

Brief Test of Attention: Normative data for the Latin American Spanish speaking adult population

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Abstract.

OBJECTIVE: To generate normative data on the Brief Test of Attention (BTA) across 11 countries in Latin America, with country-specific adjustments for gender, age, and education, where appropriate.

METHOD: The sample consisted of 3,977 healthy adults who were recruited from Mexico, Argentina, Peru, Paraguay, Honduras, Chile, Cuba, Puerto Rico, Guatemala, El Salvador, and Bolivia. Each subject was administered the BTA as part of a larger neuropsychological battery. A standardized five-step statistical procedure was used to generate the norms.

RESULTS: The final multiple linear regression models explained between 11–41% of the variance in BTA scores. Although men had higher scores on the BTA in Honduras, there were no other significant gender differences, and this one effect size was small. As a result, gender-adjusted norms were not generated.

CONCLUSIONS: This is the first normative multicenter study conducted in Latin America to create norms for the BTA; this study will have an impact on the future practice of neuropsychology throughout Latin America.

Keywords: Normative data, Brief Test of Attention, Reference values, Latin America, auditory-divided attention

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1. Introduction

The Brief Test of Attention (BTA; Schretlen, 1997) is a commonly used neuropsychological measure of auditory-divided attention that was developed to reduce the influence of confounding task demands such as motor speed and visual scanning (Schretlen, Bobholz, & Brandt, 1996a). Although many tests of attention require visual acuity or manual dexterity, a primary advantage of the BTA is that it can be used with individuals with visual and/or motor impairments (Schretlen, 1997).

The BTA is based on a theoretical framework proposed by Cooley and Morris (1990), which conceptualizes the components of the attention system and discusses the task demands of attention tests. Because administration time is only 10 minutes, the instrument is often administered bedside to detect attentional impairments (Strauss, Sherman, & Spreen, 2006). The test was originally validated on individuals aged 17 to 82 years (Schretlen et al., 1996a). Additional normative data have been presented for a child sample aged 6 to 14 (Schretlen et al., 1996a).

The BTA consists of two parallel forms, each orally presented using an audio CD (Schretlen, 1997). Each form contains a list of alpha-numeric strings which increase in length from four to 18 characters. In the first list (Form N), the examinee is asked to count how many numbers have been presented, while disregarding the letters. The exact same items are presented on the second list (Form L), but this time the individual's task is to count the number of letters presented while ignoring the numbers (Schretlen, 1997). Correct responses receive a score of 1, with each list ranging in score from 0 to 10. The number of correctly identified items is summed across both forms, with total raw scores falling between 0 and 20 (Schretlen, 1997).

In contrast to digit span tasks, the subject is not asked to recall which numbers or letters were presented by the audiotape. Also, the test author emphasizes that the BTA was designed to identify deficits in attention rather than to differentiate between levels of normal attention (Schretlen, 1997).

Besides Schretlen et al.'s (1996) original norms study, the BTA has been validated for use in patients with Huntington's disease and amnesia. This study demonstrated that non-demented Huntington's disease patients performed more poorly on the BTA compared to normal controls (Schretlen, Brandt, & Bobholz, 1996b). However, the authors did not find any group differences between non-demented amnesic patients and

normal adults, suggesting that intact memory is not necessary for successful performance (Schretlen et al., 1996b). In addition, Valos (2006) established validity of the BTA amongst children who had sustained moderate and severe traumatic brain injury.

The BTA is a widely used measure of attention in the neuropsychological literature. It has been used in studies of traumatic brain injury (Rao et al., 2010; Wong, 1999), Parkinson's disease (Tröster et al., 1997), sleep apnea (Aloia et al., 2003), and cancer (Butler et al., 2008; Correa et al., 2004), as well as psychological disorders such as bipolar disorder and schizophrenia (Schretlen et al., 2007).

In regard to ecological validity, the BTA has demonstrated high sensitivity (Strauss et al., 2006). Compared to other tests of cognitive ability (e.g., VIQ, PIQ, FAS), for example, the BTA was more sensitive in predicting functional competence, such as activities of daily living, among adults with severe mental disorders (Schretlen, Jayaram, Maki, Robinson, & Devilliers, 1997). In addition, the BTA been shown to be significantly correlated with psychosocial outcome among TBI patients (Schretlen, 1992).

The BTA's reliability is good based on the normative data, with a high coefficient alpha for the whole test ($r=0.80$). When the two forms (Forms L and N) are compared separately, coefficients are $r=0.69$ and 0.65 , respectively. In a group of older normal adults with mild hypertension tested at a 9-month interval, test-retest stability was 0.70 (Schretlen, 1997).

An examination of correlations with other neuropsychological instruments shows that the BTA correlates more strongly with measures of attention than with other cognitive tests (e.g., the Rey-Osterrieth, Boston Naming Test; Schretlen et al., 1996a). For example, the BTA correlates with Digits Backward and Forward (0.53 and 0.43 , respectively) as well as Trails A and B (-0.55 and 0.48 , respectively; Schretlen, 1997). A study of head injury patients found that the BTA is particularly significantly correlated with backward digit span and trail making B (Wong, 1999). Also, the BTA was shown to be more sensitive to impairments in mild head injury patients than both Trails A and B (Wong, 1999). Among normal adults, the BTA strongly correlates with all parts of the Stroop ($r=0.66-0.68$), and among patients, the BTA has the highest correlations with the Stroop interference trial (Schretlen, 1997).

Several demographic effects (e.g., age, gender, and ethnicity) have been reported; however, they tend to be fairly minimal (Schretlen, 1997). Performance on the BTA is consistently negatively associated with

age, such that starting at about age 60, performance begins to decline (Schretlen, 1997). Schretlen (1997) also reported gender effects, with women performing marginally better than men. There are also subtle race/ethnicity effects, such that African American adults score slightly lower than Caucasian adults. In the highest age group, however, African American adults slightly outperform Caucasians (Schretlen, 1997). Because demographic variables are only nominally associated with performance on the BTA, standardized scores are based solely on age (Schretlen, 1997; Strauss et al., 2006).

Despite the measure's widespread use, only three validation studies have been completed (Schretlen et al., 1996a, 1996b; Valos, 2006). The normative development sample consisted of individuals between the ages of 17 and 82 who were geographically located in the United States (either Baltimore, Maryland or Buffalo, New York; Schretlen et al., 1996a). Men comprised 37% of the sample and women comprised 63%. The majority were Caucasian (82%), with 18% identifying as African-American and 0.3% identifying as other (Schretlen et al., 1996a).

Although numerous neuropsychological studies use the BTA as a measure of attention, the normative group was both geographically and ethnically restrictive, and norms have not yet been established for Hispanic individuals or people living in Latin America. Given the instrument's substantial advantages (e.g., its brevity and ease of use for individuals with motor and/or visual impairments), the purpose of the present study was to create normative data for healthy adult population across 11 countries in Latin America.

2. Method

2.1. Participants

The sample consisted of 3,977 healthy individuals who were recruited from Argentina, Bolivia, Chile, Cuba, El Salvador, Guatemala, Honduras, Mexico, Paraguay, Peru, and, Puerto Rico. The participants were selected according to the following criteria: a) were between 18 to 95 years of age, b) were born and currently lived in the country where the protocol was conducted, c) spoke Spanish as their native language, d) had completed at least one year of formal education, e) were able to read and write at the time of evaluation, f) scored ≥ 23 on the Mini-Mental State Examination (MMSE, Folstein, Folstein, & McHugh, 1975), g) scored ≤ 4 on the Patient Health Questionnaire-9

(PHQ-9, Kroenke, Spitzer, & Williams, 2001), and h) scored ≥ 90 on the Barthel Index (Mahoney & Barthel, 1965).

