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Syndromal Structure of Psychopathology in Children of Thailand and the United States

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Are the syndromes of child psychopathology similar across cultures? Yes, in most comparisons of Western cultures. Here the authors compared Thailand and the United States, Eastern and Western cultures differing markedly in racial/ethnic composition, religious–philosophical traditions, and beliefs and practices regarding children. Exploratory factor analysis and a useful kappa approach were used to compare Child Behavior Checklist factor structure in Thai and American children aged 6 to 11. A few syndromes (e.g., somatic problems) showed strong cross-cultural agreement; most did not. Among the narrowband syndromes (e.g., aggression, anxiety), more than half the cross-cultural comparisons showed concordance kappas at or below .40. Such differences in syndromal structure have implications for child classification, assessment, psychopathology, and treatment research, both across and within cultures.

Information on child psychopathology has expanded greatly in recent decades, but most of it has come from studies in Western countries. The restricted range of cultures sampled may limit our understanding, because findings from Western societies may not generalize to other cultures. Research in diverse cultures may be needed to fully describe child adaptation and psychopathology. Investigators have begun to address this problem through cross-cultural comparisons, most of which have focused on problem, symptom, or diagnostic prevalence (for a review, see Crijnen, Achenbach, & Verhulst, 1997). Such studies are useful in many ways, but they do not address a fundamental question: To what extent are the basic factors, or syndromes, of child psychopathology similar across cultures? These syndromes, groups of behavioral and emotional problems that co-occur, are generally operationally defined as the factors that emerge from principal-components analysis (PCA) or factor analysis (see, e.g., Achenbach, 1991, 1995).

Understanding syndromes in relation to culture is critical for multiple reasons. First, the ways in which child problems relate to one another to form syndromes define the structure of psychopathology; thus, learning whether these syndromes are similar or different across cultures will help characterize psychopathology in its global context. Second, syndromes are the building blocks of taxonomy; learning whether children in different cultures manifest the same syndromes can tell us whether the same classification system can encompass psychopathology equally well across cultures. Third, syndromes often become the basis for clinical assessment. The most prominent example in the child clinical area is the seminal work of Achenbach and colleagues (e.g., Achenbach, 1991, 1995), in which syndromes identified for the Child Behavior Checklist (CBCL) and related instruments are also scales of the Child Behavior Profile. The CBCL has been translated into at least 60 languages, and CBCL reports in countries around the world are scored using the U.S.-derived syndrome scales (see, e.g., Crijnen et al., 1997). Learning the extent to which child syndromes are similar across cultures may help clarify the extent to which U.S.-derived syndrome scales should be used as a standard for other cultures.

A fourth reason to assess syndrome similarity across cultures is to clarify whether adjustments are needed in the way cross-cultural prevalence studies are being structured. Most such studies have used U.S.-derived syndromes as the basis, with prevalence of these syndromes reported for each cultural group assessed. Published prevalence comparisons focused on U.S. CBCL syndromes can be found for more than 30 different cultures (see Achenbach, 1995; Bird, 1996). This approach to cross-cultural prevalence studies may be appropriate only to the extent that child syndromes are in fact the same across cultures.

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Finally, syndromes are increasingly used as the primary targets in development and testing of clinical interventions; indeed, nearly all the psychosocial treatment studies in the current National Institute of Mental Health grant portfolio are focused on specific syndromes (or combinations of them), either from the *Diagnostic and Statistical Manual of Mental Disorders* (American Psychiatric Association, 1994) or from empirical systems such as Achenbach's (1991). Therefore, whether syndromes are similar or different across cultures also may have implications for the focus, content, and testing of treatments for children in various sociocultural groups.

All these concerns touch on an important point often made in the cross-cultural literature—that is, the notion that "a nosological category developed for a particular cultural population [should not be applied] to members of another culture without establishing its validity for that culture" (Good & Good, 1985, p. 10; see also Bird, 1996; Kleinman, 1977; Rogler, 1989). In relation to the present article, the point is that if cultures actually differ in syndromal structure of child psychopathology, then it may not be wise to rely exclusively on syndromes derived from a single culture for (a) taxonomy building, (b) clinical assessment, (c) prevalence research, or (d) treatment development and evaluation.

Fortunately, some investigators have begun to address this issue, using the CBCL. One prominent group (Achenbach, Verhulst, Baron, & Althaus, 1987; De Groot, Koot, & Verhulst, 1994; Verhulst, Achenbach, Althaus, & Akkerhuis, 1988) has compared CBCL factor structure in samples from the United States and the Netherlands. In addition, Hartman et al. (1999) assessed CBCL factor structure across seven countries. Findings have differed somewhat across studies, with Achenbach, de Groot, Verhulst, and colleagues finding relative similarity of syndromes across cultures, and with Hartman et al. finding adequate fit of the U.S.-derived model on some model fit indices but not others, and poor fit in a simulation study.

These syndrome findings are valuable, but there are limitations. First, the studies have used mainly Western, Caucasian samples. Comparisons of ethnically and culturally similar samples, primarily from the West, may be less likely than comparisons of more ethnically and culturally distinct samples to identify syndromal differences. Second, the samples used in some prior research—for example, most of those in Hartman et al.—have been nonclinical and thus likely to show limited variability in problem levels, which can undermine efforts to form the most accurate and complete picture of clinical syndromes.

