

GENERAL SELF-EFFICACY AND SELF-EFFICACY FOR MANAGING CHRONIC CONDITIONS MEASURE DIFFERENCES

Self-Efficacy for Managing Chronic Conditions – Managing Daily Activities: Confidence in performing various activities of daily living without assistance. Items also assess exercise, sexual activities and managing activities in challenging situations (travelling, bad weather).

Self-Efficacy for Managing Chronic Conditions – Managing Emotions: Confidence to manage/control symptoms of anxiety, depression, helplessness, discouragement, frustration, disappointment and anger.

Self-Efficacy for Managing Chronic Conditions – Managing Medications/Treatment: Confidence in managing medication schedules of different complexity. Managing medication and other treatments in challenging situations such as when travelling, when running out of medication, and when adverse effects are encountered.

Self-Efficacy for Managing Chronic Conditions – Managing Social Interactions: Confidence in participating in social activities and getting help when necessary. Managing communication with others about their medical condition, including communication with health professionals.

Self-Efficacy for Managing Chronic Conditions – Managing Symptoms: Confidence to manage/control their symptoms, to manage their symptoms in different settings and to keep symptoms from interfering with work, sleep, relationships or recreational activities.

The Self-Efficacy and Self-Efficacy for Managing Chronic Conditions item banks are universal rather than disease-specific. All are intended for adults (age 18+). For the Self-Efficacy for Managing Chronic Conditions, the respondent should have at least one chronic health condition.

INTRODUCTION TO ASSESSMENT OPTIONS

There are two options for administration of the self-efficacy item banks: short forms and computer adaptive tests (CATs). When administering a short form, instruct participants to answer all of the items (i.e., questions or statements) presented. With the CAT, the participant's responses guide the system's choice of subsequent items from the full item bank (ranging from 10 to 35 items for each item bank). Although items differ across respondents taking the CAT, scores are comparable across participants.

Some investigators may prefer to ask the same questions of all respondents or of the same respondent over time, to enable more direct comparability across people or time. In these cases, or when paper administration is preferred, a short form would be more desirable than the CAT. This guide provides information on all of the self-efficacy short forms and CAT instruments.

CAT: A minimum number of items (4) must be answered in order to receive a score for a Self-Efficacy CAT. The first item is selected because it provides the most information about people with chronic conditions. The response to this item will guide the system's choice of the next item for the participant. The participant's response to this item will dictate the selection of the following question, and so on. As additional items are administered, the potential for error is reduced and confidence in the respondent's score increases. CAT will continue until either the standard error drops below a specified level, or the participant has answered the maximum number of questions (12), whichever occurs first.

CAT versus Short Form: Whether one uses a short form or CAT, the score metric is Item Response Theory (IRT), a family of statistical models that link individual questions to an underlying trait or concept of self-efficacy represented by all items in the item bank. When choosing between a CAT versus a short form, it is useful to

consider the demands of computer-based assessment, and the psychological, physical, and cognitive burden placed on respondents as a result of the number of questions asked.

Figure 1 illustrates the correlations (strength of relationship) of the Self-Efficacy for Managing Emotions full item bank with a) the CAT of varying lengths and b) two short forms. The figures of five item banks are presented in Appendix I. The correlation of CAT scores with the full bank score is greater than a short form of any length. A longer CAT or longer short form offers greater correlation, as well as greater precision. When evaluating precision, not all questions are equally informative. The flexibility of the CAT to choose more informative questions offers more precision.

