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CONSTRUCT VALIDITY OF THE ADJUSTMENT SCALES FOR CHILDREN AND ADOLESCENTS AND THE PRESCHOOL AND KINDERGARTEN BEHAVIOR SCALES: CONVERGENT AND DIVERGENT EVIDENCE

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Construct validity (convergent and divergent) of the Adjustment Scales for Children and Adolescents (ASCA; McDermott, Marston, & Stott, 1993) and the Preschool and Kindergarten Behavior Scales (PKBS; Merrell, 1994a) is presented. Regular classroom teachers (n = 38) randomly selected 5- and 6-year-old children (N = 123) and rated them on the ASCA and PKBS in counterbalanced order. Convergent evidence of construct validity was observed for the PKBS Externalizing Problems scale and the ASCA Overactivity syndrome. Divergent evidence of construct validity was provided for the PKBS Externalizing Problems scale and ASCA Underactivity syndrome. Convergent and divergent evidence of construct validity for the PKBS Internalizing Problems scale and ASCA Overactivity and Underactivity syndromes was mixed. Results were identical to those of Canivez and Bordenkircher (2002). © 2002 Wiley Periodicals, Inc.

Behavior rating scales have been called a "best practice" in assessing child behavioral and emotional problems (McConaughy & Ritter, 1995) and are one of the most efficient ways to identify behavioral strengths and weaknesses (Knoff, 1995). Behavior rating scale use among psychologists is partially due to the increasing preference for objective, rather than inferential, assessment techniques that can facilitate links between assessment and interventions (Reschly & Ysseldyke, 1995; Piacentini, 1993). Child assessment specialists frequently use behavior rating scales in the identification and placement of socially or emotionally disturbed youths (Hart & Lahey, 1999; McDermott, 1995; Merrell, 1994b). Among school psychologists, behavior rating scales have been shown to be the most frequently utilized instruments to assess the emotional and behavioral difficulties of children (Stinnett, Havey, & Oehler-Stinnett, 1994).

Behavior rating scales provide reasonably unobtrusive evaluations of students' behaviors within school and home settings. Teachers are important sources of information on child behaviors as they are natural observers and informants within school settings and have comparative experiences of observing many students across time and in varied social contexts. They also appear to utilize a normative perspective while rating children's behaviors (Piacentini, 1993). Additionally, teachers have frequently been considered to be among the most accurate adult raters of child behavior (Kamphaus & Frick, 1996; Martin, Hooper, & Snow, 1986).

Recently, there has been an increased emphasis in providing educational and psychological assessment and intervention services to children in the early childhood (preschool) age range. One relatively new behavior rating scale specifically developed for early childhood use is the Preschool and Kindergarten Behavior Scales (PKBS; Merrell, 1994a). The PKBS is a nationally normed behavior rating instrument designed to measure social skills and problem behaviors in the early childhood population (ages 3 through 6 years). Parents, teachers, or others familiar with the child complete the PKBS. According to Merrell (1995a, 1995b), the PKBS appears to adequately measure the constructs of both internalizing and externalizing problem behaviors in early child-

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hood, and also appears to show promise as a research tool, a screening device, and an assessment instrument for assessing the social-emotional behavior of children.

Psychometric information from the PKBS manual (Merrell, 1994a) indicates significant internal consistency ($r_{\alpha} > .80$) and stability estimates ($Mdn_r = .66$) for the PKBS global scales and subscales within the Social Skills and Problem Behavior domains. Mean differences across the retest interval were not reported so *level* of agreement (McDermott, 1988) across the retest interval cannot be assessed. Interrater agreement was higher between teachers and their aides than between teachers and parents; however, mean differences between the raters were not reported, so *level* of interrater agreement (McDermott, 1988) is unknown.

Validity studies presented in the PKBS manual show moderate to strong correlations (.32 to .76) between the PKBS Social Skills Scales with the Social Skills Rating System (SSRS; Gresham & Elliott, 1990). Significant correlations were also found between the PKBS Problem Behavior scales and the SSRS Problem Behavior scales (.25 to .83) with the highest correlations between the problem behavior composite totals. Many moderate to high correlations were reported between the PKBS Problem Behaviors and the Conners Teacher Rating Scales (CTRS-39; Conners, 1990) and moderate to highly negative correlations were observed between the PKBS Social Skills scales and the CTRS-39 scales. Merrell (1995a, 1995b), Merrell and Holland (1997), Merrell and Wolfe (1998), and Jentzsch and Merrell (1996) have also provided empirical support for both the convergent and divergent validity of the PKBS.