Participants with self-reported neurologic or psychiatric disorders were excluded due to a potential effect on cognitive performance. Participants were volunteers from the community and signed an informed consent. Seven participants were excluded from the analyses, with a final sample of 3,970 participants. Socio-demographic and participant characteristics for each of the countries' samples have been reported elsewhere (Guàrdia-Olmos, Peró-Cebollero, Rivera, & Arango-Lasprilla, 2015). The multi-center study was approved by the Ethics Committee of the coordinating site, the University of Deusto, Spain.

2.2. Instrument administration

The BTA test consists of two equivalent forms that are administered consecutively (Forms N and L). In the N form, the subject hears a list of 10 series of letters and numbers that are intercalated (for example: "5 - K - 7 - H"), after which the subject must indicate how many numbers were mentioned. The series of letters and numbers increase in length, from 4 to 18 items (Schretlen, et al., 1996a; Spreen & Strauss, 1998). Subsequently, in the form L, the subjects are presented the same list series, but this time the subject must indicate how many letters were mentioned (Schretlen et al., 1996a). The test is done while the subject holds his or her hands and keeps them in view of the examiner, in this way the subject is unable to count with fingers (Spreen & Strauss, 1998). The total score of each form is equal to the number of correct answers, and the total score is the sum of the scores in the forms N and L (Schretlen et al., 1996a).

2.3. Statistical analyses

The detailed statistical analyses used to generate the normative data for this test are described in Guàrdia-Olmos, et al. 2015. In summary, the data manipulation process for each country-specific dataset involved five steps: a) *t* - tests for independent samples and effect sizes (*r*) were conducted to determine gender effects. If the effect size was larger than 0.3, gender was included in the model with gender dummy coded and female as the reference group (male = 1 and female = 0). b) A multivariable regression model was used to specify the predictive model including gender (if effect size was

Table 1
Effect of gender in the BTA

Country	Gender	Mean (SD)	<i>t</i>	df	Sig. (2-tailed)	<i>r</i>
Argentina	Male	16.3 (2.8)	1.38	318	0.169	0.077
	Female	15.8 (2.9)				
Bolivia	Male	12.4 (3.9)	1.29	272	0.199	0.078
	Female	11.8 (4.2)				
Chile	Male	13.7 (3.9)	1.29	318	0.199	0.072
	Female	13.1 (4.2)				
Cuba	Male	14.0 (3.8)	-0.30	304	0.761	0.017
	Female	14.1 (3.8)				
El Salvador	Male	12.0 (4.8)	0.65	254	0.515	0.041
	Female	11.6 (4.1)				
Guatemala	Male	14.8 (3.4)	-0.41	212	0.680	0.028
	Female	15.0 (3.8)				
Honduras	Male	12.0 (4.8)	3.72	179	<0.001***	0.268
	Female	9.1 (5.1)				
Mexico	Male	14.5 (3.8)	1.23	1,297	0.221	0.034
	Female	14.2 (3.9)				
Paraguay ^a	Male	7.8 (4.0)	1.63	172.2	0.106	0.123
	Female	7.1 (3.0)				
Peru	Male	15.2 (3.1)	-0.27	242	0.784	0.018
	Female	15.3 (3.4)				
Puerto Rico	Male	16.1 (2.9)	0.03	291	0.977	0.002
	Female	16.1 (3.3)				

^aValue of the *t*-test for independent groups from the different variances with the corresponding correction of Yuen-Welch of degrees of freedom. ****p* < 0.001.

larger than 0.3), age as a continuous variable, and education as a dummy coded variable with 1 if the participant had >12 years of education and 0 if the participant had 1–12 years of education. If gender, age and/or education was not statistically significant in this multivariate model with an alpha of 0.05, the non-significant variables were removed, and the model was re-run. Then a final regression model was conducted that included age (if statistically significant in the multivariable model), dichotomized education (if statistically significant in the multivariate model), and/or gender (if effect size was greater than 0.3) [$\hat{y}_i = \beta_0 + (\beta_{Age} \cdot Age_i) + (\beta_{Educ} \cdot Educ_i) + (\beta_{Gender} \cdot Gender_i)$]; c) residual scores were calculated based on this final model ($e_i = y_i - \hat{y}_i$); d) using the *SD* (residual) value provided by the regression model, residuals were standardized: $z = e_i / SD_e$, with *SD_e* (residual) = the standard deviation of the residuals in the normative sample; and e) standardized residuals were converted to percentile values (Strauss et al., 2006). Using each country's dataset, these steps were applied to BTA scores.

3. Results

Regarding the effect of gender on BTA scores, the *t*-tests showed significant differences between men and

women in Honduras; however, it did not have an effect size larger than 0.3. Table 1 shows the results of the gender analyses by country on BTA scores. As shown in Table 1, the effect sizes for all countries were less than 0.3, and therefore gender was not taken into account to generate BTA normative data for any of the countries in the study.

The final eleven BTA multivariate linear regression models for each country are shown in Table 2. In all countries, the BTA score increased for those with more than 12 years of education (see Table 2) and, in all countries except Guatemala, BTA scores decreased in a linear fashion as a function of age. The amount of variance explained in BTA scores ranged from 11% (in Mexico) to 41% (in Paraguay).

3.1. Normative procedure

Norms (e.g., a percentile score) for the BTA scores were established using the five-step procedure described above. To facilitate the understanding of the procedure to obtain the percentile associated with a score on this test, an example will be given. Suppose you need to find the percentile score for a Bolivian woman, who is 60 years old and has 7 years of education. She has a score of 12 on the BTA. The steps to obtain the percentile for this score are: a) Check Table 1 to determine if the effect size of gender

Table 2
Final multiple linear regression models for BTA

Country		B	Std. Error	t	Sig.	R ²	SD _e (residual)
Argentina	(Constant)	16.797	0.434	38.740	<0.001	0.139	2.658
	Age	-0.036	0.008	-4.641	<0.001		
	Education	1.437	0.302	4.763	<0.001		
Bolivia	(Constant)	14.942	0.654	22.836	<0.001	0.147	3.786
	Age	-0.059	0.011	-5.556	<0.001		
	Education	1.943	0.610	3.187	0.002		
Chile	(Constant)	16.288	0.685	23.763	<0.001	0.189	3.679
	Age	-0.063	0.011	-5.760	<0.001		
	Education	2.221	0.500	4.439	<0.001		
Cuba	(Constant)	16.581	0.566	29.309	<0.001	0.219	3.331
	Age	-0.061	0.010	-6.239	<0.001		
	Education	2.865	0.451	6.348	<0.001		
El Salvador	(Constant)	13.842	0.684	20.250	<0.001	0.301	3.671
	Age	-0.056	0.011	-5.034	<0.001		
	Education	4.961	0.566	8.765	<0.001		
Guatemala	(Constant)	13.910	0.294	47.299	<0.001	0.129	3.384
	Education	2.683	0.478	5.613	<0.001		
	(Constant)	14.050	1.047	13.420	<0.001		
Age	-0.094	0.019	-4.862	<0.001			
Education	2.590	0.832	3.113	0.002			
Mexico	(Constant)	16.788	0.296	56.725	<0.001	0.106	3.654
	Age	-0.052	0.005	-10.396	<0.001		
	Education	1.200	0.246	4.881	<0.001		
Paraguay	(Constant)	8.844	0.699	12.649	<0.001	0.405	2.650
	Age	-0.044	0.012	-3.663	<0.001		
	Education	4.793	0.467	10.254	<0.001		
Peru	(Constant)	15.190	0.539	28.182	<0.001	0.259	2.856
	Age	-0.040	0.009	-4.376	<0.001		
	Education	2.765	0.391	7.081	<0.001		
Puerto Rico	(Constant)	18.300	0.578	31.639	<0.001	0.144	2.921
	Age	-0.052	0.010	-5.412	<0.001		
	Education	1.031	0.355	2.899	<0.004		

in the country of interest (Bolivia) on this test and time point (BTA) is greater than 0.3 by country. The column labeled r in Table 1 indicates the effect size. In this example, the effect size is 0.078, which is not greater than 0.3. For Bolivian on this test, gender does not influence scores to a sufficient degree to take it into account gender when determining the percentile.