In the present study, we used the CBCL, as in previous studies; however, we sought a particularly stringent test of syndrome similarity by maximizing variation in both problem levels and culture. To maximize variability in problem levels, we used only clinic-referred children. To maximize cultural variation, we compared cultures that are more dissimilar on multiple dimensions than the cultures compared in prior research. We compared children in Thailand and the United States, two nations that differ markedly in racial and ethnic composition, religious and philosophical traditions, notions about childhood and child-rearing, and cultural practices, all in ways that appear relevant to the organization of child psychopathology (for details, see Weisz, McCarty, Eastman, Chaiyasit, & Suwanlert, 1997). In contrast to the United States, Thailand is a Buddhist country (95% of the population), where a high value is placed on politeness, interpersonal harmony, self-control, and restraint in emotional expression, and children are reared to be deferent, quiet, and obedient (Boesch, 1977; Limonanda, 1995; Moore, 1974; Suvannathat, 1979; Suwanlert, 1974). Open displays of strong emotion—either negative or positive—are discouraged, and children are taught to be *krengchai*, that is, humble, self-effacing, and careful not to inconvenience or disturb others (see Klausner, 1993; Mulder, 1985; National Identity Office, 1991; Suwanlert, 1974; Weisz et al., 1997).

Given the thin base of prior evidence on culture and child syndromes, and given the many ways the two countries differ, there was no strong basis for specific predictions about Thai versus U.S. syndromes. However, the numerous differences in cultural values and expectations for children do suggest that there may be cross-national differences in the behaviors and emotions that correlate with one another. Cross-national differences might be less likely for somatic complaints (e.g., headaches, stomach aches), whose medical–physical character may lend them coherence. We carried out comparisons not only for such narrowband syndromes as somatic complaints, but also for the broadband syndromes, internalizing and externalizing, that have been identified through second-order factor analyses of the CBCL (e.g., Achenbach, 1991).

Method

Measures

Child Behavior Checklist (CBCL). The U.S. psychopathology factors were derived from the CBCL (Achenbach, 1991; Achenbach & Edelbrock, 1983), a checklist of 118 specific problems (e.g., "cruel to animals," "feels dizzy"). Parents report whether their child has each problem, by circling 0 (*not true*), 1 (*somewhat or sometimes true*), or 2 (*very true or often true*). One-week test–retest reliability, through intraclass correlation coefficients (ICCs), was found to be .95 ($p < .01$; Achenbach & Edelbrock, 1981); Achenbach and Edelbrock (1983) and Achenbach (1991) report additional psychometric information.

Thai Youth Checklist (TYC). Thai factors were derived from the TYC, a Thai-language measure designed to parallel the CBCL, to permit cross-cultural comparison. The TYC format is the same as for the CBCL: Parents rate each problem item as 0, 1, or 2, and the 118 CBCL problems are listed as the first items and in the same order as on the CBCL.[1] CBCL items were translated into Thai through three waves of translation and back-translation (see Brislin, 1970; Draguns, 1982; Wagatsuma, 1977), aiming for linguistic parallels and simplicity of expression. All CBCL/TYC items refer to behaviors also seen in Thai children, and the translation is readily understood by Thai parents. One-week test–retest ICCs for Thai parents were .81 and .83 (both ps $< .01$) in two separate studies (Weisz et al., 1987, 1993).

Participants

American sample. We used results of the two main CBCL PCAs for comparison with the Thai data. In the first U.S. analysis, Achenbach and

[1] One exception was that, at the recommendation of Thai judges, we divided CBCL item #105, "Uses alcohol or drugs," into two TYC items: "Uses alcohol" and "Uses drugs." For the present analyses, we combined these two items, in effect forming a single problem item, as on the CBCL; the higher of the two parent ratings was used as the score for the composite item. The TYC also includes 24 problem items added specifically for Thai children; these are listed after the CBCL items, and were not included in the present study because they had no counterpart in the U.S. CBCL sample.

Edelbrock (1983) found different but partially overlapping sets of factors for boys and girls aged 6 to 11; second-order analyses revealed broadband Internalizing and Externalizing factors for both groups. The Achenbach and Edelbrock (1983) sample included CBCL parent (or guardian) reports for 900 clinic-referred youths—450 males and 450 females aged 6 to 11. The youngsters came from mental health clinics and programs mostly in the eastern United States; 81% were Caucasian, 17% African American, and 2% other. Achenbach (1991) reported another PCA of the CBCL, using an enlarged sample (i.e., all of the 1983 sample plus 1,181 additional children aged 6 to 11). The 1,181 added for the 1991 sample came from mental health clinics and service programs in the east, south, and midwest United States; 89% were Caucasian, 9% African American, and 2% other.

Thai sample. The Thai data included TYC parent (or guardian) reports for 924 youths—77 boys and 77 girls at each yearly age level from 6 through 11. As in the U.S. sample, all children were clinic-referred; six different mental health clinics and programs were represented, from urban and rural locations throughout Thailand. The sample was 98% ethnic Thai and 2% other (primarily Chinese).

Demographic and clinical similarity of Thai and U.S. samples. Hollingshead's (1975) nine-step socioeconomic status (SES) scale[2] was used to assess comparability of the Thai and U.S. participants in parent occupation. SES means were 4.5 for the Thai parents, 4.1 for the Achenbach–Edelbrock (Achenbach & Edelbrock, 1983) U.S. parents, and 4.8 for the Achenbach (1991) U.S. parents; means in the 4.0 to 4.9 range correspond to such parent occupations as skilled manual workers and solo business owners (e.g., shoe repair, taxi driver). Problem levels were also very similar across the samples. Mean total problem score was 54.7 and 54.5 for Thai and U.S. boys, respectively, and 51.1 and 52.1 for Thai and U.S. girls, respectively. We computed effect sizes for Thai–U.S. differences item by item; the mean effect size was less than .03, essentially zero. The distribution of effect sizes for boys and girls showed less variability than would be expected by chance in a normal distribution. So, the Thai and U.S. samples were highly similar in SES and problem levels.

