

PAIN QUALITY

SCORING MANUAL

A brief guide to scoring the PROMIS® Pain Quality instruments:

ADULT	PEDIATRIC
PROMIS Scale v2.0 – Neuropathic Pain Quality 5a PROMIS Scale v2.0 – Nociceptive Pain Quality 5a PROMIS Pool v1.0 – Pain Quality*	PROMIS Pediatric Bank GenPop v3.0 – Pain Quality PROMIS Pediatric Bank GenPop v3.0 – Pain Quality (screen-to-CAT) PROMIS Pediatric Short Form GenPop v3.0 – Pain Quality – Affective 8a PROMIS Pediatric Short Form GenPop v3.0 – Pain Quality – Sensory 8a PROMIS Pediatric Bank v2.0 – Pain Quality* PROMIS Pediatric Short Form v2.0 – Pain Quality – Affective 8a* PROMIS Pediatric Short Form v2.0 – Pain Quality – Sensory 8a*

*Retired instrument

COMPARING SCORES ACROSS VERSIONS

Some PROMIS domains have multiple versions of instruments (i.e., v1.0, v1.1, v2.0, v3.0). Generally, **it is recommended that you use the most recent version available which can be identified as the instrument with the highest version number.** In most cases, an instrument that has a decimal increase (v1.0 to v1.1) retains the same item-level parameters as well as instrument reliability and validity. In cases where a version number increases by a whole number (e.g., v1.0 to v2.0), the changes to the instrument are more substantial.

PROMIS initially produced Pain Quality item pool v1.0 for adults. This was a collection of items that were not calibrated but instead intended to be used descriptively or for further research. The measure did not produce T-scores. The v2.0 Neuropathic and Nociceptive Pain measures are calibrated scales that generate T-scores. Scores from the v1.0 and v2.0 instruments cannot be compared. The PROMIS v2.0 scales are the preferred assessment tool.

Transforming Scores between Versions:

To transform T-scores from Pediatric v2.0 Pain Quality measures to the Pediatric GenPop v3.0 metric, rescore v2.0 measures using the [HealthMeasures Scoring Service](#) or Assessment Center API. This is the preferred strategy as it produces precise scores.

1. Download the v3.0 measure from [Search & View Measures](#) on HealthMeasures.net.
2. Revise your dataset as needed to match the v3.0 item IDs and response scores:
 - No items were revised between the v2.0 and GenPop v3.0 Pain Quality measures.
3. Follow the instructions for using the [HealthMeasures Scoring Service](#). Contact help@HealthMeasures.net if using the Assessment Center API for rescoring.

The crosswalk tables in Appendix 3 may also be used as a reference to guide understanding of how scores have shifted from the older v2.0 measures to the v3.0 measures. If these tables are used to convert older T-scores to GenPop v3.0, please note that the resulting T-scores are not as precise as those generated by using HealthMeasures Scoring Service or Assessment Center API.

SCORING THE INSTRUMENTS

Scales and 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., 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.

Instructions for the HealthMeasures Scoring Service

1. Download the Input Template from the [HealthMeasures Scoring Service](https://www.assessmentcenter.net/ac_scoringervice) home page.
2. Add your data (all respondents’ individual answers to questions) for one PROMIS measure to the template (multiple timepoints are okay).
3. Determine how much data is missing. In order to produce a precise score, a respondent must answer at least 4 items in measures that include 4 or more items. If a precise score is required, remove respondents who answered less than 4 items from the input template and do not calculate a T-score.
4. Upload your spreadsheet to the HealthMeasures Scoring Service. If this is your first time, register as a new user.
5. Access your email to receive a spreadsheet with calculated scores.

Instructions for Using Raw Sum Score to T-score Conversion Tables

To use the scoring tables in this manual, calculate a summed score. Each PROMIS 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 Nociceptive Pain 5-item form, the lowest possible raw score is 5; the highest possible raw score is 25 (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 example, for the adult PROMIS Nociceptive Pain 5a short form v2.0, a raw score of 10 converts to a T-score of 42.7 with a standard error (SE) of 4.0 (see scoring table for the 5a v2.0 short form in Appendix 1).

CAT: A minimum number of items (e.g., 4) must be answered in order to receive a score for the Pain Quality CATs. 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. The CAT will continue until either the standard error drops below a specified level (e.g., on the T-score metric 3.0), or the participant has answered the maximum number of questions (e.g., 12), whichever occurs first. For some CATs, specifically “recommended” and “screen-to-CAT” there are additional stopping rules. These include stopping when the standard error isn’t improving much or if a respondent is asymptomatic. For details on the exact stopping rules for Pain Quality CATs, view the Measure Differences summary.

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 negatively-worded concepts like pain quality, a T-score of 60 is one SD worse than average. By comparison, a pain quality T-score of 40 is one SD better than average.

Standard Error (SE): A PROMIS score includes a T-score and a standard error (SE). The standard error is a measure of the variability for a given T-score across hypothetical repeated measurements. The standard error can be used to construct confidence intervals around a T-score. A 95% confidence interval is common. A 95% confidence interval means there is a 95% probability that the true T-score is within this range. The formula for a 95% confidence interval is $(T\text{-score} \pm (1.96 * SE))$. For example, if $T=52$ and $SE=2$, the lower boundary of the confidence interval is $(52 - (1.96 * 2)) = 48$ and the upper boundary is $(52 + (1.96 * 2)) = 56$.