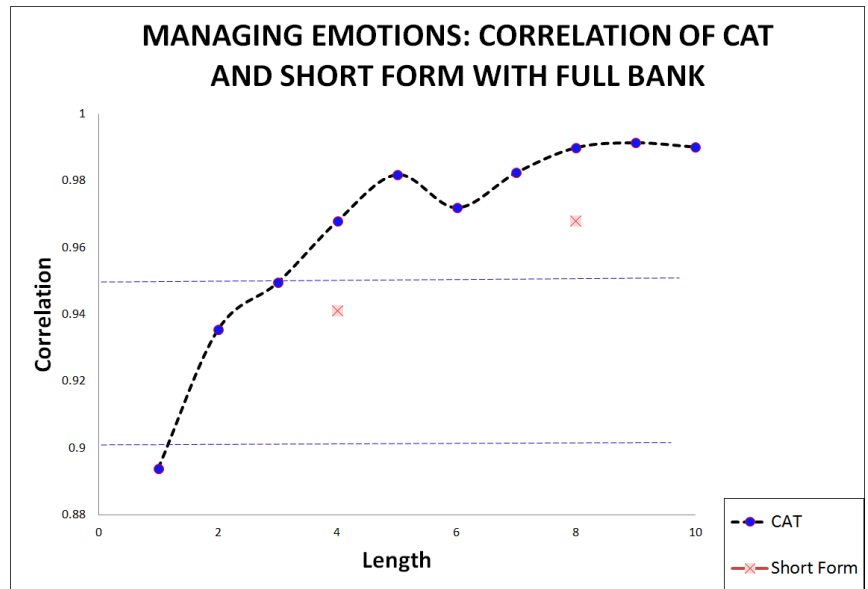


Figure1

VERSION DIFFERENCES

The 10-item PROMIS General Self-Efficacy item bank was based on the NIH Toolbox Self-Efficacy item bank by creating new “confidence” response options. Specifically, the NIH Toolbox items focus on one’s ability and uses frequency response options (e.g., “I can manage to solve difficult problems if I try hard enough.” Responses: Never – Very Often). The PROMIS items focus on one’s confidence with response options indicating level of confidence (e.g., “It is easy for me to stick to my aims and accomplish my goals.” Responses: I am not at all confident – I am very confident.) T-scores from the NIH Toolbox Self-Efficacy measures can be compared to T-scores from the PROMIS General Self-Efficacy measures.

SELECTING A SELF-EFFICACY MEASURE

When selecting a self-efficacy measure, identify if you need a global evaluation of self-efficacy (Self-Efficacy: General) or if you are interested in self-efficacy related to managing one’s health (Self-Efficacy for Managing Chronic Conditions). If the latter, you will need to identify the specific aspect of managing a health condition that is of interest (e.g., medications, treatment, symptoms, daily activities, emotions, social interactions).

SHORT FORM DIFFERENCES

In selecting between short forms, the difference is instrument length. The reliability and precision of the short forms within a domain is highly similar. If you are working with a sample in which you want the most precise measure, select the longest short form. If you have little room for additional measures but really wanted to capture something as a secondary outcome, select one of the shorter instruments (e.g., 4-item short form).

SCORES

For most PROMIS instruments, a score of 50 is the average for the United States general population with a standard deviation of 10 because calibration testing was performed on a large sample of the general population. You can read more about the calibration and centering samples on HealthMeasures.net (<http://www.healthmeasures.net/score-and-interpret/interpret-scores/promis>). The T-score is provided with an error term (Standard Error or SE). The Standard Error is a statistical measure of variance and represents the “margin of error” for the T-score.

Important: *A higher PROMIS T-score represents more of the concept being measured.* For example, a T-score of 55 on the PROMIS Self-Efficacy for Managing Emotions indicates that the respondent has greater self-efficacy for managing their emotions than the general chronic condition population (half a standard deviation higher). Higher scores for all self-efficacy measures indicate more self-efficacy.