b) Find Bolivia in Table 2, which provides the final regression models by country for BTA. Use the B weights to create an equation that will allow you to obtain the predicted BTA score. The corresponding B weights are multiplied by the actual age and dichotomized education scores and added to a constant in order to calculate the predicted value. In this case, the predicted BTA score would be calculated using the equation $[\hat{y}_i = 14.942 + (-0.059 \cdot Age_i) + (1.943 \cdot Dichotomized\ Educational\ Level_i)]$ (the values have been rounded for presentation in the formula). The subscript notation i indicates the person of interest. The person's age is 60, but the education variable is not continuous in the model. Years of

education is split into either 1 to 12 years (and assigned a 0) or more than 12 years (and assigned a 1) in the model. Since our hypothetical person in the example has 7 years of education, her educational level value is 0. Thus the predicted value is $\hat{y}_i = 14.942 + (-0.059 \cdot 60) + (1.943 \cdot 0) = 14.942 - 3.517 + 0 = 11.424$.

c) In order to calculate the residual value (indicated with an e in the equation), we subtract the actual value from the predicted value we just calculated ($e_i = y_i - \hat{y}_i$). In this case, it would be $e_i = 12 - 11.42 = 0.576$.

d) Next, consult the SD_e column in Table 2 to obtain the country-specific SD_e (residual) value. For Bolivia, it is 3.786. Using this value, we can transform the residual value to a standardized z score using the equation (e_i/SD_e). In this case, we have $0.576/3.786 = 0.152$. This is the standardized z score for a Bolivian woman aged 60 and 7 years of education and a score of 12 on the BNT.

e) The last step is to use look up the tables in the statistical reference books (e.g. Strauss et al., 2006) or use a trusted online calculator like the one

available at <http://www.measuringu.com/pcalcz.php>. In the online calculator, you would enter the z score and choose a one-sided test and note the percent of area after hitting the submit button. In this case, the probability of 0.152 corresponds to the 56th percentile.

3.2. User-friendly normative data Tables

The five-step normative procedures explained above can provide more individualized norms. However, this method can be prone to human error due to the number of required computations. To enhance user-friendliness, the authors have completed these steps for a range of raw scores based on small age range groupings (see Guàrdia-Olmos, et al., 2015) and created tables so that clinicians can more easily use to obtain a percentile range associated with a given raw score on this test. These tables are available by country and type of test (BTA) in the Appendix. In order to obtain an approximate percentile for the above example (converting a raw score of 12 for a Bolivian women who is 60 years old and has 7 years of education) using the simplified normative tables provided, the following steps are recommended. (1) First, identify the appropriate table ensuring the specific country and test. In this case, the table for BTA scores for Bolivia can be found in Table A2. (2) Note if the title of the table indicates that it is only to be used for one specific gender. In this case, gender is not specified. Thus Table A2 is used for both males and females. (3) Next, the table is divided based on educational level (1 to 12 vs. more than 12 years of education). Since this woman has 7 years of education, she falls into the “1 to 12 years of education” category. These data can be found in the low section of the table. (4) Determine the age range most appropriate for the individual. In this case, 60 fall into the column 58–62 years of age. (5) Read down the age range column to find the approximate location of the raw score the person obtained on the test. Reading down the 58–62 column, the score of 12 obtained by this Bolivian woman corresponds to an approximate percentile of 60.

The percentile obtained via this user-friendly table method (60th) is slightly different than the more exact one (56th) obtained following the individual conversion steps above because the table method is based on an age range (e.g., individuals aged 58–62) instead of the exact age (individuals aged 60). If the exact score is not listed in the column, you must estimate the percentile value from the listed raw scores.

4. Discussion

The purpose of the current study was to generate normative data on the BTA across 11 countries in Latin America, with country-specific adjustments for gender, age, and education, where appropriate. The final multiple linear regression models explained between 11–41% of the variance in BTA scores. Although men had higher scores on the BTA in Honduras, there were no other significant gender differences, and this one effect size in Honduras was small. As a result, gender-adjusted norms were not generated. These findings are generally in line with the previous literature which has found that gender effects are quite minimal on the BTA, although one previous study found women to perform marginally better than men (Schretlen, 1997). In light of the previous literature, the current results suggest that gender should not be taken into account in calculating participants' percentiles for the BTA in Latin America when using the current norms.

BTA scores increased linearly as a function of education in all countries. To the authors' knowledge, no previous studies have found BTA scores to be associated with education, so this likely represents a unique finding from the current study. As a result, neuropsychologists should use education-adjusted norms generated for each country when administering the BTA in that country, especially because of potentially major differences in the quality of education in different regions of Latin America.

BTA scores were inversely associated with age in all countries in the current study, and as a result, age-adjusted norms are presented by country. These age findings are similar to those from previous studies which have shown lower BTA scores in older adults, especially starting at age 60 when performance begins to decline (Schretlen, 1997). Similarly to education, neuropsychologists in Latin America should use the age-adjusted norms by country generated in the current study.

4.1. Limitations and future directions

This study has several limitations, and as a result directions for future research. First, this study was subject to a number of sampling limitations. First, although the BTA is an extremely common neuropsychological measure in Latin America, many other common assessments need to be normed in the same manner as the current study. Future research should examine the psychometrics of other common instruments in Latin

America. Research should also examine the ecological validity of various neuropsychological assessments in this region, and if not, create instruments in those cultures that have better ecological validity. Indeed, the BTA has been shown to have good sensitivity in predicting activities of daily living among adults with severe mental disorders (Schretlen et al., 1997), but nonetheless the BTA was created in a Western culture that may differ from those in Latin America. Future research should develop culturally sensitive assessments within local cultures, not just translate and norm tests from other cultures and countries as occurred in the current study.

Second, participants all spoke Spanish as their primary language, but BTA performance could be different among people who speak various secondary languages. An important area for future research is bilingualism and performance on the BTA which was not assessed in the current study. Also, the data were collected in specific regions of the countries in the current study, not nationally. This study represents the largest neuropsychological normative study in the history of Latin America for the BTA, as well as in any global region, but it is only a first step in for larger studies with nationally representative samples. Many participants had fewer than 12 years of education, but those unable to read or write were excluded. As a result, the norms from the current study are limited in their ability to generalize to illiterate adults. Similarly, participants in the current study were excluded if they had a history of neurological conditions, so future studies should include neurological populations, as well as children.

