



INSTRUMENTAL SUPPORT

A brief guide to the PROMIS[®] Instrumental Support instruments:

ADULT
PROMIS Item Bank v2.0 – Instrumental Support
PROMIS Short Form v2.0 – Instrumental Support 4a
PROMIS Short Form v2.0 – Instrumental Support 6a
PROMIS Short Form v2.0 – Instrumental Support 8a

ABOUT INSTRUMENTAL SUPPORT

Quality of social support refers to functional aspects of supportive relationships, i.e., interpersonal relationships that serve particular functions. This includes the interactive process by which emotional, instrumental or informational support is obtained from one's social network. It also includes companionship, feeling cared for and valued as a person, communication with others, and feelings of belonging and trust. Measures of social support generally seek information about a person's perception of the availability or adequacy of resources provided by others.

The PROMIS Instrumental Support item banks assess self-reported perceived availability of assistance with material, cognitive or task performance. The instrumental support short forms are universal rather than disease-specific. The item bank does not use a time frame (e.g. over the past seven days) when assessing instrumental support.

Instrumental Support instruments are available for adults (ages 18+).

INTRODUCTION TO ASSESSMENT OPTIONS

There are two administration options for assessing instrumental support: short forms and computerized adaptive test (CAT). When administering a short form, instruct participants to answer all of the items (i.e., questions or statements) presented. With a CAT, participant responses guide the system's choice of subsequent items from the full item bank (11 items in total for adults). Although items differ across respondents taking a CAT, scores are comparable across participants.

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

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 a presumed underlying trait or concept of instrumental support represented by all items in the item bank. When choosing between a CAT and 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 full bank with a CAT and with short forms of varying length. 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 a CAT to choose more informative questions offers more precision.

Selecting a Short Form

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).

SCORING THE INSTRUMENT

Short Forms: PROMIS instruments are scored using item-level calibrations.

This means that the most accurate way to score a PROMIS instrument is to use the HealthMeasures Scoring Service

(https://www.assessmentcenter.net/ac_scoringervice) or a data collection

tool that automatically calculates scores (e.g., Assessment Center, REDCap auto-score). This method of scoring uses responses to each item for each participant. We refer to this as “response pattern scoring.” Because response pattern scoring is more accurate than the use of raw score/scale score look up tables included in this manual, it is preferred. Response pattern scoring is especially useful when there is missing data (i.e., a respondent skipped an item), different groups of participants responded to different items, or you have created a new questionnaire using a subset of questions from a PROMIS item bank.

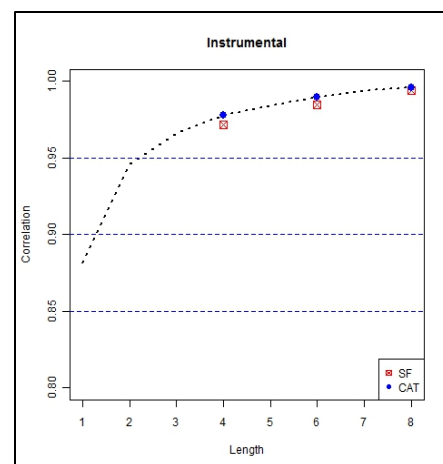


Figure 1

To use the scoring tables in this manual, calculate a summed score. Each question usually has five response options ranging in value from one to five. To find the total raw score for a short form with all questions answered, sum the values of the response to each question. For example, for the v2.0 adult 4-item form, the lowest possible raw score is 4; the highest possible raw score is 16 (see all short form scoring tables in Appendix 1). **All questions must be answered in order to produce a valid score using the scoring tables.** If a participant has skipped a question, use the HealthMeasures Scoring Service

(https://www.assessmentcenter.net/ac_scoringervice) to generate a final score.

With the total raw score for a measure, locate the applicable score conversion table in Appendix 1 and use this table to translate the total raw score into a T-score for each participant. The T-score rescales the raw score into a standardized score with a mean of 50 and a standard deviation (SD) of 10. Therefore a person with a T-score of 40 is one SD below the mean.

For the adult PROMIS Instrumental Support 4a short form v2.0, a raw score of 10 converts to a T-score of 41.8 with a standard error (SE) of 2.2 (see scoring table for the 4a v2.0 short form in Appendix 1). Thus, the 95% confidence interval around the observed score ranges from 37.5 to 46.1 (T-score \pm (1.96*SE) or 41.8 \pm (1.96*2.2)).

CAT: A minimum number of items (4 for adult CAT) must be answered in order to receive a score for the Instrumental Support CAT. The response to the first item will guide the system’s choice of the next item for the

participant. The participant’s response to the second 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 (on the T-score metric 3.0 for adult and adult cancer CATs and 4.0 for peds and parent proxy CATs), or the participant has answered the maximum number of questions (12), whichever occurs first.

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 positively-worded concepts like Instrumental Support, a T-score of 60 is one SD better than average. By comparison, an Instrumental Support T-score of 40 is one SD worse than average.