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: 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

PROMIS Adult v2.0 – Nociceptive Pain Quality 5a		
<i>Scale Conversion Table</i>		
Raw Summed Score	T-score	SE*
5	30.3	5.4
6	34.5	4.6
7	37.0	4.4
8	39.1	4.2
9	41.0	4.1
10	42.7	4.0
11	44.4	3.9
12	45.9	3.9
13	47.5	3.9
14	49.0	3.9
15	50.5	3.9
16	52.0	3.9
17	53.6	3.9
18	55.2	4.0
19	56.8	4.0
20	58.6	4.0
21	60.5	4.0
22	62.5	4.2
23	64.9	4.3
24	67.7	4.5
25	71.8	5.2
*SE = Standard Error on T-score metric		

PROMIS Adult v2.0 – Neuropathic Pain Quality 5a		
<i>Scale Conversion Table</i>		
Raw Summed Score	T-score	SE*
5	37.0	6.0
6	42.9	4.1
7	45.2	4.0
8	47.1	3.8
9	48.8	3.6
10	50.4	3.4
11	51.8	3.3
12	53.1	3.2
13	54.4	3.2
14	55.6	3.2
15	56.9	3.2
16	58.1	3.2
17	59.3	3.3
18	60.6	3.3
19	61.9	3.4
20	63.3	3.5
21	64.8	3.6
22	66.3	3.7
23	68.1	3.8
24	70.4	4.1
25	74.1	4.9
*SE = Standard Error on T-score metric		

PROMIS Pediatric GenPop v3.0 – Pain Quality – Affective 8a		
<i>Short Form Conversion Table</i>		
Raw Summed Score	T-score	SE*
8	44.8	7.6
9	54.0	5.2
10	58.9	3.9
11	62.4	3.2
12	65.0	2.8
13	67.3	2.6
14	69.5	2.8
15	72.1	3.3
16	75.7	4.1
*SE = Standard Error on T-score metric		

PROMIS Pediatric GenPop v3.0 – Pain Quality – Sensory 8a		
<i>Short Form Conversion Table</i>		
Raw Summed Score	T-score	SE*
8	43.2	7.2
9	50.7	5.2
10	53.4	5.0
11	55.3	4.8
12	57.1	4.6
13	59.0	4.0
14	60.5	3.7
15	61.8	3.5
16	63.0	3.4
17	64.1	3.2
18	65.1	3.1
19	66.0	3.0
20	66.9	3.0
21	67.8	2.9
22	68.6	2.9
23	69.5	2.9
24	70.3	2.8
25	71.1	2.8
26	71.9	2.8
27	72.7	2.8
28	73.5	2.8
29	74.3	2.8
30	75.1	2.8
31	75.9	2.9
32	76.8	2.9
33	77.7	2.9
34	78.6	3.0
35	79.6	3.0
36	80.7	3.1
37	81.7	3.1
38	82.9	3.1
39	84.1	3.0
40	85.6	2.8
*SE = Standard Error on T-score metric		

APPENDIX 2 – SCORING TABLES FOR RETIRED MEASURES

PROMIS Pediatric v2.0 – Pain Quality – Affective 8a		
<i>Short Form Conversion Table</i>		
Raw Summed Score	T-Score	SE*
0	34.6	5.7
1	39.9	4.4
2	43.5	3.6
3	46.5	3.1
4	49.0	2.9
5	51.4	2.9
6	54.0	3.3
7	57.5	4.2
8	63.0	5.80
*SE = Standard Error on T-score metric		

PROMIS Pediatric v2.0 – Pain Quality – Sensory 8a		
<i>Short Form Conversion Table</i>		
Raw Summed Score	T-Score	SE*
8	32.2	5.5
9	36.6	4.5
10	38.9	4.3
11	40.7	4.1
12	42.2	3.9
13	43.7	3.7
14	45.0	3.6
15	46.2	3.5
16	47.3	3.4
17	48.4	3.3
18	49.4	3.2
19	50.3	3.2
20	51.2	3.1
21	52.1	3.1
22	53.0	3.1
23	53.9	3.0
24	54.7	3.0
25	55.6	3.0
26	56.5	3.0
27	57.3	3.0
28	58.2	3.1
29	59.1	3.1
30	60.0	3.1
31	60.9	3.2
32	61.9	3.2
33	62.9	3.3
34	64.0	3.4
35	65.2	3.5
36	66.5	3.7
37	67.8	3.8
38	69.3	4.0
39	71.0	4.1
40	74.5	4.8
*SE = Standard Error on T-score metric		

APPENDIX 3 – CROSSWALK BETWEEN PEDIATRIC V2.0 T-SCORES AND PEDIATRIC GENPOP V3.0 T-SCORES

Table 1. PROMIS Pediatric Pain Quality: Crosswalk between v2.0 T-scores and GenPop v3.0 T-scores

PROMIS Pediatric Pain Quality T-Score		PROMIS Pediatric Pain Quality T-Score	
v2.0	v3.0 GenPop	v2.0	v3.0 GenPop
33	44.0	71	83.0
34	51.2	72	85.0
35	51.2		
36	51.2		
37	51.7		
38	54.6		
39	55.4		
40	56.8		
41	57.8		
42	59.0		
43	60.1		
44	61.2		
45	62.6		
46	63.6		
47	64.1		
48	65.1		
49	66.4		
50	67.4		
51	68.1		
52	69.5		
53	69.8		
54	70.2		
55	72.0		
56	73.5		
57	74.5		
58	75.5		
59	78.5		
60	78.5		
61	78.5		
62	78.5		
63	78.5		
64	78.5		
65	78.5		
66	81.0		
67	83.0		
68	83.0		
69	83.0		
70	83.0		