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Concurrent Validity of the Anxiety Disorders Section of the Anxiety Disorders Interview Schedule for *DSM–IV*: Child and Parent Versions

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Evaluated the concurrent validity of the Anxiety Disorders Interview Schedule for the Diagnostic and Statistical Manual of Mental Disorders (4th ed. [DSM–IV], American Psychiatric Association, 1994): Child and Parents Versions (ADIS for DSM–IV–C/P; Silverman & Albano, 1996) social phobia, separation anxiety disorder (SAD), generalized anxiety disorder (GAD), and panic disorder diagnoses. Children referred to an outpatient anxiety disorder clinic (N = 186; ages 8 to 17), and their parents completed the Multidimensional Anxiety Scale for Children (MASC; March, 1998) and the ADIS–C/P interview. There was no convergence between MASC scores and ADIS–C/P GAD diagnoses. However, there was strong correspondence between ADIS–C/P social phobia, SAD, and panic disorder diagnoses and the empirically derived MASC factor scores corresponding to these disorders. These results provide support for the concurrent validity of the anxiety disorders section of the ADIS–C/P.

Anxiety disorders are among the most common disorders experienced by children and adolescents, and research on the ontogeny and treatment of childhood anxiety disorders has increased substantially in the past decade (Lewinsohn, Hops, Roberts, Seeley, & Andrews, 1993; Schniering, Hudson, & Rapee, 2000). Although child anxiety disorders have traditionally been difficult to diagnose reliably with structured interviews (Edelbrock & Costello, 1990; Langley, Bergman, & Piacentini, in press), previous versions of the Anxiety Disorders Interview Schedule (ADIS) for Children have exhibited impressive psychometric properties for this class of disorders (cf. Silverman & Eisen, 1992). In this study, we test the concurrent validity of anxiety disorder diagnoses generated by the current version of the ADIS, the ADIS for *Diagnostic and Statistical* Manual of Mental Disorders (4th ed. [DSM-IV], American Psychiatric Association, 1994): Child and Parents Versions (ADIS for DSM-IV: C/P; Silverman & Albano, 1996).

Recent advances in the study of anxiety disorders have been spurred in part by the development of newer measures specific to anxiety disorders, including the ADIS for DSM-IV: C/P. Current and previous versions of the ADIS-C/P, based on Diagnostic and Statistical Manual of Mental Disorders (3rd ed. [DSM-III], American Psychiatric Association, 1980; 3rd ed., rev., [DSM-III-R], American Psychiatric Association, 1987) criteria, exhibited excellent interrater and test-retest reliability (e.g., Rapee, Barrett, Dadds, & Evans, 1994; Silverman & Eisen, 1992; Silverman, Saavedra, & Pina, 2001) and have been sensitive to treatment-produced changes in recent clinical trials (e.g., Barrett, Dadds, & Rapee, 1996; Kendall et al., 1997; Silverman, Kurtines, Ginsburg, Weems, Lumpkin, et al., 1999; Silverman, Kurtines, Ginsburg, Weems, Rabian, et al., 1999). However, similar to most diagnostic interview schedules for children (cf. Schniering et al., 2000; Spence, 1997), there has been little research on the concurrent validity of specific anxiety disorder diagnoses generated by the ADIS-C/P.

There are some indications that distinguishing between the separate anxiety disorders may be a difficult measurement task. For instance, the high level of comorbidity among the anxiety disorders (Masi, Mucci, Favilla, Romano, & Poli, 1999) and the recent trend of grouping multiple anxiety disorders together as target diagnoses for the same cognitive behavioral treatment approach (e.g., Barrett et al., 1996; Kendall et al., 1997) suggest that there is substantial overlap of clinical features between the different anxiety disorders. This overlap may increase the challenge of differential diagnosis for an interview schedule. This study examined the concurrent validity of four anxiety disorder diagnoses generated by the current ADIS for *DSM–IV*:

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C/P interview: social phobia, separation anxiety disorder (SAD), generalized anxiety disorder (GAD), and panic disorder.

