The Assessment of Youth Psychopathology in Trinidad and Tobago: A Cross-Cultural Construct Validity Study of the Adjustment Scales for Children and Adolescents

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Abstract

In this study, we evaluated the construct validity of the Adjustment Scale for Children and Adolescents (ASCA) using a nationally representative sample of 478 elementary school students from Trinidad and Tobago. The ASCA, standardized nationally in the United States, is a 156-item teacher behavior rating scale that measures 8 youth psychopathology syndromes: Attention-Deficit Hyperactive, Solitary Aggressive (provocative), Diffident, Oppositional Defiant, Avoidant, Solitary Aggressive (impulsive), Lethargic, and Delinquent. Exploratory principal component analyses yielded a five-component structure: Attention-Deficit Hyperactive, Impulsive-Aggressive, Diffident, Avoidant, and Oppositional Defiant syndromes. Second-order exploratory factor analyses supported a two-factor solution: Overactivity and Underactivity dimensions. Standards of construct validity and structural invariance were met for first- and second-order constructs. Confirmatory item clustering supported first-order structural integrity. Whereas limitations in the generalizability of Impulsive-Aggressive, Avoidant, and Oppositional Defiant were found, the second-order structure was generalizable to all demographic subgroups. Main effects were indicated for age and sex across the second-order factors. Sex, age, and ethnic differences among first-order factors were also found. Implications are discussed.

Keywords: ASCA, psychopathology, assessment.

Introduction

Internationally, policy makers are becoming increasingly aware of the need to address children's mental health issues (World Health Organization [WHO], 2010). Epidemiologic studies, highlighted in *The World Health Report 2001: Mental Health, New Understanding New Hope*, (World Health Organization [WHO], 2001) indicate that the worldwide average prevalence rate of children with emotional and behavioral disorders is 19%. Alarmingly, the WHO (2001)

reported that 90% of countries worldwide have *no* mental health policies in effect for children. It is clear that many countries do not have the capacity or cultural tradition to respond to the mental health needs of children.

This article presents the first efforts of the Republic of Trinidad and Tobago to assess the rates of youth psychopathology in a nationally representative sample of school children. The purpose of this study was to investigate the cross-cultural construct validity of the *Adjustment Scales for Children and Adolescents* (ASCA; McDermott, Marston, & Stott, 1993), a behavior rating scale standardized in the United States, to determine if it can be used appropriately to assess youth psychopathology in Trinidad and Tobago.

Behavior rating scales have achieved wide popularity over the past three decades because they are relatively economical, measure child behavior in natural social settings such as home and school, and provide standardized scores more reliable than those obtained from unstructured methods (Merrell, 2008). However, the legitimate application of rating scales has been limited by a number of factors. For example, scores based on youth self-reports or peer-reports tend to be unreliable (Loeber, Green, & Lahey, 1990; Renk & Phares, 2004) and besieged with problems related to semantic distortion, cognitive immaturity, social conformity, deception, and limited literacy (Merrell, 2008). Scales that rely on parent informants are particularly problematic because parents themselves play formative roles in observed behavior pathology. Indeed, compelling evidence suggests that the ratings and observations of child psychopathology provided by parents are differentially affected by parental psychopathology (Goodman, Rouse, Connell, Broth, Hall, & Heyward, 2011).

Alternatively, observations made by classroom teachers afford relatively unobtrusive assessments in natural social situations. Teachers, although imperfect informants, tend to provide more consistency in their evaluations (Brandon, Kehle, Jenson, & Clark, 1990). Teachers are also able to benefit from normative experience with many different youths across time and varied contexts (Achenbach, 1988; Kamphaus & Frick, 2005). Unfortunately, even teacher rating scales can produce ambiguous measures of behavior pathology that do not conform to theoretical or clinical expectation or that overlap too extensively to permit differential interpretation. For example, dimensions intended to identify behavior that is distinctly hyperactive typically correlate .60-.85 with dimensions intended to identify distinctly aggressive behavior. These problems may be the result of situational variability (De Los Reyes, Henry, Tolan, & Wakschlag, 2009; Hoffenaar & Hoeksma, 2002; Matthys, Maasen, Cuperus, & van Engeland, 2001) and the use of Likert-type response scales that use variable-point frequency anchors (Netemeyer, Bearden, & Sharma, 2003). As noted by Reid and Maag (1994), raters typically do not share a common understanding of scale anchors. For example, Ross and Ross (1982) found that different raters judged *Just A Little* to mean from 1 to 120 occurrences.

