The Devereux Early Childhood Assessment for Preschoolers Second Edition (DECA-P2) Spanish Equivalency Study

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Abstract

This study investigated the cultural and linguistic appropriateness of the Spanish translation of the Devereux Early Childhood Assessment for Preschoolers Second Edition (DECA-P2), a standardized, norm-referenced measure of within-child protective factors related to resilience, as well as a behavioral concerns screener, in young children. The study aimed to determine whether the norms developed from standardization data collected in English are appropriate to use with the Spanish translation of the assessment. Bilingual parents and teachers completed Spanish and English versions of the DECA-P2 and scores were correlated. Stability of the scores was also considered. Findings support the use of the Spanish DECA-P2 to address the needs of an increasingly diverse U.S. population.

Background

The Devereux Early Childhood Assessment for Preschoolers Second Edition (DECA-P2; LeBuffe & Naglieri, 2012) was developed to serve as a tool for parents and early childhood teachers to support the healthy social and emotional development of young children between the ages of 3 and 5 (third birthday up to sixth birthday). The DECA-P2 is a 38-item standardized, norm-referenced, behavior rating scale that assesses within-child protective factors related to resilience. The DECA-P2 measures three within-child protective factors (Initiative, Self-Regulation, and Attachment/ Relationships), together forming a Total Protective Factors (TPF) total score. A Behavioral Concerns screener is also provided. Therefore, the DECA-P2 provides information to guide interventions that both strengthen children's protective factors and reduce their behavioral concerns.

The DECA-P2 Spanish Equivalency Study was conducted in order to provide the DECA-P2 tool for use by native Spanish speakers. This could be used in areas in which Spanish is a dominant language, and by individuals who are most comfortable with the Spanish language. There has been a great increase in the amount of bilingual homes in the United States. According to the U.S. Census Bureau (2011), Spanish is the most spoken language in the United States other than English. The number of individuals who identify as Hispanic or Latino in the U.S. is also rapidly increasing. Since 2010, the percentage has increased by 1.1% making it 17.4% of the population in 2014 (U.S. Census Bureau, 2014). Therefore, Hispanic and Latino individuals make up the largest ethnic minority in the U.S. Data from the U.S. Census Bureau (2009-2013) indicates that 37,458,470 people over the age of 5 speak Spanish in the United States.

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Given the growing number of Spanish-speaking families in the U.S., there is an increasing need to provide culturally and linguistically appropriate methods of assessment (Cofresi & Gorman, 2004). However, translation alone does not ensure that the norms and standard scores derived with English-speaking raters during standardization are appropriate when children are rated in Spanish. Therefore, a study demonstrating the equivalency of the scores obtained using the English and Spanish forms of the DECA-P2 is necessary. The present study was designed to establish the appropriateness of the Spanish version of the DECA-P2.

Methods

Translation of the DECA-P2 into Spanish

The DECA-P2 was translated into Spanish using a thorough translation process with a translation company. The process involved translating the assessment using individuals from a variety of Spanish ethnicities and dialects, and harmonizing those translations into one version in a more generic form of Spanish. The harmonized version was then back-translated to confirm the accuracy of the final translation. As a final check of the translation, the Devereux Center for Resilient Children (DCRC) had individual Spanish speakers outside of the translation company review and provide feedback on the translation and specific word choices. In order to offer the DECA-P2 in Spanish, DCRC needs to confirm that the results provided are equivalent whether the rating form is completed in English or Spanish. This will verify the validity of using the norms collected in English to score the Spanish translation of the assessment.

Study Design

Bilingual Spanish and English-speaking parents and teachers of children between ages 3 and 5 years were asked to participate in the equivalency study. All participants rated a single child on both the Spanish and English versions of the forms. Participants first completed a Language Use Questionnaire, which consisted of 15 questions aimed at assessing participants' language use and ensuring their bilingualism. Sample items on the questionnaire included: "Do you consider yourself a bilingual person?" and "Which language do you use the majority of the time?" Participants then completed both the Spanish and English DECA-P2 forms which were presented in counterbalanced fashion across participants to control for effects of order, such as practice and fatigue effects.

