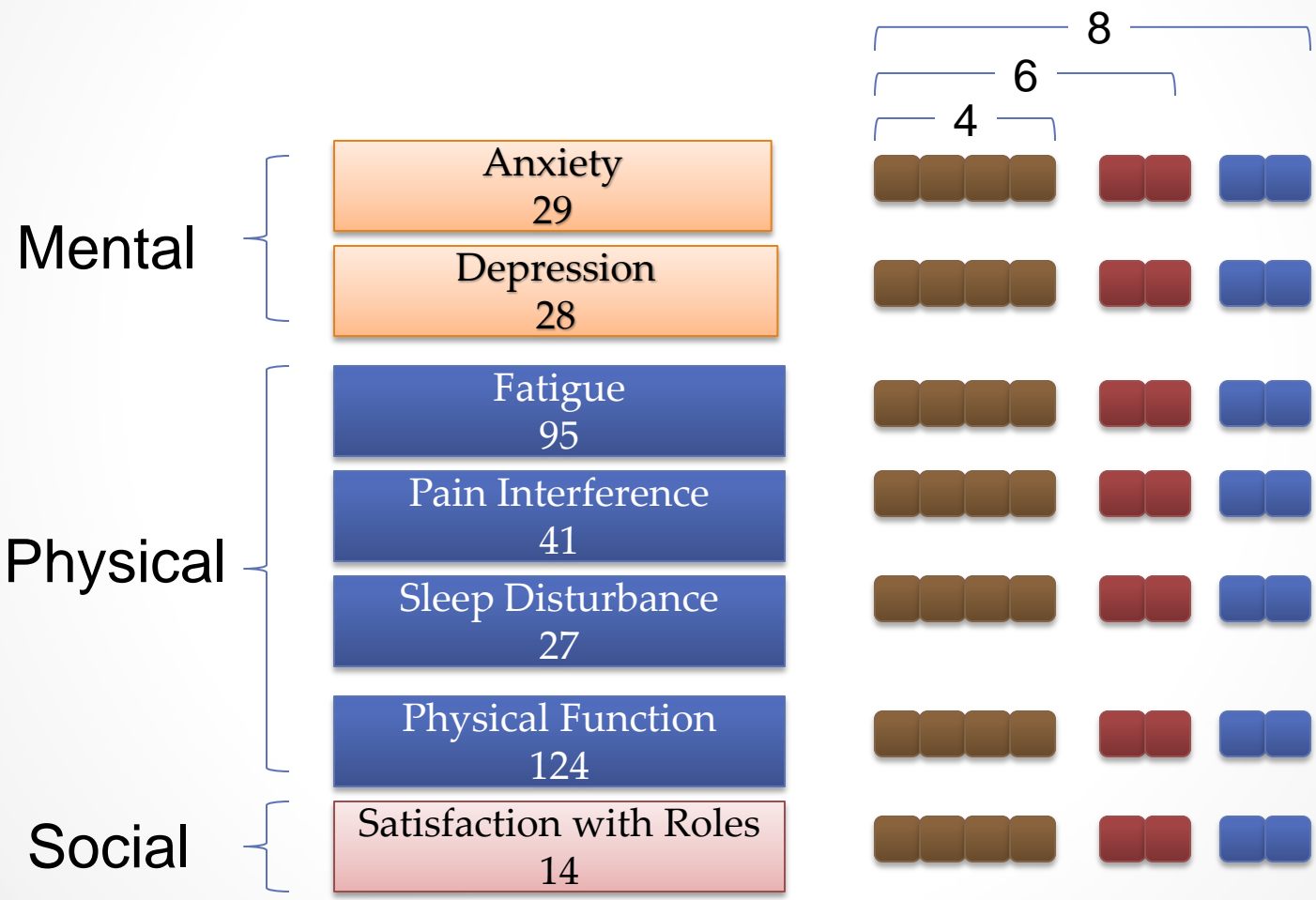
(+ pain intensity)

DSM-5 Level 1 Cross-cutting Measure - Adult

DSM-5 Self-Rated Level 1 Cross-Cutting Dimensional Measure - Adult

Name (individual receiving care): ___John E. Doe___   Age: _65_   Sex: ☒ Male ☐ Female   Date: _04/04/14_

If the measure is being completed by an informant, what is your relationship with the individual receiving care: _____

In a typical week, approximately how much time do you spend with the individual receiving care? _____ hours/week

Instructions: The questions below ask about things that might have bothered you. For each question, select (✓) the number that best describes how much (or how often) you have been bothered by each problem during the past TWO (2) WEEKS.

		During the past TWO (2) WEEKS, how much (or how often) have you been bothered by the following problems:	None Not at all	Slight Rare, less than a day or two	Mild Several days	Moderate More than half the days	Severe Nearly every day	Highest Domain Score (clinician
I.	1.	Little interest or pleasure in doing things?	☒0	1	2	3	4	1
	2.	Feeling down, depressed, or hopeless?	0	☒1	2	3	4	
II.	3.	Feeling more irritated, grouchy, or angry than usual?	0	☒1	2	3	4	1
III.	4.	Sleeping less than usual, but still have a lot of energy?	☒0	1	2	3	4	0
	5.	Starting lots more projects than usual or doing more risky things than usual?	☒0	1	2	3	4	
IV.	6.	Feeling nervous, anxious, frightened, worried, or on edge?	0	1	2	☒3	4	3
	7.	Feeling panic or being frightened?	0	1	2	☒3	4	
	8.	Avoiding situations that make you anxious?	0	1	2	☒3	4	
V.	9.	Unexplained aches and pains (e.g. head, back, joints, abdomen, legs)?	0	☒1	2	3	4	1
	10.	Feeling that your illnesses are not being taken seriously enough?	☒0	1	2	3	4	
VI.	11.	Thoughts of actually hurting yourself?	☒0	1	2	3	4	
VII.	12.	Hearing things other people couldn't hear, such as voices even when no one was around?	☒0	1	2	3	4	0
	13.	Feeling that someone could hear your thoughts, or that you could hear what another person was thinking?	☒0	1	2	3	4	
VIII.	14.	Problems with sleep that affected your sleep quality over all?	☒0	1	2	3	4	0
IX.	15.	Problems with memory (e.g., learning new information), or with location (e.g., finding your way home)?	0	1	☒2	3	4	2
X.	16.	Unpleasant thoughts, urges, or images that repeatedly enter your mind?	☒0	1	2	3	4	0
	17.	Feeling driven to perform certain behaviors or mental acts over and over again?	☒0	1	2	3	4	
XI.	18.	Feeling detached or distant from myself, my body, my physical surroundings, or my memories?	☒0	1	2	3	4	0
XII.	19.	Not knowing who you really are or what you want out of life?	0	☒1	2	3	4	3
	20.	Not feeling close to other people or enjoying your relationships with them?	0	1	☒2	3	4	
XIII.	21.	Drink at least 4 drinks of any kind of alcohol in a single day?	0	1	2	☒3	4	3
	22.	Smoke any cigarettes, a cigar, or pipe or use snuff or chewing tobacco?	☒0	1	2	3	4	
	23.	Use any of the following medicines ON YOUR OWN, that is, without a doctor's prescription, in greater amounts or longer than prescribed [e.g., Painkillers (like Vicodin), Stimulants (like Ritalin or Adderall), Sedatives or tranquilizers (like sleeping pills or Valium), or drugs like Marijuana, Cocaine or crack, Club drugs (like ecstasy), Hallucinogens (like LSD), Heroin, Inhalants or solvents (like glue), or Methamphetamine (like speed)]?	☒0	1	2	3	4	3

