

# SMOKING – NEGATIVE HEALTH EXPECTANCIES

## MEASURE DIFFERENCES

A brief guide to differences between the PROMIS® Smoking – Negative Health Expectancies instruments:

ADULT
PROMIS Item Bank v1.0 – Smoking – Negative Health Expectancies for All Smokers PROMIS Item Bank v1.0 – Smoking – Negative Health Expectancies for Daily Smokers PROMIS Item Bank v1.0 – Smoking – Negative Health Expectancies for Nondaily Smokers PROMIS Short Form v1.0 – Smoking – Negative Health Expectancies for All Smokers 6a PROMIS Short Form v1.0 – Smoking – Negative Health Expectancies for Daily Smokers 6a PROMIS Short Form v1.0 – Smoking – Negative Health Expectancies for Nondaily Smokers 6a

### ABOUT SMOKING – NEGATIVE HEALTH EXPECTANCIES

The PROMIS Smoking – Negative Health Expectancies item banks assess smokers’ self-reported expectancies about the health-related concerns that are experienced as a result of smoking. These items cover health-related outcome expectancies of smoking (e.g., smoking gives me a headache) and quitting (e.g., if I quit smoking, I will breathe easier), and emotions such as worry (e.g., about developing serious health problems in the future). The Smoking – Negative Health Expectancies short forms are universal rather than disease-specific. The item banks do not use a time frame (e.g., over the past seven days) when assessing Smoking – Negative Health Expectancies.

Smoking – Negative Health Expectancies instruments are available for adults (ages 18+). Items banks are available for all current smokers (PROMIS Item Bank v1.0 – Smoking – Negative Health Expectancies for All Smokers) and specifically for daily smokers (PROMIS Item Bank v1.0 – Smoking – Negative Health Expectancies for Daily Smokers) and nondaily smokers (PROMIS Item Bank v1.0 – Smoking – Negative Health Expectancies for Nondaily Smokers). The three item banks share 12 common items. There are 7 additional items that are unique to the Daily Smokers bank and 6 additional items that are unique to the Nondaily Smokers bank.

In situations where smoking status is not known prior to computer administration, the All Smokers bank items should be used. However, where the smoking status of respondents is known, the Daily Smokers or Nondaily Smokers item banks may be more appropriate as these provide additional items and information specific to each status.

One 6-item short form is also available (PROMIS Short Form v1.0 – Smoking – Negative Health Expectancies for All, Daily, and Nondaily Smokers 6a) and is appropriate for use with all current smokers, regardless of daily/nondaily smoking status.

### INTRODUCTION TO ASSESSMENT OPTIONS

There are two administration options for assessing Smoking – Negative Health Expectancies: 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 (12 items for the All Smokers bank, 19 items for the Daily Smokers bank and 18 items for the Nondaily Smokers bank). 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 Smoking – Negative Health Expectancies short form and CAT instruments.

**CAT:** A minimum number of items (4 for adult CATs) must be answered in order to receive a score for the Smoking – Negative Health Expectancies 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. The CAT will continue until either the standard error drops below a specified level (on the T-score metric 3.0 for adult 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 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 Smoking – Negative Health Expectancies 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.

Figure 1 illustrates the correlations (strength of relationship) of the full bank with a CAT and with short forms of varying length. The correlation of CAT scores with the full bank score is greater than a short form of any length. A longer CAT or longer short form offers greater correlation, as well as greater precision. When evaluating precision, not all questions are equally informative. The flexibility of a CAT to choose more informative questions offers more precision.