U.S. Syndromes Used for Comparison to Thai Syndromes

The two PCAs carried out by Achenbach and Edelbrock (1983) and by Achenbach (1991) provided two somewhat different sets of U.S.-derived syndromes to which Thai syndromes might be compared. The Achenbach and Edelbrock (1983) analyses were conducted specifically for parent reports (as distinct from teacher reports and youth self-reports) and separately for each Age × Sex group (e.g., 6–11-year-old boys, 6–11-year-old girls). The syndromes reported by Achenbach (1991) reflected an approach designed to yield "cross-informant syndromes," that is, groups of problems found to co-occur in reports by at least two of the three informant groups sampled (i.e., parents, teachers, and youth), and across a majority of gender and age groups, with ages ranging from 4 to 18 (see descriptions in Achenbach, 1991, 1995). The cross-informant syndromes identified through this process have valuable clinical and research applications, for example, making it possible to compare syndrome scale scores directly across gender and age boundaries.

We used both the 1983 and 1991 U.S. syndromes as separate bases for comparison with Thai syndromes. The Achenbach and Edelbrock (1983) syndromes are important because they emerged from analyses controlling for type of informant, age, and gender effects; such analyses are more likely to capture the precise syndrome structure of the CBCL for the specific Age × Gender groups involved. The Achenbach (1991) syndromes are important because they are now the syndromes most widely used for both research and clinical purposes. By using both sets of U.S. syndromes for comparison, we were able to assess the extent to which syndromes in Thai children match (a) the syndromes identified in the most precise age-, gender-, and informant-specific assessment for American children (i.e., Achenbach & Edelbrock, 1983), and (b) the most current and widely used syndromes for American children (i.e., Achenbach, 1991).

Results

The basic conceptual question addressed in this study was whether similar psychopathology syndromes are found among children in Thailand and the United States. Choosing an analytic method appropriate to this question and to our data required consideration of several alternative methods.

Inappropriateness of Confirmatory Factor Analysis (CFA)

We considered CFA (Bollen, 1989), but two characteristics of our data made CFA inappropriate. First, the response scale for CBCL and TYC items is 0–1–2, generating ordinal rather than interval data. Second, as is common in psychopathology data, most items showed skewed distributions, with low scores (zero) more common than high scores (2). CFA has sometimes been used with ordinal data through the estimation and use of polychoric correlations (see, e.g., De Groot et al., 1994). For this approach to be valid however, the underlying data must be normally distributed; as Hartman et al. (1999) have noted, with psychopathology data such as CBCL responses, this is rarely the case. Nonetheless, we did attempt to compute polychoric estimates to assess feasibility. We used the following two programs: (a) Lisrel 7 (Joreskog & Sorbom, 1988), which was used by De Groot et al. (1994), and (b) Lisrel 8 (Joreskog & Sorbom, 1996), which was used by Hartman et al. (1999). With both programs, significant estimation problems occurred (e.g., failure to converge, with some positive Pearson *r*s estimated as negative polychoric correlations), ruling out the use of polychoric correlations.

We considered CFA using conventional covariance estimates rather than polychoric correlations. Technically, this is not appropriate because it assumes normally distributed, interval level data.[3] So, we assessed the effect of violating these assumptions, by comparing two CFA models, in both male and female samples. (1) A best-fit model, based on results of an exploratory factor analysis (EFA; described below); a CFA with this target should produce a very good fit, because the target was derived from the same data used in the CFA. (2) A single-factor model; a CFA with this target should produce a poor fit, because it ignores the factor structure found in the EFA. We compared the models using various CFA methods (e.g., generalized least squares, unweighted least squares) and fit statistics (e.g., root-mean-square error of approximation; normed fit index; Bollen, 1989), seeking a combination that produced (a) significant improvement from the single factor to the best fit model and (b) good fit for the best-fit model. No combination of CFA methods and fit statistics even approached these criteria. So, CFA was inappropriate for our data (see similar findings in other cross-cultural comparisons; for example, Church & Burke, 1994).

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[2] We make no assumptions about the validity of the Hollingshead scale for non-U.S. cultures. Our purpose here was simply to determine whether there were large differences in parent occupations across the two national samples. This required use of the same occupation rating system that had been used previously for the U.S. CBCL samples.

[3] Another approach to dealing with nonnormal data involves the use of diagonally weighted least squares estimation. However, for this approach to be valid, extremely large sample sizes are required.

EFA Procedure

So, like others comparing factors cross-culturally (e.g., McCrae & Costa, 1997), we used EFA, which is less dependent than CFA on the data distribution. Like Achenbach and Edelbrock (1983) and Achenbach (1991), we dropped items endorsed by less than 5% of the sample, and we used loadings of .30 as the cutoff for item inclusion within factors. To identify first-order factors, we used maximum likelihood factor analysis with squared multiple correlations as the prior communality estimates. To determine how many factors to retain, we inspected scree plots using Gorsuch's (1983) recommendations. Because research indicates that most psychopathology syndromes are correlated, we used a nonorthogonal promax rotation with no restrictions on factor intercorrelations. We carried out a second-order EFA on the factor correlation matrix derived from the first-order EFA. To name each factor, we ordered items from highest to lowest in their loadings on the factor, then identified a name that reflected what was common among the items that loaded, with higher loadings given greater emphasis than lower loadings.