Rather than depend on respondents' estimates of frequency or severity for more global behaviors, the ASCA requires that respondents identify which specific behaviors typify given circumstances, and the verity and severity of pathology are

drawn from its pervasiveness across multiple circumstances. The ASCA contains 156 behavioral *descriptions* presented with reference to 29 specific social, recreational or learning *situations* in which a youth's adjustment to authority, age mates, smaller/weaker youths, and various tasks may be observed. Examples of the situations include answering teacher's questions, working alone, seeking and accepting teacher help, informal or unorganized play, standing in line, team games, maintaining friendships, approaching new learning, caring for others' property, standing one's own ground with peers, controlling outbursts, and activities related to use of drugs, alcohol, and weapons. For each situation, the teacher indicates a youth's behavior over the past two months by marking one or more of the 3 to 8 behavioral descriptions pertinent to that situation or, alternatively, marks no description if none applies.

Exploratory factor analyses conducted in the United States during the early 1990s provided evidence in support of the construct validity of six core psychopathology syndromes assessed by the ASCA. The syndromes were named based upon the meaningfulness of behavior and, where applicable, corresponded with DSM-IV diagnoses (APA, 2000). The six core syndromes were (a) *Attention-Deficit Hyperactive* (distractibility, difficulty focusing, and problems organizing materials); (b) *Oppositional Defiant* (defiant and manipulative behavior); (c) *Solitary Aggressive-Provocative* (overtly confrontational behaviors); (d) *Solitary Aggressive-Impulsive* (behaviors that are not premeditated, but which are antagonistic or destructive); (e) *Diffident* (extremely timid and fearful behavior); and *Avoidant* (withdrawn and purposefully evasive behavior).

To enable interpretation of ASCA behavioral ratings of youths in Trinidad and Tobago, it was essential to collect evidence showing what psychopathology syndromes are manifested across the population. It could not be assumed that the instrument constructed for the United States would adequately handle item bias, construct meaning, and factor structure in Trinidad and Tobago. *The Standards for Educational and Psychological Testing* (American Educational Research Association, American Psychological Association, & National Council on Measurement in Education, 1999) call for evidence to support the valid and reliable use of measures with people of different cultures. The International Test Commission has similar standards (Geisinger, 1994). More recently, efforts to advance research on psychological test adaptations to diverse cultures have included international seminars held to increase awareness regarding the need of standardized tests in developing nations, issues of translation, and methodology commonly used in test validation (Oakland & Lonner, 2001).

The primary goal of our research was to assess the cross-cultural construct validity of ASCA scores using a nationally representative sample of elementary school children from Trinidad and Tobago. Item level and structural equivalence were assessed prior to efforts to quantify and describe patterns of youth psychopathology. Analyses were conducted to investigate the construct validity of the six core ASCA psychopathology syndromes for a non-United States population. The prevalence of specific problem behaviors among Trinidad and Tobago

students were assessed at the item level, and group differences were analyzed at the syndrome level.

Method

Participants

The sample included 478 elementary school aged children aged 5 to 14 years (M = 8.6, SD = 2.2) enrolled in public schools in Trinidad and Tobago. The Adjustment Scale for Children and Adolescents (McDermott et al., 1993) was completed for all participants by 244 classroom teachers from 44 schools. The sample of students was 53% female and 47% males and was bifurcated at 8 years, with the younger group comprising 52% and the older 48% of the sample. Ethnic distribution included 39% of East Indian descent, 38% of African descent, and 23% of mixed descent, where "mixed" formally distinguishes indistinct blends of heritage from East Indian, African, Asian, and European backgrounds. The participant sample closely reflects the reported demographic distribution of Trinidad and Tobago: 48.9% females under age 14, 40.0% East Indian descent, 37.5% African descent, 20.5% Mixed descent, and 1.2% other ethnicity (Central Intelligence Agency, 2009).

Instrumentation

Adjustment Scale for Children and Adolescents. The ASCA is a teacher observation form that includes 156 behavioral descriptions across 29 classroom situations. Informants respond in a dichotomous format to indicate if a specific behavior was typical of the child over the past two months. The ASCA tracks the number of behavior problems that demonstrate similar function and topography across distinct situations (McDermott, 1993). The advantage of this method is that situation-dependent behavior problems can be identified and considered in context. In the United States, construct validation studies were conducted on a representative national sample of 1,400 noninstitutionalized youth aged 5-17 years, using exploratory principal component analyses (McDermott, 1993).