STATISTICAL CHARACTERISTICS

There are four key features of the score for self-efficacy:

- **Reliability:** The degree to which a measure is free of error. It can be estimated by the internal consistency of the responses to the measure, or by correlating total scores on the measure from two time points when there has been no true change in what is being measured (for z-scores, reliability = $1 - SE^2$).
- **Precision:** The consistency of the estimated score (reciprocal of error variance).
- **Information:** The precision of an item or multiple items at different levels of the underlying continuum (for z-scores, information = $1/SE^2$).
- **Standard Error (SE):** The possible range of the actual final score based upon the scaled T-score. For example, with a T-score of 52 and a SE of 2, the 95% confidence interval around the actual final score ranges from 48.1 to 55.9 ($T\text{-score} \pm (1.96 * SE) = 52 \pm 3.9 = 48.1 \text{ to } 55.9$).

The final score is represented by the T-score, a standardized score with a mean of 50 and a standard deviation (SD) of 10.

In Figure 2 (4-item and 8-item short forms for Managing Emotions), the two dotted horizontal lines each represent a degree of internal consistency reliability (i.e., .90 or .95) typically regarded as sufficient for an accurate individual score. The shaded blue region marks the range of the scale where measurement precision is comparable to the reliability of .90 for the 8-item form. Figure 2 also tells us where on the scale the form is most informative based upon the T-score. This form would typically be more informative than a short form with fewer items.

Figure 2 (4-item and 8-item short forms for Managing Emotions) also tells us where on the scale the form is most informative based upon the T-score: the 8-item short form is more informative than the 4-item form.

The information plots of the domains are provided in Appendix II.

Figure 3 is a sample of the statistical information for the Managing Emotions CAT. More information is available at HealthMeasures.net.

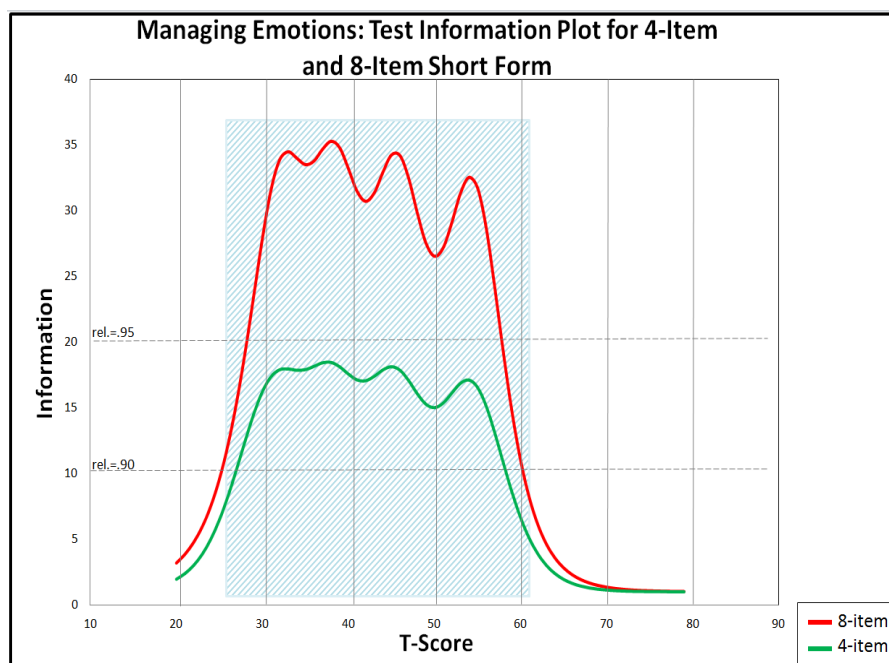


Figure 2

Managing Emotions: Statistical Information											
Scaling Model Used For Calibration			Graded Response Model (GRM)								
Total Number of Items			25								
Sample			N	Alpha Reliability							
PROMIS Wave 1 Full Bank			1070	0.978							
Score Distributions											
	Mean	SD	P5	P10	P25	P50	P75	P90	P95		
Raw	75.00	29.30	29.10	34.20	49.50	75.00	100.50	115.80	120.90		
Scale	42.00	10.52	25.13	28.38	34.04	41.67	29.88	56.09	59.71		
										Min	Max
Scale Score	10.0	20.0	30.0	40.0	50.0	60.0	70.0	80.0	90.0	22.72	64.98
SE	0.67	0.34	0.14	0.06	0.10	0.28	0.57	1.00	1.54		
Reliability	0.55	0.88	0.98	1.00	0.99	0.92	0.68	0.00	0.00		

Figure 2

Figure 3

PREVIEW OF SAMPLE ITEM

Figure 4 is an excerpt from the paper version of the eight-item self-efficacy short form for Managing Emotions. This is the paper version format used for all self-efficacy instruments. It is important to note, CAT is not available for paper administration.