The concurrent validity of a diagnostic category is typically demonstrated in two ways: by strong interrelations among independent assessment methods of the same diagnostic construct (convergent validity) and by weak interrelations among measures assessing conceptually separate diagnostic constructs (discriminant validity; Campbell & Fiske, 1959). Assessment of the concurrent validity for many diagnostic categories, including anxiety disorders, has been complicated by the lack of an objective validation standard for the disorders in question (Piacentini et al., 1993; Robins, 1985). In this study, the Multidimensional Anxiety Scale for Children (MASC; March, 1998) was selected as the primary validating criterion. The MASC is arguably the best normed and psychometrically strongest broadband child anxiety rating scale currently in use (March, Parker, Sullivan, Stallings, & Conners, 1997; March, Sullivan, & Parker, 1999). More important, the MASC factor structure was empirically derived and corresponds in relatively close fashion to the DSM-IV anxiety disorders covered by the ADIS-C/P (March, 1998). Other recent studies of child diagnostic interviews have also used self-report measures of anxiety symptoms as validating criteria (e.g., Kaufman et al., 1997; Kasius, Ferdinand, van den Berg, & Verhulst, 1997).

Research on the concurrent validity of child anxiety disorders as measured by structured interviews is very limited at the level of specific anxiety diagnoses and results have been inconsistent. Kasius et al. (1997) failed to find the predicted relation between the Child Behavior Checklist (Achenbach, 1991) scale scores and anxiety disorders as assessed by the Diagnostic Interview Schedule for Children. However, this finding is not totally unexpected, since Child Behavior Checklist subscales correspond to relatively broad areas of psychopathology rather than discrete anxiety symptom clusters. Boyle et al. (1997) found very modest "case" agreement when mother-report questionnaire scores were dichotomized at "clinical" cut points and compared with Diagnostic Interview for Children and Adolescents (DSM-III-R version) diagnoses of Overanxious Disorder and SAD ($\kappa s = .31$ to .37). Ginsburg, La Greca, and Silverman (1998) found that children diagnosed with social phobia (as assessed by DSM-III-R version of the ADIS) had higher scores on a self-report measure of social anxiety than did children with other anxiety disorders. In two studies using the ADIS-C/P (DSM-IV version), 31 outpatient school-age children with GAD scored higher on self-reported worry than did 13 children with other anxiety disorders (Tracey, Chorpita, Douban, & Barlow, 1997), and 9 outpatient children diagnosed with panic disorder scored higher on self-reported physiological symptoms than did 91

children with other anxiety disorders or depression (Chorpita, Plummer, & Moffitt, 2000).

The studies by Tracey et al. (1997) and Chorpita et al. (2000) provide preliminary evidence for the convergent and discriminant validity of childhood panic disorder and GAD as assessed by the ADIS for DSM-IV: C/P. However, panic disorder is rare in children, and the concurrent validity of ADIS for DSM-IV: C/P diagnoses of social phobia and SAD has not yet been evaluated to our knowledge. The primary goal of this study was to evaluate the concurrent validity of social phobia, SAD, GAD, and panic disorder as assessed by the ADIS-C/P. In addition, the validity of child reports of internalizing symptoms such as anxiety has been debated in the literature (e.g., Edelbrock & Costello, 1990) due to concerns about children's understanding of questionnaire items as well as their ability to make meaningful ratings on Likert scales. Therefore, a secondary goal of the study was to test if self-report ratings made by younger (i.e., preadolescent) children would converge as closely with ADIS-C/P anxiety diagnoses as would ratings made by adolescents

We sought to test the convergent and discriminant validity of the ADIS–C/P diagnoses of social phobia, SAD, GAD, and panic disorder by comparing the mean MASC factor scores of children who met criteria for each of these diagnoses with the mean scores of those who did not. The perspective adopted in this study was that the empirically derived and psychometrically sound MASC questionnaire would be the validating criterion for assessing the concurrent validity of anxiety disorder diagnoses generated by the ADIS–C/P.