> A score of 2+ on the ANXIETY domain triggers the PROMIS Anxiety measure

DSM-5 Level 2 Anxiety - Adult

LEVEL 2 — Anxiety — Adult[*]

*PROMIS Emotional Distress — Anxiety — Short Form

Name: _____ Age: _____ Sex: ☐ Male ☐ Female Date:_____

If the measure is being completed by an informant, what is your relationship with the individual? _____

In a typical week, approximately how much time do you spend with the individual? _____hours/week

Instructions to patient: On the DSM-5 Level 1 Cross-cutting questionnaire that you just completed, you indicated that *during the past 2 weeks* you (individual receiving care) have been bothered by "feeling nervous, anxious, frightened, worried, or on edge", "feeling panic or being frightened", and/or "avoiding situations that make you anxious" at a mild or greater level of severity. The questions below ask about these feelings in more detail and especially how often you (individual receiving care) have been bothered by a list of symptoms **during the past 7 days.** Please respond to each item by marking (✓ or x) one box per row.

In the past SEVEN (7) DAYS….		Never	Rarely	Sometimes	Often	Always	Clinician Use — Item Score
1.	I felt fearful.	☐ 1	☐ 2	☐ 3	☐ 4	☐ 5	
2.	I felt anxious.	☐ 1	☐ 2	☐ 3	☐ 4	☐ 5	
3.	I felt worried.	☐ 1	☐ 2	☐ 3	☐ 4	☐ 5	
4.	I found it hard to focus on anything other than my anxiety.	☐ 1	☐ 2	☐ 3	☐ 4	☐ 5	
5.	I felt nervous.	☐ 1	☐ 2	☐ 3	☐ 4	☐ 5	
6.	I felt uneasy.	☐ 1	☐ 2	☐ 3	☐ 4	☐ 5	
7.	I felt tense.	☐ 1	☐ 2	☐ 3	☐ 4	☐ 5	
Total/Partial Raw Score:							
Prorated Total Raw Score:							
T-Score:							

DSM-5 Level 2 Anxiety - Adult

Scoring and interpretation:

Each item on the measure is rated on a 5-point scale (1=never; 2=rarely; 3=sometimes; 4=often; and 5=always) with a range in score from 7 to 35 with higher scores indicating greater severity of anxiety. The clinician is asked to review the score on each item on the measure during the clinical interview and indicate the raw score for each item in the section provided for "Clinician Use". The raw scores on the 7 items should be summed to obtain a total raw score. Next, the T-score table should be used to identify the T-score associated with the total raw score and the information entered in the t-score row on the measure.

Anxiety 7a Short Form Conversion Table		
Raw Score	**T-score**	**SE***
7	36.3	5.4
8	42.1	3.4
9	44.7	2.9
10	46.7	2.6
11	48.4	2.4
12	49.9	2.3
13	51.3	2.3
14	52.6	2.2
15	53.8	2.2
16	55.1	2.2
17	56.3	2.2
18	57.6	2.2
19	58.8	2.2
20	60.0	2.2
21	61.3	2.2
22	62.6	2.2
23	63.8	2.2
24	65.1	2.2
25	66.4	2.2
26	67.7	2.2
27	68.9	2.2
28	70.2	2.2
29	71.5	2.2
30	72.9	2.2
31	74.3	2.2
32	75.8	2.3
33	77.4	2.4
34	79.5	2.7
35	82.7	3.5

*SE = Standard Error on T-score metric

Note: This look-up table works only if <u>all items</u> on the form are answered. If 75% or more of the questions have been answered; you are asked to prorate the raw score and then look up the conversion to T-Score. The formula to prorate the partial raw score to Total Raw Score is:

(Raw sum x number of items on the short form)
Number of items that were actually answered

If the result is a fraction, round to the nearest whole number.

For example, if 6 of 7 items were answered and the sum of those 6 responses was 20, the prorated raw score would be 20 X 7/ 6 = 23.33. The T-score in this example would be that T-score associated with the rounded whole number raw score (in this case 23, for a T-score of 63.8).

The T-scores are interpreted as follows:

Less than 55	= None to slight
55.0 – 59.9	= Mild
60.0 – 69.9	= Moderate
70 and over	= Severe

Note: If more than 25% of the total items on the measure are missing the scores should not be used. Therefore, the individual receiving care (or informant) should be encouraged to complete all of the items on the measure.

DSM-5 Level 1 Cross-cutting Measure - Child

DSM-5 Patient-Rated Level 1 Cross-Cutting Dimensional Measure - Child Age 6 to 17

Child's Name: Jane Doe   Age: 16   Sex: ☐ Male ☒ Female   Date: 04/04/14

Instructions (*to child*): The questions below ask about things that might have bothered you. For each question, select (✓ or X) the number that best describes how much (or how often) you have been bothered by each problem during the past TWO (2) WEEKS.

		During the past TWO (2) WEEKS, how much (or how often) have you......	None Not at all	Slight Rare, less than a day or two	Mild Several days	Moderate More than half the days	Severe Nearly every day	Highest Domain Score
I.	1.	Been bothered by stomachaches, headaches, or other aches and pains?	0̶X	1	2	3	4	0
	2.	Worried about your health or about getting sick?	0̶X	1	2	3	4	
II.	3.	Been bothered by not being able to fall asleep or stay asleep or by waking up too early?	0	1X	2	3	4	1
III.	4.	Been bothered by not being able to pay attention when you were in class or doing homework or reading a book or playing a game?	0	1X	2	3	4	1
IV.	5.	Had less fun doing things than you used to?	0	1	2X	3	4	3
	6.	Felt sad or depressed for several hours?	0	1	2	3X	4	
V. &	7.	Felt more irritated or easily annoyed than usual?	0	1	2X	3	4	2
VI.	8.	Felt angry or lost your temper?	0	1	2X	3	4	
VII.	9.	Starting lots more projects than usual or doing more risky things than usual?	0̶X	1	2	3	4	0
	10.	Sleeping less than usual but still have a lot of energy?	0X	1	2	3	4	
VIII.	11.	Felt nervous, anxious, or scared?	0	1X	2	3	4	1
	12.	Not been able to stop worrying?	0	1X	2	3	4	
	13.	Not been able to do things you wanted to or should have done because they made you feel nervous?	0	1X	2	3	4	
IX.	14.	Heard voices—when there was no one there—speaking about you or telling you what to do or saying bad things to you?	0̶X	1	2	3	4	0
	15.	Had visions when you were completely awake—that is, seen something or someone that no one else could see?	0X	1	2	3	4	
X.	16.	Had thoughts that kept coming into your mind that you would do something bad or that something bad would happen to you or to someone else?	0̶X	1	2	3	4	0
	17.	Felt the need to check on certain things over and over again, like whether a door was locked or whether the stove was turned off?	0X	1	2	3	4	
	18.	Worried a lot about things you touched being dirty or having germs or being poisoned?	0X	1	2	3	4	
	19.	Felt you had to do things in a certain way, like counting or saying special things, to keep something bad from happening?	0X	1	2	3	4	