In the past 7 days....		Never	Rarely	Sometimes	Often	Always
EDCEP04	I felt worthless.....	☐ 1	☐ 2	☐ 3	☐ 4	☐ 5
EDCEP05	I felt that I had nothing to look forward to	☐ 1	☐ 2	☐ 3	☐ 4	☐ 5

Figure 4



FREQUENTLY ASKED QUESTIONS (FAQs)

Q: I am interested in learning more. Where can I do that?

Review the HealthMeasures website at www.healthmeasures.net.

Q: Are these instruments available in other languages?

Yes! Look at the HealthMeasures website (<http://www.healthmeasures.net/explore-measurement-systems/promis/intro-to-promis/available-translations>) for current information on PROMIS translations.

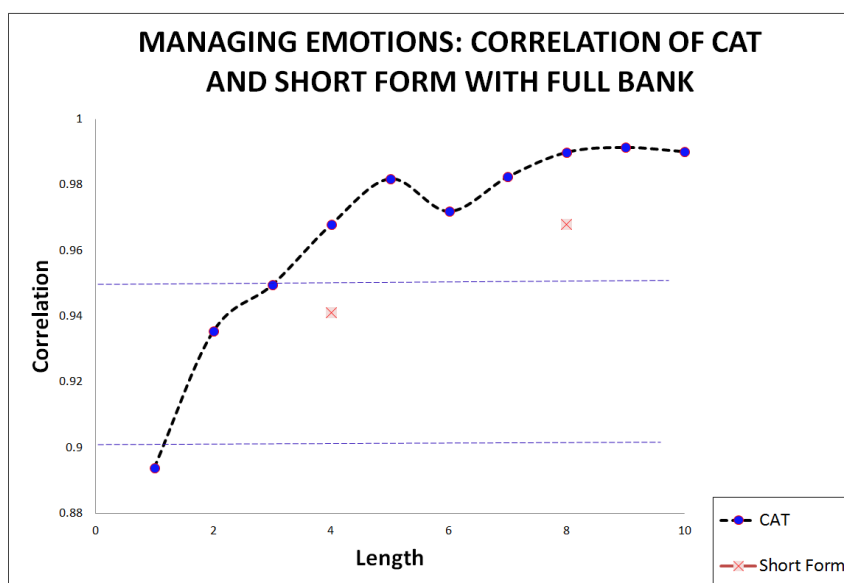
Q: Can I make my own short form?

Yes, custom short forms can be made by selecting any items from an item bank. This can be scored using the Scoring Service (https://www.assessmentcenter.net/ac_scoringservice).