Exploratory analyses and confirmatory item clustering indicated that the most parsimonious structure retained six core orthogonal components that were replicable across random subsamples and subsamples partitioned for age, sex, and race differences. Higher-order factor analyses supported the construct validity for two overarching behavioral dimensions: Overactivity and Underactivity. These dimensions were found to be invariant across random subsamples and generalizable to pertinent demographic subgroups (McDermott, 1993). Internal consistency of the six syndromes and two overarching behavioral dimensions, interobserver agreement, test retest reliability, and concurrent validity were all supported (McDermott, 1993). This structure was subsequently replicated with Hispanic/Latino youth in the US (Canivez & Sprouls, 2010), Canadian youth (Canivez & Beran, 2009), and Native American youth (Canivez, 2006; Canivez & Bohan, 2006).

Procedure

A stratified random sampling procedure was used to select participants. Normative test site schools were chosen by random selection to represent a proportionate number of each educational district's schools. Within each normative test-site school, one teacher from each grade was chosen randomly, and one boy and one girl enrolled in the teacher's class were randomly selected. Teachers were then asked to complete an ASCA rating form for the selected students.

Data Analyses

Item analyses and scaling. Item endorsement (prevalence) for the 156 behavioral descriptions was computed, with prevalence above 50% indicating positive behavior. The prevalence rates among various ethnic subgroups were reviewed at the item level. Chi-square statistics were applied to detect significant demographic differences in prevalence rates.

A series of exploratory principal component solutions was assessed to uncover the latent structures within the data using a series of varimax and equamax rotation procedures to maintain simple structure. Multiple criteria were applied to determine the optimal solution. The ideal factor structure was to (a) comport with Cattell's (1966) scree test; (b) retain five or more salient items per component, where loadings > .30 are regarded as salient (Fabriger, Wegener, MacCallum, & Shrahan, 1999); (c) yield reasonable internal consistency (> .70, as per Nunnally, 1978); (d) minimize intercomponent correlations; (e) remain invariant across random and important demographic subgroups; and (f) make psychological sense in terms of parsimonious coverage of data and compatibility with other empirical research on child psychopathology (Wood, Tataryn, & Gorsuch, 1996).

The resultant orthogonal solution was subjected to oblique (promax) rotations at variable levels of power to assess the stability of the orthogonal solution. The best promax solution (that which resulted in the peak hyperplane count) was compared to the most parsimonious orthogonal solution in terms of maximum item coverage and minimum interfactor correlations. It was hypothesized that the best oblique solution would reveal item coverage comparable to that derived from the best orthogonal solution.

Component analyses. The internal consistency of ASCA scores was assessed as an indicator of reliability. Coefficient alpha was calculated for extracted components and the composite scale. To further evaluate the level of reliable and unique variance associated with each extracted component, the variance specificity was calculated by subtracting the communality for that component from its alpha coefficient. Error variance was identified for each component by subtracting the alpha coefficient from 1. Components were considered useful if their common and specific variance exceeded error variance. Internal reliability was assessed for the entire sample of participants and demographic subgroups by age, sex, and ethnicity.

Invariance and generalizability of the solution were assessed via Wrigley-Neuhaus coefficients of congruence (Guadagnoli & Velicer, 1991). Invariance was determined by comparing factor loadings derived from multiple random subsamples with the loadings derived from the most parsimonious solution for the entire sample. Generalizability was assessed by comparing the original component structure to structures with variance partialed for sex and race.

Items were assigned to mutually-exclusive clusters based on the best exploratory factor solution. The multiple correlation (R^2) for each item was calculated to determine the proportion of item variance predicted by the other items in its assigned cluster (Anderberg, 1973). It was anticipated that the items in the hypothesized cluster would account for more variance than that predicted by items in the most similar alternate cluster.

Exploratory principal factor analyses were employed to uncover the higher-order latent structure of the components extracted in first-order factoring using varimax rotation procedures to maintain simple structure. Second-order factor loadings > .30 were considered salient. The ideal structure should yield reasonable internal consistency and make psychological sense in terms of parsimonious coverage of data and compatibility with other pertinent research (Wood et al., 1996). The internal consistency, as measured by coefficient alpha, was computed based upon unit-weighted factor scores for each linear combination of variables (Nunnally, 1978).

To determine whether differences in the second-order ASCA dimensions existed among demographic subgroups, a 2 (sex) x 2 (age) x 3 (ethnicity) x 2 (ASCA dimension) within-subjects ANOVA was conducted. Students of African, East Indian, and Mixed descent represented the three levels of ethnicity. A similar within-subjects ANOVA also was conducted to detect group differences at the syndrome level. Age, sex, and ethnicity represented the first three factors, and the five ASCA syndromes were included as the last factor. The Greenhouse-Geisser conservative F test (Greenhouse & Geisser, 1959) was used to determine the significance of interactions due to an inequality or asymmetry of the variances, and Tukey's HSD was applied to identify significant differences among specific subgroups. In both ANOVAs, the w^2 statistic was used to calculate the magnitude of variance associated with syndromes that would attribute to age, sex, and ethnicity.