The Adjustment Scales for Children and Adolescents (ASCA; McDermott et al., 1993) is another recently developed nationally normed behavior rating scale that assesses psychopathology and can be used with older preschool and kindergarten children. Rather than inferring pathology from teacher estimates of the frequency of behavioral symptoms as is typical of most behavior rating scales, the ASCA defines psychopathology through multi-situational expression of problem behaviors assessed by having raters indicate which specific behaviors typify the child in a variety of circumstances and contexts (McDermott, 1993, 1994). Most other behavior rating scales also do not specify circumstances or assess behaviors within multiple contexts.

Research conducted with the ASCA during its development and standardization showed significant internal consistency, interrater reliability, and test-retest reliability for the core syndromes and global adjustment scales (McDermott, 1993, 1994). Internal consistency estimates for the total standardization sample ranged from .68 to .86 for the six core syndromes and two supplementary syndromes. Alpha coefficients of .92 for the Overactivity scale and .82 for the Underactivity scale were reported. Test-retest reliabilities (n = 40) over a 30-school-day interval ranged from .66 to .91 for the six core syndromes and from .75 to .79 for the Overactivity and Underactivity scales, and no significant differences were observed in scores across the retest interval. Watkins and Canivez (1997) replicated the interrater agreement findings for the ASCA Overactivity, Underactivity, and core syndrome T scores (McDermott, 1993, 1994). Canivez and Watkins (in press) reported significant interrater agreement for ASCA Syndromic Profile classifications while Canivez, Watkins, and Schaefer (2002) reported significant interrater agreement for ASCA Discriminant Classifications. Canivez, Perry, and Weller (2001) replicated and extended the ASCA test-retest stability of the core syndromes, supplementary syndromes, global adjustment scales, syndrome profile classifications, and discriminant classifications.

McDermott (1993, 1994) found validity coefficients ranging from .65 to .91 when comparing the ASCA and the Revised Conners Teacher Rating Scale (CTRS; Trites, Blouin, & Laprade, 1982). All four of the ASCA Overactive syndromes were highly correlated with the CTRS Hyperactivity and Conduct Problem factors. The low to near-zero correlations between the Overactive and Underactive core syndromes of the ASCA revealed the divergent validity of these two dimensions (McDermott, 1993, 1994). Correlations between the ASCA and Child Behavior Checklist

(CBCL; Achenbach & Edelbrock, 1983) were significant for similar psychological dimensions (McDermott, 1993, 1994). Additional evidence of construct validity for the ASCA has been reported (McDermott, 1995; McDermott & Schaefer, 1996; McDermott & Spencer, 1997). Further, the ASCA has demonstrated excellent diagnostic accuracy in differentiating students with emotional disturbance from random normals, students with learning disabilities, speech/language disabilities, mental retardation, and gifted abilities (McDermott et al., 1995).

As with any test, behavior-rating scales must demonstrate acceptable psychometric characteristics before they can be validly used in psychological practice. Further, the psychometric results reported in test manuals should be replicated with independent research for practitioners to be more confident in their use.

The PKBS and ASCA overlap for 5- and 6-year-old children and the Problem Behaviors dimensions of the PKBS and ASCA syndromes are similar in their names and descriptions. The purpose of the present study was to further investigate the construct validity (convergent and divergent) of the ASCA and the PKBS. In contrast to convergent validity, the term *divergent* validity (Kaplan & Saccuzzo, 2001; McDermott, 1994; Merrell, 1994a) is preferred to *discriminant* validity (Campbell & Fiske, 1959), as the latter better describes the ability of a test to discriminate between two or more groups (i.e., discriminant function analysis or logistic regression; see Youngstrom, Findling, Danielson, & Calabrese, 2001). Convergent validity is supported when high correlations are observed between scales designed to measure the same construct, while divergent validity is supported by low to near-zero correlations between scales designed to measure different constructs.