Method

Participants

Participants were drawn from a consecutive series of children, ages 8 to 17 years, undergoing diagnostic evaluation at a university hospital based clinic specializing in the diagnosis and treatment of childhood anxiety and related disorders. The final sample consisted of 186 children (100 boys and 86 girls; mean age = 11.71 years, SD = 2.64 years). The racial/ethnic composition of the sample was: White (77%), Asian American (5%), Hispanic (4%), African American (2%), and "other" (12%). Hollingshead's (1975) socioeconomic status index ratings indicated a primarily middle-class sample (1 = low, 9 = high; M = 7.37, SD = 1.53).

Procedure

At clinic intake, the ADIS for *DSM–IV*: C/P was administered to each child and his or her parent(s) by a doctoral student in clinical psychology or a doctoral-level psychologist. All diagnosticians were trained by the director or associate director of the clinic according to procedures recommended by the ADIS developers (A. M. Albano, personal communication, 1997). Training involved attending a presentation on the administration of the interview, observing and coding a videotaped interview, co-rating multiple live interviews conducted by a trained diagnostician, and, finally, assuming satisfactory completion of the earlier steps, conducting at least one interview using the ADIS–C/P while under the supervision of a trained diagnostician.

A single diagnostician administered the ADIS-C/P first to the parents and then to the child. While the parents were being interviewed, the child completed the self-report measures under the supervision of a trained research assistant. Following this, the diagnostician interviewed the child while the parent(s) completed questionnaires. In most cases, one primary parent brought the child in for the intake evaluation, although both biological parents and additional adult caregivers (e.g., grandparents or other relatives living in the home) sometimes attended and provided information for a significant proportion of youngsters. A licensed clinical child psychologist supervised each intake evaluation. Prior to the start of the clinical evaluation, parents provided informed consent and youngsters' assent, for the use of their intake data for research purposes.

Diagnosticians reviewed symptom and interference reports from both the parent and child interviews, giving particular weight to converging reports. When DSM-IV symptom criteria were met, final decisions about diagnoses were based on the diagnostician's judgment as to whether the distress or interference that children or parents reported was clinically significant and was attributable specifically to the symptom profile in question. In general, positive reports from either parent or child (the "or" rule) were considered sufficient for rating a criterion as present (Piacentini, Cohen, & Cohen, 1992). Following the ADIS-C/P protocol, diagnosticians also made ratings on a 0 to 8 severity scale, with ranges from 0 (not at all) to 4 (some) to 8 (very, very much), for each assigned diagnosis (cf. Silverman & Albano, 1996). Questionnaire data were not considered by clinicians during the diagnostic process.

Sixty-six percent of cases, regardless of primary diagnosis, were reviewed by a diagnostic review team, including at least one licensed clinical psychologist experienced in the diagnosis and treatment of childhood anxiety disorders and clinical psychology doctoral students. During these meetings, the diagnostician presented the symptoms reported by the child and his or her parents during the ADIS–C/P interview to the team but did not reveal the *DSM–IV* diagnoses that he or she had assigned to the child. The team members then came to their own decision about each child's *DSM–IV* diagnostic profile, including severity ratings for each diagnosis on the 0 to 8 severity scale. Similar to clinician diagnoses, consensus diagnoses and Clinical Rating Scale (CRS) ratings were made blind to questionnaire information, ensuring that the review team based their diagnoses only on ADIS interview data. Agreement between clinician and consensus diagnoses should not be construed as a measure of interrater reliability given the lack of independence between the two diagnostic procedures and the resultant potential for bias. Nevertheless, the level of clinician-review team agreement provides some index of the accuracy of the ADIS–C/P diagnoses generated in this study. Unfortunately, a formal interrater reliability procedure was not feasible in the fee-for-service clinical setting in which the study was conducted.