STATISTICAL CHARACTERISTICS

There are four key features of the score for instrumental support:

- **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 – SE²).
- **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/SE²).
- **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-score ± (1.96*SE) = 52 ± 3.9 = 48.1 to 55.9).

Scaling Model Used For Calibration	Graded Response Model
Total Number of Items	11

Sample	N	Alpha Reliability
PROMIS Supplement Full-Bank ▾	845	0.96

Score Distributions									
	Mean	SD	P5	P10	P25	P50	P75	P90	P95
Raw	42.14	11.38	19.00	25.00	35.00	44.00	52.00	55.00	55.00
Scale	51.64	9.23	36.82	40.08	45.58	51.21	58.14	66.20	66.20

										Min	Max
Scale Score	10.0	20.0	30.0	40.0	50.0	60.0	70.0	80.0	90.0	25.4	66.2
SE	5.10	1.12	.25	.15	.16	.26	1.25	6.26	28.34		
Reliability	.00	.00	.94	.98	.98	.93	.00	.00	.00		

Figure 2

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

Figure 2 is a sample of the statistical information available in Assessment Center for the adult Instrumental Support CAT.

More information is available at www.HealthMeasures.net.



PREVIEW OF SAMPLE ITEM

Figure 3 is an excerpt from the paper version of the adult eight-item short form. This is the paper version format used for all instrumental support instruments. It is important to note that the CAT is not available for paper administration.

		Never	Rarely	Sometimes	Usually	Always
CCC31052x	Do you have someone to help you if you are confined to bed?	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4	<input type="checkbox"/> 5
CCC31055x	Do you have someone to take you to the doctor if you need it?	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4	<input type="checkbox"/> 5

Figure 3



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: Do I need to register with PROMIS to use these instruments?

No.

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/117-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_scoring-service).

Q: How do I handle multiple responses when administering a short form on paper?

Guidelines on how to deal with multiple responses have been established. Resolution depends on the responses noted by the research participant.

- If two or more responses are marked by the respondent, and they are next to one another, then a data entry specialist will be responsible for randomly selecting one of them to be entered and will write down on the form which answer was selected. Note: To randomly select one of two responses, the data entry specialist will flip a coin (heads - higher number will be entered; tails – lower number will be entered). To randomly select one of three (or more) responses, a table of random numbers should be used with a statistician's assistance.
- If two or more responses are marked, and they are NOT all next to one another, the response will be considered missing.

Q: What is the minimum change on a PROMIS instrument that represents a clinically meaningful difference?

To learn more about research on the meaning of a change in scores, we suggest conducting a literature review to identify the most current information. The HealthMeasures website (<http://www.healthmeasures.net/score-and-interpret/interpret-scores/promis>) has additional information on interpreting scores.



APPENDIX 1 - SCORING TABLES

Instrumental Support 4a <i>Short Form Conversion Table</i>		
Raw Score	Scale Score	SE*
4	29.3	4.4
5	33.9	2.8
6	35.9	2.5
7	37.6	2.4
8	39.1	2.3
9	40.5	2.2
10	41.8	2.2
11	43.1	2.2
12	44.5	2.3
13	45.9	2.3
14	47.3	2.3
15	48.9	2.3
16	50.5	2.4
17	52.3	2.4
18	54.4	2.6
19	57.1	3.0
20	63.3	5.3

*SE = Standard Error on T-score metric

Instrumental Support 6a <i>Short Form Conversion Table</i>		
Raw Score	Scale Score	SE*
6	28.7	4.3
7	33.1	2.7
8	34.9	2.4
9	36.3	2.2
10	37.6	2.1
11	38.6	2.0
12	39.7	2.0
13	40.6	2.0
14	41.6	2.0
15	42.5	2.0
16	43.4	2.0
17	44.3	2.0
18	45.2	2.0
19	46.2	2.0
20	47.2	2.1
21	48.2	2.1
22	49.2	2.1
23	50.3	2.1
24	51.4	2.1
25	52.6	2.2
26	53.9	2.3
27	55.3	2.4
28	57.1	2.6
29	59.5	3.1
30	64.9	5.1

*SE = Standard Error on T-score metric

Instrumental Support 8a <i>Short Form Conversion Table</i>		
Raw Score	Scale Score	SE*
8	27.0	4.1
9	31.1	2.7
10	33.0	2.3
11	34.4	2.1
12	35.6	2.0
13	36.6	1.9
14	37.5	1.8
15	38.3	1.8
16	39.1	1.8
17	39.9	1.7
18	40.7	1.7
19	41.4	1.7
20	42.1	1.7
21	42.8	1.7
22	43.5	1.7
23	44.3	1.8
24	45.0	1.8
25	45.7	1.8
26	46.5	1.8
27	47.2	1.8
28	48.0	1.8
29	48.8	1.8
30	49.6	1.8
31	50.5	1.8
32	51.4	1.9
33	52.3	1.9
34	53.2	1.9
35	54.3	1.9
36	55.4	2.0
37	56.7	2.2
38	58.2	2.5
39	60.4	3.0
40	65.6	5.0

*SE = Standard Error on T-score metric