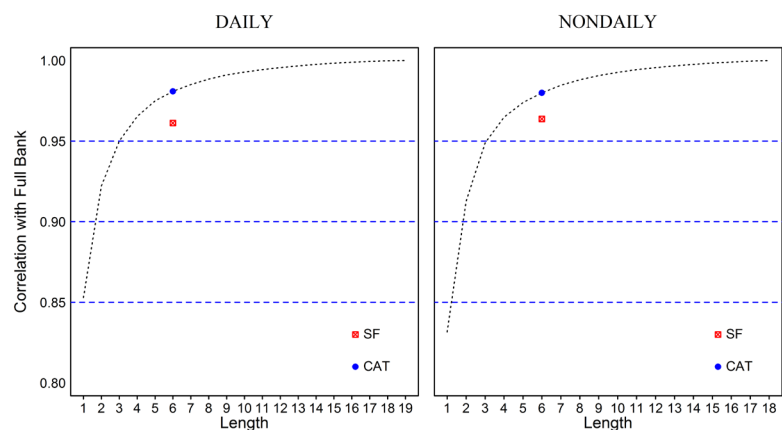


Figure 1

## SELECTING BETWEEN DAILY, NONDAILY, AND ALL SMOKERS

In situations where smoking status is not known prior to administration, the All Smokers item banks and scoring algorithms should be used. However, when the smoking status of respondents is known, the Daily Smokers or Nondaily Smokers item banks and scoring algorithms may be more appropriate as these provide additional items and information specific to each status. Short forms are appropriate for use with all current smokers, regardless of daily/nondaily smoking status.

## SCORES

For most PROMIS instruments, a T-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. However, the PROMIS Smoking instruments were developed with samples of smokers drawn from the general population. You can read more about the calibration and centering samples at HealthMeasures.net in the Interpret PROMIS (<http://www.healthmeasures.net/score-and-interpret/interpret-scores/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 Negative Health Expectancies, a T-score of 50 is one SD worse than average. By comparison, a Negative Health Expectancies T-score of 40 is one SD better than average.

## STATISTICAL CHARACTERISTICS

There are four key features of the score for Smoking – Negative Health Expectancies:

- **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-score  $\pm (1.96 * SE) = 52 \pm 3.9 = 48.1$  to 55.9).

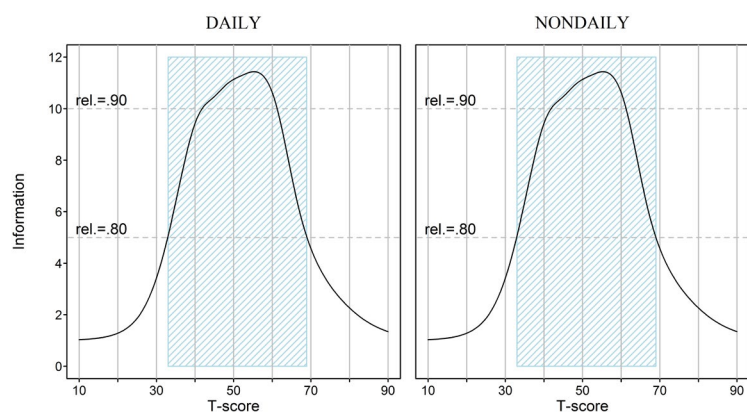


Figure 2

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 2 (Adult 6a Daily and Nondaily short forms), the two dotted horizontal lines each represent a degree of internal consistency reliability (i.e., .80 or .90) typically regarded as sufficient for an accurate individual score. The shaded blue region marks the range of the scale where measurement precision is comparable to the reliability of .80 for the six-item form. Figure 2 also tells us where on the scale the form is most informative based upon the T-score.

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

## PREVIEW OF SAMPLE ITEM

Figure 3 is an excerpt from the paper version of the adult six-item short form. This is the paper version format used for all Smoking – Negative Health Expectancies instruments. It is important to note that the CAT is not available for paper administration.

		Not at all	A little bit	Somewhat	Quite a bit	Very much
8MH-LTHC1	Smoking is taking years off my life.....	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4	<input type="checkbox"/> 5
8MH-LTHC2	Smoking makes me worry about getting heart troubles.....	<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](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/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\\_scoringservice](https://www.assessmentcenter.net/ac_scoringservice)).