Comparing Thai and U.S. Factors

To determine whether there were differences between the U.S. and Thai factor structures, we considered computing cross-national factor correlations (as in DeGroot et al., 1994). However, because correlations reflect similarities in rank ordering but not in level, it appeared that using correlations could produce misleading results. To illustrate, consider two factors derived from two different groups. In the first group, 10 items of a 20-item scale load greater than .40 on the factor, but in the second group, none of the 20 items loads on the factor (all items load less than .10). Clearly, these factors would have little in common conceptually. However, if the rank ordering of loadings is similar, the correlation of the factors can approach 1.00 (in simulated data, we found a correlation of .98 for such a situation). Thus, the use of cross-national correlations could produce misleading results. Another problem with the use of cross-national correlations is that a general factor underlies CBCL data (see, e.g., Hartman et al., 1999; in our data, a general factor explained about 25% of the covariance), and a general factor can produce large correlations between conceptually unrelated factors. For instance, in our Thai data, random sets of five variables correlated on average .55 with other random sets of five variables.

Because cross-national factor correlations thus seemed inappropriate, we used the following approach to assess similarity between Thai and U.S. factors. For each Thai and each U.S. factor solution, we selected Thai and U.S. factor pairs showing the most overlapping items. We then computed kappa coefficients to assess similarity, applying interpretive standards established by Landis and Koch (1977): kappas of .00–.20 are classified as *slight,* .21–.40 as *fair,* .41–.60 as *moderate,* .61–.80 as *substantial,* and .81–1.00 as *almost perfect.* To illustrate, for one comparison among males we compared the list of items loading on the Thai Aggressive, Hostile factor (see the Thai EFA reported below) with the list of items loading on the U.S. Aggressive factor, as reported in Achenbach and Edelbrock (1983). We computed kappa by classifying all of the relevant CBCL/TYC items as to whether they loaded on the Thai factor (yes/no) and on the U.S. factor,[4] and placing each item into one of four cells: (a) in both the Thai and U.S. factors, (b) in the Thai factor only, (c) in the U.S. factor only, or (d) in neither factor. The kappa value was .57, showing moderate factor agreement across cultures, following Landis and Koch. We repeated this process for all other Thai/U.S. factor pairs based on the Achenbach and Edelbrock (1983) child syndromes, then for all Thai/U.S. factor pairs based on the Achenbach (1991) child syndromes.

In contrast to cross-national correlations, evaluating factor similarity through concordance kappas ensures that factors showing strong similarity (i.e., large kappas) will show strong conceptual overlap, because factors are defined by the items that load on them. In addition, the concordance approach avoids the risk that conceptually unrelated factors (i.e., factors defined by different items) will show high correlations due to a general factor, because the concordance is based on the items that define the factor(s).

EFA Results

Thai boys. The EFA for Thai boys indicated the presence of eight factors, which we named as follows: (a) Aggressive, Hostile; (b) Anxious; (c) Somatic Problems; (d) Verbally Unpleasant, Aversive; (e) Withdrawn, Shy; (f) Hyperactive, Immature; (g) Dishonest, Delinquent; and (h) Sex Problems (see Table 1 for factor loadings). Our second-order factor analysis, outlined above, produced clear Externalizing and Internalizing factors that were correlated .41 with one another. Loading on the Externalizing factor were these first-order factors: Aggressive, Hostile (loading: .55), Verbally Unpleasant, Aversive (.47), Hyperactive, Immature (.37), and Dishonest, Delinquent (.51). Loading on the Internalizing factor were these first-order factors: Anxious (.86), Withdrawn, Shy (.36), and Somatic Problems (.38).

Thai girls. The EFA for Thai girls also indicated the presence of eight factors. These were named as follows: (a) Verbally Unpleasant, Hyperactive; (b) Aggressive; (c) Anxious; (d) Thought Problems, Depressed; (e) Withdrawn, Shy; (f) Somatic Problems; (g) School Problems, Immature; and (h) Dishonest, Delinquent (see Table 2). Our second-order factor analysis for the girls produced clear Externalizing and Internalizing factors, correlated .30 with one another. Loading on the Externalizing factor were these first-order factors: Verbally Unpleasant, Hyperactive (.48), Aggressive (.52), School Problems, Immature (.40), and Dishonest, Delinquent (.51); loading on the Internalizing factor were the following first-order factors: Anxious (.47), Thought Problems, Depressed (.64), Withdrawn, Shy (.38), and Somatic Problems (.68).

Thai Syndromes Versus U.S. Syndromes From Achenbach and Edelbrock (1983)

We began our cross-cultural comparison by assessing concordance between the Thai factors and the Achenbach and Edelbrock

[4] We evaluated the extent to which our choice of our factor loading cutoff (.3) influenced our results. To do this, we computed (separately for males and females) overall concordance kappas, varying the cutoff across the range suggested by statisticians (from .3 to .4; see, e.g., Gorsuch, 1983). Variation in the cutoff over this range had little effect on results, with the concordance kappa for both males and females peaking near our cutoff criterion of .3.