Third, clinicians exercise caution in applying the BTA norms from this study to individuals in countries beyond the 11 countries from which data were collected. Future studies should establish BTA norms in other Latin American countries including as Ecuador, Uruguay, Venezuela, and Panama. However, these BTA norms may be more accurate in those countries than other norms currently in use. This generalizability is a critical area for future research.

Despite these limitations and because no Spanish norms have yet been established for the BTA, this study was the first to generate BTA norms across 11 countries in Latin America with nearly 4,000 participants. As a result, this was the largest and most comprehensive BTA normative study conducted in any global region, and its norms will likely affect the standard of neuropsychological assessment with the BTA in Latin America unlike any study before it.

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Appendix

Table A1
Normative data for the BTA stratified by age and education levels for ARGENTINA

Percentile	Age (Years)													
	18–22	23–27	28–32	33–37	38–42	43–47	48–52	53–57	58–62	63–67	68–72	73–77	>77	
>12 years of education	95	–	–	–	–	–	20.0	20.0	20.0	20.0	20.0	19.9	19.7	
	90	–	–	20.0	20.0	20.0	20.0	19.8	19.7	19.5	19.3	19.1	19.0	18.8
	85	20.0	20.0	19.9	19.7	19.6	19.4	19.2	19.0	18.8	18.7	18.5	18.3	18.1
	80	19.8	19.6	19.4	19.2	19.0	18.9	18.7	18.5	18.3	18.1	18.0	17.8	17.6
	70	18.9	18.7	18.5	18.4	18.2	18.0	17.8	17.6	17.5	17.3	17.1	16.9	16.8
	60	18.2	18.0	17.8	17.6	17.5	17.3	17.1	16.9	16.7	16.6	16.4	16.2	16.0
	50	17.5	17.3	17.2	17.0	16.8	16.6	16.4	16.3	16.1	15.9	15.7	15.5	15.4
	40	16.9	16.7	16.5	16.3	16.1	16.0	15.8	15.6	15.4	15.2	15.1	14.9	14.7
	30	16.1	16.0	15.8	15.6	15.4	15.2	15.1	14.9	14.7	14.5	14.3	14.2	14.0
	20	15.3	15.1	14.9	14.7	14.6	14.4	14.2	14.0	13.9	13.7	13.5	13.3	13.1
	15	14.8	14.6	14.4	14.2	14.0	13.9	13.7	13.5	13.3	13.1	13.0	12.8	12.6
	10	14.1	13.9	13.8	13.6	13.4	13.2	13.0	12.9	12.7	12.5	12.3	12.1	12.0
	5	13.2	13.0	12.8	12.6	12.4	12.3	12.1	11.9	11.7	11.5	11.4	11.2	11.0
	1 to 12 years of education	95	20.0	20.0	20.0	19.9	19.7	19.5	19.4	19.2	19.0	18.8	18.6	18.5
90		19.5	19.3	19.1	18.9	18.8	18.6	18.4	18.2	18.1	17.9	17.7	17.5	17.3
85		18.8	18.7	18.5	18.3	18.1	17.9	17.8	17.6	17.4	17.2	17.1	16.9	16.7
80		18.3	18.1	18.0	17.8	17.6	17.4	17.2	17.1	16.9	16.7	16.5	16.3	16.2
70		17.5	17.3	17.1	16.9	16.7	16.6	16.4	16.2	16.0	15.9	15.7	15.5	15.3
60		16.7	16.6	16.4	16.2	16.0	15.8	15.7	15.5	15.3	15.1	15.0	14.8	14.6
50		16.1	15.9	15.7	15.5	15.4	15.2	15.0	14.8	14.6	14.5	14.3	14.1	13.9
40		15.4	15.2	15.1	14.9	14.7	14.5	14.3	14.2	14.0	13.8	13.6	13.4	13.3
30		14.7	14.5	14.3	14.2	14.0	13.8	13.6	13.4	13.3	13.1	12.9	12.7	12.5
20		13.8	13.7	13.5	13.3	13.1	13.0	12.8	12.6	12.4	12.2	12.1	11.9	11.7
15		13.3	13.1	13.0	12.8	12.6	12.4	12.2	12.1	11.9	11.7	11.5	11.3	11.2
10		12.7	12.5	12.3	12.1	12.0	11.8	11.6	11.4	11.2	11.1	10.9	10.7	10.5
5		11.7	11.5	11.4	11.2	11.0	10.8	10.6	10.5	10.3	10.1	9.9	9.8	9.6

Table A2
Normative data for the BTA stratified by age and education levels for BOLIVIA

Percentile	Age (Years)													
	18–22	23–27	28–32	33–37	38–42	43–47	48–52	53–57	58–62	63–67	68–72	73–77	>77	
>12 years of education	95	–	–	–	20.0	20.0	20.0	20.0	19.9	19.6	19.3	19.0	18.7	18.4
	90	20.0	20.0	20.0	19.7	19.4	19.1	18.8	18.5	18.2	17.9	17.6	17.3	17.0
	85	19.6	19.4	19.1	18.8	18.5	18.2	17.9	17.6	17.3	17.0	16.7	16.4	16.1
	80	18.9	18.6	18.3	18.0	17.7	17.4	17.1	16.8	16.5	16.3	16.0	15.7	15.4
	70	17.7	17.4	17.1	16.8	16.5	16.2	15.9	15.6	15.3	15.0	14.7	14.5	14.2
	60	16.7	16.4	16.1	15.8	15.5	15.2	14.9	14.6	14.3	14.0	13.7	13.4	13.1
	50	15.7	15.4	15.1	14.8	14.5	14.2	14.0	13.7	13.4	13.1	12.8	12.5	12.2
	40	14.8	14.5	14.2	13.9	13.6	13.3	13.0	12.7	12.4	12.1	11.8	11.5	11.2
	30	13.7	13.5	13.2	12.9	12.6	12.3	12.0	11.7	11.4	11.1	10.8	10.5	10.2
	20	12.5	12.2	11.9	11.7	11.4	11.1	10.8	10.5	10.2	9.9	9.6	9.3	9.0
	15	11.8	11.5	11.2	10.9	10.6	10.3	10.0	9.7	9.4	9.1	8.8	8.6	8.3
	10	10.9	10.6	10.3	10.0	9.7	9.4	9.1	8.8	8.5	8.2	7.9	7.6	7.3
	5	9.5	9.2	8.9	8.6	8.3	8.0	7.7	7.5	7.2	6.9	6.6	6.3	6.0
	1 to 12 years of education	95	20.0	19.7	19.4	19.1	18.8	18.5	18.2	17.9	17.6	17.3	17.0	16.8
90		18.6	18.3	18.0	17.7	17.4	17.1	16.9	16.6	16.3	16.0	15.7	15.4	15.1
85		17.7	17.4	17.1	16.8	16.5	16.2	15.9	15.7	15.4	15.1	14.8	14.5	14.2
80		16.9	16.7	16.4	16.1	15.8	15.5	15.2	14.9	14.6	14.3	14.0	13.7	13.4
70		15.7	15.4	15.2	14.9	14.6	14.3	14.0	13.7	13.4	13.1	12.8	12.5	12.2
60		14.7	14.4	14.1	13.8	13.5	13.2	13.0	12.7	12.4	12.1	11.8	11.5	11.2
50		13.8	13.5	13.2	12.9	12.6	12.3	12.0	11.7	11.4	11.1	10.8	10.5	10.3
40		12.8	12.5	12.2	11.9	11.7	11.4	11.1	10.8	10.5	10.2	9.9	9.6	9.3
30		11.8	11.5	11.2	10.9	10.6	10.3	10.0	9.7	9.5	9.2	8.9	8.6	8.3
20		10.6	10.3	10.0	9.7	9.4	9.1	8.8	8.5	8.2	8.0	7.7	7.4	7.1
15		9.8	9.5	9.2	9.0	8.7	8.4	8.1	7.8	7.5	7.2	6.9	6.6	6.3
10		8.9	8.6	8.3	8.0	7.8	7.5	7.2	6.9	6.6	6.3	6.0	5.7	5.4
5		7.6	7.3	7.0	6.7	6.4	6.1	5.8	5.5	5.2	4.9	4.6	4.3	4.0