Measures

ADIS for DSM-IV: C/P. The ADIS for DSM-IV: C/P (Silverman & Albano, 1996) is a semistructured interview that assesses the major anxiety, mood, and externalizing DSM-IV disorders experienced by school-age children and adolescents. The current version possesses good to excellent test-retest reliability for both symptom scales and diagnoses (Silverman et al., 2001). Earlier versions of the ADIS based on DSM-III and DSM-III-R criteria had favorable psychometric properties (e.g., Rapee et al., 1994; Silverman & Eisen, 1992; Silverman & Nelles, 1988). Several studies provide evidence that the ADIS-C/P is sensitive to treatment-related changes (Barrett et al., 1996; Kendall et al., 1997; Silverman, Kurtines, Ginsburg, Weems, Lumpkin, et al., 1999; Silverman, Kurtines, Ginsburg, Weems, Rabian, et al., 1999).

MASC. The MASC (March, 1998) is a standardized 39-item self-report measure of anxiety yielding four factor scores. Each item is rated on a 4-point Likert-type response scale ranging from 0 (*never true about me*) to 3 (*often true about me*). The four factor scales were empirically derived through principal components analysis and include Social Anxiety (9 items), Separation Anxiety (9 items), Harm Avoidance (9 items), and Physical Symptoms (12 items). Cronbach's α s for these four scales in this sample were .82, .70, .64, and .79, respectively. These α s are comparable to those reported by March et al. (1997), which ranged from .74 to .85.

To provide an additional test of validity (and one not based solely on child report), a parent report version of the MASC (MASC–P) was also administered. MASC–P items are identical to the MASC items but with nouns and pronouns altered to match the parent's perspective (i.e., "My child..." instead of "I..."). March et al. (1997) provided some psychometric data on a parent version of the MASC, although he and his colleagues have not published norms for this instrument. March et al. found that parent–child agreement was variable, ranging from r = .08 to .71 depending on the scale and parent–child pair (but four of eight correlations were above .55). In this study, we also found significant parent–child agreement on the MASC scales, with correlations for corresponding child and parent scales ranging from .21 to .58 (McLeod, Piacentini, & Bergman, 2001). Cronbach's α s for the MASC–P Social Anxiety, Separation Anxiety, Harm Avoidance, and Physical Symptoms scales in this sample were .85, .72, .68, and .81, respectively. Because *T* scores are not available for the MASC–P, raw scores are reported for both parent and child scores to improve the comparability of results.

Data Analysis

To test the convergent and discriminant validity of the ADIS-C/P diagnoses of social phobia, SAD, GAD, and panic disorder, we compared the mean MASC factor scores of children who met criteria for each diagnosis with the mean scores of those who did not. Initially, multivariate analyses of variance (MANOVAs) were conducted. In each MANOVA, the four child MASC scales and four parent MASC scales (for a total of eight scales) served as the multivariate set of dependent variables. If the omnibus F statistic for the MANOVA was significant for a given diagnosis, post hoc pairwise comparisons were conducted for each MASC scale. These analyses were Bonferroni protected (with α = .05, the p value for each test, given eight pairwise tests, was .00625). Separate logistic regression analyses were planned as a more conservative test of convergence between MASC scale scores and each of the four ADIS–C/P anxiety disorder diagnoses. In each model, all four MASC scales were entered as covariates simultaneously to predict the children's diagnostic status. Models were run separately for children's and parents' MASC scores. These logistic regressions provided a test of the association between each specific ADIS-C/P diagnosis and the corresponding MASC scale while controlling for scores on the other MASC scales. Logistic regression was also used to test for a possible moderating role of child age in the convergence between MASC scores and ADIS-C/P diagnostic status.

Results

Sample

A total of 84 children met criteria for one or more of the four target diagnoses: social phobia (n = 32), SAD (n = 25), GAD (n = 52), and panic disorder (n = 9). An additional 64 children met criteria for obsessive-compulsive disorder (OCD; n = 59) or simple phobia (n = 5) but no other anxiety disorder, and these children were included in the anxiety-disordered comparison group. Therefore, the primary analyses comparing children with a target anxiety disorder against children with anxiety disorders other than the target diagnosis were based on a sample size of 148 children.