Table 1
First-Order Exploratory Factor Loadings for Thai Boys

Item	Aggressive, hostile	Anxious	Somatic problems	Verbally unpleasant, aversive	Withdrawn, shy	Hyperactive, immature	Dishonest, delinquent	Sex problems
57 Attack	.66							
95 Temper	.64							
86 Stubborn	.58							
87 Moody	.55							
16 Bullies	.54							
21 Destroys others' property	.53							
37 Fights	.53							
20 Destroys own	.52							
97 Threats	.51							
22 Disobedient home	.47							
90 Curses	.44							
104 Loud	.40			.36				
3 Argues	.39							
25 Poor peer	.39							
48 Unliked	.38							
18 Suicide	.38							
67 Runaway	.36							
68 Screams	.35							
15 Cruel to animals	.33							
60 Excess masturbation	.31							.43
35 Worthless		.62						
112 Worry		.59						
9 Obsess		.58						
17 Daydreams		.56						
13 Confused		.50						
33 Unloved		.50						
50 Anxious		.48						
12 Lonely		.47						
89 Suspicious		.43						
109 Whines		.42						
45 Nervous		.40			.31			
91 Talks suicide		.40						
103 Sad		.39						
19 Dem attention		.38						
54 Tired		.35	.32					
14 Cries		.32						
32 Perfect		.32						
99 Neat		.30						
56B Headache			.83					
51 Dizzy			.69					
56C Nausea			.66					
56A Pains			.55					
56G Vomit			.43					
56F Stomach			.41					
56D Eyes			.32					
93 Talks lots				.65				
74 Shows off				.49				
63 Prefer old				.47				
7 Brags				.42			.31	
94 Teases				.38				
41 Impulsive				.33				
10 Hyperactive				.33		.40		
79 Speech problems				.30				
65 No talk					.62			
42 Likes alone					.55			
111 Withdrawn					.53			
88 Sulks					.53			
75 Shy					.49			
102 No energy					.43			
71 Self-conscious					.38			
62 Clumsy					.36	.39		
80 Stares					.34			

(*table continues*)

Table 1 (*continued*)

Item	Aggressive, hostile	Anxious	Somatic problems	Verbally unpleasant, aversive	Withdrawn, shy	Hyperactive, immature	Dishonest, delinquent	Sex problems
61 Poor school work						.42		
1 Acts too young						.40		
8 Can't concentrate						.37		
11 Clings						.37		
23 Disobedient at school						.36		
6 Encopresis						.35		
81 Steal at home							.63	
82 Steal outside home							.54	
43 Lies							.50	
39 Bad friends							.49	
69 Secretive							.40	
106 Vandalism							.35	
101 Truant							.30	
110 Wish opp sex								.60
5 Opp sex								.59
96 Sex preoccupations								.52
73 Sex problems								.51
59 Pub masturbation								.37

Note. Items not loading on any factor for Thai boys: Allergy (2); Asthma (4); No eat (24); No guilt (26); Jealous (27); Eats nonfood (28); Fears (29); Fears school (30); Fears impulses (31); Persecuted (34); Accident prone (36); Teased (38); Hears things (40); Bites nails (44); Twitch (46); Nightmares (47); Constipated (49); Guilty (52); Overeats (53); Overweight (55); Rash (56E); Picks nose, skin (58); Prefer young (64); Compulsive (66); Sees things (70); Fires (72); No sleep (76); Sleeps lots (77); Stores (83); Strange behavior (84); Strange idea (85); Sleep walk/talk (92); Thumb (98); Can't sleep (100); Wet day (107); Wet bed (108). Dem = demands; Opp = opposite; Pub = public.

(1983) factors. Table 3 shows the kappas for cross-cultural correspondence.

Boys. For boys, kappas ranged from .81 (for the Somatic Problems factor) to .00 (for the Thai Sex Problems factor, which had no counterpart among U.S. boys). Only one kappa, for Somatic Problems, showed almost perfect (Landis & Koch, 1977) agreement across cultures, none showed substantial agreement, four were moderate, four were fair, and three were slight. Cross-cultural agreement kappas for the broadband second-order factors were .69 (substantial) for Externalizing and .31 (fair) for Internalizing.

Girls. For girls, kappas for first-order factors ranged from .74 (for the Somatic Problems factors) down to .26 (for the Thai Verbally Unpleasant, Hyperactive and U.S. Aggressive factors) and .00 for the U.S. Sex Problems factor, which had no counterpart among Thai girls. Two kappas showed substantial factor agreement across cultures, three were moderate, four were fair, and three were slight. In contrast to the results for boys, the kappa for cross-cultural correspondence on the broadband Internalizing factor among girls was larger than the kappa for the Externalizing factor, at .57 (moderate) versus .31 (fair).

Thai Syndromes Versus U.S. Syndromes From Achenbach (1991)

Next, we compared the Thai factors to the cross-informant factors reported by Achenbach (1991).

Boys. As Table 3 shows, kappas for boys' first-order factors ranged from .94 (for the Somatic Problems factor) to .13 (for the Thai Verbally Unpleasant, Hyperactive and U.S. Attention Problems factors). Overall cross-cultural correspondence was slightly higher than for Achenbach and Edelbrock's (1983) results. One factor pair, Somatic Problems/Complaints, showed almost perfect agreement across cultures, one was substantial, four were moderate, one was fair, and three showed slight agreement. Kappas were .69 for the broadband Externalizing (substantial) and .53 for the broadband Internalizing (moderate) factors.

Girls. Kappas for girls' first-order factors ranged from .87 (for the Somatic Problems factor) down to .11 (for the Thai School Problems, Immature and U.S. Social Problems factors). Two kappas showed almost perfect factor agreement across cultures, none were substantial, two were moderate, four were fair, and one showed slight agreement. Kappas for the broadband second-order factors were .31 for Externalizing (fair agreement) and .55 for Internalizing (moderate).