		In the last TWO (2) WEEKS, have you.....						
XI.	20.	Had an alcoholic beverage (beer, wine, liquor, etc.)?	☐ Yes			☒ No		0
	21.	Smoked a cigarette, a cigar, or pipe or used snuff or chewing tobacco?	☐ Yes			☒ No		
	22.	Used drugs like marijuana, cocaine or crack, club drugs (like Ecstasy), hallucinogens (like LSD), heroin, inhalants or solvents (like glue), or methamphetamine (like speed)?	☐ Yes			☒ No		
	23.	Used any medicine without a doctor's prescription to get high or change the way you feel [e.g., painkillers (like Vicodin), stimulants (like Ritalin or Adderall), sedatives or tranquilizers (like sleeping pills or Valium), or steroids]?	☐ Yes			☒ No		
XII.	24.	In the last 2 weeks, have you thought about killing yourself or committing suicide?	☒ Yes			☐ No		1
	25.	Have you EVER tried to kill yourself?	☐ Yes			☒ No		

A score of 2+ on the DEPRESSION domain triggers the PROMIS Depression measure

DSM-5 Level 2 Depression - Child

LEVEL 2 – Depression – Child Age 11-17[*]
*PROMIS Emotional Distress – Depression – Pediatric Item Bank

Name: _____ Age: _____ Sex: ☐ Male ☐ Female Date: _____

Instructions to the child: On the DSM-5 Level 1 Cross-cutting questionnaire that you just completed, you indicated that *during the past 2 weeks* you have been bothered by "having little interest or pleasure in doing things" and/or "feeling down, depressed, or hopeless" at a mild or greater level of severity. The questions below ask about these feelings in more detail and especially how often you have been bothered by a list of symptoms __during the past 7 days.__ Please respond to each item by marking (✓ or x) one box per row.

	In the past SEVEN (7) DAYS…	Never	Almost Never	Sometimes	Often	Almost Always	Clinician Use
							Item Score
1.	I could not stop feeling sad.	☐ 1	☐ 2	☐ 3	☐ 4	☐ 5	
2.	I felt alone.	☐ 1	☐ 2	☐ 3	☐ 4	☐ 5	
3.	I felt everything in my life went wrong.	☐ 1	☐ 2	☐ 3	☐ 4	☐ 5	
4.	I felt like I couldn't do anything right.	☐ 1	☐ 2	☐ 3	☐ 4	☐ 5	
5.	I felt lonely.	☐ 1	☐ 2	☐ 3	☐ 4	☐ 5	
6.	I felt sad.	☐ 1	☐ 2	☐ 3	☐ 4	☐ 5	
7.	I felt unhappy.	☐ 1	☐ 2	☐ 3	☐ 4	☐ 5	
8.	I thought that my life was bad.	☐ 1	☐ 2	☐ 3	☐ 4	☐ 5	
9.	Being sad made it hard for me to do things with my friends.	☐ 1	☐ 2	☐ 3	☐ 4	☐ 5	
10.	I didn't care about anything.	☐ 1	☐ 2	☐ 3	☐ 4	☐ 5	
11.	I felt stressed.	☐ 1	☐ 2	☐ 3	☐ 4	☐ 5	
12.	I felt too sad to eat.	☐ 1	☐ 2	☐ 3	☐ 4	☐ 5	
13.	I wanted to be by myself.	☐ 1	☐ 2	☐ 3	☐ 4	☐ 5	
14.	It was hard for me to have fun.	☐ 1	☐ 2	☐ 3	☐ 4	☐ 5	
						Total/Partial Raw Score:	
						Prorated Total Raw Score:	
						T-Score:	

DSM-5 Level 2 Depression - Child

Scoring and interpretation:

Each item on the measure is rated on a 5-point scale (1=never; 2=almost never; 3=sometimes; 4=often; and 5=almost always) with a range in score from 14 to 70 with higher scores indicating greater severity of depression. The clinician is asked to review the score on each item on the measure during the clinical interview and indicate the raw score for each item in the section provided for "Clinician Use". The raw scores on the 14 items should be summed to obtain a total raw score. Next, the T-score table should be used to identify the T-score associated with the child's total raw score and the information entered in the T-score row on the measure.

Score	T-Score	SE		Score	T-Score	SE
14	31.7	5.9		43	63.1	2.7
15	35.2	5.3		44	63.8	2.7
16	36.9	5.2		45	64.4	2.7
17	39.1	4.8		46	65.1	2.7
18	40.6	4.7		47	65.7	2.7
19	42.4	4.3		48	66.4	2.7
20	43.8	4.1		49	67	2.7
21	45.2	3.9		50	67.7	2.7
22	46.5	3.7		51	68.4	2.7
23	47.6	3.5		52	69	2.7
24	48.7	3.4		53	69.7	2.7
25	49.7	3.3		54	70.4	2.7
26	50.6	3.2		55	71.1	2.7
27	51.5	3.1		56	71.8	2.7
28	52.4	3		57	72.6	2.8
29	53.2	3		58	73.3	2.8
30	54	2.9		59	74.1	2.8
31	54.8	2.9		60	74.9	2.9
32	55.6	2.8		61	75.7	3
33	56.3	2.8		62	76.6	3
34	57	2.8		63	77.5	3.1
35	57.7	2.8		64	78.4	3.2
36	58.4	2.8		65	79.4	3.3
37	59.1	2.7		66	80.6	3.5
38	59.8	2.7		67	81.7	3.6
39	60.4	2.7		68	83.1	3.7
40	61.1	2.7		69	84.6	3.8
41	61.8	2.7		70	86.6	4
42	62.4	2.7				

Note: This look-up table works only if <u>all items</u> on the form are answered. If 75% or more of the questions have been answered; you are asked to prorate the raw score and then look up the conversion to T-Score. The formula to prorate the partial raw score to Total Raw Score is:

(Raw sum x number of items on the short form)
Number of items that were actually answered

If the result is a fraction, round to the nearest whole number.