Table A3
Normative data for the BTA stratified by age and education levels for CHILE

	Percentile	Age (Years)												
		18–22	23–27	28–32	33–37	38–42	43–47	48–52	53–57	58–62	63–67	68–72	73–77	>77
>12 years of education	95	–	–	–	–	–	–	–	20.0	20.0	20.0	20.0	19.8	19.5
	90	–	–	–	–	20.0	20.0	20.0	19.7	19.4	19.1	18.8	18.5	18.1
	85	–	–	20.0	20.0	19.8	19.5	19.2	18.8	18.5	18.2	17.9	17.6	17.3
	80	20.0	20.0	19.7	19.4	19.1	18.7	18.4	18.1	17.8	17.5	17.2	16.8	16.5
	70	19.2	18.8	18.5	18.2	17.9	17.6	17.3	16.9	16.6	16.3	16.0	15.7	15.3
	60	18.2	17.8	17.5	17.2	16.9	16.6	16.3	15.9	15.6	15.3	15.0	14.7	14.4
	50	17.2	16.9	16.6	16.3	16.0	15.7	15.3	15.0	14.7	14.4	14.1	13.8	13.4
	40	16.3	16.0	15.7	15.4	15.1	14.7	14.4	14.1	13.8	13.5	13.2	12.8	12.5
	30	15.3	15.0	14.7	14.4	14.1	13.7	13.4	13.1	12.8	12.5	12.2	11.8	11.5
	20	14.1	13.8	13.5	13.2	12.9	12.6	12.2	11.9	11.6	11.3	11.0	10.7	10.3
	15	13.4	13.1	12.8	12.5	12.1	11.8	11.5	11.2	10.9	10.6	10.2	9.9	9.6
	10	12.5	12.2	11.9	11.6	11.3	10.9	10.6	10.3	10.0	9.7	9.4	9.0	8.7
5	11.2	10.9	10.6	10.3	9.9	9.6	9.3	9.0	8.7	8.4	8.0	7.7	7.4	
1 to 12 years of education	95	20.0	20.0	20.0	20.0	19.8	19.5	19.2	18.8	18.5	18.2	17.9	17.6	17.2
	90	19.7	19.4	19.1	18.8	18.5	18.1	17.8	17.5	17.2	16.9	16.6	16.2	15.9
	85	18.8	18.5	18.2	17.9	17.6	17.3	16.9	16.6	16.3	16.0	15.7	15.4	15.0
	80	18.1	17.8	17.5	17.2	16.8	16.5	16.2	15.9	15.6	15.3	14.9	14.6	14.3
	70	16.9	16.6	16.3	16.0	15.7	15.3	15.0	14.7	14.4	14.1	13.8	13.4	13.1
	60	15.9	15.6	15.3	15.0	14.7	14.4	14.0	13.7	13.4	13.1	12.8	12.5	12.1
	50	15.0	14.7	14.4	14.1	13.8	13.4	13.1	12.8	12.5	12.2	11.8	11.5	11.2
	40	14.1	13.8	13.5	13.1	12.8	12.5	12.2	11.9	11.6	11.2	10.9	10.6	10.3
	30	13.1	12.8	12.5	12.2	11.8	11.5	11.2	10.9	10.6	10.3	9.9	9.6	9.3
	20	11.9	11.6	11.3	11.0	10.7	10.3	10.0	9.7	9.4	9.1	8.8	8.4	8.1
	15	11.2	10.9	10.6	10.2	9.9	9.6	9.3	9.0	8.7	8.3	8.0	7.7	7.4
	10	10.3	10.0	9.7	9.4	9.0	8.7	8.4	8.1	7.8	7.5	7.1	6.8	6.5
5	9.0	8.7	8.4	8.0	7.7	7.4	7.1	6.8	6.4	6.1	5.8	5.5	5.2	

Table A4
Normative data for the BTA stratified by age and education levels for CUBA

	Percentile	Age (Years)												
		18–22	23–27	28–32	33–37	38–42	43–47	48–52	53–57	58–62	63–67	68–72	73–77	>77
>12 years of education	95	–	–	–	–	–	–	–	–	–	20.0	20.0	20.0	20.0
	90	–	–	–	–	–	–	20.0	20.0	20.0	19.8	19.5	19.2	18.9
	85	–	–	–	–	20.0	20.0	19.9	19.6	19.3	19.0	18.7	18.4	18.1
	80	–	20.0	20.0	20.0	19.8	19.5	19.2	18.9	18.6	18.3	18.0	17.7	17.4
	70	20.0	19.7	19.4	19.1	18.8	18.4	18.1	17.8	17.5	17.2	16.9	16.6	16.3
	60	19.1	18.8	18.5	18.2	17.9	17.6	17.2	16.9	16.6	16.3	16.0	15.7	15.4
	50	18.2	17.9	17.6	17.3	17.0	16.7	16.4	16.1	15.8	15.5	15.2	14.9	14.6
	40	17.4	17.1	16.8	16.5	16.2	15.9	15.6	15.3	15.0	14.7	14.4	14.1	13.8
	30	16.5	16.2	15.9	15.6	15.3	15.0	14.7	14.4	14.1	13.8	13.5	13.2	12.9
	20	15.4	15.1	14.8	14.5	14.2	13.9	13.6	13.3	13.0	12.7	12.4	12.1	11.8
	15	14.8	14.5	14.2	13.9	13.6	13.3	13.0	12.6	12.3	12.0	11.7	11.4	11.1
	10	14.0	13.7	13.4	13.1	12.8	12.5	12.2	11.8	11.5	11.2	10.9	10.6	10.3
5	12.8	12.5	12.2	11.9	11.6	11.3	11.0	10.6	10.3	10.0	9.7	9.4	9.1	
1 to 12 years of education	95	20.0	20.0	20.0	19.9	19.6	19.3	19.0	18.7	18.4	18.1	17.8	17.5	17.2
	90	19.6	19.3	19.0	18.7	18.4	18.1	17.8	17.5	17.2	16.9	16.6	16.3	16.0
	85	18.8	18.5	18.2	17.9	17.6	17.3	17.0	16.7	16.4	16.1	15.8	15.5	15.2
	80	18.2	17.9	17.6	17.3	17.0	16.7	16.3	16.0	15.7	15.4	15.1	14.8	14.5
	70	17.1	16.8	16.5	16.2	15.9	15.6	15.3	15.0	14.7	14.4	14.1	13.8	13.5
	60	16.2	15.9	15.6	15.3	15.0	14.7	14.4	14.1	13.8	13.5	13.2	12.9	12.6
	50	15.4	15.1	14.8	14.5	14.2	13.9	13.5	13.2	12.9	12.6	12.3	12.0	11.7
	40	14.5	14.2	13.9	13.6	13.3	13.0	12.7	12.4	12.1	11.8	11.5	11.2	10.9
	30	13.6	13.3	13.0	12.7	12.4	12.1	11.8	11.5	11.2	10.9	10.6	10.3	10.0
	20	12.6	12.3	12.0	11.7	11.4	11.1	10.8	10.4	10.1	9.8	9.5	9.2	8.9
	15	11.9	11.6	11.3	11.0	10.7	10.4	10.1	9.8	9.5	9.2	8.9	8.6	8.3
	10	11.1	10.8	10.5	10.2	9.9	9.6	9.3	9.0	8.7	8.4	8.1	7.8	7.5
5	9.9	9.6	9.3	9.0	8.7	8.4	8.1	7.8	7.5	7.2	6.9	6.6	6.3	

