



STRESS MEASURE DIFFERENCES

A brief guide to differences between the NIH Toolbox® Stress instruments:

ADULT	PEDIATRIC	PARENT REPORT
NIH Toolbox Perceived Stress FF Ages 18+ v3.0	NIH Toolbox Perceived Stress CAT Ages 13-17 v3.0	NIH Toolbox Perceived Stress Parent Report CAT Ages 8-12 v3.0
NIH Toolbox Perceived Stress FF Ages 18+ v2.0*	NIH Toolbox Perceived Stress FF Ages 13-17 v2.0	NIH Toolbox Perceived Stress Parent Report CAT Ages 8-12 v2.0*

*Retired Measure

CAT = Computer Adaptive Test, FF = Fixed Form

ABOUT STRESS

Stress and Self-Efficacy focus on individual perceptions about the nature of events and their relationship to the perceived coping resources of an individual. In general, psychological stress is said to occur when an individual perceives that environmental or internal demands that are personally meaningful exceed his/her adaptive capacity. NIH Toolbox assesses three areas related to stress and adaptive capacity: Perceived Stress, Self-Efficacy, and Emotion Control. Perceived Stress is defined by individual perceptions about the nature of events and their relationship to the values and coping resources of an individual.

Stress measures are available for adults (ages 18+), pediatric self-report (ages 8-17) and for parents serving as proxy reporters for their child (youth ages 3-12).

Measures are appropriate for the general population and individuals with chronic health conditions. The measures are universal rather than disease-specific.

INTRODUCTION TO ASSESSMENT OPTIONS

There are two administration options for assessing Stress: fixed forms and computer adaptive tests (CATs).

Fixed Form

In a fixed form, respondents answer all of the items (i.e., questions or statements) presented.

CAT

In a CAT, items are tailored to the respondent. A minimum number of items (e.g., 4) must be answered in order to receive a score for the Stress CAT. The response to the first item will guide the system's choice of the next item for the respondent. The response to the second item will dictate the selection of the following item, 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. Although items differ across respondents completing a CAT, scores are comparable across respondents.

Fixed Form versus CAT

For both fixed forms and CATs, scores are based in Item Response Theory (IRT), a family of statistical models that link individual items to a presumed underlying trait or concept of Perceived Stress represented by all items in the item bank. Some administrators may prefer to ask the same questions 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 fixed form would be more desirable than a CAT. In cases where brevity and measurement precision are priorities, CATs are likely a better fit.

VERSION DIFFERENCES BETWEEN V2.0 AND V3.0

Some NIH Toolbox domains have multiple versions of measures (e.g., v2.0, v3.0). Generally, **it is recommended that you use the most recent version available which can be identified as the measure with the highest version number.** The following information describes differences between versions of measures.

In 2023, NIH Toolbox v3.0 replaced NIH Toolbox v2.0. In the case of the Stress domain, NIH Toolbox v2.0 and v3.0 measures all include the same items. However, there are three main differences between v2.0 and v3.0. These are:

1. Different item administration engines. V3.0 includes new features to allow more flexibility in CAT stopping rules and uses streamlined code. Measure scoring is the same.
2. Different CAT stopping rules (see CAT Stopping Rules below).
3. V2.0 measures previously administered as fixed forms are now administered as CATs in v3.0.

Scores from NIH Toolbox v2.0 measures are comparable to scores from the equivalent v3.0 measure when v2.0 and v3.0 use the same items or item banks (as they do in all cases for the Stress domain).

Adult

- The NIH Toolbox Perceived Stress FF Age 18+ v2.0 was replaced by the NIH Toolbox Perceived Stress FF Ages 18+ v3.0, but both contain the same items. Therefore, scores from the v2.0 and v3.0 NIH Toolbox Adult Perceived Stress FF measures can be compared.

NIH Toolbox v2.0 Measure	Corresponding NIH Toolbox v3.0 Measure	
	Name in NIH Toolbox v3.0 App	Name on Paper Form
NIH Toolbox Perceived Stress FF Age 18+ v2.0	Perceived Stress FF Ages 18+	NIH Toolbox Perceived Stress FF Ages 18+ v3.0

Pediatric and Parent Report

- The NIH Toolbox Perceived Stress FF Ages 13-17 v2.0 included 10 items. It was replaced by the NIH Toolbox Perceived Stress CAT Ages 13-17 v3.0. It uses the same 10 items, but administers them as a CAT. Consequently, respondents will answer a variable number of items. See CAT Stopping Rules below for details.
- The NIH Toolbox Perceived Stress Parent Report CAT Ages 8-12 v2.0 was replaced by the NIH Toolbox Perceived Stress Parent Report CAT Ages 8-12 v3.0, but both contain the same items. Therefore, scores from the v2.0 and v3.0 NIH Toolbox Perceived Stress Parent Report FF measures can be compared.

NIH Toolbox v2.0 Measure	Corresponding NIH Toolbox v3.0 Measure	
	Name in NIH Toolbox v3.0 App	Name on Paper Form
NIH Toolbox Perceived Stress FF Ages 13-17 v2.0	Perceived Stress CAT Ages 13-17	NIH Toolbox Perceived Stress CAT Ages 13-17 v3.0
NIH Toolbox Perceived Stress Parent Report CAT Ages 8-12 v2.0	Perceived Stress Parent Report CAT Ages 8-12	NIH Toolbox Perceived Stress Parent Report CAT Ages 8-12 v3.0



CAT Stopping Rules

Measure	Stopping Rules
NIH Toolbox Perceived Stress CAT Ages 13-17 v3.0 NIH Toolbox Perceived Stress Parent Report CAT Ages 8-12 v3.0	<ul style="list-style-type: none">• Minimum = 4 items• Stop when one of these occurs:<ul style="list-style-type: none">○ 8 items are administered OR○ The standard error is below 0.3 (theta metric)
NIH Toolbox Perceived Stress Parent Report CAT Ages 8-12 v2.0	<ul style="list-style-type: none">• Minimum = 4 items• Stop when one of these occurs:<ul style="list-style-type: none">○ 10 items are administered OR○ The standard error is below 0.3 (theta metric)