

ANGER/IRRITABILITY SCORING MANUAL

A brief guide to scoring the PROMIS® Anger/Irritability instruments:

ADULT	PEDIATRIC	EARLY CHILDHOOD PARENT-REPORT	PARENT PROXY
PROMIS Item Bank v1.1 – Anger PROMIS Short Form v1.1 – Anger 5a PROMIS Item Bank v1.0 – Anger* PROMIS Short Form v1.0 – Anger 5a* PROMIS Short Form v1.0 – Anger 8a*	PROMIS Pediatric Scale GenPop v3.0 – Anger 9a PROMIS Pediatric Short Form GenPop v3.0 – Anger 5a PROMIS Pediatric Scale v2.0 – Anger 9a* PROMIS Pediatric Short Form v2.0 – Anger 5a* PROMIS Pediatric Scale v1.1 – Anger 5a* PROMIS Pediatric Short Form v1.0 – Anger 6a*	PROMIS Early Childhood Parent-Report Bank v1.0 – Anger/Irritability PROMIS Early Childhood Parent-Report Short Form v1.0 – Anger/Irritability 4a PROMIS Early Childhood Parent-Report Short Form v1.0 – Anger/Irritability 8a	PROMIS Parent Proxy Scale GenPop v3.0 – Anger 5a PROMIS Parent Proxy Item Scale v2.0 – Anger* PROMIS Parent Proxy Short Form v1.0 – Anger 5a*

*Retired measure

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.

- For Adult Anger, T-scores between v1.0 and v1.1 are comparable.
- Scores from Pediatric and Parent Proxy GenPop v3.0 are NOT comparable with v1.0, v1.1, or v2.0 measure scores.
- For Pediatric and Parent Proxy Anger, T-scores between versions v1.0, v1.1, and v2.0 are comparable.

Transforming Scores between Versions:

To transform T-scores from Pediatric/Parent Proxy v1.0/v1.1/v2.0 Anger measures to the Pediatric/Parent Proxy GenPop v3.0 metric, rescore v1.0/v1.1/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 Anger 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 v1.0, v1.1, and 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.

WHICH CALIBRATION SAMPLE SHOULD I USE?

The PROMIS parent proxy instruments have two calibration samples – parent proxy and parent proxy without Local Dependence. The former includes calibrations for all items. This is the default calibration sample. If you aren't sure which calibration sample to use, utilize this one. The Parent Proxy without Local Dependence does not include calibrations for some items. When using the Scoring Service, use the default calibration sample (e.g., "Parent Proxy"). Other calibration samples may exist from past research.

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., 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](#) 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

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 adult 5-item form, the lowest possible raw score is 5; the highest possible raw score is 25 (see all current and retired short form scoring tables in Appendices 1 and 2). **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.

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 Anger 5a short form, a raw score of 10 converts to a T-score of 48.4 with a standard error (SE) of 3.3 (see scoring table for the 5a short form in Appendix 1). Thus, the 95% confidence interval around the observed score ranges from 41.9 to 54.9 ($T\text{-score} \pm (1.96 * SE)$ or $48.4 \pm (1.96 * 3.3)$).

CAT: A minimum number of items (e.g., 4) must be answered in order to receive a score for the Anger 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 Anger 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 at HealthMeasures.net in the [Interpret PROMIS](#) section. 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 anger, a T-score of 60 is one SD worse than average. By comparison, an anger 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 v1.0/1.1 – Anger 5a		
Short Form Conversion Table		
Raw Summed Score	T-score	SE*
5	32.9	5.3
6	38.1	4.0
7	41.3	3.7
8	44.0	3.5
9	46.3	3.4
10	48.4	3.3
11	50.6	3.3
12	52.7	3.2
13	54.7	3.2
14	56.8	3.2
15	58.8	3.2
16	60.8	3.3
17	62.9	3.2
18	65.0	3.2
19	67.2	3.2
20	69.4	3.3
21	71.7	3.3
22	74.1	3.3
23	76.8	3.4
24	79.6	3.4
25	82.9	3.5
*SE = Standard Error on T-Score		