Canivez and Bordenkircher (2002) found in a sample of 154, 5- and 6-year-old children rated by 16 teachers convergent *and* divergent evidence for the PKBS Externalizing Problem scales and ASCA Overactivity and Underactivity scales. Convergent and divergent validity was mixed for the PKBS Internalizing Problem scales and ASCA Overactivity and Underactivity scales. Specifically, the PKBS Internalizing dimensions correlated as high with the ASCA Overactivity dimensions as they did with the Underactivity dimensions. A possible factor was the moderately high intercorrelations between all PKBS subscales (Canivez & Bordenkircher, 2002).

The present study used the same method as Canivez and Bordenkircher (2002) with a different independent sample and compared the two composite indexes from the ASCA, Overactivity and Underactivity, to the two PKBS broad-band problem behavior scales, Internalizing Problems and Externalizing Problems. It was hypothesized that moderate to high correlations should be found between the PKBS Externalizing composite and ASCA Overactivity syndrome and between the PKBS Internalizing composite and ASCA Underactivity composite scores. It was further expected that these correlations would be higher than those obtained between the PKBS Externalizing and ASCA Underactivity and the PKBS Internalizing and ASCA Overactivity scales. It was also hypothesized that similar problem behavior scales from the PKBS and core/supplementary syndromes from the ASCA should also be significantly and moderately to highly correlated. The PKBS Social Skills scales and the ASCA syndromes were expected to have significant and moderately negative correlations. Finally, mean scores from the PKBS Problem Behavior composites and subscales should not differ from similar ASCA syndromes given that both are standardized and normed with nationally representative samples.

Method

Participants

Classroom teachers (n = 38) of kindergarten (n = 90) and first grade (n = 29) students volunteered to provide ASCA and PKBS ratings on randomly selected students from their class-

rooms. Normal (n = 107) and disabled/at-risk (n = 16) children attending elementary schools in the rural Midwest comprised the sample. The sample consisted of 59 male and 64 female, 5- (n = 36) and 6- (n = 85) year-old students (M = 6.22, SD = .44). The students were primarily Caucasian based on teacher reports of race/ethnicity and demographics of the communities from which they were obtained; however, teachers failed to report the race/ethnicity for 60 children. Of those students whose race/ethnicity was reported (n = 63), the following distribution was observed: 60 Caucasian, 1 Hispanic/Latino, 1 Black/African American, and 1 Asian American.

Instruments

Preschool and Kindergarten Behavior Scales. The Preschool and Kindergarten Behavior Scales (PKBS; Merrell, 1994a) was developed with a national sample of 2,855 children from 16 different states that represented four geographic regions and was comparable to the general U.S. population (Merrell, 1994a). The PKBS was designed for use with children ages 3 through 6 and contains a 34-item Social Skills scale and a 42-item Problem Behavior scale. The Social Skills scale includes the Social Cooperation, Social Interaction, and Social Independence subscales. The Problem Behavior scale includes both Internalizing Problems and Externalizing Problems. The Internalizing scale includes Social Withdrawal and Anxiety/Somatic Problems subscales while the Externalizing scale includes Self-Centered/Explosive, Attention Problems/Overactive, and Antisocial/Aggressive subscales. Items are rated on a 4-point scale (never, rarely, sometimes, and often) based on the rater's perception of the frequency of the behavior specified. Standard scores (M = 100, SD = 15) and percentiles are provided only for the Social Skills Total and Problem Behavior Total while only percentiles are provided for the Externalizing Problems and Internalizing Problems scales. PKBS subscales do not yield standard scores. Watson (1998) provided generally favorable comments in reviewing the PKBS, while MacPhee (1998) was somewhat more critical and stressed the need for additional research before the PKBS is recommended for use in screening and diagnosis.

Adjustment Scales for Children and Adolescents. The Adjustment Scales for Children and Adolescents (ASCA; McDermott et al., 1993) is a standardized behavior rating scale that was normed on a representative national sample of 1,400 youths, blocked according to gender, age, and grade level. It is appropriate for use with children ages 5 through 17 (grades K through 12). The ASCA contains 156 items, 97 that are scorable for dimensions of psychopathology and, based on factor analyses, are singularly assigned to one of six core syndromes (Attention Deficit-Hyperactive [ADH], Solitary Aggressive-Provocative [SAP], Solitary Aggressive-Impulsive [SAI], Oppositional Defiant [OPD], Diffident [DIF], and Avoidant [AVO]) or two supplementary syndromes (Delinquent [DEL] and Lethargic [LEH]). The core syndromes are combined to form two composite indexes: Overactivity (OVR) (ADH, SAP, SAI, OPD syndromes) and Underactivity (UNR) (DIF and AVO syndromes). Core syndromes, supplementary syndromes, and overall adjustment scales are reported as normalized T scores (M = 50, SD = 10) and percentiles. In general, psychometric characteristics of the ASCA are acceptable and meet standards for both group and individual decision making (Canivez, 2001; Salvia & Ysseldyke, 1995).

