

ICPSR 21600

**National Longitudinal Study of  
Adolescent to Adult Health (Add  
Health), 1994-2008 [Public Use]**

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Wave III: Peabody Picture Vocabulary Test  
(PVT), Public Use Codebook/Questionnaire

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Wave III: Peabody Picture Vocabulary Test (PVT),  
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Original P.I. Documentation

*National Longitudinal Study of  
Adolescent Health*

*Wave III Public  
Add Health PVT*



Carolina Population Center  
University of North Carolina at Chapel Hill

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Frequency	Code	Response	Variable Name	Type/Length
Respondent Identifier			<b>AID</b>	char 8
		range 10000000-99999999		
Raw PVT Score			<b>AH_RAW</b>	num 3
7	0	0		
4696		range 1 to 87		
171	996	refused		
8	●	missing		
Cross-sectional or Longitudinal PVT Percentile Rank—Wave III			<b>PVTPCT3</b>	num 3
30	0	0		
4673		range 1 to 100		
171	996	refused		
8	●	missing		
Cross-sectional Standardized Score—Wave III			<b>PVTSTD3C</b>	num 3
4703		range 7 to 122		
171	996	refused		
8	●	missing		
Longitudinal Standardized Score—Wave III			<b>PVTSTD3L</b>	num 3
4703		range 9 to 123		
171	996	refused		
8	●	missing		
Cross-sectional PVT Percentile Rank—Wave I			<b>PVTPCT1C</b>	num 3
31	0	0		
4649		range 1 to 100		
202	●	missing		
Longitudinal PVT Percentile Rank—Wave I			<b>PVTPCT1L</b>	num 3
25	0	0		
4487		range 1 to 100		
370	●	missing		

Frequency	Code	Response	Variable Name	Type/ Length
Cross-sectional or Longitudinal PVT Standardized Score—Wave I			<b>PVTSTD1</b>	num 3
4680		range 10 to 137		
202	●	missing		

## **Add Health Peabody Picture Vocabulary Test Scores**

Percentile rank and improved standardized test score have been computed for participants in the Add Health study using the raw Picture Vocabulary Test (PVT) scores obtained at Wave I and Wave III.

### **Wave I Scores (PVTSTD1, PVTPCT1C, PVTPCT1L)**

The new standardized test score (PVTSTD1), is an improvement over the original score (AH\_PVT) in two ways. First, the sample weights were not available when AH\_PVT constructed, thus no correction was made for the unequal probability of selection of the adolescent. Second, the Wave II data showed 115 of the adolescents had incorrect ages assigned at Wave I. Corrected ages are now available. Sampling weights and corrected ages were used when constructing both of the new scores. The correlation of the old standardized score (AH\_PVT) and the new standardized test score (PVTSTD1) is 0.998. Because of this high correlation it is unlikely there will be any difference in conclusions obtained with the old and new standardized scores.

The second score that has been created, the percentile rank score (PVTPCT1C) for cross-sectional analysis using Wave I data, has an advantage over the standardized score because all age groups have the same floor (0) and ceiling (100) values. For example, participants who achieve the maximum possible raw PVT score of 87 will be in the 100<sup>th</sup> percentile for all ages, but will have a standardized score of 141 at age 13 and fall to 124 by age 18. This characteristic is true for both old (AH\_PVT) and new (PVTSTD1) standardized score measures. Thus, the percentile rank score provides an index of relative standing among same-age peers that is comparable across age groups. This may make interpreting analysis results easier.

The third score that was created, the percentile rank score (PVTPCT1L) for longitudinal analysis using Wave I and Wave III data, was created with the same steps as PVTPCT1C, but only for those participants interviewed at both Wave I and Wave III.

The following steps were followed to compute the new scores for Wave I:

1. Classify adolescents into 3-month age intervals.
2. For each age group, use the sample weights to compute the unsmoothed percentile rank and standardized (mean=100, standard deviation = 15) PVT score. The values computed were not monotonically decreasing: that is two adolescents may have the same raw score, but the percentile rank or standardized score for the older student may be greater than for the younger student. This indicates the need for further smoothing that was done in the next step.
3. Smooth the table of values using regression techniques. Standard regression techniques were used to find an adequate model relating the unsmoothed percentile rank and standardized score to age interval and raw scores. These models were used to predict the smoothed standardized test score, PVTSTD1, and percentile rank, PVTPCT1.