PROMIS Pediatric Short Form GenPop v3.0 – Anger 5a		
Short Form Conversion Table		
Raw Summed Score	T-score	SE*
5	37.2	5.6
6	43.4	3.6
7	46.6	3.0
8	48.8	2.7
9	50.7	2.5
10	52.4	2.4
11	54.0	2.4
12	55.6	2.4
13	57.2	2.4
14	58.8	2.4
15	60.4	2.5
16	62.0	2.5
17	63.7	2.5
18	65.2	2.4
19	66.8	2.4
20	68.2	2.4
21	69.7	2.4
22	71.4	2.5
23	73.2	2.6
24	75.4	2.9
25	78.9	3.6
*SE = Standard Error on T-score metric		

PROMIS Pediatric Scale GenPop v3.0 – Anger 9a					
Short Form Conversion Table					
Raw Summed Score	T-score	SE*	Raw Summed Score	T-score	SE*
9	36.6	5.4	28	61.6	1.8
10	42.3	3.3	29	62.5	1.8
11	44.9	2.7	30	63.4	1.8
12	46.7	2.3	31	64.2	1.8
13	48.1	2.1	32	65.1	1.8
14	49.2	2.0	33	65.9	1.8
15	50.3	1.9	34	66.7	1.7
16	51.3	1.8	35	67.5	1.7
17	52.2	1.8	36	68.3	1.7
18	53.0	1.7	37	69.1	1.8
19	53.9	1.7	38	69.9	1.8
20	54.7	1.7	39	70.8	1.8
21	55.5	1.7	40	71.8	1.8
22	56.3	1.8	41	72.8	1.9
23	57.2	1.8	42	73.9	2.0
24	58.1	1.8	43	75.3	2.3
25	58.9	1.8	44	77.0	2.6
26	59.8	1.8	45	80.0	3.4
27	60.7	1.8			
*SE = Standard Error on T-score metric					

PROMIS Parent Proxy Scale GenPop v3.0 – Anger 5a		
<i>Short Form Conversion Table</i>		
Raw Summed Score	T-score	SE*
5	37.2	5.7
6	43.6	3.8
7	47.4	3.1
8	50.3	2.7
9	52.5	2.5
10	54.4	2.5
11	56.2	2.4
12	58.0	2.5
13	59.9	2.5
14	61.7	2.5
15	63.7	2.6
16	65.8	2.6
17	67.9	2.6
18	69.8	2.6
19	71.7	2.6
20	73.6	2.6
21	75.6	2.6
22	77.6	2.6
23	79.7	2.6
24	81.9	2.8
25	84.5	2.8
*SE = Standard Error on T-score metric		

PROMIS Early Childhood Parent-Report v1.0 – Anger/Irritability 4a		
<i>Short Form Conversion Table</i>		
Raw Summed Score	T-score	SE*
4	32.7	5.3
5	38.4	4.1
6	42.1	3.8
7	45.4	3.7
8	48.4	3.7
9	51.6	3.9
10	55.1	4.2
11	57.9	4.3
12	60.6	4.3
13	63.7	4.3
14	66.4	4.3
15	69.1	3.9
16	71.5	3.8
17	73.9	3.8
18	76.5	4.0
19	78.8	4.0
20	81.7	4.0
*SE = T-score standard error		

PROMIS Early Childhood Parent-Report v1.0 – Anger/Irritability 8a		
<i>Short Form Conversion Table</i>		
Raw Summed Score	T-score	SE*
8	30.0	5.1
9	34.3	4.1
10	37.3	3.7
11	39.9	3.3
12	42.1	3.1
13	44.0	3.0
14	45.8	3.0
15	47.6	3.0
16	49.3	3.0
17	51.0	3.0
18	52.7	3.0
19	54.5	3.1
20	56.2	3.2
21	58.0	3.3
22	59.7	3.3
23	61.4	3.3
24	63.1	3.3
25	64.8	3.2
26	66.4	3.2
27	67.9	3.1
28	69.3	3.0
29	70.6	2.9
30	71.9	2.9
31	73.2	2.9
32	74.5	2.9
33	75.8	2.9
34	77.1	2.9
35	78.5	3.0
36	79.9	3.1
37	81.4	3.1
38	82.9	3.2
39	84.4	3.1
40	86.0	2.8
*SE = T-score standard error		