Procedure

Classroom teachers from rural areas of a Midwest state volunteered to participate in the present study. The purpose, need, and details of data collection were explained to each teacher. The teachers were instructed how to randomly select and rate 1 or 2 male and 1 or 2 female students whom they had observed for at least 40 days prior to the completion of the ASCA and the PKBS. The teachers then completed ASCA and PKBS rating forms on the selected students accord-

ing to the standard instructions on the rating forms and returned the forms to the second author, who scored them according to the test manuals. No personally identifiable information was collected to protect the anonymity of the students. Teachers were given the ASCA and PKBS rating forms in counterbalanced order to control for possible order effects.

Analyses

Because the PKBS does not provide standard scores for subtests and composite scores other than the Social Skills Total and Problem Behavior Total, and the standard score metric is based on a mean of 100 and standard deviation of 15, all subtest and composite raw scores for the PKBS were transformed to T scores (M = 50, SD = 10) based on the raw score means and standard deviations for 5- and 6-year-olds (N = 2,116) from the PKBS standardization sample that were provided by K. Merrell. This allowed for comparison of mean ratings between the PKBS and ASCA scales. Although distributions for problem behaviors yielded by the PKBS and ASCA are skewed (as is the case in pathology based scales), this did not seem to present a problem for the t-tests used in the present study (Glass & Hopkins, 1996; Welkowitz, Ewen, & Cohen, 1976). Glass and Hopkins (1996) noted "that violation of the assumption of normality has almost no practical consequences in using the two-tailed t-test" (p. 291). Pearson product-moment correlation coefficients were calculated to provide indexes of convergent and divergent validity. Dependent t-tests for differences between means were calculated between similar scales of the PKBS and ASCA to assess differences between scores yielded by these different instruments. Effect sizes for the mean differences between the PKBS and ASCA were estimated using Δ (Glass & Hopkins, 1996).

RESULTS

Global Scale Comparisons

Pearson product-moment correlations between the ASCA and PKBS are presented in Table 1. Convergent validity was supported by the significant and high correlation between the PKBS Externalizing Problems scale and the ASCA Overactivity syndrome (r = .84, p < .001). Divergent validity was supported by the low, near-zero correlation between the PKBS Externalizing Problems scale and the ASCA Underactivity syndrome (r = -.06). The PKBS Internalizing Problems scale was significantly correlated with *both* the ASCA Overactivity syndrome (r = .51, p < .001) and the ASCA Underactivity syndrome (r = .42, p < .001). As expected, the PKBS Social Skills Total correlated negatively and significantly with the ASCA Overactivity syndrome (r = -.59, p < .001) and the Underactivity syndrome (r = -.38, p < .001).

Subscale/Syndrome Comparisons

The PKBS Self-Centered/Explosive (SC/E), Attention Problems/Overactive (AP/O), and Antisocial/Aggressive (A/A) subscales correlated significantly and at moderate to high levels with the ASCA Attention Deficit-Hyperactive (ADH), Solitary Aggressive-Provocative (SAP), Solitary Aggressive-Impulsive (SAI), and Oppositional Defiant (OPD) syndromes (*rs* ranging from .48 to .84, $Mdn_r = .68$). Low to near-zero correlations were observed between the PKBS SC/E, AP/O, and A/A subscales and the ASCA Diffident (DIF) and Avoidant (AVO) syndromes (*rs* ranging from -.19 to .09, $Mdn_r = -.03$). The PKBS Social Withdrawal (SW) and Anxiety/ Somatic Problems (A/SP) subscales correlated as high or higher with the ASCA Overactivity (ADH, SAP, SAI, and OPD) core syndromes (*rs* ranging from .13 to .55, $Mdn_r = .33$) than with the ASCA Underactivity (DIF and AVO) core syndromes (*rs* ranging from .28 to .43, $Mdn_r = .32$). As with the global scales/syndromes and as expected, the PKBS Social Cooperation (SC), Social