Sample

Parents. A total of 59 parents participated in the study, completing ratings on 31 male and 28 female children. Participants came from all four regions of the United States (Northeast, Midwest, South, and West) with different cultural backgrounds. They identified as Mexican (*n*=30), Puerto Rican (*n*=9), South American (*n*=4), European (*n*=4), Dominican (*n*=3), Cuban (n=2), Central American (n=2), and Other (*n*=3). The mean age of the children rated by parents was 3.9 years with a minimum of 3.0 years and a maximum of 5.0 years of age. (See Table 1).

Teachers: A total of 107 early childhood teachers or staff participated in the study, completing ratings on 49 male and 58 female children. Participants came from all four regions of the United States

(Northeast, Midwest, South, and West) with a variety of cultural backgrounds. They identified as Cuban (n=32), Mexican (*n*=20), South American (*n*=13), Central American (*n*=12), Puerto Rican (*n*=12), Dominican (*n*=4), European (*n*=4), and Other (n=2). The mean age of the children rated by teachers was 4.2 years with a minimum of 3.0 years and a maximum of 5.0 years of age. (See Table 1).

Analysis

All analyses were conducted separately for parent and teacher raters. In order to examine the relationship between scores obtained for the same child on the Spanish and English DECA-P2 forms, Pearson product-moment correlations were conducted on the four DECA-P2 scales as well as the Total Protective Factors (TPF) scale. However, high positive correlations alone would only indicate that the scores received by children on both versions of the DECA-P2 co-vary, and would not necessarily demonstrate that they are similar in actual value. In order to ensure there is no bias in the Spanish form (i.e., children do not consistently receive a higher *T*-score on one version), score stability was also examined by calculating mean score differences. To examine the stability of the ratings, the Spanish *T*-score for each child on each scale was subtracted from the corresponding English *T*-score. Using this approach, identical scores on the two versions would result in a value of 0. Low mean score differences would indicate no bias with one version scoring consistently higher or lower.

In addition to calculating mean score differences, we also calculated absolute value score differences by subtracting the absolute value of a score (by removing any negative sign) on the Spanish translation from the absolute value of the corresponding score on the English version of the DECA-P2. Using this calculation allows for a deeper understanding of the differences and quality of the translation. Specifically, calculating the mean absolute value will examine the true similarity of scores, by thinking of all values as positive numbers. Low absolute mean score differences would indicate no bias. Mean score differences, absolute mean score differences, and respective standard deviations were examined to determine the extent to which children received similar scores on both language forms.

Results

Pearson product-moment correlations between the TPF on the Spanish and English forms were statistically significant for both parent ($r = .91$, $p < .01$) and teacher ($r = .99$, $p < .01$) raters. Correlations for each of the three protective factor scales as well as the Behavioral Concerns screener were also significant and high in magnitude, with correlations ranging from .72 (Behavioral Concerns; $p < .01$) to .91 (Self-Regulation; $p < .01$) for parent raters and .93 (Behavioral Concerns; $p < .01$) to .98 (Self-Regulation; $p < .01$) for teacher raters. (See Table 2).

Mean score difference calculations between the Spanish and English forms were found to be small and less than one mean *T*-score point across all scales and total scores for both parent and teacher raters. TPF scores varied by -0.19 and -0.23 mean *T*-score points for parent and teacher raters, respectively. Across the scales, mean difference scores ranged from -.39 (Self-Regulation) to .51 (Behavioral Concerns) for parent raters and -.35 (Initiative) to .02 (Behavioral Concerns) for teacher

raters (See Table 2). The *d*-ratio, a measure of the magnitude or size of the difference between two mean scores (Cohen, 1988), was found to be negligible (less than .20) for all scale comparisons.