APPENDIX 2 – SCORING TABLES FOR RETIRED MEASURES

PROMIS Adult v1.0 — Anger 8a		
Short Form Conversion Table		
Raw Summed Score	Scale Score	SE*
8	32.4	5.2
9	37.3	3.8
10	40.2	3.4
11	42.5	3.1
12	44.4	3.0
13	46.0	2.9
14	47.6	2.8
15	49.1	2.7
16	50.5	2.7
17	51.8	2.6
18	53.1	2.6
19	54.4	2.6
20	55.7	2.6
21	56.9	2.6
22	58.2	2.6
23	59.4	2.6
24	60.7	2.6
25	61.9	2.6
26	63.2	2.6
27	64.5	2.6
28	65.7	2.6
29	67.0	2.6
30	68.3	2.6
31	69.6	2.6
32	70.9	2.6
33	72.3	2.6
34	73.7	2.6
35	75.1	2.6
36	76.7	2.6
37	78.3	2.7
38	80.2	2.8
39	82.3	3.1
40	85.2	3.5
*SE = Standard Error on T-score		

PROMIS Pediatric v2.0 – Anger 5a		
<i>Short Form Conversion Table</i>		
Raw Summed Score	T-score	SE*
5	31.5	5.9
6	36.4	5.2
7	39.7	5.0
8	42.5	4.8
9	45.2	4.7
10	47.6	4.7
11	49.9	4.7
12	52.1	4.6
13	54.2	4.6
14	56.3	4.6
15	58.3	4.6
16	60.3	4.6
17	62.3	4.6
18	64.3	4.5
19	66.3	4.5
20	68.4	4.5
21	70.5	4.5
22	72.6	4.5
23	74.9	4.6
24	77.5	4.7
25	80.3	4.7
*SE = Standard Error on T-Score		

PROMIS Parent Proxy** v2.0 – Anger 5a		
<i>Scale Conversion Table</i>		
Raw Summed Score	T-score	SE*
5	29.0	5.0
6	34.0	4.0
7	38.0	4.0
8	41.0	4.0
9	44.0	4.0
10	47.0	4.0
11	50.0	4.0
12	53.0	4.0
13	55.0	4.0
14	58.0	4.0
15	61.0	4.0
16	63.0	4.0
17	66.0	4.0
18	68.0	4.0
19	70.0	4.0
20	73.0	4.0
21	75.0	4.0
22	77.0	4.0
23	80.0	4.0
24	82.0	4.0
25	85.0	4.0
*SE = Standard Error on T-score		

**Scoring table is based on default Parent Proxy calibrations.

PROMIS Pediatric v2.0 – Anger 9a		
<i>Short Form Conversion Table</i>		
Raw Summed Score	T-score	SE*
9	29.5	5.4
10	33.7	4.7
11	36.3	4.4
12	38.6	4.2
13	40.5	4.0
14	42.3	3.8
15	43.9	3.7
16	45.4	3.7
17	46.9	3.6
18	48.2	3.6
19	49.6	3.5
20	50.9	3.5
21	52.1	3.5
22	53.4	3.5
23	54.6	3.5
24	55.8	3.5
25	57.0	3.5
26	58.2	3.5
27	59.4	3.5
28	60.6	3.5
29	61.8	3.5
30	63.0	3.5
31	64.1	3.5
32	65.3	3.5
33	66.5	3.4
34	67.7	3.4
35	69.0	3.4
36	70.2	3.4
37	71.4	3.4
38	72.7	3.5
39	74.1	3.5
40	75.5	3.5
41	77.0	3.6
42	78.6	3.7
43	80.3	3.7
44	82.1	3.7
45	84.0	3.4
*SE = Standard Error on T-score		

PROMIS Pediatric v1.1 – Anger 5a		
<i>Short Form Conversion Table</i>		
Raw Summed Score	Scale Score	SE*
0	31.5	5.9
1	36.4	5.2
2	39.7	5.0
3	42.5	4.8
4	45.2	4.7
5	47.6	4.7
6	49.9	4.7
7	52.1	4.6
8	54.2	4.6
9	56.3	4.6
10	58.3	4.6
11	60.3	4.6
12	62.3	4.6
13	64.3	4.5
14	66.3	4.5
15	68.4	4.5
16	70.5	4.5
17	72.6	4.5
18	74.9	4.6
19	77.5	4.7
20	80.3	4.7
SE* = Standard Error on T-Score		