Discussion

Our findings suggest that some child psychopathology syndromes may not match up very well across cultures, at least when markedly different cultures are compared. Comparing syndromes for Thai children with those obtained for U.S. children by Achenbach and Edelbrock (1983) and Achenbach (1991), we found a mixed picture. Although 7 of our 41 specific narrowband syndrome comparisons (17%) met Landis and Koch's (1977) thresholds for substantial or almost perfect agreement (i.e., kappas ranging from .61 to 1.00), 23 of the 41 comparisons (56%) showed only slight to fair agreement, with kappas ranging from .00 to .40. The Internalizing and Externalizing syndromes were more similar across cultures than the narrowband syndromes but still did not show strong concordance; only two of the eight broadband comparisons showed substantial or almost perfect agreement, and three showed only fair agreement.

Table 2
First-Order Exploratory Factor Loadings for Thai Girls

Item	Verbally unpleasant, hyperactive	Aggressive	Anxious	Thought problems, depressed	Withdrawn, shy	Somatic problems	School problems, immature	Dishonest, delinquent
93 Talks lots	.65							
94 Teases	.58							
74 Show off	.56							
10 Hyperactive	.54							
7 Brags	.50							
104 Loud	.50							
3 Argues	.40							
41 Impulsive	.34							
8 Can't concentrate	.34						.45	
92 Sleep walk/talk	.33							
58 Picks nose, skin	.32							
64 Prefer young	.32							
36 Accident prone	.31							
16 Bullies		.66						
57 Attack		.64						
21 Destroys others' property		.58						
37 Fights		.51						
48 Unliked		.48						
25 Poor peer		.47						
20 Destroys own		.43						
90 Curses		.34						
97 Threats		.32						
95 Temper		.30						
112 Worry			.65					
50 Anxious			.61					
9 Obsess			.49					
32 Perfect			.47					
31 Fears impulses			.43					
19 Dem attention			.40					
89 Suspicious			.40					
13 Confused			.39					
85 Strange idea			.37					
45 Nervous			.35					
17 Daydreams			.34	.32				
27 Jealous			.33					
71 Self-conscious			.33		.47			
52 Guilty			.33					
26 No guilt			.31					
40 Hears things				.60				
70 Sees things				.53				
18 Suicide				.52				
91 Talks suicide				.47				
47 Nightmares				.37				
103 Sad				.37				
76 No sleep				.36				
12 Lonely				.35				
80 Stares				.33	.37			
34 Persecuted				.31				
67 Runaway				.30				
65 No talk					.62			
111 Withdrawn					.61			
42 Likes alone					.53			
62 Clumsy					.50			
88 Sulks					.50			
75 Shy					.49			
102 No energy					.48		.30	
69 Secretive					.32			.35
56B Headache						.75		
56C Nausea						.68		
56A Pains						.66		
51 Dizzy						.58		
56F Stomach						.37		

(*table continues*)

Table 2 (*continued*)

Item	Unpleasant, hyperactive	Aggressive	Anxious	Thought problems, depressed	Withdrawn, shy	Somatic problems	School problems, immature	Dishonest, delinquent
56G Vomit						.34		
54 Tired						.33		
61 Poor school work							.46	
1 Acts too young							.35	
30 Fears school							.33	
81 Steal home								.71
82 Steal outside home								.62
43 Lies								.52
72 Fires								.34

Note. Items not loading on any factor for Thai girls: Allergy (2); Asthma (4); Opp sex (5); Encopresis (6); Clings (11); Cries (14); Cruel to animals (15); Disobedient home (22); Disobedient school (23); No eat (24); Eats nonfood (28); Fears (29); Unloved (33); Worthless (35); Teased (38); Bites nails (44); Twitch (46); Constipated (49); Overeats (53); Overweight (55); Eyes (56D); Rash (56E); Prefer old (63); Compulsive (66); Screams (68); Sex problems (73); Sleeps lots (77); Speech problems (79); Stores (83); Strange behavior (84); Stubborn (86); Moody (87); Thumb (98); Neat (99); Can't sleep (100); Truant (101); Wet day (107); Wet bed (108); Whines (109); Wish opp sex (110). Dem = demands; opp = opposite.

Our Thai–U.S. comparison is a rather stringent test of cross-cultural similarity in syndromal structure. Cultures more similar to one another might well show greater syndromal similarity, as in some previous findings (e.g., Achenbach et al., 1987; de Groot et al., 1994; Verhulst et al., 1988), but the possibility that large differences in culture and ethnicity may be associated with dissimilarity in child syndromes has implications for clinical theory, research, and practice, across cultural and national boundaries.

For instance, if child psychopathology syndromes differ across cultures, this would certainly undermine efforts to develop a common classification system for all cultures, for example, *International Statistical Classification of Diseases and Related Health Problems* (10th ed.; World Health Organization, 1992) or "next generation" efforts to produce a culture-transcendent taxonomy (see Hinton & Kleinman, 1993). Questions may also arise about the appropriateness of some clinical assessments and prevalence assessments done in non-Western societies using scoring categories derived from U.S. samples. Certainly there may be many cultures in which child syndromes match U.S.-derived syndromes well (see, e.g., Achenbach et al., 1987; De Groot et al., 1994), and where common assessment instruments and categories may thus be quite appropriate. However, our findings suggest that there may also be some cultures in which the match to U.S. child syndromes is not strong. It may be wise to assess syndromal similarity across cultures before applying the syndrome-based categories of one culture to another. Our findings are also relevant to child treatment research. Increasingly, child treatments are developed for specific syndromes. Treatments developed for syndromes found in American children may only travel well across cultural boundaries to the extent that similar syndromes are evident in the target cultures.

