



# PHYSICAL STRESS EXPERIENCES MEASURE DIFFERENCES

A brief guide to differences between the PROMIS® Physical Stress Experiences instruments:

PEDIATRIC	PARENT PROXY
PROMIS Pediatric Bank v1.0 - Physical Stress Experiences	PROMIS Parent Proxy Bank v1.0 - Physical Stress Experiences
PROMIS Pediatric Short Form v1.0 - Physical Stress Experiences 4a	PROMIS Parent Proxy Short Form v1.0 - Physical Stress Experiences 4a
PROMIS Pediatric Short Form v1.0 - Physical Stress Experiences 8a	PROMIS Parent Proxy Short Form v1.0 - Physical Stress Experiences 8a

## ABOUT PHYSICAL STRESS EXPERIENCES

The PROMIS Pediatric and PROMIS Parent Proxy Physical Stress Experiences item banks assess the physically experienced sensations associated with responses to internal or external challenges including arousal, agitation, pain, and gastrointestinal distress. The Pediatric and Parent Proxy Physical Stress Experiences item banks use a 7-day recall period and each contains 26 items.

Physical Stress Experiences instruments are available for pediatric self-report (ages 8-17) and for parents serving as proxy reporters for their child (youth ages 5-17).

## INTRODUCTION TO ASSESSMENT OPTIONS

There are two administration options for assessing physical stress experiences: 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 a CAT, participant responses guide the system's choice of subsequent items from the full item bank (26 items in total for both pediatric and parent proxy). 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 physical stress experiences short forms and CAT instruments.

CAT: A minimum number of items (5 for peds and parent proxy CATs) must be answered in order to receive a score for the Physical Stress Experiences 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. A CAT will continue until either the standard error drops below a specified level (on the T-score metric 4.0 for peds and parent proxy CATs), 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 a 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 physical



stress experiences represented by all items in the item bank. When choosing between a CAT and 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.

## SHORT FORM DIFFERENCES

### Pediatric and Parent Proxy Short Forms

There are 2 Pediatric and 2 Parent Proxy short forms. Items were selected based on content and psychometric characteristics.

### 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).

## 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 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 Physical Stress Experiences, a T-score of 40 is one SD better than average. By comparison, a Physical Stress Experiences T-score of 60 is one SD worse than average.

## STATISTICAL CHARACTERISTICS

There are four key features of the score for physical stress experiences:

- **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 1 (Pediatric 8a short form) and Figure 2 (Parent Proxy 8a short form), the four 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 regions mark the ranges of the scales where measurement precision is comparable to the reliability of .90 for the eight-item forms. Figure 2 also tells us where on the scales the forms are most informative based upon the T-scores. These forms would typically be more informative than physical stress experiences forms with fewer items.

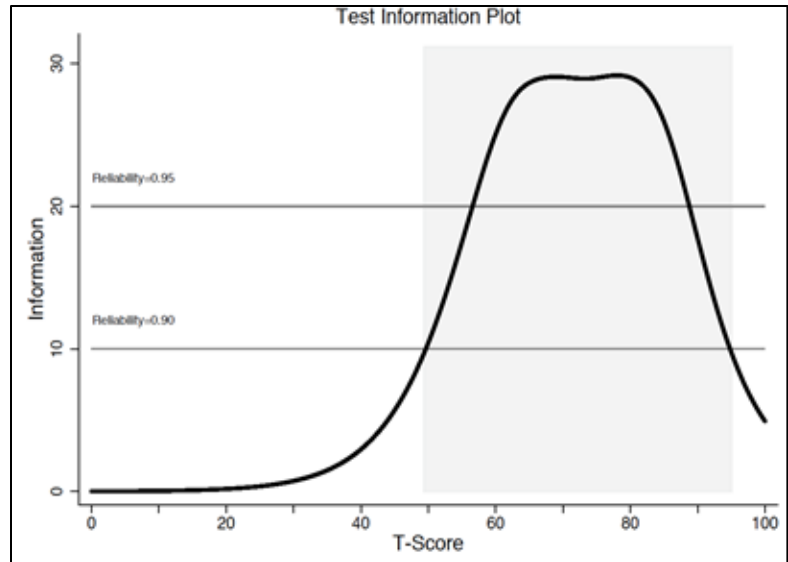


Figure 1

Figure 3 (Pediatric 4a and 8a short forms) and Figure 4 (Parent Proxy 4a and 8a short forms) also tell us where on the scales the forms are most informative based upon the T-scores: the 8-item forms are more informative than the the 4-item forms.

More information is available at [HealthMeasures.net](http://HealthMeasures.net).