Results

Item Analyses and Scaling

The prevalence of ASCA items was reviewed to determine how well they reflected the broad construct of behavioral *problems*. Twenty-six of the original 156 items were endorsed as being typical of 50% or more of the study's participants. A review of these 26 items revealed that they were all identified, a priori, as positive behaviors. Because the ASCA is intended as a tool to measure problematic behavior in the classroom, the 26 positive items were excluded from further analyses. Eight additional items were never endorsed by teachers and were also excluded from subsequent analyses.

Differences in the frequencies of item level prevalence among pertinent demographic subgroups (age, sex, and ethnicity) were analyzed to gain a preliminary understanding of the patterns of specific behavioral problems. Where significant sex differences existed, boys were more likely than girls to present the problem behaviors in all cases except one. The exception was found for the item, "Tries to dominate same age peers." A review of the items showed that younger children show more difficulties negotiating how to assert themselves and to remain engaged in the classroom environment, and older children present more problems associated with negative mood.

Where differences in ethnic groups were found, students of Mixed descent presented more behavioral problems than at least one of the other two ethnic groups with one exception. The prevalence rate for the indicator "Aloof, seldom says anything," was significantly lower for the Mixed descent students than those of African or Indian descent. Compared to the other two groups, significantly fewer students of African descent were found to manifest two behaviors, "Welcomes you loudly," and "Seems afraid to try new things."

Component extraction. The correlation matrix for the 122 low prevalence items was evaluated. According to Bartlett's chi-square criteria, the likelihood of an identity matrix was rejected ($p < .0001$) indicating that an investigation into latent structure was appropriate. An examination of Cattell's (1966) scree plot suggested that a four-, five-, seven-, or nine-component solution might be appropriate. Results of the four-component extraction revealed adequate internal reliability for all components (coefficient alpha $> .70$). Each of these factors met the criteria for item coverage, with five or more items loading saliently. Results of the five- to nine-component solutions suggested that a fifth internally reliable component also could be extracted. Coefficient alpha for the additional extracted components derived for the six- to nine-component solutions fell below the criterion of .70. The five-component solution was subjected to oblique (promax) rotation to assess the stability of item coverage, and to identify the most parsimonious solution. Components were allowed to correlate at increasing levels of power ($k = 2\text{-}5$) to determine whether simple structure improved as the correlations were amplified. Results indicated that the hyperplane count reached its peak at $k = 2$.

Psychological meaningfulness. The item content of the various component solutions was reviewed to determine whether derived components could be interpreted in a psychologically meaningful way. The four-component solution was rejected because item coverage was not maximized and components did not reflect parsimonious psychological meaning. In comparison to the U.S. factor structure, each of the four components included a mix of items drawn from several different factors identified in the United States sample. For example, the first component comprised items that reflected diffident, lethargic, and oppositional-moody behaviors. Components did not reflect distinct behavioral syndromes.

The five-component solution met the criteria for psychologically meaningful item groupings. The first component consisted of items typically associated with

the DSM-IV-TR (APA, 2000) diagnosis Attention-Deficit/Hyperactivity. The second component was composed of many of the items that fell into the original Diffident behavioral syndrome on the ASCA and was given the same name. The third component reflected a combination of impulsive and aggressive behaviors and was deemed Impulsive-Aggressive. Several items that loaded saliently on the original ASCA Avoidant syndrome loaded on the fourth factor of this solution; thus, the original name was applied. Lastly, the fifth factor depicted many of the moody, irascible behaviors that grouped together in the original Oppositional Defiant syndrome and this name was retained.

The additional components that were extracted for the six- to nine-component solutions did not meet the criteria for internal reliability. Moreover, a review of item coverage revealed that these additional components did not retain five or more salient items. For these solutions, the psychological meaningfulness of the first five components was assessed to determine if the groupings of salient items reflected more parsimonious meaning. The item composition and meaningfulness of the Oppositional Defiant component was notably altered when additional components were extracted. The five-component solution was deemed the most appropriate structure for further analyses. Table 1 presents salient items derived from the five-component solutions based on equamax and promax rotations. Results reflect comparable item coverage between the orthogonal and oblique rotations. In addition, the item-total r, and other prevalence rates of the behavioral indicators across the Trinidad and Tobago sample are displayed.