The number of total diagnoses assigned for each child in the anxiety disorder group ranged from 1 to 5 (M = 2.34, SD = 1.05), and the number of *anxiety* diagnoses assigned ranged from 1 to 4 (M = 1.55, SD = .76). Comorbidity was relatively high in this sample, with almost half of the children (n = 61; 41%) meeting criteria for more than one anxiety disorder. Children diagnosed with GAD were especially likely to have an additional anxiety disorder (n = 40, 78%), with OCD (49%) and social phobia (31%) being the most common. Aside from additional anxiety diagnoses, the most common comorbid disorders were attention deficit hyperactivity disorder (n = 34; 23%), dysthymia, or major depressive disorder (n = 21; 14%), Tourette's disorder or other tic disorders (n = 20; 14%), and oppositional defiant disorder or conduct disorder (n =13;9%).

Non-Anxious Comparison Group

An additional 38 children ages 8 to 17 (22 boys and 16 girls; mean age = 10.95) met criteria for a non-anxiety disorder or, in two cases, no disorder, and served as the clinical comparison group. These children did not differ significantly from the children with anxiety disorders in terms of age or sex. Primary diagnoses in this group included Trichotillomania (n = 13), Tourette's disorder (n = 11), externalizing disorders (n = 6), and other disorders in the anxious sample and the non-anxious comparison group is attributable to the nature of the clinic, which serves children with anxiety and tic disorders, and to the high comorbidity between OCD and tic disorders.

Agreement Between Clinicians and the Diagnostic Review Team on Child Diagnoses

A total of 98 (66% of eligible) cases involving an anxiety disorder were presented to the diagnostic review team by the intake clinician for diagnostic confirmation. Agreement between clinician and consensus diagnoses was excellent as assessed by the kappa coefficient (social phobia, $\kappa = .94$; SAD, $\kappa = .95$; GAD, $\kappa = .82$; panic disorder, $\kappa = .93$). Intraclass correlation coefficients calculated between the clinician and consensus team-generated ADIS–CSR scale scores (range 0 to 8) for each positive diagnosis were also good (social phobia, .75; SAD, .77; GAD, .77; panic disorder, .74).

Convergence between ADIS–C/P Anxiety Disorders and MASC Scale Scores

Social phobia. The initial MANOVA comparing children diagnosed with social phobia to children who met criteria for an anxiety disorder other than social phobia on all eight child and parent MASC scales was significant, F(7, 130) = 2.83, p < .01. Pairwise comparisons revealed that children with social phobia scored significantly higher on the MASC Social Anxiety scale but no other MASC scale when compared with children with other anxiety disorders (see Table 1). An identical pattern of results was found when parent MASC-P ratings were used, indicating a strong degree of convergence between ADIS-C/P social phobia and MASC Social Anxiety scores (see Table 1). Receiver operating characteristic curve analysis indicated that the optimal cut-points for identifying children with social phobia were 13.5 on the child MASC Social Anxiety scale (sensitivity, .63; specificity, .64) and 16.5 on the MASC-P (sensitivity, .70; specificity, .63).

SAD. The MANOVA comparing children with SAD to children with other anxiety disorders was also significant, F(7, 130) = 3.81, p < .01. Children who were diagnosed with SAD scored significantly higher on the parent- and child-reported MASC Separation Anxiety and Harm Avoidance scales than did children with other

anxiety disorders (see Table 1). Cut-points for SAD identified in receiver operating characteristic analysis were 11.5 on the child MASC Separation Anxiety scale (sensitivity, .89; specificity, .68) and 13.75 on the MASC–P (sensitivity, .76; specificity, .72).

