

ANGER/IRRITABILITY MEASURE DIFFERENCES

A brief guide to differences between 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

ABOUT ANGER

The Adult PROMIS Anger item banks assess self-reported angry mood (irritability, frustration), negative social cognitions (interpersonal sensitivity, envy, disagreeableness), and efforts to control anger. Often associated with episodes of frustration that impede goal-directed behavior, anger is marked by attitudes of hostility and cynicism. Specific components relate to verbal and non-verbal evidence of anger. Physical aggression items are not included. The anger short forms are universal rather than disease-specific. All assess anger over the past seven days.

The PROMIS Pediatric and Parent Proxy Anger Anger/Irritability item banks assess angry mood (irritability, frustration), negative social cognitions (interpersonal sensitivity, envy, disagreeableness), and efforts to control anger.

The PROMIS Early Childhood Parent-Report Anger/Irritability item bank assesses young children's angry mood (Irritability, grouchiness) and behavior (frustration, tantrums, and management of angry behavior).

Anger instruments are available for adults (ages 18+), pediatric self-report (ages 8-17) and for parents serving as proxy reporters for their child (youth ages 5-17) or very young child (ages 1-5).

INTRODUCTION TO ASSESSMENT OPTIONS

There are two administration options for assessing anger: short forms and computer 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 (22 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 anger short form and CAT instruments.

CAT: A minimum number of items (e.g., 4) must be answered in order to receive a score for 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. CATs 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, see below.

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 a presumed underlying trait or concept of anger 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.

VERSION DIFFERENCES

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, the v1.0 item bank had items removed and it became the v1.1 item bank. The short form remained unchanged. Calibrations remained unchanged. For pediatric and parent proxy anger, v2.0 replaced v1.0. The v2.0 measures 1) changed from using response scores of 0-4 to use 1-5 (item IDs amended with an "r") and 2) added new items (item IDs start with 7000). The calibrations between v1.0 and v2.0 are identical. A pediatric v1.1 item bank existed briefly – it eliminated one items from the original v1.0 bank.

Adult

Changes from v1.0 to v1.1

For Adult Anger, the v1.0 item bank had items removed and it became the v1.1 item bank. The short form remained unchanged. Calibrations remained unchanged. Consequently, T-scores between v1.0 and v1.1 are comparable.

Adult CAT Stopping Rules:

Measures named "Bank" are administered by default as computer adaptive tests.

PROMIS Bank v1.1 – Anger stopping rules:

- Minimum number of items administered = 4
- Stop when one of these occurs:
 - 12 items are administered OR

- Standard error is below 0.3 on the theta metric (3.0 on the T-score metric)

Pediatric and Parent Proxy

Changes from v2.0 to GenPop v3.0

- The GenPop v3.0 Pediatric and Parent Proxy measures replaced the v2.0 measures.
- The GenPop v3.0 measures were re-normed. This means that the scores produced by v3.0 measures are NOT equivalent to scores from older measures (i.e., v1.0, v1.1, v2.0).
- The v2.0 measures were developed with U.S. children sampled from a combination of the general population and those with chronic conditions. This means a v2.0 T-score of 50 is based on the mean of a sample comprised of a mix of children from the general population AND children with chronic conditions. The re-normed v3 GenPop measures are now purely based on a sample from the general pediatric population. This makes interpreting a PROMIS score easier as it is referencing just the general population. The use of “GenPop” (general population) is used to convey the difference in metrics between v3.0 and earlier versions of the measures.
- Earlier versions of the PROMIS Pediatric and Parent Proxy measures can be converted to the v3.0 GenPop metric. Instructions are included in the Anger Scoring Manual.
- No items were revised between the v2.0 and GenPop v3.0 Anger measures.

Changes from v1.0 to v1.1 to v2.0

For Pediatric and Parent Proxy Anger, v2.0 replaced v1.0. The v2.0 measures 1) changed from using response scores of 0-4 to use 1-5 (item IDs amended with an “r”) and 2) added new items (item IDs start with 7000). The calibrations between v1.0 and v2.0 are identical. A pediatric v1.1 item bank existed briefly – it eliminated one item from the original v1.0 bank. T-scores between all versions are comparable.

Early Childhood Parent-Report CAT Stopping Rules:

Measures named “Bank” are administered by default as computer adaptive tests.

PROMIS Early Childhood Parent-Report Bank v1.0 – Anger/Irritability rules:

- Minimum number of items administered = 4
- Stop when one of these occurs:
 - 8 items are administered OR
 - Standard error is below 0.4 on the theta metric (4.0 on the T-score metric) OR
 - If the responses to the first four items are all the “healthiest” responses, then stop.

SHORT FORMS DIFFERENCES

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., 5-item short form).

Early Childhood Parent-Report Forms

There are two PROMIS Early Childhood Parent Report short forms. Items in the 4a and 8a short forms were selected based on content coverage of the key domain facets and psychometric characteristics. The 4-item and 8-item have been selected so that the items are nested/overlap (i.e., the 8-item is the 4-item form plus 4 additional items).



Recommended Early Childhood Parent-Report Short Form

The primary difference between the two Early Childhood Parent-Report anger/irritability short forms 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 8-item form. The 8-item form is also superior for individual evaluation/comparing small groups. If you have little room for additional measures but still want to capture the domain, select the 4-item form. Either form is sufficient for large group comparison.

