



# ANGER

## MEASURE DIFFERENCES

A brief guide to differences between the NIH Toolbox<sup>®</sup> Anger instruments:

ADULT	PEDIATRIC	PARENT REPORT
NIH Toolbox Anger CAT Ages 18+ v3.0	NIH Toolbox Anger FF Ages 8-17 v3.0	NIH Toolbox Anger Parent Report CAT Ages 3-7 v3.0
NIH Toolbox Anger/Hostility FF Ages 18+ v3.0	NIH Toolbox Anger FF Ages 8-17 v2.0	NIH Toolbox Anger Parent Report CAT Ages 8-12 v3.0
NIH Toolbox Anger/Physical Aggression FF Ages 18+ v3.0		NIH Toolbox Anger Parent Report FF Ages 3-7 v2.0
NIH Toolbox Anger-Affect CAT Ages 18+ v2.0*		NIH Toolbox Anger Parent Report CAT Ages 8-12 v2.0*
NIH Toolbox Anger-Affect FF Ages 18+ v2.0*		
NIH Toolbox Anger-Hostility FF Ages 18+ v2.0*		
NIH Toolbox Anger-Physical Aggression FF Ages 18+ v2.0*		

\*Retired Measure

CAT = Computer Adaptive Test, FF = Fixed Form

### ABOUT ANGER

NIH Toolbox Anger is part of the Negative Affect domain and refers to hostility and cynicism often associated with experiences of frustration impeding goal-directed behavior. For adults, measures assess either affect, hostility, or physical aggression.

Anger 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 Anger: 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 Anger 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 Anger 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 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 most cases). In the case of Anger, please see specific version differences outlined below.

#### Adult

- The following Adult Anger 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 Anger - Affect CAT Age 18+ v2.0	Anger CAT Ages 18+	NIH Toolbox Anger CAT Ages 18+ v3.0
NIH Toolbox Anger - Hostility FF Age 18+ v2.0	Anger/Hostility FF Ages 18+	NIH Toolbox Anger/Hostility FF Ages 18+ v3.0
NIH Toolbox Anger - Physical Aggression FF Age 18+ v2.0	Anger/Physical Aggression FF Ages 18+	NIH Toolbox Anger/Physical Aggression FF Ages 18+ v3.0

- The NIH Toolbox Anger-Affect FF Age 18+ v2.0 was removed from NIH Toolbox v3.0.

NIH Toolbox v2.0 Measure	Corresponding NIH Toolbox v3.0 Measure	
	Name in NIH Toolbox v3.0 App	Name on Paper Form
NIH Toolbox Anger - Affect FF Age 18+ v2.0	N/A (v3.0 unavailable)	N/A (v3.0 unavailable)

#### Pediatric and Parent Report

- The NIH Toolbox Anger FF Ages 8-17 v3.0 was taken from the PROMIS Pediatric Scale GenPop v3.0 - Anger 9a. Thus, scores from the v2.0 and v3.0 NIH Toolbox Anger FF Ages 8-17 measures cannot be compared.



- The NIH Toolbox Anger Parent Report FF Ages 3-7 v2.0 included 9 items. It was replaced by the NIH Toolbox Anger Parent Report CAT Ages 3-7 v3.0, which uses the same 9 items, but administers them as a CAT. Consequently, respondents will answer a variable number of items. See CAT Stopping Rules below for details. Additionally, between v2.0 and v3.0 of the Anger Parent Report Ages 3-7 measures, changes were made to the response option coding (from “1-2-3” to “0-1-2”). Thus, scores from these v2.0 and v3.0 NIH Toolbox measures can be directly compared.
- The NIH Toolbox Anger Parent Report CAT Ages 8-12 v3.0 contains the same items as the NIH Toolbox Anger Parent Report CAT Ages 8-12 v2.0, although the scoring engine and stopping rules have been updated between versions. 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 Anger FF Ages 8-17 v2.0	Anger FF Ages 8-17	NIH Toolbox Anger FF Ages 8-17 v3.0
NIH TB Anger Parent Report FF Ages 3-7 v2.0	Anger Parent Report CAT Ages 3-7	NIH Toolbox Anger Parent Report CAT Ages 3-7 v3.0
NIH Toolbox Anger Parent Report CAT Ages 8-12 v2.0	Anger Parent Report CAT Ages 8-12	NIH Toolbox Anger Parent Report CAT Ages 8-12 v3.0

#### CAT Stopping Rules

Measure	Stopping Rules
NIH Toolbox Anger CAT Ages 18+ v3.0	<ul style="list-style-type: none"> <li>• Minimum = 4 items</li> <li>• Stop when one of these occurs:               <ul style="list-style-type: none"> <li>○ 8 items are administered OR</li> <li>○ The standard error is below 0.224 (theta metric)</li> </ul> </li> </ul>
NIH Toolbox Anger Parent Report CAT Ages 3-7 v3.0 NIH Toolbox Anger Parent Report CAT Ages 8-12 v3.0	<ul style="list-style-type: none"> <li>• Minimum = 4 items</li> <li>• Stop when one of these occurs:               <ul style="list-style-type: none"> <li>○ 8 items are administered OR</li> <li>○ The standard error is below 0.3 (theta metric)</li> </ul> </li> </ul>
NIH Toolbox Anger-Affect CAT Ages 18+ v2.0	<ul style="list-style-type: none"> <li>• Minimum = 4 items</li> <li>• Stop when one of these occurs:               <ul style="list-style-type: none"> <li>○ 12 items are administered OR</li> <li>○ The standard error is below 0.3 (theta metric)</li> </ul> </li> </ul>
NIH Toolbox Anger Parent Report CAT Ages 8-12 v2.0	<ul style="list-style-type: none"> <li>• Minimum = 4 items</li> <li>• Stop when one of these occurs:               <ul style="list-style-type: none"> <li>○ 10 items are administered OR</li> <li>○ The standard error is below 0.3 (theta metric)</li> </ul> </li> </ul>