GAD. Children who were diagnosed with GAD did not differ from children with other anxiety disorders on the multivariate combination of the MASC scales based on the initial MANOVA, F(7, 130) = .70, *ns*. Means and standard deviations are presented in Table 1. These results suggest that children with GAD could not be differentiated from children with other anxiety disorders on the basis of their MASC scores.

Panic disorder. Very few children met criteria for panic disorder (n = 9), hence these results should be considered exploratory. Nevertheless, some evidence for the validity of the ADIS–C/P panic disorder category was found. The initial MANOVA comparing children diagnosed with panic disorder and those diagnosed with other anxiety disorders was significant, F(7, 130) = 4.13, p < .001. Children who met criteria for panic disorder scored significantly higher on both the MASC and MASC–P Physical Symptoms scales than did children with other anxiety disorder suggested by receiver operating characteristic analysis were 17.5 on

Table 1. Means and Standard Deviations for Child and Parent Reports of Child Anxiety Symptoms on the MASC Scales

Diagnosis	Social Anxiety		Separation Anxiety		Harm Avoidance		Physical Sx.	
	М	SD	M	SD	M	SD	M	SD
			Child MASC	Scale				
Social Phobia Dx $(n = 31)$	15.52	6.29 ^a	9.39	4.42	15.32	3.09	14.16	6.65
Other Anxiety Dx $(n = 116)$	11.59	5.95	9.73	5.16	16.29	4.77	13.75	6.81
SAD Dx $(n = 25)$	13.32	5.91	14.16	3.84 ^{a,b}	19.52	4.28 ^a	14.00	5.03
Other Anxiety Dx $(n = 122)$	12.17	6.19	8.73	4.71	15.36	4.36	13.74	7.06
GAD Dx $(n = 49)$	14.02	6.83	10.04	5.37	16.45	4.33	14.73	6.69
Other Anxiety Dx $(n = 98)$	11.69	5.78	9.56	4.84	15.95	4.56	13.35	6.78
Panic Disorder Dx $(n = 9)$	11.78	6.72	9.56	5.41	17.33	3.94	19.56	8.82 ^{a,b}
Other Anxiety Dx $(n = 139)$	12.49	6.19	9.70	4.99	16.02	4.50	13.45	6.44
Non-Anxiety Dx $(n = 35)$	12.36	5.56	8.48	4.52	16.37	4.28	11.62	5.70
]	Parent MASC	Scale				
Social Phobia Dx $(n = 32)$	19.17	5.13 ^{a,b}	11.44	5.25	16.25	3.50	13.74	7.43 ^b
Other Anxiety Dx $(n = 114)$	14.58	5.34 ^b	10.89	5.21	16.06	4.30	13.00	6.06 ^b
SAD Dx $(n = 24)$	15.13	6.50 ^b	15.88	3.96 ^{a,b}	18.42	3.08 ^{a,b}	13.83	6.72 ^b
Other Anxiety Dx $(n = 122)$	15.86	5.35 ^b	10.18	4.90	15.71	4.17	13.06	6.29 ^b
GAD Dx $(n = 51)$	16.20	5.13 ^b	12.02	4.56 ^b	16.93	4.15	13.95	6.10 ^b
Other Anxiety Dx $(n = 95)$	15.46	5.82 ^b	10.60	5.50	15.73	4.09	12.80	6.45 ^b
Panic Disorder Dx $(n = 8)$	12.63	5.04	14.50	5.04 ^b	20.75	4.74 ^{a,b}	20.45	4.11 ^{a,b}
Other Anxiety Dx $(n = 139)$	15.82	5.63 ^b	10.86	5.18 ^b	15.86	3.95	12.73	6.20 ^b
Non-Anxiety Dx $(n = 38)$	11.99	6.02	8.50	5.19	14.70	4.60	9.44	6.42

Note: Means represent MASC raw scores. Dx = diagnosis; Sx = symptoms; MASC = Multidimensional Anxiety Scale for Children; SAD = Separation Anxiety Disorder; GAD = Generalized Anxiety Disorder.