For example, if 12 of 14 items were answered and the sum of those 12 responses was 40, the prorated raw score would be 40 X 14/12 = 47, after rounding. The T-score in this example would be 65.7. The T-scores are interpreted as follows:

Less than 55	= None to slight
55.0 – 59.9	= Mild
60.0 – 69.9	= Moderate
70 and over	= Severe

If more than 25% of the total items (in this case more than 3) are missing a response, the scores should not be used. Therefore, the child receiving care should be encouraged to complete all of the items on the measure.

DSM-5 Cross-cutting Measures – Recommended Use

- Use to track severity of psychiatric symptoms over time

    – Remission, exacerbation of symptoms?

- Completed at regular intervals as clinically indicated

- Consistently high score may indicate area needing more detailed assessment, treatment, and follow-up care.

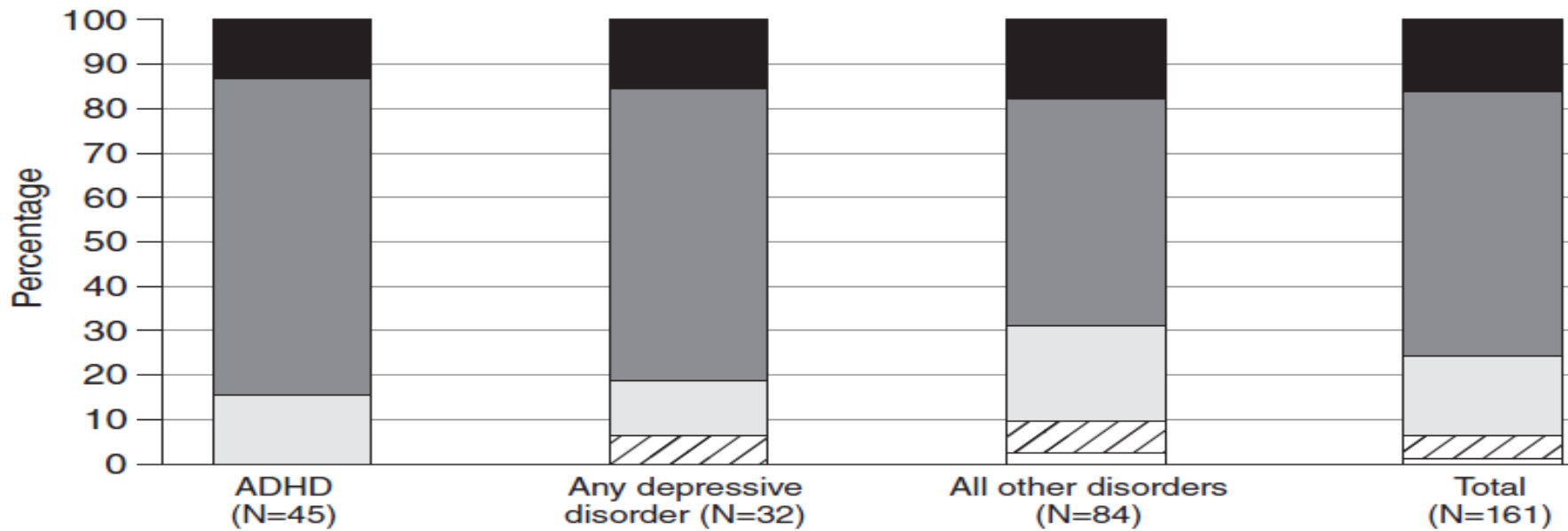- Clinician's judgment should guide final decision-making.

DSM-5 Cross-cutting Measures – Clinical Usefulness by Diagnosis

Figure 1

Clinician ratings of the usefulness of the *DSM-5* approach compared with the *DSM-IV* approach for selected disorders of pediatric patients age six to 17[a]

Overall, how would you compare the usefulness of the *DSM-5* approach (i.e., the use of information from the cross-cutting measures, diagnostic criteria, and the diagnostic-specific severity measures) to the *DSM-IV* approach to the diagnosis?