PROMIS Pediatric v1.0 – Anger 6a		
<i>Short Form Conversion Table</i>		
Raw Summed Score	Scale Score	SE*
0	31.0	5.8
1	36.0	5.1
2	39.0	4.9
3	42.0	4.7
4	44.0	4.6
5	46.0	4.5
6	49.0	4.4
7	51.0	4.4
8	52.0	4.3
9	54.0	4.3
10	56.0	4.3
11	58.0	4.3
12	60.0	4.3
13	61.0	4.3
14	63.0	4.3
15	65.0	4.2
16	66.0	4.2
17	68.0	4.2
18	70.0	4.2
19	72.0	4.2
20	73.0	4.3
21	75.0	4.3
22	78.0	4.5
23	80.0	4.6
24	83.0	4.9
*SE = Standard Error on T-score		

PROMIS Parent Proxy v1.0 – Anger 5a		
<i>Short Form Conversion Table</i>		
Raw Summed Score	T-score	SE*
0	29.0	5.0
1	34.0	4.0
2	38.0	4.0
3	41.0	4.0
4	44.0	4.0
5	47.0	4.0
6	50.0	4.0
7	53.0	4.0
8	55.0	4.0
9	58.0	4.0
10	61.0	4.0
11	63.0	4.0
12	66.0	4.0
13	68.0	4.0
14	70.0	4.0
15	73.0	4.0
16	75.0	4.0
17	77.0	4.0
18	80.0	4.0
19	82.0	4.0
20	85.0	4.0
*SE = Standard Error on T-score		

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

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

PROMIS Pediatric Anger T-Score		PROMIS Pediatric Anger T-Score	
v2.0	v3.0 GenPop	v2.0	v3.0 GenPop
30	37.0	68	66.9
31	38.0	69	67.7
32	40.0	70	68.3
33	42.0	71	69.0
34	42.9	72	69.5
35	43.4	73	69.5
36	44.4	74	71.0
37	45.2	75	72.0
38	46.2	76	72.2
39	46.9	77	73.0
40	47.6	78	74.0
41	48.2	79	75.0
42	48.9	80	76.0
43	49.6	81	76.0
44	50.3	82	77.0
45	50.8	83	78.5
46	51.6	84	80.0
47	52.3		
48	52.7		
49	53.3		
50	54.1		
51	54.7		
52	55.4		
53	56.3		
54	56.8		
55	57.4		
56	58.1		
57	59.0		
58	59.9		
59	60.5		
60	61.2		
61	62.1		
62	62.6		
63	63.2		
64	64.6		
65	65.1		
66	65.4		
67	66.1		

Table 2. PROMIS Parent Proxy Anger: Crosswalk between v2.0 T-scores and GenPop v3.0 T-scores

PROMIS Parent Proxy Anger T-Score		PROMIS Parent Proxy Anger T-Score	
v2.0	v3.0 GenPop	v2.0	v3.0 GenPop
29	37.0	67	68.0
30	42.5	68	68.4
31	42.5	69	70.0
32	42.5	70	71.0
33	43.1	71	72.0
34	44.4	72	73.0
35	45.4	73	74.0
36	46.6	74	75.0
37	46.7	75	76.0
38	47.3	76	80.5
39	48.9	77	80.5
40	49.2	78	80.5
41	50.6	79	80.5
42	51.4	80	80.5
43	52.2	81	80.5
44	52.8	82	80.5
45	53.2	83	80.5
46	53.9	84	85.0
47	54.5		
48	55.4		
49	56.2		
50	56.8		
51	57.3		
52	58.0		
53	58.8		
54	59.2		
55	59.6		
56	60.4		
57	61.6		
58	62.1		
59	63.1		
60	64.0		
61	65.2		
62	65.5		
63	65.7		
64	66.2		
65	66.9		
66	67.6		