Table 1

Exploratory Principal Component Structures and Confirmatory Oblique Principal Component Clustering Structures in the ASCA Trinidad and Tobago Standardization Sample (N = 478)

Syndrome and situational behavior	Rotated Loadings		Item	Nat.	Confirmatory analysis		
	Pr[a]	Eq	Total		% R^2		
			r^b	Prev[c]	own/next[d]		Loading
Attention-Deficit Hyperactive (α = .79)							
Much too talkative with teacher	.66	.65	.57	14.0	.49	.09	.70
Answers before taking time to think	.63	.62	.52	19.2	.41	.05	.64
Overly friendly	.59	.56	.49	7.1	.38	.03	.62
Welcomes teacher loudly	.55	.52	.41	2.5	.27	.03	.52
Uses devices to gain teacher's attention	.49	.53	.55	15.3	.45	.16	.67
Diffident (α = .84)							
Too timid to ask for teacher's help	.69	.68	.61	13.4	.49	.06	.70

Cont. Table 1

Freezes up and does not answer questions	.61	.59	.51	5.9	.35	.04	.59
Never any trouble because so timid	.61	.59	.53	7.7	.40	.04	.63
Shy, difficult to get to speak to you	.60	.59	.55	9.2	.41	.05	.64
Too timid to join in unorganized play	.58	.59	.53	9.4	.39	.09	.63
Impulsive-Aggressive (α = .81)							
Clowns around, plays silly tricks	.54	.52	.52	8.2	.38	.07	.62
Not shy but never seeks teacher's help	.53	.48	.28	11.1	.12	.03	.37
Starts fights and rough play	.51	.51	.51	5.0	.38	.09	.61
Improves after correction, does not last	.50	.50	.46	28.0	.31	.11	.56
Inclined to cheat at play	.47	.47	.44	7.3	.32	.08	.56
Avoidant (α = .79)							
Sluggish apathetic in team games	.67	.64	.54	2.7	.25	.03	.65
Lacks physical energy to work with hands	.62	.59	.48	1.0	.19	.02	.60
Too lacking in energy to be troublesome	.54	.54	.51	2.5	.39	.11	.62
Distant, no relationship	.50	.53	.51	4.8	.39	.13	.62
Appears to live in dream world	.50	.49	.41	6.3	.28	.04	.53
Oppositional Defiant (α = .76)							
Cannot keep a friend for long	.54	.52	.47	2.3	.37	.05	.60
Unfriendly mood	.51	.50	.37	6.7	.23	.03	.48
Made unprovoked attacks on other youths	.49	.50	.40	1.7	.28	.08	.53
Answers except if in bad mood	.48	.46	.35	4.4	.21	.01	.45
Ruins work purposely	.47	.46	.34	0.6	.24	.04	.49

Note. Pr = Promax; Eq = Equamx; Nat Prev = National Prevalence.
[a]Loadings are derived from promaxian oblique rotation at $k = 2$ with the equamax structure matrix serving as the initial orthogonal solution.
[b]Each value is a phi coefficient with respective item excluded from the total syndrome score.
[c]Each value represents the frequency of occurrence within the entire standardization sample.
[d]R^2 for an item's own syndrome indicates the proportion of item variance predicted by other items in the hypothesized correct syndrome, whereas R^2 for an item's next syndrome indicates variance predicted by items in the empirically best alternative syndrome.

Component distinctiveness. Intercomponent correlations are shown in Table 2. Visual inspection of bivariate correlations suggests that components can be separated into two distinct groups. Positive correlations among the Attention-Deficit Hyperactive, Impulsive-Aggressive, and Oppositional Defiant syndromes indicated that these components are related. Similarly, a moderate correlation between Diffident and Avoidant components was suggestive of a relationship. Low and negative correlations were detected across the two component groupings, signaling their distinctiveness.

Component reliability, generalizability, and invariance. Specificity and error variance for the five components were compared. Table 2 shows the variance that is attributed to communality, specificity, and error. The specificity of each component exceeded the error variance, supporting the integrity of the component solution by revealing the presence of reliable and unique variance for each component.

Table 2

Intercorrelations and Component Variance for ASCA Behavioral Syndromes in the Trinidad and Tobago Standardization Sample (N = 478)

Behavioral Syndromes	Correlations[a]				Comm	Spec[b]	Error
	ADH	Diff	Avoid	Imp-agg			
ADH	—				.47	.32	.21
Diff	-.26*				.32	.52	.16
Avoid	-.10	.38*			.33	.46	.21
Imp-Agg	.51*	-.10	.18*		.49	.32	.19
Opp-Def	.39*	-.09	.08	.43*	.31	.45	.24
Average variance					.38	.41	.20

Note. ADH = Attention-Deficit Hyperactive; Diff = Diffident; Avoid = Avoident; Imp-Agg = Impulsive-Aggressive; Opp-Def = Oppositional Defiant: Comm = Communlity; Spec = Specificity.