Table 1 shows the two scores created for Wave I. We recommend using the new standardized test score, PVTSTD1, if you need to report scores in a traditional IQ metric instead of the percentile rank. However, be aware that the different age groups have different ceiling values for the maximum raw PVT score of 87. Using the percentile rank score, PVTPCT1, will avoid this problem.

### **Wave III Scores (PVTSTD3C, PVTSTD3L, PVTPCT3)**

Table 1 also shows the three scores derived using the Wave III raw PVT scores.

The first score (PVTSTD3C) is designed for cross-sectional analysis with Wave III data. To compute this score, the Wave III sample weights were used to compute a table of standardized (mean=100, standard deviation=15 ) PVT scores from the raw scores. For participants 18 to 24 years old there was no statistical difference in the raw PVT score with respect to the participant's age. Hence, there was no need to classify adolescents between 18 and 24 into age groups for computing the standardized or percentile scores. Participants 25 years and older had raw scores statistically lower than the 18 year old adolescents. However, we did not develop a separate scale for these participants because of sample considerations. The scale developed using the 18 to 24 year old participants was used to predict the scores for participants over 25 years and older. A linear model was derived to predict a standardized score (PVTSTD3C) from the Wave III raw score.

The second score (PVTSTD3L) is designed for longitudinal analysis combining Wave I and Wave III data. For longitudinal analysis that utilized the PVT score at Wave I (PVTSTD1) and the PVT score at Wave III, it is best to have the scores computed with the same model. Analysis using both PVTSTD1 and PVTSTD3L will measure the change in vocabulary ability over time. To construct this score, we used the Wave I model for the standardized PVT score derived for 18.5 year old adolescents to predict a longitudinal standardized score (PVTSTD3L) from the Wave III raw score.

The third score (PVTPCT3) can be used for either cross-sectional analysis with Wave III data or longitudinal analysis with combined Wave I and Wave III data. The model to predict percentile rank was developed by first computing the unsmoothed percentile rank for the 18 to 24 year old participants, then developing a model to predict the percentile rank from the raw score. This score can be used for cross-sectional analysis with Wave III data. It can also be used with PVTPCT1L from Wave I for longitudinal analysis that investigates the change in rank over time for the participants who were interviewed at both Wave I and Wave III.



**Table 1. Add Health Picture Vocabulary Test (PVT) Scores**

	Variable Name	Meaning	Use	Range
Wave I	PVTSTD 1	Wave I PVT standardized score computed using the Wave I model relating the unsmoothed standardized* score to age and Wave I raw scores.	Cross-sectional analysis: use for analysis comparing a respondent's Wave I PVT score to other respondents at Wave I.  Longitudinal analysis: use with PVTSTD3L (from Wave III) for analysis examining change in PVT score from Wave I to Wave III.	9 to 141
	PVTPCT 1C	Wave I PVT Percentile Rank computed using the model relating the unsmoothed percentile rank score to age and Wave I raw scores. Model developed using all respondents at Wave I probability sample.	Cross-sectional analysis: use for analysis comparing a respondent's Wave I PVT score to other respondents at Wave I.	0 to 100
	PVTPCT 1L	Wave I PVT percentile rank.  Model developed using all respondents at Wave I who were in the probability sample at Wave III.	Longitudinal analysis: use with PVTPCT3 (from Wave III) for analysis examining change in rank of participant from Wave I to Wave III.	0 to 100
Wave III	PVTSTD 3C	Wave III PVT standardized* score.	Cross-sectional analysis: use for analysis comparing a respondent's Wave III PVT score to other respondents at Wave III.	7 to 122
	PVTSTD 3L	Wave III PVT standardized scores computed using the Wave I model for adolescents who were 18.5 years old to predict a standardized* score from the Wave III raw score.	Longitudinal analysis: use with PVTSTD1 (from Wave I) for analysis examining change in PVT score from Wave I to Wave III.	9 to 123
	PVTPCT 3	WAVE III PVT percentile rank	Cross-sectional analysis: use for analysis comparing a respondent's Wave III PVT score to other respondents at Wave III.  Longitudinal analysis: use with PVTPCT1L (from Wave I) for analysis examining change in rank of participant from Wave I to Wave III	0 to 100

\*Raw scores were standardized to a mean of 100 and standard deviation of 15 before models were developed to predict smoothed scores from raw PVT score.