■ Much better   ■ Better   □ About the same   ▨ Worse   □ Much worse
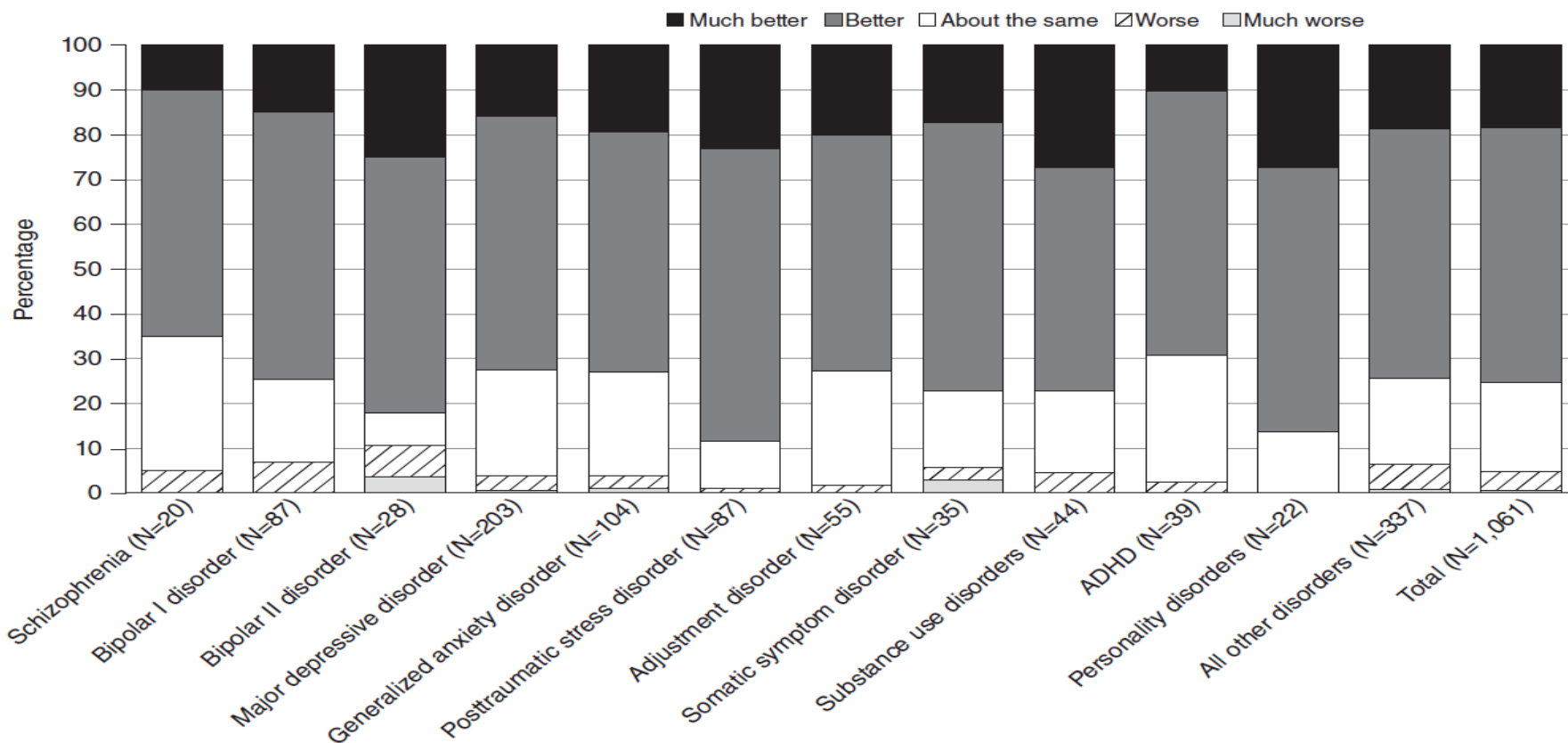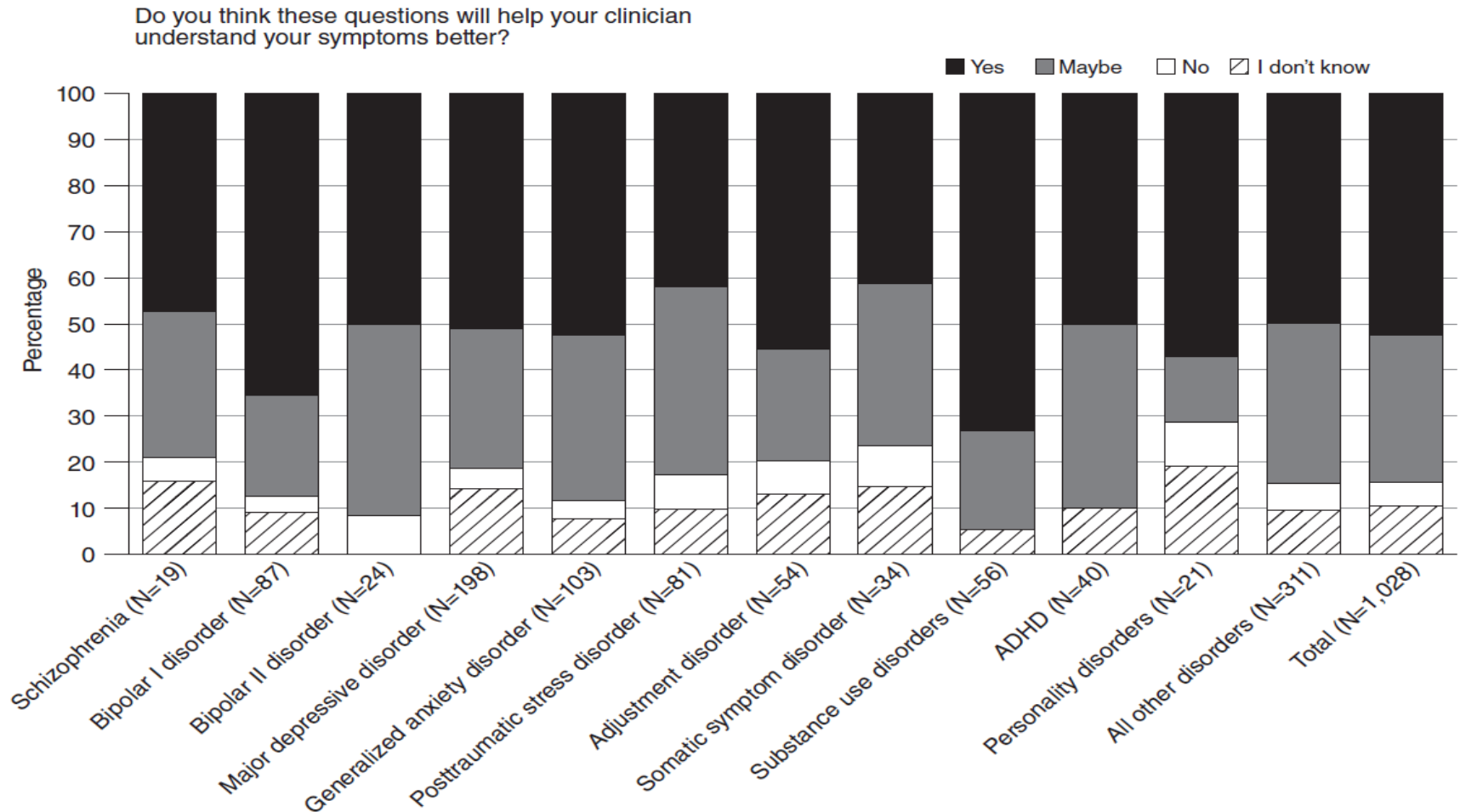
[a] ADHD, attention-deficit hyperactivity disorder

DSM-5 Cross-cutting Measures – <u>Clinician</u> Usefulness by Diagnosis

Figure 2

Clinician ratings of the usefulness of the *DSM-5* approach compared with the *DSM-IV* approach for disorders of adult patients[a]

DSM-5 Cross-cutting Measures – <u>Patient</u> Usefulness by Diagnosis

Figure 5

Adult patients' ratings of the helpfulness of cross-cutting measures[a]

Do you think these questions will help your clinician understand your symptoms better?

Legend: ■ Yes ▨ Maybe □ No ▨ I don't know

X-axis categories: Schizophrenia (N=19), Bipolar I disorder (N=87), Bipolar II disorder (N=24), Major depressive disorder (N=198), Generalized anxiety disorder (N=103), Posttraumatic stress disorder (N=81), Adjustment disorder (N=54), Somatic symptom disorder (N=34), Substance use disorders (N=56), ADHD (N=40), Personality disorders (N=21), All other disorders (N=311), Total (N=1,028)