[a]Intercorrelations are based on unit-weighted syndrome scores for factors derived from exploratory principal components analyses.

[b]Specificity is calculated by subtracting a component's communality from its alpha coefficient. Specificity reflects the proportion of variance that is reliable and unique to a syndrome. Specificity values that exceed error variance are considered significant

*p < .001.

The internal reliability of component scores within relevant demographic subgroups was evaluated as an initial check on the generalizability of the factor solution. Whereas alpha coefficients supported internal reliability for the first four components (Diffidence α ≥ .81, Avoidant α ≥ .75, Attention-Deficit Hyperactive α ≥ .71, and Impulsive-Aggressive α ≥ .70), the coefficients calculated for the Oppositional Defiant syndrome fell below .70 for African (α = .65) and East Indian (α = .63) groups, and for children below age 9 (α = .66).

Wrigley-Neuhaus coefficients were used to assess the integrity of the solution (Guadagnoli & Velicer, 1991). Solutions that were derived for 10 random subgroups were compared to the composite structure derived for the full Trinidad and Tobago sample. The average coefficients among the 10 random subgroups for each ASCA component are displayed in Table 3 and show evidence of structural invariance. However, evidence for generalizability was found for Attention-Deficit Hyperactive and Diffident syndromes only (coefficients ≥ .70). Questions are raised about the generalizability of (a) the Impulsive-Aggressive syndrome to children under 9 years of age and to female students; (b) the Avoidant syndrome to females and students of African and Mixed descent; and (c) the Oppositional Defiant syndrome to children under age 9 and those of African and Mixed descent.

Table 3

Wrigley-Neuhaus Coefficients of Congruence of the ASCA Syndromes across Random, Sex, Age, and Ethnic Subsamples from Trinidad and Tobago

| Subsample | ASCA Syndromes | | | | | Average of |
	ADH	Imp-Agg	Diffident	Avoidant	Opp	Syndromes
Random* (*n* = 200)	.87 (.12)	.76 (.30)	.96 (.02)	.87 (.20)	.83 (.19)	.86 (.17)
Male (*n* = 226)	.93 (.10)	.91 (.26)	.94 (.05)	.93 (.17)	.82 (.19)	.91 (.15)
Female (*n* = 252)	.91 (.16)	.68 (.31)	.94 (.01)	.69 (.31)	.89 (.15)	.82 (.19)
Older (*n* = 247)	.92 (.13)	.90 (.29)	.86 (.00)	.70 (.16)	.81 (.25)	.84 (.17)
Younger (*n* = 231)	.90 (.11)	.66 (.30)	.95 (.05)	.89 (.23)	.66 (.20)	.81 (.18)
Indian (*n* = 169)	.80 (.21)	.72 (.35)	.93 (-.04)	.85 (.19)	.86 (.25)	.83 (.19)
African (*n* = 165)	.86 (.23)	.76 (.35)	.83 (-.06)	.64 (.17)	.64 (.20)	.75 (.18)
Mixed (*n* = 100)	.85 (.23)	.74 (.35)	.82 (-.07)	.67 (.17)	.61 (.26)	.74 (.19)

Note. ADH = Attention-Deficit Hyperactive; Imp-Agg = Impulsive-Aggressive; Opp = Oppositional Defiant. Indian, African, and Mixed refer to Trinidad and Tobago students of the respective ethnic descent.

*Values corresponding to random subsample reflect an average of congruence coefficients across 10 random subsamples.

Confirmatory item cluster analysis. Oblique, principal component cluster analysis was utilized as a method to confirm the most parsimonious solution derived using equamax rotation. The amount of variance for each item that was attributed to the remaining items in its hypothesized dimension was calculated, and then compared to variance that would be associated with the next cluster. Results are presented along with the structure derived from the exploratory principal component analyses in Table 1. The findings confirm that all items share more common variance with other items in their assigned component than alternative components.