Absolute mean score difference calculations between the Spanish and English forms were found to be small, with all scales and total scores for both parent and teacher raters less than or equal to 4.71 *T*-scores points. TPF scores varied by 3.03 and 0.66 mean points for parent and teacher raters, respectively. Across the scales, absolute value mean difference scores for parent raters ranged from 2.73 (Self-Regulation) to 4.71 (Behavioral Concerns) *T*-score points. Teachers were also very consistent, ranging from 0.95 (Self-Regulation) to 1.40 (Behavioral Concerns) mean *T*-score points (See Table 2).

Conclusions

This study provides evidence for the psychometric integrity of scores obtained on the Spanish version of the DECA-P2. The results indicate that the translation was culturally and linguistically appropriate and when children are rated using both the Spanish and English DECA-P2, the scores were highly correlated and similar in magnitude. These results indicate that the norms and standard scores developed for the English version can also be applied to the Spanish version. These findings allow the DECA-P2 to confidently measure the within-child protective factors and behavioral concerns of growing Spanish speaking populations across the U.S. These abilities will help teachers and administrators build the strengths and address the needs of children in an increasingly diverse country.

References

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Tables

Table 1. Sample Demographics by Rater

	Parents		Teachers	
	(*n* = 59)		(*n* = 107)	
	n	**%**	***n***	**%**
Cultural Background				
Mexican	30.0	52.6	20.0	20.2
Dominican	3.0	5.3	4.0	4.0
Puerto Rican	9.0	15.8	12.0	12.1
Cuban	2.0	3.5	32.0	32.3
European	4.0	7.0	4.0	4.0
Central American	2.0	3.5	12.0	12.1
South American	4.0	7.0	13.0	13.1
Other	3.0	5.3	2.0	2.0
Geographic Region				
Northeast	10.0	16.9	11.0	10.3
Midwest	4.0	6.8	3.0	2.8
South	11.0	18.6	15.0	14.0
West	21.0	35.6	5.0	4.7
Unknown	11.0	18.6	71.0	66.4
Other	2.0	3.4	2.0	1.9
Child Gender				
Male	31.0	52.5	49.0	45.8
Female	28.0	47.5	58.0	54.2
Mean Age of Child (years)	3.9		4.2	

Table 2. English and Spanish DECA-P2 Correlations and Difference Scores

Parent Raters	English		Spanish			Mean Score Difference	Mean Score Difference SD	Absolute Score Difference Mean	Absolute Score Difference SD
	Mean	SD	Mean	SD	*r*				
Initiative	50.2	9.6	50.3	10.1	.89*	-0.12	4.7	3.34	3.3
Attachment/ Relationships	48.4	10.3	48.2	11.2	.86*	0.24	5.8	3.53	4.6
Self-Regulation	47.7	8.9	48.1	9.9	.91*	-0.39	4.0	2.73	3.0
Behavioral Concerns	52.1	9.6	51.6	9.9	.72*	0.51	7.3	4.71	5.6
Total Protective Factors	48.4	9.2	48.6	10.3	.91*	-0.19	4.3	3.03	3.1

*All correlations significant at the $p < .01$ level

Teacher Raters	English		Spanish			Mean Score Difference	Mean Score Difference SD	Absolute Score Difference Mean	Absolute Score Difference SD
	Mean	SD	Mean	SD	*r*				
Initiative	51.2	9.0	51.5	9.0	.97*	-0.35	2.3	0.98	2.1
Attachment/ Relationships	50.8	9.9	51.1	9.7	.96*	-0.26	2.9	1.18	2.7
Self-Regulation	51.3	9.6	51.3	9.3	.98*	-0.04	2.2	0.95	1.9
Behavioral Concerns	48.9	9.1	48.8	9.0	.93*	0.02	3.3	1.40	3.0
Total Protective Factors	51.4	9.4	51.7	9.3	.99*	-0.23	1.5	0.66	1.3

* All correlations significant at the $p < .01$ level