Parent Proxy Report Versus Early Childhood Parent-Report Measures

The PROMIS Parent Proxy measures are for parents to report on their children ages 5-17. The PROMIS Early Childhood Parent-Report measures are for parents to report on their children ages 1 to 5. In both cases, the parent provides his or her perspective about the child's anger/irritability. Scores from PROMIS Parent Proxy and PROMIS Early Childhood Parent-Report measures are calibrated and normed with different, age-appropriate reference populations and therefore are on different metrics. Scores from one should not be compared to scores on the other. For parents of 5-year-old children, either the PROMIS Parent Proxy or the PROMIS Early Childhood Parent-Report measure can be used. In general, for longitudinal research and/or on-going clinical follow-up, using the measure that aligns with the majority of the time frame with which the child will be studied is recommended. For example, if the measure is administered at child age 1 year through child age 5, using the PROMIS Early Childhood Parent-Report is recommended. If the child will be studied across in both early childhood and beyond age 5, switching to the PROMIS Parent Proxy measure is necessary.

SELECTING A PEDIATRIC OR PARENT PROXY INSTRUMENT

In selecting whether to use the pediatric or parent proxy instrument for this domain, it is important to consider both the population and the domain which you are studying. Pediatric self-report should be considered the standard for measuring patient-reported outcomes among children. However, circumstances exist when the child is too young, cognitively impaired, or too ill to complete a patient-reported outcome instrument. While information derived from self-report and proxy-report is not equivalent, it is optimal to assess both the child and the parent since their perspectives may be independently related to healthcare utilization, risk factors, and quality of care.

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.

STATISTICAL CHARACTERISTICS

There are four key features of the score for Anger:

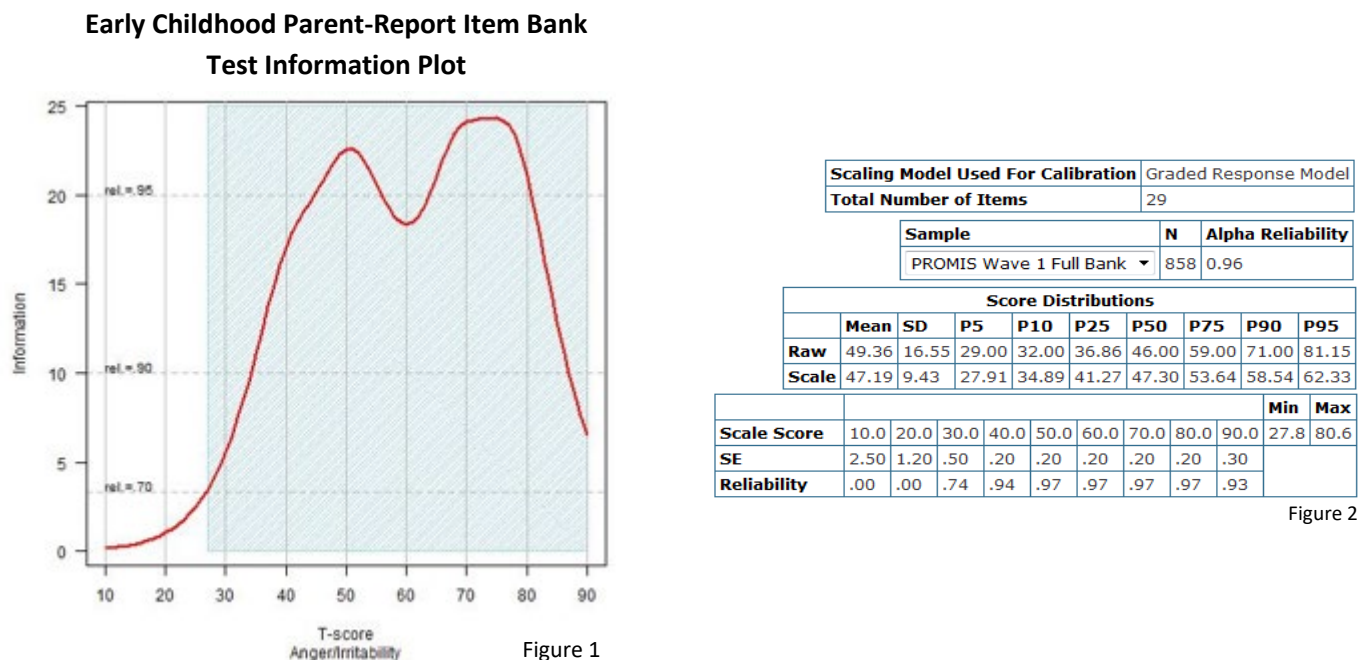
- **Reliability:** The degree to which a measure is free of error. It can be estimated by the internal consistency of the responses to the measure, or by correlating total scores on the measure from two time points when there has been no true change in what is being measured (for z-scores, reliability = $1 - SE^2$).
- **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.

The three dotted horizontal lines in Figure 1 each represent a degree of internal consistency reliability (i.e., .70, .90, or 0.95) typically regarded as sufficient for an accurate individual score for the Early Childhood Parent-Report Anger/Irritability item bank. The shaded blue region marks the range of the scale where measurement precision is comparable to the reliability of .70 for the form

Figure 2 is a sample of the statistical information available for the adult Anger 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 five-item short form. This is the paper version format used for all anger instruments. It is important to note, CAT is not available for paper administration.

In the past 7 days...		Never	Rarely	Sometimes	Often	Always
EDANG003	I was irritated more than people knew ...	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4	<input type="checkbox"/> 5
EDANG009	I felt angry	<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: 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).