^aMean differs from the "Other Anxiety Dx" group mean, p < .05 (Bonferroni corrected). ^bMean differs from the "Non-Anxiety Dx" group mean (i.e., bottom row), p < .05 (Bonferroni corrected).

the child MASC Physical Symptoms scale (sensitivity, .67; specificity, .72) and 18.5 on the MASC–P (sensitivity, .88; specificity, .83). Thus, although power was limited by the small number of participants in the target group, preliminary evidence suggested that child and parent reports of children's physical symptoms converged with ADIS–C/P panic disorder.

Comparison With the Non-Anxious Clinical Comparison Group

MANOVAs were also used to compare the anxiety-disordered children to the children with non-anxiety disorders (see Table 1). Several significant between-group differences were found. Children who were diagnosed with SAD and panic disorder scored significantly higher on their corresponding MASC and MASC–P scales than did children with non-anxiety disorders. In addition, the MASC–P Social Anxiety scale was significantly higher for children with social phobia. Children with GAD were differentiated from children with non-anxiety disorders on several MASC–P scales, but not on any of the child MASC scales.

Logistic Regression Analyses

Follow-up logistic regressions were computed in which all four child MASC scales were entered as predictors of diagnostic status among children with anxiety disorders for (a) social phobia, (b) SAD, and (c) panic disorder. This procedure was repeated for the four parent-report MASC-P scales. Even when controlling for the other MASC scales, significant effects were found between the ADIS-C/P diagnoses and corresponding MASC and MASC-P scales: social phobia (MASC Social Anxiety scale; MASC: B = .16, p <.001; MASC–P: B = .18, p < .001), separation anxiety (MASC Separation Anxiety Scale; MASC: B = .21, p < .21.01; MASC-P: B = .26, p < .001), panic disorder (MASC Physical Symptoms scale; MASC: B = .19, p <.01; MASC-P: B = .23, p = .02). In addition, the MASC-P Separation Anxiety scale emerged as a significant predictor of panic disorder (B = -.25, p = .02).

Age Effects

To test for the effects of age on concordance between MASC ratings and ADIS–C/P diagnostic status, follow-up moderator analyses were performed with a hierarchical logistic regression procedure. Youth with anxiety disorders were dichotomized into "children" (ages 8 to 11, n=74) and "adolescents" (ages 12 to 17, n=74). In each logistic regression model, diagnostic status (e.g., SAD vs. other anxiety disorders) was predicted by the age dummy variable on Step 1, the pertinent MASC score (e.g., Separation Anxiety scale) on Step 2, and the interaction between the age dummy variable and the MASC score on Step 3. The interaction effect (Step 3) served as the test of moderation. No interaction effects were significant for MASC or MASC–P scores. Hence, there was no evidence that adolescents' MASC scores were more predictive of ADIS–C/P diagnostic status than were children's MASC scores.

Discussion

The results of this study provide strong support for the concurrent validity of the anxiety disorders section of the ADIS for DSM-IV: C/P. Both the ADIS-C/P social phobia and SAD diagnoses evidenced a significant and specific relation to their corresponding factors on the MASC rating scale. More specifically, MASC Social Anxiety factor scores, but no other factor scores, were significantly elevated for children meeting criteria for DSM-IV social phobia on the ADIS-C/P as compared to children meeting criteria for another anxiety disorder. In similar fashion, as compared to nonseparation anxious children, those with ADIS-C/P SAD evidenced significantly elevated scores on the MASC Separation Anxiety and Harm Avoidance factors, but no other factors. The pattern of correspondence between the ADIS-C/P social phobia and SAD diagnoses and the empirically derived MASC factor scores provides impressive evidence for the concurrent validity (both convergent and discriminant) of these two diagnoses. Provisional support was also obtained for the concurrent validity of panic disorder.