Table A5
Normative data for the BTA stratified by age and education levels for EL SALVADOR

		Age (Years)												
Percentile		18–22	23–27	28–32	33–37	38–42	43–47	48–52	53–57	58–62	63–67	68–72	73–77	>77
>12 years of education	95	–	–	–	–	–	–	–	–	20.0	20.0	20.0	20.0	20.0
	90	–	–	–	–	–	–	20.0	20.0	20.0	19.9	19.6	19.3	19.0
	85	–	–	–	20.0	20.0	20.0	19.8	19.5	19.3	19.0	18.7	18.4	18.1
	80	20.0	20.0	20.0	19.9	19.6	19.4	19.1	18.8	18.5	18.2	18.0	17.7	17.4
	70	19.6	19.3	19.0	18.7	18.5	18.2	17.9	17.6	17.3	17.1	16.8	16.5	16.2
	60	18.6	18.3	18.0	17.8	17.5	17.2	16.9	16.6	16.4	16.1	15.8	15.5	15.2
	50	17.7	17.4	17.1	16.8	16.6	16.3	16.0	15.7	15.4	15.2	14.9	14.6	14.3
	40	16.8	16.5	16.2	15.9	15.6	15.4	15.1	14.8	14.5	14.2	14.0	13.7	13.4
	30	15.8	15.5	15.2	14.9	14.6	14.4	14.1	13.8	13.5	13.2	13.0	12.7	12.4
	20	14.6	14.3	14.0	13.8	13.5	13.2	12.9	12.6	12.4	12.1	11.8	11.5	11.2
	15	13.9	13.6	13.3	13.0	12.7	12.5	12.2	11.9	11.6	11.3	11.1	10.8	10.5
	10	13.0	12.7	12.4	12.1	11.9	11.6	11.3	11.0	10.7	10.5	10.2	9.9	9.6
	5	11.7	11.4	11.1	10.8	10.5	10.3	10.0	9.7	9.4	9.1	8.9	8.6	8.3
1 to 12 years of education	95	18.7	18.5	18.2	17.9	17.6	17.3	17.1	16.8	16.5	16.2	15.9	15.7	15.4
	90	17.4	17.1	16.9	16.6	16.3	16.0	15.7	15.5	15.2	14.9	14.6	14.3	14.1
	85	16.5	16.3	16.0	15.7	15.4	15.1	14.9	14.6	14.3	14.0	13.7	13.5	13.2
	80	15.8	15.5	15.2	15.0	14.7	14.4	14.1	13.8	13.6	13.3	13.0	12.7	12.4
	70	14.6	14.3	14.1	13.8	13.5	13.2	12.9	12.7	12.4	12.1	11.8	11.5	11.3
	60	13.6	13.4	13.1	12.8	12.5	12.2	12.0	11.7	11.4	11.1	10.8	10.6	10.3
	50	12.7	12.4	12.2	11.9	11.6	11.3	11.0	10.8	10.5	10.2	9.9	9.6	9.4
	40	11.8	11.5	11.2	11.0	10.7	10.4	10.1	9.8	9.6	9.3	9.0	8.7	8.4
	30	10.8	10.5	10.2	10.0	9.7	9.4	9.1	8.8	8.6	8.3	8.0	7.7	7.4
	20	9.6	9.4	9.1	8.8	8.5	8.2	8.0	7.7	7.4	7.1	6.8	6.5	6.3
	15	8.9	8.6	8.3	8.1	7.8	7.5	7.2	6.9	6.7	6.4	6.1	5.8	5.5
	10	8.0	7.7	7.5	7.2	6.9	6.6	6.3	6.1	5.8	5.5	5.2	4.9	4.7
	5	6.7	6.4	6.1	5.9	5.6	5.3	5.0	4.7	4.5	4.2	3.9	3.6	3.3

Table A6
Normative data for the BTA stratified by education levels for GUATEMALA

Percentile	1 to 12 years of education	>12 years of education
95	19.5	–
90	18.3	–
85	17.5	20.0
80	16.8	19.5
70	15.7	18.4
60	14.8	17.5
50	13.9	16.6
40	13.1	15.8
30	12.1	14.8
20	11.1	13.7
15	10.4	13.1
10	9.6	12.2
5	8.3	11.0

Table A7
Normative data for the BTA stratified by age and education levels for HONDURAS

	Percentile	Age (Years)												
		18–22	23–27	28–32	33–37	38–42	43–47	48–52	53–57	58–62	63–67	68–72	73–77	>77
>12 years of education	95	–	–	20.0	20.0	20.0	20.0	19.6	19.2	18.7	18.2	17.8	17.3	16.8
	90	20.0	20.0	19.8	19.4	18.9	18.4	18.0	17.5	17.0	16.6	16.1	15.6	15.1
	85	19.6	19.2	18.7	18.2	17.8	17.3	16.8	16.4	15.9	15.4	15.0	14.5	14.0
	80	18.7	18.2	17.8	17.3	16.8	16.4	15.9	15.4	15.0	14.5	14.0	13.6	13.1
	70	17.2	16.7	16.3	15.8	15.3	14.9	14.4	13.9	13.5	13.0	12.5	12.1	11.6
	60	15.9	15.5	15.0	14.5	14.1	13.6	13.1	12.7	12.2	11.7	11.3	10.8	10.3
	50	14.8	14.3	13.8	13.4	12.9	12.4	12.0	11.5	11.0	10.6	10.1	9.6	9.2
	40	13.6	13.1	12.7	12.2	11.7	11.3	10.8	10.3	9.9	9.4	8.9	8.5	8.0
	30	12.3	11.9	11.4	10.9	10.5	10.0	9.5	9.1	8.6	8.1	7.7	7.2	6.7
	20	10.8	10.4	9.9	9.4	9.0	8.5	8.0	7.6	7.1	6.6	6.2	5.7	5.2
	15	9.9	9.4	9.0	8.5	8.0	7.6	7.1	6.6	6.2	5.7	5.2	4.8	4.3
10	8.8	8.3	7.8	7.4	6.9	6.4	6.0	5.5	5.0	4.6	4.1	3.6	3.2	
5	7.1	6.6	6.2	5.7	5.2	4.8	4.3	3.8	3.4	2.9	2.4	1.9	1.5	
1 to 12 years of education	95	19.9	19.4	18.9	18.5	18.0	17.5	17.0	16.6	16.1	15.6	15.2	14.7	14.2
	90	18.2	17.7	17.2	16.8	16.3	15.8	15.4	14.9	14.4	14.0	13.5	13.0	12.6
	85	17.0	16.6	16.1	15.6	15.2	14.7	14.2	13.8	13.3	12.8	12.4	11.9	11.4
	80	16.1	15.6	15.2	14.7	14.2	13.8	13.3	12.8	12.4	11.9	11.4	11.0	10.5
	70	14.6	14.1	13.7	13.2	12.7	12.3	11.8	11.3	10.9	10.4	9.9	9.5	9.0
	60	13.3	12.9	12.4	11.9	11.5	11.0	10.5	10.1	9.6	9.1	8.7	8.2	7.7
	50	12.2	11.7	11.2	10.8	10.3	9.8	9.4	8.9	8.4	8.0	7.5	7.0	6.6
	40	11.0	10.5	10.1	9.6	9.1	8.7	8.2	7.7	7.3	6.8	6.3	5.9	5.4
	30	9.7	9.3	8.8	8.3	7.9	7.4	6.9	6.5	6.0	5.5	5.1	4.6	4.1
	20	8.2	7.8	7.3	6.8	6.4	5.9	5.4	5.0	4.5	4.0	3.6	3.1	2.6
	15	7.3	6.8	6.4	5.9	5.4	5.0	4.5	4.0	3.6	3.1	2.6	2.2	1.7
10	6.2	5.7	5.3	4.8	4.3	3.9	3.4	2.9	2.4	2.0	1.5	1.0	.6	
5	4.5	4.0	3.6	3.1	2.6	2.2	1.7	1.2	0.8	0.3	–	–	–	