[a] ADHD, attention-deficit hyperactivity disorder
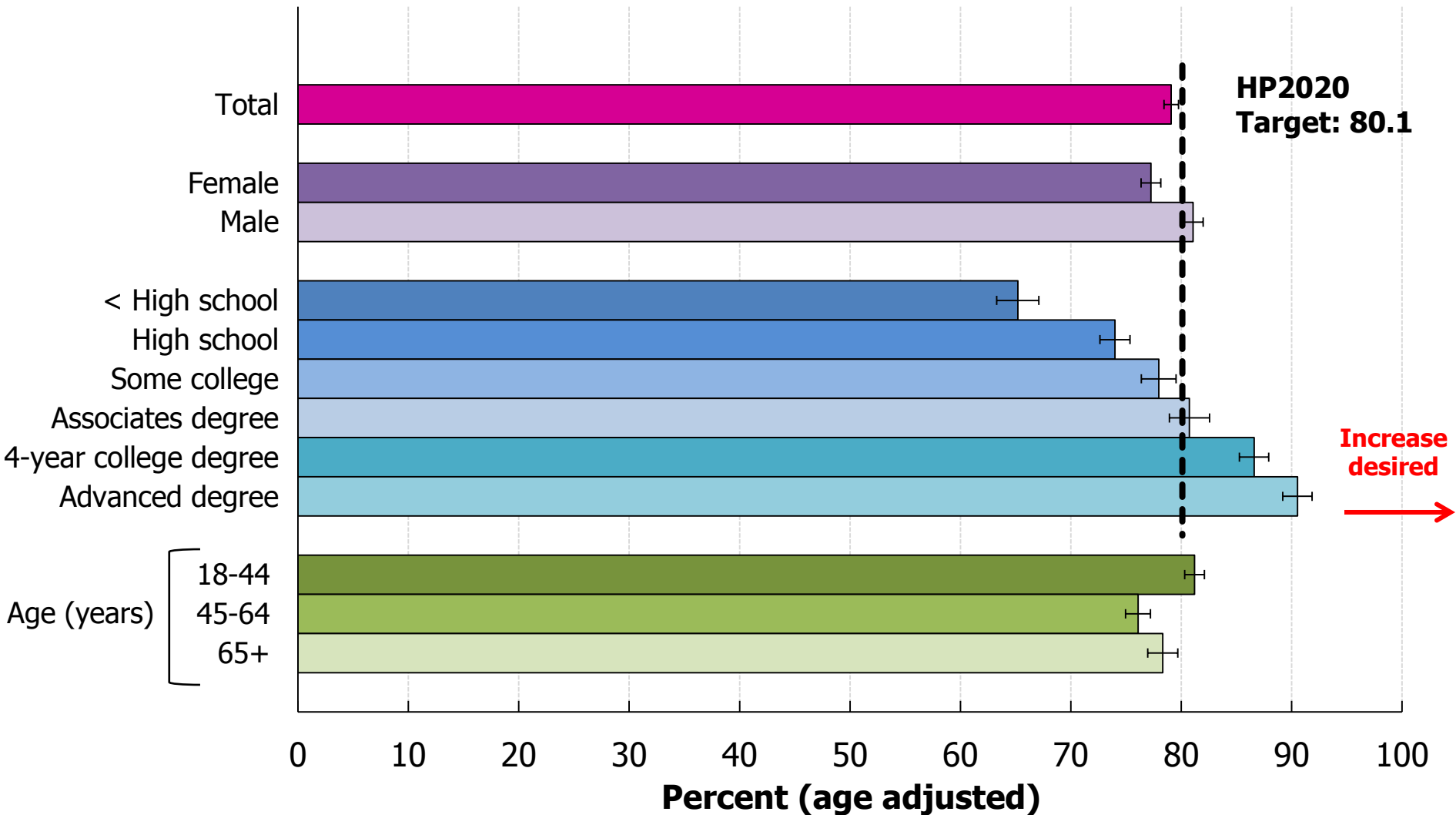
Population Health: CDC and HP 2020

Centers for Disease Control and Prevention: HRQOL Subcommittee

- **Parent Objective**: Increase the number of adults in the U.S. population who report high levels of HRQOL in the physical, mental, and social domains

- **Measures**: NIH PROMIS Global Health Measure (10 item measure)
  - Assesses physical and mental health symptoms, including functioning and general health perceptions
  - Efficient assessment of HRQOL with minimal respondent burden
  - 2 summary measures of physical and mental health

- **Objectives**:
  - Increase the proportion of adults who report good or better <u>physical</u> HRQOL
  - Increase the proportion of adults who report good or better <u>mental</u> HRQOL
    - Approved by FIW Jan. 2013

- **Data Sources**: NHIS (2010), and other surveys TBD

PROMIS Mental Health Items
# NHIS 2010 Data (Adults 18+)

PROMIS Items	Response
1. In general, would you say your quality of life is….	Excellent Very Good Good Fair Poor
2. In general, how would you rate your mental health, including mood and ability to think?	Excellent Very Good Good Fair Poor
3. In general, how would you rate your satisfaction with social activities / relationships?	Excellent Very Good Good Fair Poor
4. How often have you been bothered by emotional problems?	Never Rarely Sometimes Often Always

Adults who Report Good or Better Mental Health, 2010

HP2020 Target: 80.1

Increase desired →

X-axis: **Percent (age adjusted)** — 0, 10, 20, 30, 40, 50, 60, 70, 80, 90, 100

Categories:
- Total
- Female
- Male
- < High school
- High school
- Some college
- Associates degree
- 4-year college degree
- Advanced degree
- Age (years): 18-44, 45-64, 65+

NOTES: Data (except data by age group) are age adjusted to the 2000 standard population.
SOURCE: National Health Interview Survey (NHIS), CDC/NCHS.