The convergence between MASC ratings and ADIS–C/P diagnoses of social phobia and SAD held for both parent and child reports on the MASC, as well as for both younger (8- to 11-year-old) and older (12- to 17-year-old) children. Despite doubts raised about the validity of child reports of internalizing symptoms as debated in the literature (e.g., Edelbrock & Costello, 1990), our findings suggest that even younger children may be able to provide important information about their experiences of social and separation anxiety.

Minimal support was found for the concurrent validity of ADIS–C/P GAD. The high level of comorbidity among children with GAD in this sample, although consistent with past findings in this area (e.g., Tracey et al., 1997), may serve to complicate interpretation of these analyses. However, the validity of GAD as a distinct diagnostic entity has been questioned by some researchers who note that GAD has tended to have the lowest interrater reliability coefficients and the highest rates of comorbidity of all of the anxiety disorders, suggesting that it is a disorder that is difficult to distinguish from the more specific anxiety syndromes such as social phobia or OCD (cf. Brown, Barlow, & Liebowitz, 1994).

However, it is also possible that our methods did not permit us to test adequately the convergent and discriminant validity of ADIS-C/P GAD by using MASC scale scores as a benchmark. The MASC Harm Avoidance scale contains three (of nine) items related to perfectionism, which is a feature common among children with GAD (DSM-IV). However, no Harm Avoidance items are related to excessive worry, which is the defining feature of GAD. Given the relatively poor correspondence between GAD criteria and any MASC scale, the lack of significant findings does not necessarily reflect poor concurrent validity of GAD as assessed by the ADIS-C/P. In a recent study that employed the ADIS for DSM-IV: C/P, children diagnosed with GAD scored higher than did other clinically anxious children on a measure of excessive worry (Tracey et al., 1997). Our results do not permit a conclusive statement about the concurrent validity of GAD as assessed by the ADIS-C/P.

The MASC was chosen as the primary validating criterion in this study because it is an empirically derived measure that corresponds closely to the *DSM–IV* grouping of anxiety disorders in children. The MASC is also arguably the best normed self-report measure of children's anxiety currently available, and the psychometric properties of the MASC are well established. Although our findings significantly enhance understanding of the psychometric properties of the ADIS–C/P, additional methodological studies, utilizing a variety of designs and validation criteria, are needed to fully establish the psychometric characteristics of this instrument.

In spite of our relatively robust findings, certain methodological limitations characterizing this investigation must be noted. Participating children were referred to a university-hospital-based clinic for treatment of anxiety-related problems, potentially limiting generalizability to unselected samples. Moreover, the fairly small sample of children with panic disorder precludes the ability to draw definitive conclusions about concurrent validity of this ADIS-C/P diagnosis. Although the child-report MASC is a popular paperand-pencil measure, the parent-report version of the MASC that we utilized is an exploratory measure (March et al., 1997), and analyses based on this measure should be viewed conservatively. Nonetheless, the parent-report MASC scales exhibited adequate internal consistency, and results with the MASC-P closely paralleled those obtained with the child-report MASC.

In addition, the study sample contained relatively high rates of children with OCD and tic disorders, which likely reflects the clinical research interests of our program. The non-anxiety disordered comparison group was primarily comprised of children with tic and impulse-control disorders. This raises potential concerns regarding the representativeness of the sample and the generalizability of the findings. As a result, the study results need to be replicated in more representative samples.

This investigation revealed convergence between ADIS for DSM-IV: C/P social phobia and SAD diagnoses and independent self-report ratings of these syndromes by children and their parents. A strength of this study is that it was based on a relatively large sample of clinically anxious children, permitting multivariate statistical procedures and reasonable estimates of population parameters. Overall, these results, especially when considered with Tracey et al.'s (1997) finding that GAD as assessed by the ADIS-C/P was uniquely associated with children's self-reports of worry, suggest that the ADIS-C/P is a valid measure of DSM-IV anxiety disorders in children and adolescents. Clinical scientists conducting treatment-outcome and descriptive research will benefit from the availability of an interview schedule capable of differentiating between the various anxiety disorders commonly seen in children.

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