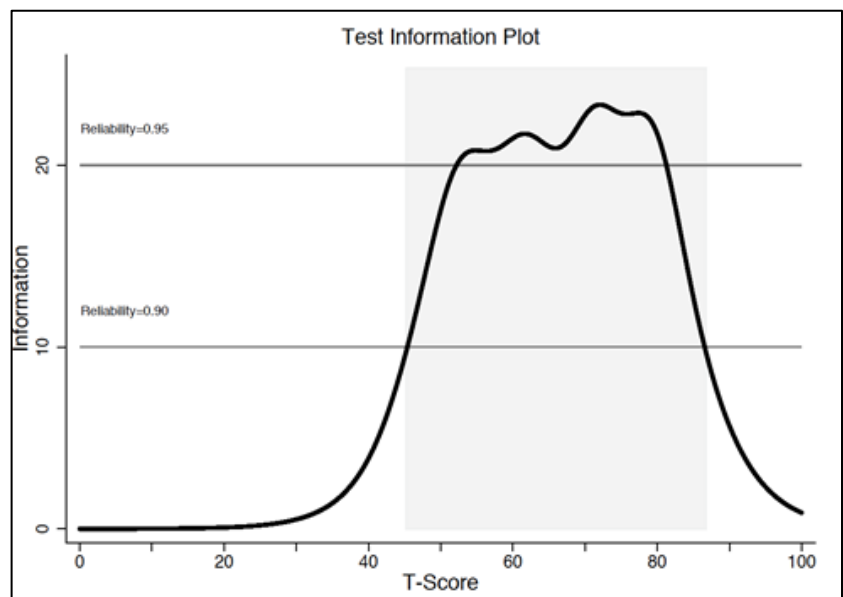


Figure 2

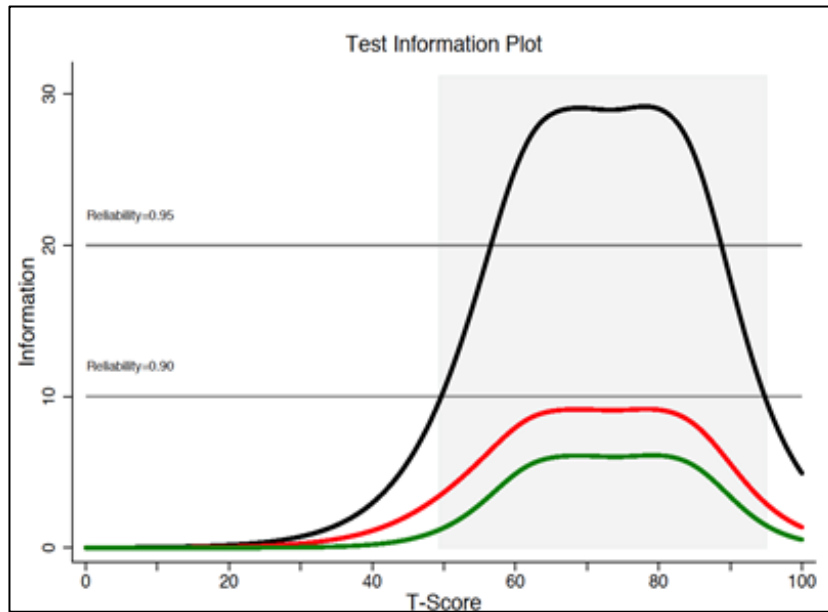


Figure 3

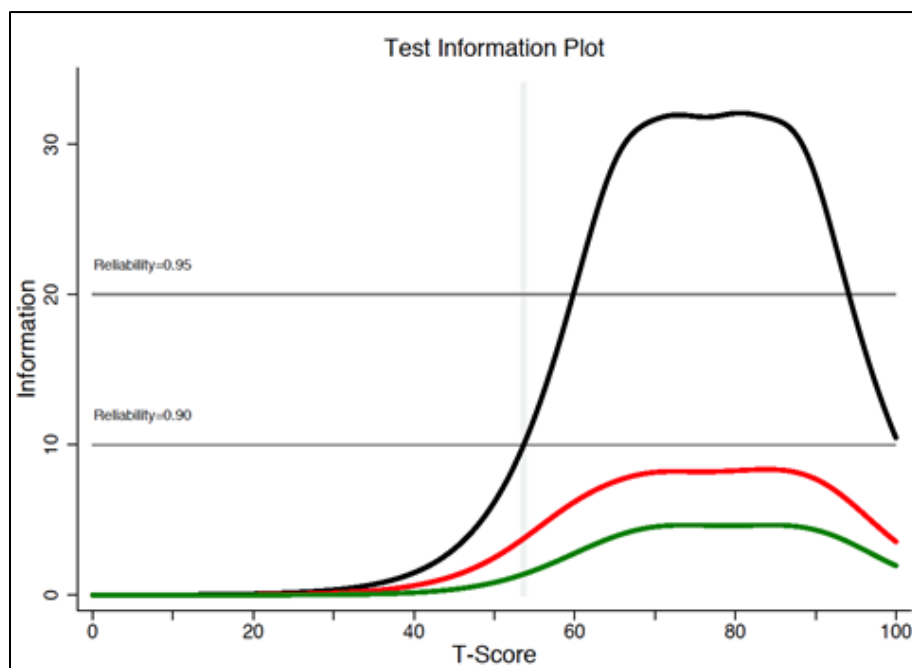


Figure 4

## PREVIEW OF SAMPLE ITEMS

Figure 5 and Figure 6 are excerpts from the paper version of the pediatric and parent proxy eight-item short forms, respectively. These are the paper version formats used for all physical stress experiences instruments. It is important to note, a CAT is not available for paper administration.

In the past 7 days...		Never	Rarely	Sometimes	Often	Always
EoS_S_032R1	My heart beat faster than usual, even when I was not exercising or playing hard .....	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4	<input type="checkbox"/> 5
EoS_S_033R1	I had trouble breathing, even when I was not exercising or playing hard .....	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4	<input type="checkbox"/> 5

Figure 5

In the past 7 days...		Never	Rarely	Sometimes	Often	Always
EoS_S_032_PXR1	My child's heart beat faster than usual, even when he/she was not exercising or playing hard .....	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4	<input type="checkbox"/> 5
EoS_S_033_PXR1	My child had trouble breathing, even when he/she was not exercising or playing hard .....	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4	<input type="checkbox"/> 5

Figure 6

## FREQUENTLY ASKED QUESTIONS (FAQs)

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

Review the HealthMeasures website at [www.healthmeasures.net](http://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\\_scoring-service](https://www.assessmentcenter.net/ac_scoring-service)).