APPENDIX I. FIGURES SHOWING CORRELATION BETWEEN CAT VS. FULL ITEM BANK AND SHORT FORM VS. FULL ITEM BANK

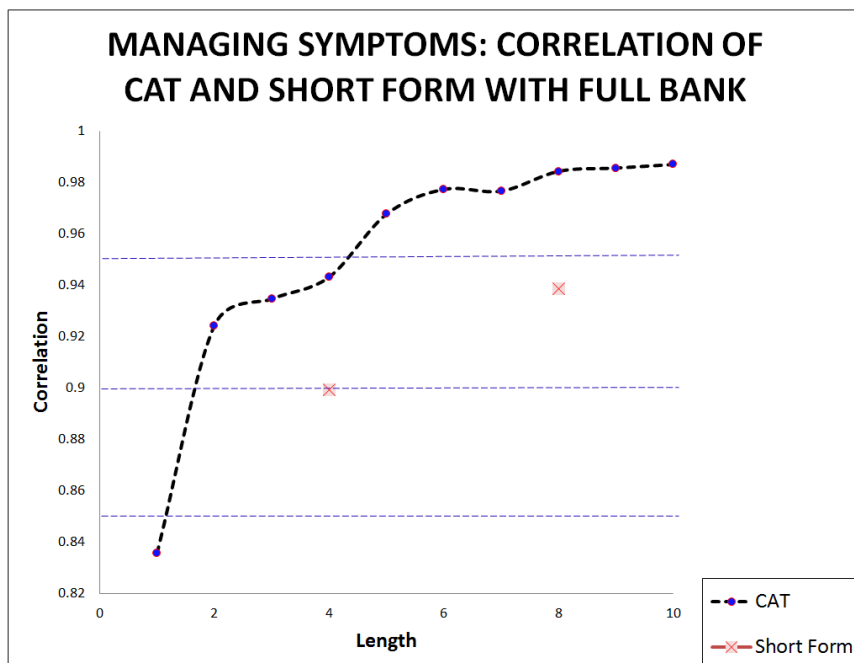
MANAGING EMOTIONS

PROMIS Short Form v1.0 – Self-Efficacy for Managing Emotions (4a, 8a), CAT and Full Bank



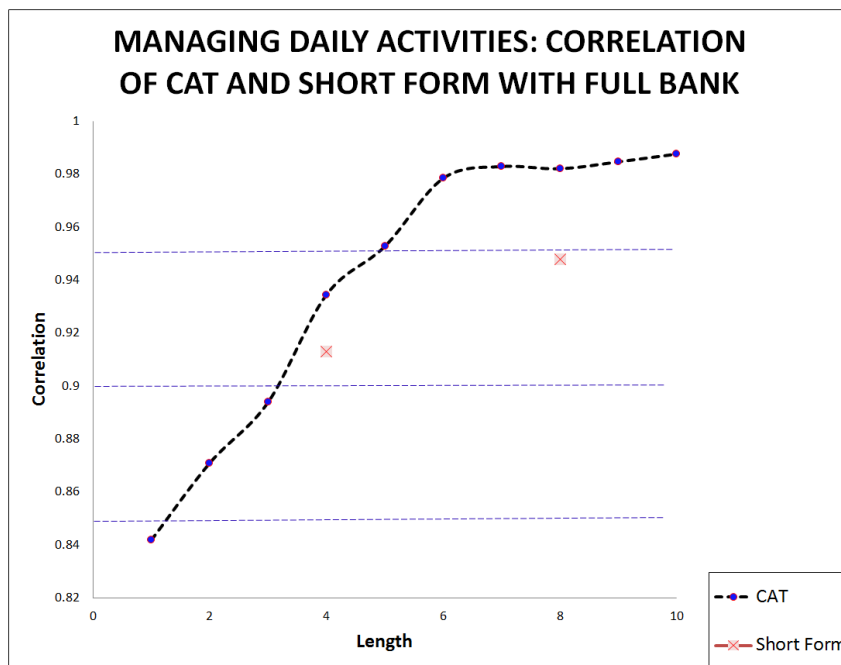
MANAGING SYMPTOMS

PROMIS Short Form v1.0 – Self-Efficacy for Managing Symptoms (4a, 8a), CAT and Full Bank



