



PAIN

MEASURE DIFFERENCES

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

ADULT
NIH Toolbox Pain Intensity FF Ages 18+ v3.0
NIH Toolbox Pain Interference CAT Ages 18+ v3.0
NIH Toolbox Pain Intensity FF Age 18+ v2.0*
NIH Toolbox Pain Interference CAT Age 18+ v2.0*

*Retired Measure

CAT = Computer Adaptive Test, FF = Fixed Form

ABOUT PAIN

NIH Toolbox Pain is part of the Sensation domain and refers to an unpleasant sensory and emotional experience associated with actual or potential tissue damage or described in terms of such damage. Pain is a major symptom in many medical conditions and can significantly interfere with a person's quality of life and general functioning. The NIH Toolbox measures of Pain focus on the consequences of pain on a participant's life (Pain Interference), as well as the intensity of the pain experienced (Pain Intensity).

Pain measures are available for adults (ages 18+) only.

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 is one administrative option for assessing Pain Intensity: fixed forms.

There is one administrative option for assessing Pain Interference: computer adaptive tests (CATs).

Fixed Form

In a fixed form, respondents answer all of the items (i.e., questions or statements) presented. Unlike other NIH Toolbox fixed forms, those included in the Pain domain are uncalibrated, meaning that they are not based in Item Response Theory (IRT) and cannot generate a summary score, so item-level raw response values must be used instead.

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 Pain 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.



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 most (but not all) cases, NIH Toolbox v2.0 and v3.0 measures 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 Pain domain).

Adult

- The following Adult Pain measures contain the same items or item banks between NIH Toolbox 2.0 and NIH Toolbox v3.0, although the scoring engine and stopping rules have been updated between versions (for the CATs). These are the names as they appear in the respective app:

NIH Toolbox v2.0 Measure	Corresponding NIH Toolbox v3.0 Measure	
	Name in NIH Toolbox v3.0 App	Name on Paper Form
NIH Toolbox Pain Intensity FF Age 18+ v2.0	Pain Intensity FF Ages 18+	NIH Toolbox Pain Intensity FF Ages 18+ v3.0
NIH Toolbox Pain Interference CAT Age 18+ v2.0	Pain Interference CAT Ages 18+	NIH Toolbox Pain Interference CAT Ages 18+ v3.0

CAT Stopping Rules

Measure	Stopping Rules
NIH Toolbox Pain Interference CAT Ages 18+ 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 0.224 (theta metric)
NIH Toolbox Pain Interference CAT Age 18+ v2.0	<ul style="list-style-type: none"> • Minimum = 4 items • Stop when one of these occurs: <ul style="list-style-type: none"> ○ 12 items are administered OR ○ The standard error is below 0.3 (theta metric)