Second-order factor structure. To determine if the five behavioral syndromes were further discernable into global factors, a higher-order factor analysis was conducted. The unit-weighted item sums for each syndrome were subjected to common factor analysis with squared multiple correlations as the initial communality estimates. Two psychologically meaningful second-order factors emerged. Attention-Deficit Hyperactive, Impulsive-Aggressive, and Oppositional Defiant loaded on the first factor, representing Overactivity (loadings = .68, .67, and .54, respectively). The second higher-order factor, Underactivity, included the Diffident and Avoidant behavioral syndromes (loadings = .49 and .58). Internal reliability of scores on the two factors was adequate: .89 for the Overactivity factor and .87 for the Underactivity factor. Results revealed a low negative interfactor correlation (-.11, $p < .05$).

Congruence coefficients were calculated to assess the integrity of the second-order solution (Guadagnoli & Velicer, 1991). Structures unique to sex, age, and ethnic subsamples, as well as ten random subsamples were compared to the composite structure. At the second-order level, invariance among random subsamples, and generalizability across sex, age, and ethnic subsamples were found to be substantially high. Coefficients of congruence for like dimensions exceeded .99 for the random and demographic subsamples. Congruence coefficients for nonsimilar counterparts were substantially and appropriately low, ranging from -.06 to .04 for all subsamples.

Group differences. ANOVA results for the higher-order factors revealed significant main effects for age $F(1, 422) = 5.81$, $p < .05$, and sex $F(1, 422) = 4.36$, $p < .05$, with younger and male students demonstrating higher levels of behavioral problems than older and female students, respectively. No main effect was found for ethnicity. The w^2 statistic indicated that only 1% of the variance of psychopathology syndromes was associated with sex, and 2% of the variance was attributable to age. No significant interaction effects were found.

A second ANOVA assessed differences at the syndrome level by demographics. Significant main effects were found for sex $F(1, 422) = 8.37$, $p < .01$ and ethnicity $F(2, 422) = 3.11$, $p < .05$, but not for age. The w^2 statistic indicated that 2% of the variance conveyed by the syndromes was associated with child sex, and only 1% was associated with ethnicity. A significant syndrome by sex interaction was found [Wilks' L⎕ = .95, $F(4, 419) = 5.81$, $p < .001$], as was a

significant syndrome by age interaction [Wilks' L = .95, $F(4, 419) = 5.48$, $p < .001$], and a syndrome by ethnicity interaction [Wilks' L = .96, $F(8, 838) = 2.28$, $p < .05$]. The magnitude of effect statistics indicated that the interactions between syndromes and sex, age, and ethnicity each accounted for only 1% of the variance in psychopathology.

Based on Tukey's HSD, males exhibited significantly higher levels of Impulsive-Aggressive and Oppositional Defiant behavior, younger children presented significantly higher levels of the Avoidant syndrome, and older children demonstrated higher levels of Oppositional Defiant behavior. Finally, post hoc comparisons also indicated that Mixed descent students demonstrated higher levels of the Impulsive-Aggressive syndrome compared to students of East Indian descent, and students of Mixed and African descent presented higher levels of the Oppositional Defiant syndrome.

Discussion

Faced with the need for high quality information about children's mental health in the Republic of Trinidad and Tobago, the present assessment of youth psychopathology was initiated. Although extensive empirical support has been presented for the use of the ASCA in the United States (Canivez, 2003; Canivez, Miller, & White, 2010; Canivez, Perry, & Weller, 2001; McDermott, 1993; McDermott, Goldberg, Watkins, Stanley, & Glutting, 2006; McDermott & Schaefer, 1996; Schaefer, Watkins, & Canivez, 2001; Watkins, 2002; Watkins & Canivez, 1997), information was needed to establish its validity in a nationally representative population of Trinidadian and Tobagonian youth. Results provide *initial* support for the content validity of ASCA items. Exploratory principal component analyses and confirmatory item clustering indicated that ASCA items grouped into behavioral syndromes that differed somewhat from the American six core and two supplemental dimensions.

The resultant structure revealed behavioral syndromes that reflected similar meaning to five of the six American core syndromes. Higher-order analyses resulted in two robust dimensions, Overactivity and Underactivity, which had equivalent meaning to the second-order factors derived in the United States standardization. The Overactivity factor was comprised of the Attention-Deficit Hyperactive, Impulsive-Aggressive, and Oppositional Defiant syndromes. These syndromes reflect behaviors that are considered in the extant literature as externalizing or acting-out type behaviors (Noone-Lutz, Fantuzzo, & McDermott, 2002). Conversely, the Underactivity dimension subsumed the Diffident and Avoidant syndromes, corresponding to behaviors consistent with internalizing problems. Both Overactivity and Underactivity factors exhibited high internal reliability, and a negative correlation between the Overactivity and Underactivity was indicative of divergent relationship between the factors.