Obj. HRQOL/WB-1.2

30

Adults who Report Good or Better Mental Health, 2010

HP2020
Target: 80.1

Increase desired →
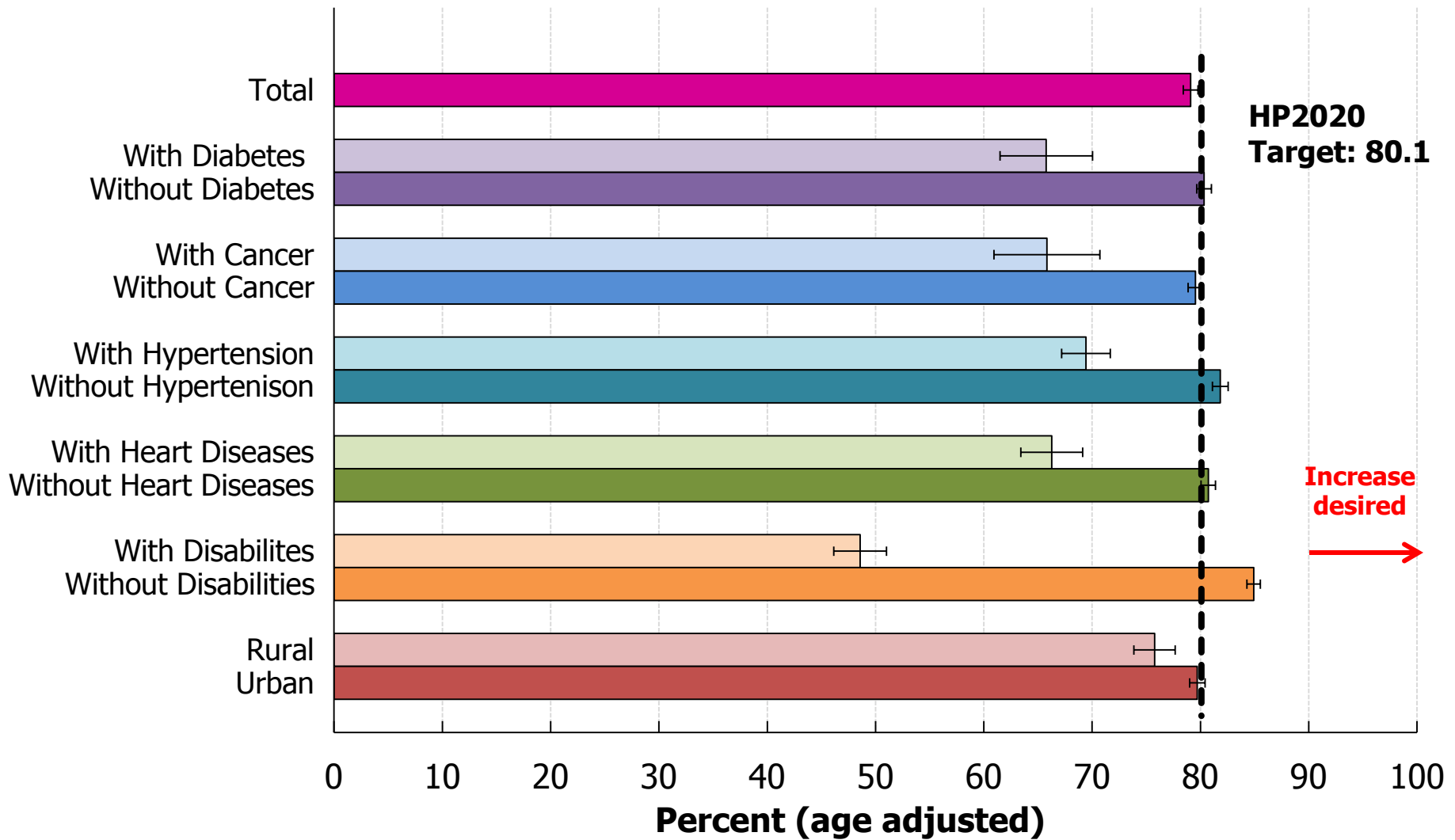
Obj. HRQOL/WB-1.2

NOTES: Data are age adjusted to the 2000 standard population.
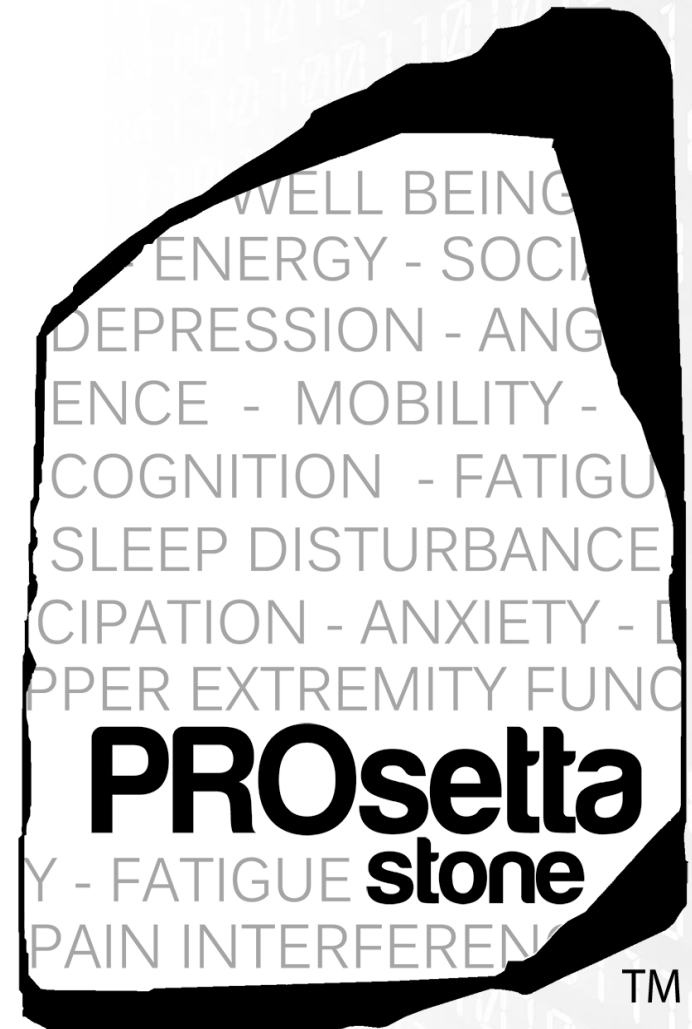SOURCE: National Health Interview Survey (NHIS), CDC/NCHS.

31

PROsetta Stone®

A Rosetta Stone for Linking Patient-Reported Outcome Measures

www.prosettastone.org

USPHS Grant No. **RC4 CA157236-01**

Case Example: Depression

- **PROMIS Depression**
  - 28-item bank of depressive symptoms, focusing on emotional, cognitive, and behavioral manifestations (Pilkonis et al., 2011)

- **CES-D**
  - 20-items, designed to assess depressive symptoms in the general population (Radloff, 1977)

- **PHQ-9**
  - 9-items, designed for use in primary care based directly on MDD criteria (Kroenke, Spitzer & Williams, 2001)

- **BDI-II**
 - 21-items, developed in response to changes in DSM-IV (Beck, Steer, Ball, & Ranieri, 1996)