Some of these implications are relevant to our own prior research. For example, we previously compared Thai and U.S. children (Weisz et al., 1987) on CBCL/TYC scores, and we found that Thai children were rated higher than U.S. children on 32 of the 118 problems, particularly those involving internalizing behavior. Concerns about cross-cultural comparability of narrowband syndromes led us to avoid using them in Thai–U.S. comparisons; but we did use the U.S.-derived broadband syndromes in some analyses. We noted then that "a limitation of this procedure is that it is based on principal components analyses of data from American samples. One of our long term objectives is to apply principal components analysis to TYC data from clinic-referred Thai children, to assess problem patterning, or 'syndromes' among Thai children" (Weisz et al., 1987, p. 895).

The present study is the realization of that long-term objective. The study's findings do suggest that our caution in 1987 was appropriate, and that the safest prevalence comparisons across cultures may be those involving (a) individual problems, (b) combinations of individual problems that appear on both cultures' versions of partially overlapping syndromes, and (c) full syndromes for which cross-cultural similarity has been demonstrated. Following this approach, our previous conclusions (from Weisz et al., 1987) are adjusted slightly: Thai children show higher prevalence than U.S. children of individual problems that appear in both Thai and U.S. versions of the Internalizing syndrome (e.g., shy, sad) and on well-matched narrowband syndromes within the Internalizing broadband (e.g., Somatic Problems/Complaints). This shift in how findings are interpreted and described reflects the view that cross-cultural comparisons should be structured in ways that conform to evidence on syndromal similarities and differences.

More broadly, our findings raise the question of whether models of psychopathology and its structure, based on patterns identified in American children and interpreted within a Western context, are sufficient to capture the richness and diversity of child dysfunction in cultures around the world. It is possible that societal variations in traditions, beliefs, and practices regarding children may influence the ways in which child behaviors and problems co-occur, both in fact and in the perceptions of informants whose perspectives are shaped by their culture. If so, then the resultant syndromes of child psychopathology may be more variegated across societal boundaries than prevailing theoretical models have suggested. Our theories may need to stretch to accommodate this broader conception of child dysfunction, viewed multiculturally.

Our theories of causality may also need to stretch. When problems cluster into different syndromes in different cultures, a strong inference is that causal processes are moderated by culture. To the extent that our largely Western causal models for child psychopathology have assumed cross-cultural uniformity, we may have overlooked significant cultural influences (see, e.g., Rothbaum,

Table 3
Match Between Thai Factors and U.S. Factors From 1983 and 1991

Thai no.: name	U.S. no.: name	κ
Thai–U.S. match for males using 1983 U.S. factors		
1: Aggressive, hostile	1: Aggressive	.57
2: Anxious	2: Depressed	.56
2: Anxious	4: Obsessive–compulsive	.17
3: Somatic problems	6: Somatic complaints	.81
4: Verbally unpleasant, aversive	5: Hyperactive	.23
4: Verbally unpleasant, aversive	1: Aggressive	.23
5: Withdrawn, shy	8: Uncommunicative	.40
5: Withdrawn, shy	7: Social withdrawal	.28
6: Hyperactive, immature	5: Hyperactive	.49
7: Dishonest, delinquent	3: Delinquent	.56
8: Sex problems	—	.00
—	9: Schizoid or anxious	.00
Externalizing	Externalizing	.69
Internalizing	Internalizing	.31
Thai–U.S. match for females using 1983 U.S. factors		
1: Verbally unpleasant, hyperactive	1: Aggressive	.26
1: Verbally unpleasant, hyperactive	3: Hyperactive	.20
2: Aggressive	1: Aggressive	.32
2: Aggressive	9: Cruel	.56
3: Anxious	2: Depressed	.33
4: Thought-problems, depressed	5: Schizoid–obsessive	.47
5: Withdrawn, shy	2: Depressed	.20
5: Withdrawn, shy	6: Social withdrawal	.74
6: Somatic problems	4: Somatic complaints	.67
7: School problems, immature	3: Hyperactive	.27
8: Dishonest, delinquent	7: Delinquent	.52
—	8: Sex problems	.00
Externalizing	Externalizing	.31
Internalizing	Internalizing	.57
Thai–U.S. match for males using 1991 U.S. factors		
1: Aggressive, hostile	8: Aggression	.58
2: Anxious	3: Anxiety/depression	.57
3: Somatic problems	2: Somatic	.94
4: Verbally unpleasant, aversive	6: Attention problems	.13
5: Withdrawn, shy	1: Withdrawn	.71
6: Hyperactive, immature	6: Attention problems	.49
6: Hyperactive, immature	4: Social problems	.33
7: Dishonest, delinquent	7: Delinquent	.53
8: Sex problems	—	.00
—	5: Thought problems	.00
Externalizing	Externalizing	.69
Internalizing	Internalizing	.53
Thai–U.S. match for females using 1991 U.S. factors		
1: Verbally unpleasant, hyperactive	8: Aggression	.26
2: Aggressive	8: Aggression	.40
3: Anxious	3: Anxiety/depression	.49
4: Thought problems, depressed	5: Thought problems	.26
5: Withdrawn, shy	1: Withdrawn	.83
6: Somatic problems	2: Somatic	.87
7: School problems, immature	4: Social problems	.11
7: School problems, immature	6: Attention problems	.34
8: Dishonest, delinquent	7: Delinquent	.41
Externalizing	Externalizing	.31
Internalizing	Internalizing	.55

Note. Numbering of Thai factors refers to the relative size of the factor. Numbering of U.S. factors also refers to the ordinal position of the factor in terms of its size, not to be confused with its number in Appendix C of Achenbach (1983).

Weisz, Pott, Miyake, & Morelli, 2000; Weisz, Rothbaum, & Blackburn, 1984). The cross-cultural study of syndromal structures may help guide a search for such cultural moderators of causal processes.