Throughout this study, results of statistical analyses suggested that group differences in the presentation of behavioral problems exist within the population of youth from Trinidad and Tobago. Across the higher-order Overactivity and

Underactivity psychopathology dimensions, age group and sex differences were identified, with older children and males demonstrating higher levels of problems. Item level analyses indicated that males demonstrated significantly more behavioral problems of both overactive- and underactive-types. Age group and ethnic differences also were revealed at the item level. Generally, students of Mixed descent evidenced more overactive-type behaviors than students of East Indian descent.

Post hoc analyses revealed trends in psychopathology. Compared to girls, boys were rated as demonstrating significantly higher levels of Impulsive-Aggressive and Oppositional Defiant psychopathology. This corresponds to findings indicating that boys tend to cope with stress in more disruptive ways than do girls (Masten, Morison, Pellegrini, & Tellegen, 1990; McDermott, 1996). Younger children were found to present a higher level of Avoidant psychopathology. This is reminiscent of reports that younger preschool children present more disengaged behavior than older preschoolers (Fantuzzo et al., 2000; Noone-Lutz et al., 2002) and suggests a developmental pathway toward greater social competence in older elementary school children. The combined findings of proportionally higher rates of Avoidant behavior exhibited among younger children and Oppositional Defiant behavior among older children suggests a possible developmental trend in adjustment problems, which shifts from social withdrawal to overt expression of maladjustment.

The ethnic differences revealed that children of East Indian descent demonstrated a lower level of oppositionality compared to children from Mixed and African heritage. Children of East Indian heritage also demonstrated a lower level of impulsive-aggression than children of mixed descent. The findings suggest that cultural factors influence the manifestation of overactive-type behaviors more than underactive-type behaviors.

This study serves as a field test for the ASCA in Trinidad and Tobago. Limitations in the implementation may have contributed to the differences noted in the syndrome structure derived. As Geisinger (1994) asserted, "in some instances, adaptations of assessment instruments are needed even when the language remains the same, because the culture or life experiences of those speaking the same language differ" (p. 304). Ethnographic studies of the language and daily culture in Trinidad and Tobago, as advised by Lopez and Guarnaccia (2000), could reveal whether the ASCA items adequately cover the breadth of culturally relevant psychopathology.

At the turn of the 21st century, researchers plead for increased attention to the field of cross-cultural psychology (Caprara, Barabaranelli, Bermudez, Maslach, & Ruch, 2000; Lopez & Guarnaccia, 2000; van de Vijver & Leung, 2000). In 2000, Keller and Greenfield called for better integration of a developmental approach into cross-cultural psychology to enhance the future of the field both empirically and theoretically. Moreover, Keller and Greenfield noted a paucity of cross-cultural studies involving children and adolescents compared to studies of adult populations, and underscored a need to correct this imbalance. This study

responds to this call, and adds to the knowledgebase of cross-cultural developmental research.

The study contributes to the cross-cultural research base in several ways. First, it includes a nationally representative, stratified, random sample of youth. van de Vijver and Leung (2000) asserted that all too often cross-cultural studies fail to conduct adequate sampling procedures, which limits the generalizability of study results. The randomized design modeled the Trinidad and Tobago elementary-school population, increasing confidence that observations accurately depicted the distribution of youth psychopathology. The group differences found among demographic subsamples contributes to the knowledge base of developmental psychopathology by highlighting differential patterns of adjustment and maladjustment. They provide evidence that children of different ages, sex, and ethnicity generally cope with stressors in predictable ways. The findings increase the understanding of both general and culture-specific patterns of adjustment. The results of this study underscore the importance of assessing generalizability *within* nations, a practice not common, but necessary in instrument development.

More research is necessary to elucidate group differences within the Trinidad and Tobago culture. Ethnographic research of the cultural practices and activities of daily living are needed to determine whether the ASCA is adequate in depth and breadth as a diagnostic tool. Ethnographic research is recommended in order to collect richer information about the home and school contexts. The body of these data will enable researchers to develop objective measures of the contexts that influence the manifestation of childhood psychopathology.

To assess cultural differences within Trinidad and Tobago, and in other cross-national studies, more complete sampling designs and data retrieval protocols need to be employed to increase sample sizes. As the validity of standardized rating scales is established in the Republic of Trinidad and Tobago, their use will enable cost-efficient institutionalized assessments. With organizational support, future data collection can be conducted annually and researchers will be able to support longitudinal studies. Results of longitudinal studies would make important contributions to the field of developmental psychopathology. Moreover, they would bring forth a richer understanding of psychopathology across the country of Trinidad and Tobago, providing the results necessary for educational planning and policy-related decisions.

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