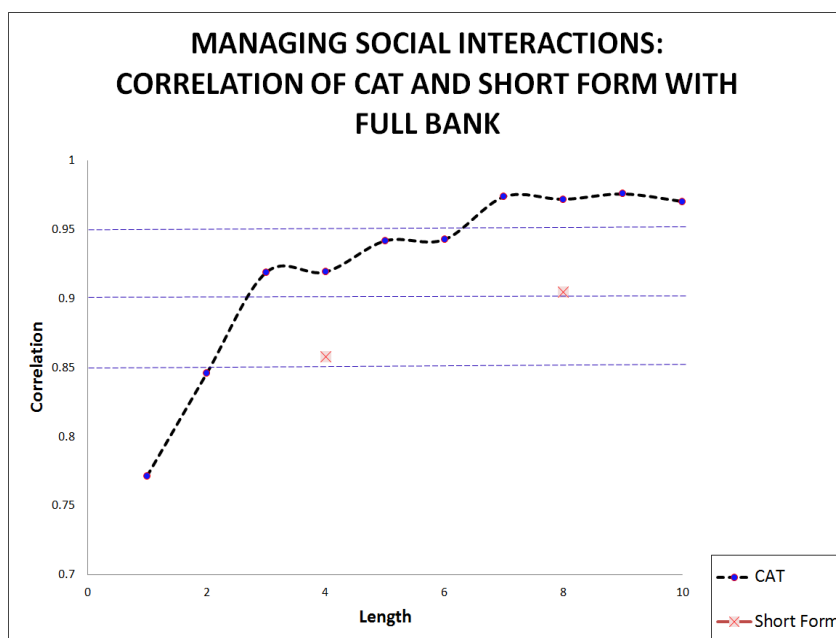
MANAGING DAILY ACTIVITIES

PROMIS Short Form v1.0 – Self-Efficacy for Managing Daily Activities (4a, 8a), CAT and Full Bank



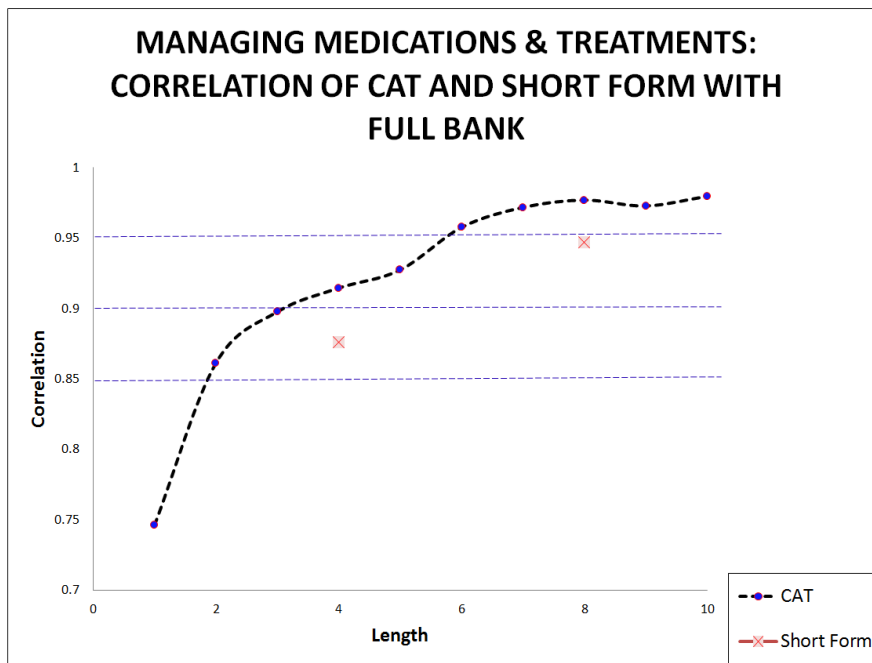
MANAGING SOCIAL INTERACTIONS

PROMIS Short Form v1.0 – Self-Efficacy for Managing Social Interactions (4a, 8a), CAT and Full Bank