Table A8
Normative data for the BTA stratified by age and education levels for MEXICO

	Percentile	Age (Years)												
		18–22	23–27	28–32	33–37	38–42	43–47	48–52	53–57	58–62	63–67	68–72	73–77	>77
>12 years of education	95	–	–	–	–	–	–	–	20.0	20.0	20.0	20.0	20.0	19.8
	90	–	–	–	–	20.0	20.0	20.0	19.8	19.5	19.3	19.0	18.8	18.5
	85	–	20.0	20.0	20.0	19.7	19.4	19.2	18.9	18.7	18.4	18.1	17.9	17.6
	80	20.0	19.8	19.5	19.2	19.0	18.7	18.5	18.2	17.9	17.7	17.4	17.1	16.9
	70	18.8	18.6	18.3	18.1	17.8	17.5	17.3	17.0	16.8	16.5	16.2	16.0	15.7
	60	17.9	17.6	17.3	17.1	16.8	16.6	16.3	16.0	15.8	15.5	15.3	15.0	14.7
	50	16.9	16.7	16.4	16.2	15.9	15.6	15.4	15.1	14.9	14.6	14.3	14.1	13.8
	40	16.0	15.8	15.5	15.2	15.0	14.7	14.5	14.2	13.9	13.7	13.4	13.2	12.9
	30	15.0	14.8	14.5	14.3	14.0	13.7	13.5	13.2	13.0	12.7	12.4	12.2	11.9
	20	13.9	13.6	13.4	13.1	12.8	12.6	12.3	12.1	11.8	11.5	11.3	11.0	10.7
	15	13.1	12.9	12.6	12.4	12.1	11.8	11.6	11.3	11.1	10.8	10.5	10.3	10.0
10	12.3	12.0	11.7	11.5	11.2	11.0	10.7	10.4	10.2	9.9	9.7	9.4	9.1	
5	11.0	10.7	10.4	10.2	9.9	9.6	9.4	9.1	8.9	8.6	8.3	8.1	7.8	
1 to 12 years of education	95	20.0	20.0	20.0	20.0	20.0	20.0	20.0	19.9	19.7	19.4	19.1	18.9	18.6
	90	20.0	20.0	19.9	19.6	19.4	19.1	18.9	18.6	18.3	18.1	17.8	17.6	17.3
	85	19.5	19.3	19.0	18.8	18.5	18.2	18.0	17.7	17.5	17.2	16.9	16.7	16.4
	80	18.8	18.6	18.3	18.0	17.8	17.5	17.3	17.0	16.7	16.5	16.2	15.9	15.7
	70	17.6	17.4	17.1	16.9	16.6	16.3	16.1	15.8	15.6	15.3	15.0	14.8	14.5
	60	16.7	16.4	16.1	15.9	15.6	15.4	15.1	14.8	14.6	14.3	14.1	13.8	13.5
	50	15.7	15.5	15.2	15.0	14.7	14.4	14.2	13.9	13.7	13.4	13.1	12.9	12.6
	40	14.8	14.6	14.3	14.0	13.8	13.5	13.3	13.0	12.7	12.5	12.2	12.0	11.7
	30	13.8	13.6	13.3	13.1	12.8	12.5	12.3	12.0	11.8	11.5	11.2	11.0	10.7
	20	12.7	12.4	12.2	11.9	11.6	11.4	11.1	10.9	10.6	10.3	10.1	9.8	9.5
	15	11.9	11.7	11.4	11.2	10.9	10.6	10.4	10.1	9.9	9.6	9.3	9.1	8.8
10	11.1	10.8	10.5	10.3	10.0	9.8	9.5	9.2	9.0	8.7	8.5	8.2	7.9	
5	9.8	9.5	9.2	9.0	8.7	8.4	8.2	7.9	7.7	7.4	7.1	6.9	6.6	

Table A9
Normative data for the BTA stratified by age and education levels for PARAGUAY

	Percentile	Age (Years)												
		18–22	23–27	28–32	33–37	38–42	43–47	48–52	53–57	58–62	63–67	68–72	73–77	>77
> 12 years of education	95	17.1	16.9	16.7	16.4	16.2	16.0	15.8	15.5	15.3	15.1	14.9	14.7	14.4
	90	16.1	15.9	15.7	15.5	15.3	15.0	14.8	14.6	14.4	14.1	13.9	13.7	13.5
	85	15.5	15.3	15.1	14.8	14.6	14.4	14.2	14.0	13.7	13.5	13.3	13.1	12.8
	80	15.0	14.8	14.5	14.3	14.1	13.9	13.6	13.4	13.2	13.0	12.8	12.5	12.3
	70	14.1	13.9	13.7	13.5	13.2	13.0	12.8	12.6	12.4	12.1	11.9	11.7	11.5
	60	13.4	13.2	13.0	12.7	12.5	12.3	12.1	11.9	11.6	11.4	11.2	11.0	10.7
	50	12.7	12.5	12.3	12.1	11.9	11.6	11.4	11.2	11.0	10.8	10.5	10.3	10.1
	40	12.1	11.9	11.6	11.4	11.2	11.0	10.8	10.5	10.3	10.1	9.9	9.6	9.4
	30	11.4	11.2	10.9	10.7	10.5	10.3	10.0	9.8	9.6	9.4	9.2	8.9	8.7
	20	10.5	10.3	10.1	9.9	9.6	9.4	9.2	9.0	8.7	8.5	8.3	8.1	7.9
	5	8.4	8.2	8.0	7.7	7.5	7.3	7.1	6.9	6.6	6.4	6.2	6.0	5.7
1 to 12 years of education	95	12.3	12.1	11.9	11.6	11.4	11.2	11.0	10.7	10.5	10.3	10.1	9.9	9.6
	90	11.3	11.1	10.9	10.7	10.5	10.2	10.0	9.8	9.6	9.4	9.1	8.9	8.7
	85	10.7	10.5	10.3	10.0	9.8	9.6	9.4	9.2	8.9	8.7	8.5	8.3	8.0
	80	10.2	10.0	9.7	9.5	9.3	9.1	8.9	8.6	8.4	8.2	8.0	7.7	7.5
	70	9.3	9.1	8.9	8.7	8.4	8.2	8.0	7.8	7.6	7.3	7.1	6.9	6.7
	60	8.6	8.4	8.2	8.0	7.7	7.5	7.3	7.1	6.8	6.6	6.4	6.2	6.0
	50	8.0	7.7	7.5	7.3	7.1	6.8	6.6	6.4	6.2	6.0	5.7	5.5	5.3
	40	7.3	7.1	6.9	6.6	6.4	6.2	6.0	5.7	5.5	5.3	5.1	4.9	4.6
	30	6.6	6.4	6.1	5.9	5.7	5.5	5.2	5.0	4.8	4.6	4.4	4.1	3.9
	20	5.7	5.5	5.3	5.1	4.8	4.6	4.4	4.2	4.0	3.7	3.5	3.3	3.1
	5	3.6	3.4	3.2	2.9	2.7	2.5	2.3	2.1	1.8	1.6	1.4	1.2	.9