				Adjustment So	cales for Childi	ren and Adoles	cents (ASCA)			
PKBS	OVR	UNR	ADH	SAP	SAI	OPD	DIF	AVO	DEL	LEH
Social skills										
SC	80***	04	74***	72***	57***	60***	.07	22**	42**	31***
SInt	43***	52***	35***	39***	34***	42***	43***	49***	43***	45***
SInd	42***	46***	39***	33***	24**	31***	39***	42***	48***	56***
Social skills total	59***	38***	53***	51***	41***	47***	28**	40***	50***	50***
Problem behavior										
SC/E	.78***	03	.69***	***99.	.48***	.68***	11	.05	.19	.25**
AP/O	.85***	06	.84**	.67***	.56***	.52***	15	60.	.34**	.30***
A/A	.79***	10	.70***	.67***	.68***	.63***	19*	.05	.26*	.18*
Externalizing problems	.84***	06	.78***	.70***	.59***	.64***	15	.07	.27*	.26**
SW	***09"	.40***	.52***	.55***	.34***	.47***	.28**	.43***	.40**	.53***
A/SP	.33***	.37***	.32***	.22**	.16	.13	.35***	.28**	.21	.43***
Internalizing problems	.51***	.42***	.46***	.42***	.28**	.33***	.34***	.39***	.33**	.52***
Note. OVR = Overactiv sive), OPD = Oppositional I Scoles SC = Social Conners	ity, UNR = U ₁ Defiant, DIF = S tion SInt = S	nderactivity, AI Diffident, AVC	DH = Attention D = Avoidant, I D = Soci	n-Deficit Hyper DEL = Delinqual al Independent	active, SAP = uent, LEH = L	Solitary Aggre ethargic (Hypo If-Centered/Fy	ssive (Provoca active), PKBS	tive), SAI = So = Preschool a = Attention Pr	olitary Aggress and Kindergart	sive (Impul- en Behavior etive AA =

Table 1
Pearson Product-Moment Correlation Coefficients Between the Preschool and Kindergarten Behavior Scales (PKBS)
the Adjustment Scales for Children and Adolescents (ASCA)

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Interaction (SInt), and Social Independence (SInd) subscales were significantly and negatively associated with most ASCA syndromes. All Social Skills subscales were significantly (p < .001) correlated with the ASCA Underactivity (ADH, SAP, SAI, and OPD) core syndromes (rs ranging from -.24 to -.74, $Mdn_r = -.39$). Somewhat lower correlations were obtained between the PKBS Social Skills (SC, SInt, and SInd) subscales and the ASCA Underactivity (DIF and AVO) core syndromes (rs ranging from .07 to -.49, $Mdn_r = -.41$).

Scale Mean Differences

Table 2 presents the descriptive statistics, dependent *t*-test results, effect size estimates, and 95% confidence intervals for selected PKBS and ASCA comparisons. Several comparisons resulted in significant mean differences between the PKBS and ASCA (see Table 2). Mean scores on the PKBS Externalizing scale and the three PKBS subscales (AP/O, SC/E, A/A) were significantly lower than the similar ASCA dimension. Medium effect sizes (Glass' Δ) for significantly different scales ranged from .43 to .58 standard deviation units. The PKBS Social Withdrawal subscale had

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Descriptive Statistics and t-	Tests for ASCA a	and PKBS Glob	al Scale/Syndrome	e and
Selected Subtest/Syndrome	Comparisons		-	