MANAGING MEDICATIONS AND TREATMENTS

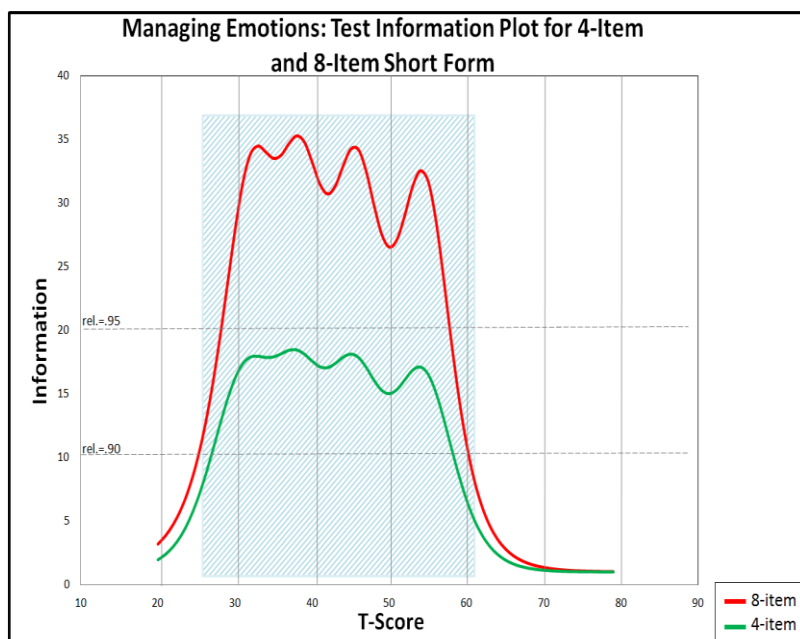
PROMIS Short Form v1.0 – Self-Efficacy for Managing Medications and Treatments (4a, 8a), CAT and Full Bank



APPENDIX II. ITEM INFORMATION AND T-SCORE PLOTS (4-ITEM AND 8-ITEM SHORT FORM)

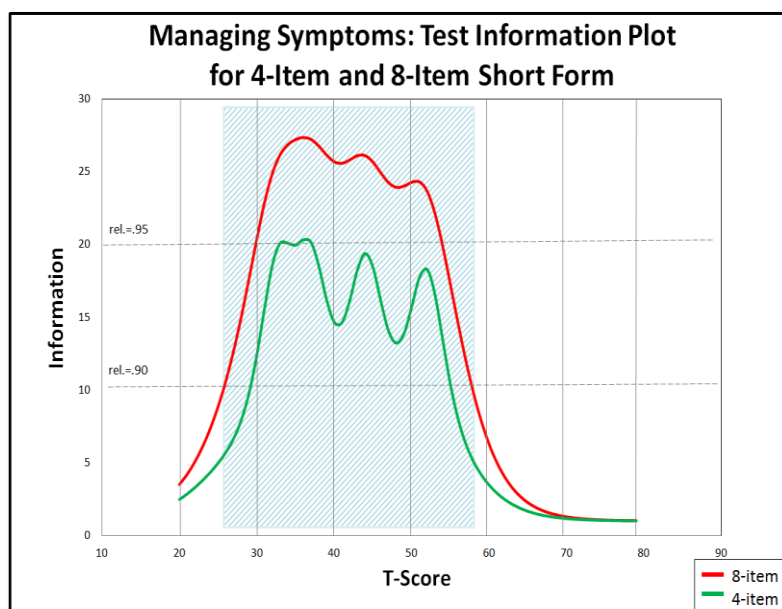
MANAGING EMOTIONS

PROMIS Short Form v1.0 – Self-Efficacy for Managing Emotions (4a, 8a)