The specific Thai–U.S. syndromal differences identified here can be interpreted in light of an important general point emphasized in earlier work (e.g., Weisz et al., 1987, 1997): Child psychopathology is most accurately construed as a combination of actual child behavior and the lens through which that behavior is viewed by individuals in the child's society, including parents. Both the actual child behavior and the lens may be influenced by culture. To illustrate, we focus on three findings in the present study. First, very similar "Somatic Complaints" syndromes were found in Thai and U.S. boys and girls. One reason may be that somatic problems of various types do co-occur similarly across diverse cultures. However, another reason may be that physical problems stand out distinctively—in the minds of parents—from the more psychological problems in other syndromes. The physical–psychological distinction may be more consistent across cultures than are distinctions among different types of psychological dysfunction. It should be noted that where we did find cross-cultural differences in the "Somatic Problems" factor, the differences showed a more purely somatic syndrome in Thai children versus a more "somatic-psychological" mix in American children. This may reflect, in part, the fact that popular child psychology in America links physical and psychological symptoms to a degree that few other countries can match.

As another illustration of the Behavior + Lens principle, it should be noted that the Thai Aggressive factors, particularly in males, included more serious and destructive behavior (e.g., #72: Sets fires) than the U.S. Aggressive factors. One possible explanation is that aggression may violate Thai norms more than U.S. norms (Klausner, 1993; Sangsingkeo, 1969; Weisz et al., 1997), so Thai children's aggression may be paired with more social deviance and more destructive antisocial behaviors, or, from the "lens" perspective, Thai parents may perceive less difference between aggressive behavior and destructive behavior than American parents do, because aggression alone is already far above the social acceptability threshold. So, the two forms of behavior may actually co-occur more often in Thailand than in the United States; and/or Thai parents may perceive the two forms of behavior similarly, with syndromal connections thus strengthened.

As a third example, we found a distinct "Sex Problems" syndrome for Thai boys but not for American boys. This suggests that in Thailand more than in the United States, (a) sex problems among males co-occur within individuals, (b) parents perceive sex problems as co-occurring among males, or (c) both *a* and *b*. If *a* is true, then a causal process leading to sex problems may operate differently in Thailand than in the United States. Perhaps, for example, the Thai practice of discouraging unmonitored boy–girl social contact, combined with the strong tradition of female modesty, increases *sex preoccupations* (#96), *sex problems* (#73), *behaving like the opposite sex* (#5), and *wishing to be of the opposite sex* (#110), among Thai boys. In addition, Thai parents' emphasis on culturally defined roles for males may make them especially sensitive to their sons' departures from accepted sex role behavior, and thus particularly likely to perceive sex problems as occurring, and occurring in concert, in their sons. Thus, when parents notice one sex problem, that may sensitize them to any sign of other sex problems in their son. In the United States there may be fewer constraints on male sexuality, so sexual behaviors by males may be less likely to be associated—in reality or in parental perceptions—with deviant behavior, and thus less likely to form a syndrome.

From the perspective of cross-cultural research methodology, the present study represents a kind of "imposed etic" design (Berry, 1989): We took an instrument (the CBCL) designed for use in one specific culture and used it in another culture. As Berry (1989) has noted, researchers usually need to start with such designs before moving to approaches involving fewer cross-cultural assumptions. It should be noted that the use of an imposed etic design is likely to have increased apparent cross-cultural similarities; so, if anything, our use of such a design here will have led to an underestimation of true cross-cultural differences.

Other design issues also warrant attention. First, although CBCL items cover a broad range of content, our analyses could not identify syndromes that might be specific to Thailand and comprised of problems not listed on the CBCL. In this respect, too, our results probably underestimate U.S.–Thai differences. Second, although we took unusual care in translating the CBCL, subtle language inequivalencies may have influenced our findings. Third, the TYC showed somewhat lower test–retest reliability than the CBCL (mean ICC = .82 vs. .95), so lower reliability may have constrained the validity of the TYC. Third, Achenbach (e.g., 1991) and colleagues have noted, and our data agree, that clinical samples are needed to generate sufficient problem base rates and variability for meaningful analysis. But when clinical samples from different cultures are used, issues of demographic and clinical similarity arise. The fact that our Thai and U.S. samples were perfectly matched on age and gender, and highly similar on SES and CBCL problem levels, helped rule out artifactual interpretations of the syndrome findings. Such tests of sample comparability are probably needed in any syndrome comparison across cultures.[5]

Suggestions for future research flow directly from our design and findings. First, it will be useful to determine whether the cross-cultural differences we found here on the basis of parent reports are also evident with nonparent informants (e.g., children, teachers). Second, it will be useful to determine whether similar cross-cultural differences are found for cultures that resemble Thailand in beliefs, traditions, and child-rearing practices. Such findings will help us discern the extent to which observed differences are indeed due to cultural factors. And finally, it will ultimately be important to conduct studies in which specific factors hypothesized to explain syndromal differences are assessed and then compared cross-culturally, to assess the plausibility of specific causal models. Research of these three types, focusing on the broad theme of consistency and diversity in the organization of psychopathology, should serve both to deepen and broaden our

[5] One could also question whether children in the Thai and U.S. samples were referred for similar problems. However, this issue seems less relevant to syndrome assessment, because syndrome identification is based on the degree to which each problem is endorsed as occurring, regardless of whether it was originally a reason for referral. Typically, only a few problems are given as a reason for referral, but parents usually endorse many more problems as being true of their child once they have made contact with the clinic and are presented with the full list of problems on the CBCL or TYC.

picture of child and adolescent dysfunction in its sociocultural context.

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