					959	6 CI
Scale/Syndrome	М	SD	t	Δ	Lower	Upper
ASCA OVR	54.28	11.07	9.86*	.58	4.66	7.00
PKBS Ext. Prob.	48.45	12.04				
ASCA UNR	48.14	10.28	-2.65	.27	-4.74	-0.69
PKBS Int. Prob.	50.85	10.70				
ASCA ADH	53.85	11.96	6.83*	.43	3.04	5.51
PKBS AP/O	49.57	12.33				
ASCA SAP	51.50	9.51	5.31*	.50	3.13	6.86
PKBS SC/E	46.51	10.79				
ASCA OPD	51.40	10.51	6.34*	.49	3.36	6.42
PKBS SC/E	46.51	10.79				
ASCA SAP	54.73	11.94	4.79*	.43	2.51	6.05
PKBS AA	50.45	12.40				
ASCA SAI	51.50	9.51	1.28	.11	-0.58	2.68
PKBS AA	50.45	12.40				
ASCA OPD	51.40	10.51	1.05	.09	-0.85	2.74
PKBS AA	50.45	12.40				
ASCA AVO	47.05	8.97	-5.66*	.56	-7.55	-3.64
PKBS SW	52.65	11.17				
ASCA DIF	49.19	9.84	0.13	.01	-1.87	2.14
PKBS ASP	49.05	9.88				

Note. ASCA = Adjustment Scales for Children and Adolescents, PKBS = Preschool and Kindergarten Behavior Scales, OVR = Overactivity, UNR = Underactivity, ADH = Attention-Deficit Hyperactive, SAP = Solitary Aggressive (Provocative), SAI = Solitary Aggressive (Impulsive), OPD = Oppositional Defiant, DIF = Diffident, AVO = Avoidant, Ext. Prob. = Externalizing Problems, Int. Prob. = Internalizing Problems, AP/O = Attention Problems/Overactive, SC/E = Self-Centered/ Explosive, AA = Antisocial/Aggressive, SW = Social Withdrawal, A/SP = Anxiety/Somatic Problems. Δ = Glass' Delta (effect size estimate; Glass & Hopkins, 1996).

*p < .05 (Bonferroni adjusted $\alpha = .005$).

a significantly higher mean score than the ASCA Avoidant syndrome, and the mean difference was .56 standard deviation units.

DISCUSSION

The present results provided strong convergent evidence of construct validity for the global PKBS Externalizing Problems scale and ASCA Overactivity syndrome with 71% shared variance. This result is similar to that found by Merrell (1994a, 1995a) in comparisons with the Social Skills Rating System (SSRS; Gresham & Elliott, 1990). As expected, the PKBS Externalizing Problems scale and ASCA Underactivity syndrome produced a near-zero (r = -.06) correlation providing divergent evidence of construct validity. This is a much lower correlation than was found between the PKBS Externalizing Problems scale and the SSRS Internalizing scale (r = .46) (Merrell, 1994a, 1995a). These findings also replicate those reported by Canivez and Bordenkircher (2002).

At the subscale/core syndrome level, however, *all* PKBS Externalizing Problems subscales (SC/E, AP/O, and A/A) were significantly and moderately to highly correlated with *all* ASCA Overactivity core syndromes (ADH, SAP, SAI, and OPD). There was a moderate degree of overlap among these subscales, suggesting little differentiation for this sample. As expected, the PKBS Externalizing subscales had much lower correlations with the ASCA Underactivity core syndromes (DIF and AVO) (see Table 1) as hypothesized, and divergent validity was supported by the low to near-zero correlations—findings also observed by Canivez and Bordenkircher (2002).

As in the Canivez and Bordenkircher (2002) study, convergent and divergent evidence of construct validity was mixed for the PKBS Internalizing Problems scale and ASCA Overactivity and Underactivity syndromes, as there were equivalent correlations obtained between these scales. It was hypothesized that the PKBS Internalizing Problems scale would have higher correlation with the ASCA Underactivity syndromes than the ASCA Overactivity syndromes. At the subtest/ core syndrome level, the PKBS Internalizing Problems subscales (SW and A/SP) correlated as high or higher with the ASCA Overactivity core syndromes (ADH, SAP, SAI, and OPD) than with the ASCA Underactivity core syndromes (DIF and AVO). The better agreement (higher correlations) between the externalizing dimensions of the PKBS and ASCA is probably because externalizing behaviors are more readily observable and require substantially less inference on the part of the raters, and scales measuring observable, overt behaviors are more reliable.

In order to further explore and explain these results, correlations *within* the PKBS and ASCA were calculated to investigate the degree of overlap among the global scales and subscales within each behavior rating scale as was done in the Canivez and Bordenkircher (2002) study. Table 3 presents the intercorrelation matrix for the ASCA, and Table 4 presents the intercorrelation matrix for the PKBS.