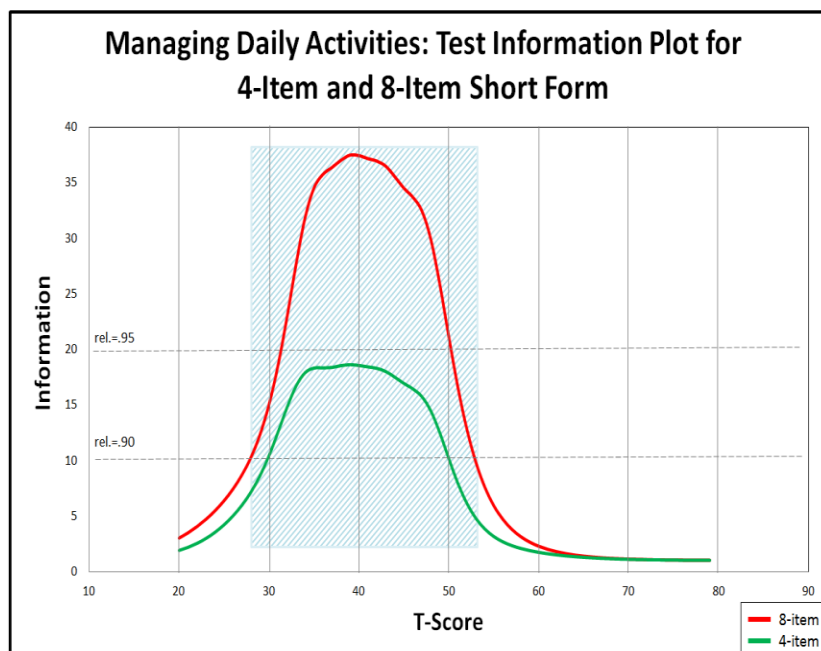
MANAGING SYMPTOMS

PROMIS Short Form v1.0 – Self-Efficacy for Managing Symptoms (4a, 8a)



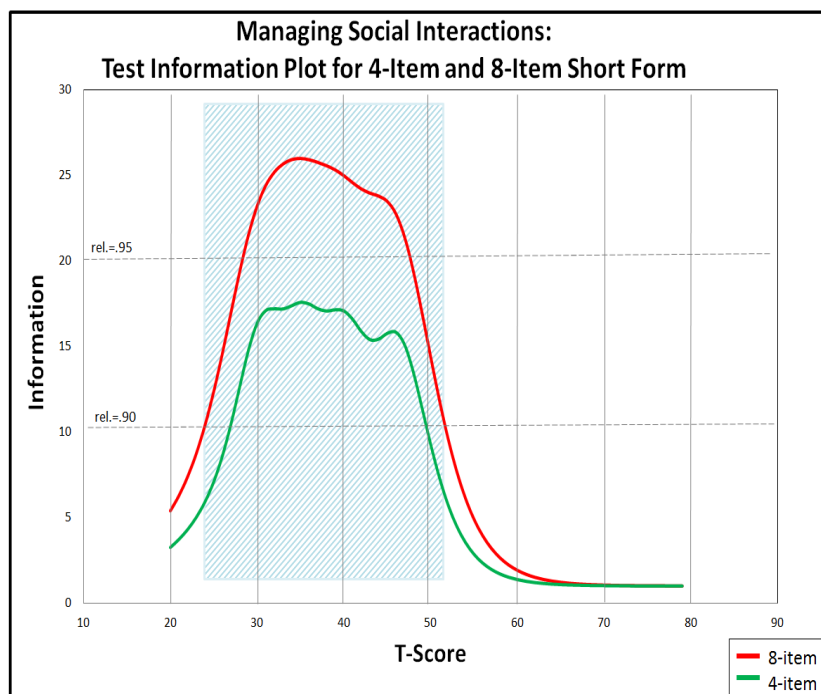
MANAGING DAILY ACTIVITIES

PROMIS Short Form v1.0 – Self-Efficacy for Managing Daily Activities (4a, 8a)



MANAGING SOCIAL INTERACTIONS

PROMIS Short Form v1.0 – Self-Efficacy for Managing Social Interactions (4a, 8a)



MANAGING MEDICATIONS AND TREATMENTS

PROMIS Short Form v1.0 – Self-Efficacy for Managing Medications and Treatments (4a, 8a)