CES-D to PROMIS Depression:
IRT Cross-walk Function (fixed parameter cal.) and equipercentile functions
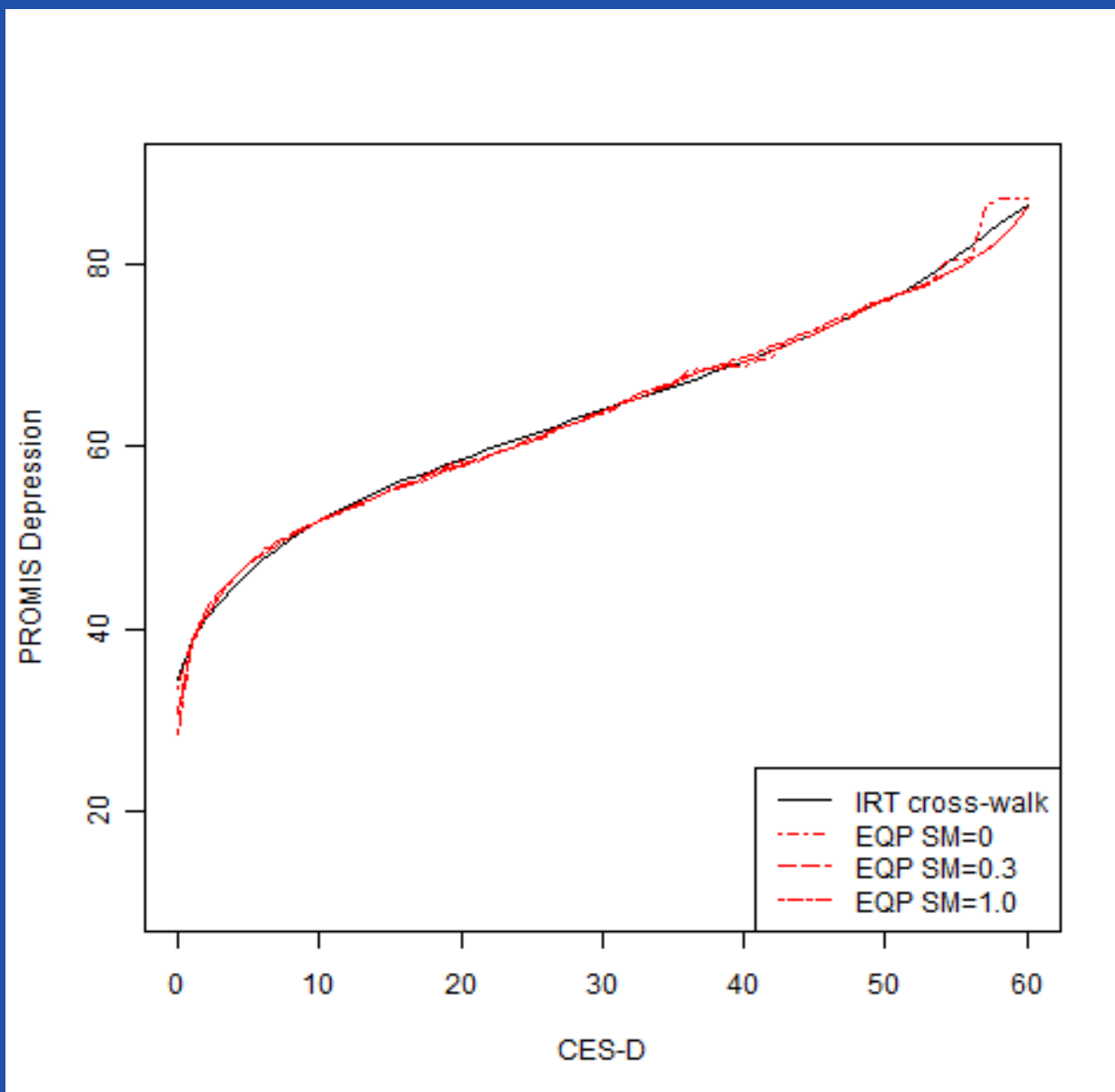
Raw Score to T-Score Conversion Table for PHQ-9 to PROMIS
(IRT Fixed Parameter Calibration Linking)

PHQ-9 Score	PROMIS T-score	SE
0	37.4	6.4
1	42.7	5.3
2	45.9	4.8
3	48.3	4.7
4	50.5	4.3
5	52.5	4.0
6	54.2	3.8
7	55.8	3.7
8	57.2	3.6
9	58.6	3.5
10	59.9	3.4
11	61.1	3.3
12	62.3	3.3
13	63.5	3.2
14	64.7	3.2
15	65.8	3.2
16	66.9	3.2
17	68.0	3.1
18	69.2	3.2
19	70.3	3.2
20	71.5	3.2
21	72.7	3.3
22	74.0	3.4
23	75.3	3.5
24	76.7	3.6

Choi et al, *Psychological Assessment*, 26(2): 513-527, 2014
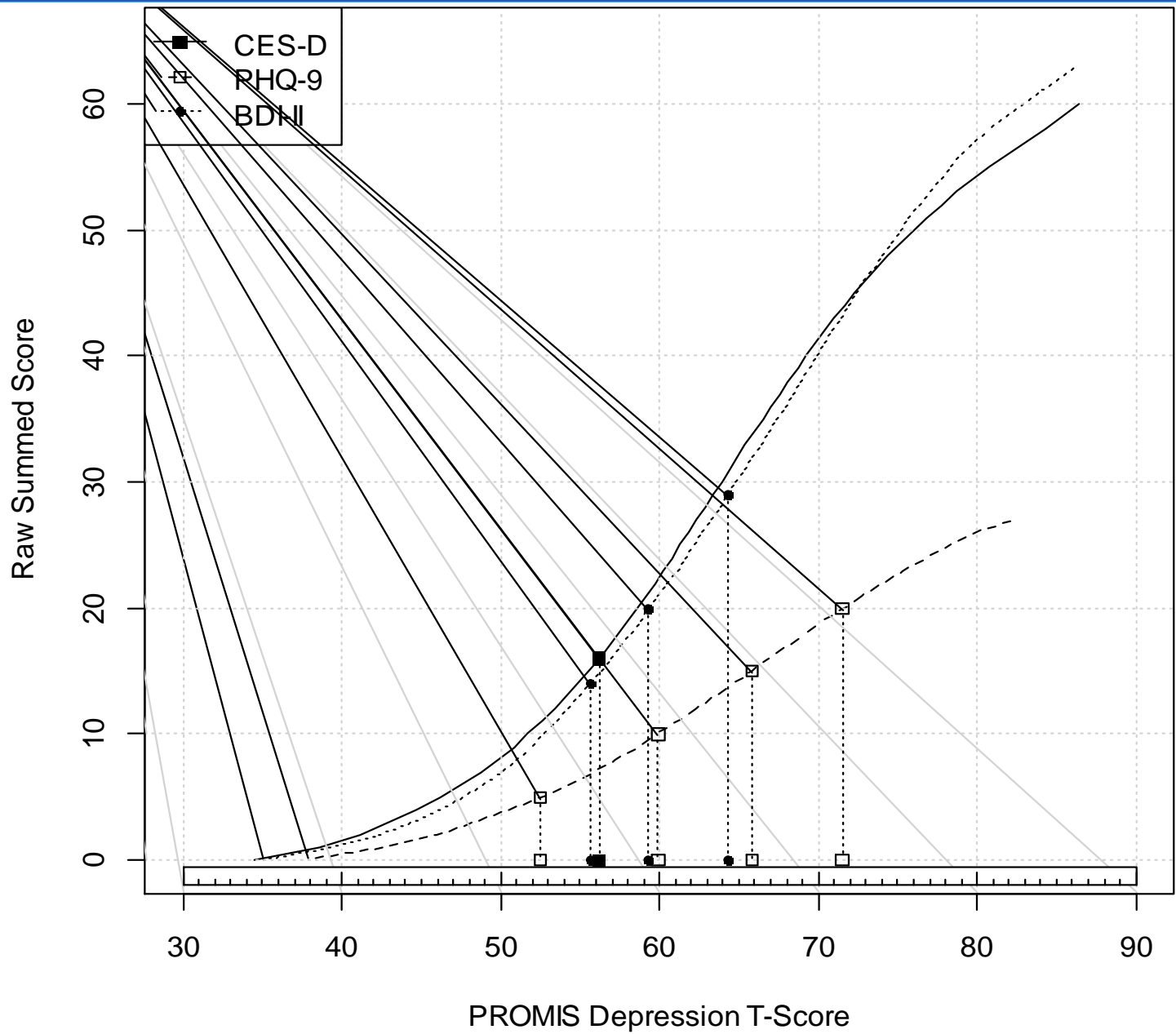
Thank you

www.nihpromis.org

www.assessmentcenter.net

www.prosettastone.org