As seen in Table 3, the ASCA Overactivity and Underactivity syndromes correlation (r = -.04) indicated scale independence as was found in the standardization sample (McDermott, 1994) and in Canivez and Bordenkircher (2002). For the PKBS (see Table 4), the Externalizing Problems scale and Internalizing Problems scales correlation (r = .62) indicated 38% overlap between these scales, a finding also observed in the PKBS standardization sample (r = .66) (Merrell, 1994a) and in Canivez and Bordenkircher (2002) (r = .69). This overlap is also greater than that observed for the Behavior Assessment System for Children–Teacher Rating Scale (BASC-TRS; Reynolds & Kamphaus, 1992) (r = .46) and greater than that obtained for the Child Behavior Checklist–Teacher Report Form (CBCL-TRF; Achenbach, 1991) (referred children $M_r = .35$, nonreferred children $M_r = .41$).

At the subtest level, correlations between the four ASCA Overactivity core syndromes (ADH, SAP, SAI, and OPD) were moderately high ($Mdn_r = .53$) and somewhat higher than those obtained in the ASCA standardization sample ($Mdn_r = .46$) (McDermott, 1994). Correlations between the

Table 3Pearson Product-Moment Correlation Coefficients Among Adjustment Scales for Children andAdolescents (ASCA) Global Scales, Core Syndromes, and Supplementary Syndromes

			Adjustme	nt Scales for	Children and	l Adolesc	ents (ASC	A)		
ASCA	OVR	UNR	ADH	SAP	SAI	OPD	DIF	AVO	DEL	LEH
OVR										
UNR	04									
ADH	.93***	09								
SAP	.78***	.01	.69***							
SAI	.62***	.06	.52***	.53***						
OPD	.65***	.07	.42***	.58***	.42***					
DIF	15	.93***	17	10	04	02				
AVO	.15	.72***	.10	.18*	.13	.12	.46***			
DEL	.39**	.31*	.40**	.40**	.44***	.11	.03	.49***		
LEH	.32***	.48***	.34***	.27**	.14	.11	.39***	.52***	.42***	

Note. OVR = Overactivity, UNR = Underactivity, ADH = Attention-Deficit Hyperactive, SAP = Solitary Aggressive (Provocative), SAI = Solitary Aggressive (Impulsive), OPD = Oppositional Defiant, DIF = Diffident, AVO = Avoidant, DEL = Delinquent, LEH = Lethargic (Hypoactive). N = 123 except for the ASCA Delinquency scale, n = 59, as the ASCA Delinquency scale is not scored for females under 12.

 $p^{*} < .05; p^{*} < .01; p^{*} < .001.$

three PKBS Externalizing Problems subscales (SC/E, AP/O, and A/A) were higher ($Mdn_r = .86$) and indicated greater overlap (redundancy) as was observed in the PKBS standardization sample ($Mdn_r = .79$) (Merrell, 1994a). The correlation between the two ASCA Underactivity core syndromes (DIF and AVO, r = .46) was somewhat higher than in the ASCA standardization sample (r = .33). The correlation between the PKBS Internalizing Problems subscales (SW and A/SP) (r = .69) was higher than the ASCA DIF and AVO syndromes and about equal to that found in the PKBS standardization sample (r = .64) (Merrell, 1994a). Correlations between the ASCA Overactivity core syndromes and ASCA Underactivity core syndromes ranged from -.17 to .18 ($Mdn_r = .05$) and indicated independence of the ASCA Overactivity and Underactivity core syndromes. This was similar to what was found in the ASCA standardization sample ($Mdn_r = .06$) and in Canivez and Bordenkircher (2002) ($Mdn_r = .09$). The correlations between the PKBS Externalizing Problems subscales and Internalizing Problems subscales ranged from .32 to .72 ($Mdn_r = .54$) and were similar to correlations found in the PKBS standardization sample ($Mdn_r = .55$) (Merrell, 1994a).

What these intercorrelations indicate is that in this sample, in Canivez and Bordenkircher (2002), and in the respective standardization samples, the ASCA core syndromes and overall adjustment syndromes demonstrated less overlap and thus greater syndrome independence than that observed in the PKBS subscales and global problem behavior scales. As such, the lack of convergent validity for the PKBS Internalizing subscales and global syndrome may be due to the greater overlap among *all* problem behavior scales (Externalizing Problems and Internalizing Problems) observed in the PKBS.