Table A10
Normative data for the BTA stratified by age and education levels for PERU

	Percentile	Age (Years)												
		18–22	23–27	28–32	33–37	38–42	43–47	48–52	53–57	58–62	63–67	68–72	73–77	>77
> 12 years of education	95	–	–	–	–	–	20.0	20.0	20.0	20.0	20.0	19.8	19.7	19.5
	90	–	–	20.0	20.0	20.0	19.8	19.6	19.4	19.2	19.0	18.8	18.6	18.4
	85	20.0	20.0	19.7	19.5	19.3	19.1	18.9	18.7	18.5	18.3	18.1	17.9	17.7
	80	19.6	19.4	19.2	19.0	18.8	18.6	18.4	18.2	18.0	17.8	17.6	17.4	17.2
	70	18.6	18.4	18.2	18.0	17.8	17.6	17.4	17.2	17.0	16.8	16.7	16.5	16.3
	60	17.9	17.7	17.5	17.3	17.1	16.9	16.7	16.5	16.3	16.1	15.9	15.7	15.5
	50	17.2	17.0	16.8	16.6	16.4	16.2	16.0	15.8	15.6	15.4	15.2	15.0	14.8
	40	16.4	16.2	16.0	15.8	15.6	15.4	15.2	15.0	14.8	14.7	14.5	14.3	14.1
	30	15.7	15.5	15.3	15.1	14.9	14.7	14.5	14.3	14.1	13.9	13.7	13.5	13.3
	20	14.8	14.6	14.4	14.2	14.0	13.8	13.6	13.4	13.2	13.0	12.8	12.6	12.4
	5	12.5	12.3	12.1	11.9	11.7	11.5	11.3	11.1	10.9	10.7	10.5	10.3	10.1
1 to 12 years of education	95	19.1	18.9	18.7	18.5	18.3	18.1	17.9	17.7	17.5	17.3	17.1	16.9	16.7
	90	18.0	17.8	17.7	17.5	17.3	17.1	16.9	16.7	16.5	16.3	16.1	15.9	15.7
	85	17.4	17.2	17.0	16.8	16.6	16.4	16.2	16.0	15.8	15.6	15.4	15.2	15.0
	80	16.8	16.6	16.4	16.2	16.0	15.8	15.6	15.4	15.2	15.0	14.8	14.6	14.4
	70	15.9	15.7	15.5	15.3	15.1	14.9	14.7	14.5	14.3	14.1	13.9	13.7	13.5
	60	15.1	14.9	14.7	14.5	14.3	14.1	13.9	13.7	13.5	13.3	13.1	12.9	12.7
	50	14.4	14.2	14.0	13.8	13.6	13.4	13.2	13.0	12.8	12.6	12.4	12.2	12.0
	40	13.7	13.5	13.3	13.1	12.9	12.7	12.5	12.3	12.1	11.9	11.7	11.5	11.3
	30	12.9	12.7	12.5	12.3	12.1	11.9	11.7	11.5	11.3	11.1	10.9	10.7	10.5
	20	12.0	11.8	11.6	11.4	11.2	11.0	10.8	10.6	10.4	10.2	10.0	9.8	9.6
	5	9.7	9.5	9.3	9.1	8.9	8.7	8.5	8.3	8.1	7.9	7.7	7.5	7.3

Table A11
Normative data for the BTA stratified by age and education levels for PUERTO RICO

Percentile	Age (Years)												
	18-22	23-27	28-32	33-37	38-42	43-47	48-52	53-57	58-62	63-67	68-72	73-77	>77
>12 years of education	95	-	-	-	-	-	-	-	-	20.0	20.0	20.0	20.0
	90	-	-	-	-	-	-	20.0	20.0	20.0	19.7	19.4	19.2
	85	-	-	-	-	20.0	20.0	19.8	19.5	19.2	19.0	18.7	18.5
	80	20.0	20.0	20.0	20.0	19.7	19.4	19.2	18.9	18.7	18.4	18.1	17.9
	70	19.8	19.5	19.3	19.0	18.8	18.5	18.3	18.0	17.7	17.5	17.2	17.0
	60	19.0	18.8	18.5	18.2	18.0	17.7	17.5	17.2	16.9	16.7	16.4	16.2
	50	18.3	18.0	17.8	17.5	17.3	17.0	16.7	16.5	16.2	16.0	15.7	15.4
	40	17.6	17.3	17.0	16.8	16.5	16.3	16.0	15.7	15.5	15.2	15.0	14.7
	30	16.8	16.5	16.3	16.0	15.7	15.5	15.2	15.0	14.7	14.4	14.2	13.9
	20	15.8	15.6	15.3	15.1	14.8	14.5	14.3	14.0	13.8	13.5	13.2	13.0
	15	15.3	15.0	14.7	14.5	14.2	14.0	13.7	13.4	13.2	12.9	12.7	12.4
	10	14.6	14.3	14.0	13.8	13.5	13.3	13.0	12.7	12.5	12.2	12.0	11.7
	5	13.5	13.2	13.0	12.7	12.5	12.2	11.9	11.7	11.4	11.2	10.9	10.6
1 to 12 years of education	95	-	-	-	-	20.0	20.0	20.0	20.0	19.7	19.5	19.2	18.9
	90	-	-	20.0	20.0	20.0	19.7	19.4	19.2	18.9	18.7	18.4	18.1
	85	20.0	20.0	19.8	19.5	19.3	19.0	18.7	18.5	18.2	18.0	17.7	17.4
	80	19.7	19.5	19.2	18.9	18.7	18.4	18.2	17.9	17.6	17.4	17.1	16.9
	70	18.8	18.5	18.3	18.0	17.7	17.5	17.2	17.0	16.7	16.4	16.2	15.9
	60	18.0	17.7	17.5	17.2	17.0	16.7	16.4	16.2	15.9	15.7	15.4	15.1
	50	17.3	17.0	16.7	16.5	16.2	16.0	15.7	15.4	15.2	14.9	14.7	14.4
	40	16.5	16.3	16.0	15.8	15.5	15.2	15.0	14.7	14.5	14.2	13.9	13.7
	30	15.7	15.5	15.2	15.0	14.7	14.4	14.2	13.9	13.7	13.4	13.1	12.9
	20	14.8	14.5	14.3	14.0	13.8	13.5	13.2	13.0	12.7	12.5	12.2	11.9
	15	14.2	14.0	13.7	13.4	13.2	12.9	12.7	12.4	12.1	11.9	11.6	11.4
	10	13.5	13.3	13.0	12.7	12.5	12.2	12.0	11.7	11.4	11.2	10.9	10.7
	5	12.5	12.2	12.0	11.7	11.4	11.2	10.9	10.7	10.4	10.1	9.9	9.6