Comparisons of global scale and subscale means indicated that in five comparisons, scores on the PKBS were significantly lower than on the similar ASCA syndrome. One comparison (PKBS SW vs. ASCA AVO) produced a significantly higher PKBS mean score. The differences also reflected medium effect sizes (Δ s ranging from .43 to .58). One reason for these differences may

				Preschool ⁶	and Kindergar	ten Behavior	Scales (PKB5	S)			
PKBS		Social	Skills				Pro	blem Behavio)rs		
Social skills	SC	SInt	SInd	SS Total	SC/E	AP/O	A/A	Ext. Prob.	SW	A/SP	Int. Prob.
SC											
SInt	.54***										
SInd	.50***	.83***									
SS Total	.73***	.92***	.91***								
Problem behaviors											
SC/E	82***	41***	37***	57***							
AP/O	85***	47***	42***	63***	.86***						
A/A	83***	41***	30***	55***	.88***	.88***					
Ext. Prob.	87***	45***	38***	61***	.96***	.95***	.96***				
SW	68***	72***	70***	76***	.72***	.69***	.62***	.72***			
A/SP	34***	46***	56^{**}	49***	.46***	.42***	.32***	.42***	.69***		
Int. Prob.	56***	65***	69***	68***	.64***	.61***	.52***	.62***	.92***	.92***	
<i>Note.</i> PKBS = P. Self-Centered/ Explo Anxiety/ Somatic Pro *p < .05; **p <	eschool and Kir sive, AP/O = A blems, Int. Prot .01; *** $p < .0$	ndergarten Beha Attention Probleı . = Internalizin; 01.	vior Scales, SC ms/Overactive, g Problems. N =	= Social Coope AA = Antisoci = 123.	eration, SInt = ial/Aggressivε	Social Intera 2, Ext. Prob. =	ction, SInd = = Externalizi	Social Indepe ng Problems,	ndence, SS = SW = Social	Social Skills, Withdrawal,	SC/E = A/SP =

 Table 4

 Pearson Product-Moment Correlation Coefficients Among Preschool and Kindergarten Behavior Scales Subscales and Global Scales

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be in the difference in the norms for these two nationally standardized instruments. The ASCA is exclusively a teacher report instrument and the norms are solely based on teacher ratings. However, teachers, parents, or others familiar with the child may complete the PKBS. The norms of the PKBS contain both teacher *and* parent ratings of children selected for the normative sample. Differences between teacher and parent ratings were investigated for 102 preschoolers rated by both teachers and parents and mixed results were obtained (4 of 10 PKBS scales showing significant differences). It is unknown what differences are present in the PKBS norms. It is possible that ratings by parents may have been different from ratings by teachers in the normative data due to differences in perceptions, expectations, behavioral control, and settings in which the child's behavior was observed. This might produce differences when comparing the PKBS to rating scales based on one type of informant (teacher) such as the ASCA or BASC-TRS (Reynolds & Kamphaus, 1992).

Another possible reason for significant differences between the ratings could be in the way in which items are rated or endorsed. The ASCA provides contextually based questions and lists representative behaviors that the rater then selects as most appropriate for that child in that situation. Each behavior listed is a separate item and is dichotomously scored. The PKBS utilizes a 4-point rating scale for each item in which the rater provides an indication as to how frequently the child engages in the specified behavior. It is possible that differences in the method of rating might also have impacted rating differences.

Several limitations need to be considered in evaluating the results from this study. One limitation is that all students rated in the present study were from rural areas of the Midwest and were primarily Caucasian. They cannot be considered representative of the population at large and generalization to other racial/ethnic groups or geographic regions is not possible. Another limitation is that only 38 teachers volunteered to participate. Although the number of teachers in this study exceeds that of the Canivez and Bordenkircher (2002) study (n = 12), the sample of teachers is still limited and may have biased the results. Future research comparing the PKBS and ASCA should attempt to utilize larger and more representative samples of teachers as well as larger and more representative samples of students to improve generalizability. To further explore the construct validity of these two scales, joint exploratory factor analyses and confirmatory factor analyses may also be used in order to examine the latent dimensions measured by the subscales. This, however, would require a larger sample than available in the present study.

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