

Differential Symptom Expression and Somatization in Thai Versus U.S. Children

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Individuals react in a variety of ways when experiencing environmental challenges exceeding their capacity to cope adaptively. Some researchers have suggested that Asian populations tend to react to excessive stress with somatic symptoms, whereas Western populations tend to respond more with affective or depressive symptoms. Other researchers, however, have suggested that such differences may represent different approaches to help seeking rather than actual variations in prevalence. The present study compared somatic versus affective symptoms in U.S. and Thai children from community and mental health clinic samples. In the clinic-referred sample, Thai children were reported to have higher levels of somatic versus depressive symptoms relative to U.S. children, whereas in the community sample, both groups were reported to have slightly higher levels of depressive than somatic symptoms. Because a primary difference between clinic-referred and community samples is that the former have been through the clinical referral process (i.e., were seeking help), these results suggest that differences in somatic versus depressive symptom presentation may be related to help-seeking behavior, at least for the samples involved in this study.

Keywords: somatization, Asian populations, neurasthenia, psychologization

There is considerable diversity in how humans react when environmental demands exceed their capacity to adaptively cope. Reactions can range from maladaptive behaviors, such as substance abuse and aggression, to anxiety, depression, and somatization, and at least part of this variability in response is likely related to cultural factors (e.g., Wong & Wong, 2006). If psychology is to be a science of universal human behavior, describing this diversity and the factors that underlie it is essential; however, for the most part, psychological research has been limited to Western countries and cultures (Arnett, 2008).

One possible cultural difference in symptom manifestation was first highlighted by Kleinman (1977), who found that 88% of Taiwanese psychiatric patients in his sample initially reported somatic complaints without affective complaints, whereas the comparable figure for European Americans was 20%. Kleinman

hypothesized that Asian populations may tend to respond to stressful life events in ways that emphasize somatic rather than depressive symptoms, because depressive symptoms may be experienced by Asian populations as more self-centered and, hence, more disruptive to group harmony than somatic symptoms. Support for this position is found in research on neurasthenia, which is a psychiatric diagnosis that emphasizes somatic symptoms (e.g., fatigue, diffuse aches and pains) and is the most widely used diagnosis by psychiatrists in China but is seldom used in the United States (Parker, Gladstone, & Tsee-Chee, 2001).

However, an alternative perspective has been suggested, that Western and Asian differences in somatization and affective symptoms reflect differences in help-seeking behavior rather than actual prevalence differences, with somatic complaints seen as more likely than affective symptoms to gain access to treatment services in developing countries. To best evaluate the hypothesis, researchers should compare community and clinic-referred samples to determine the extent to which differential problem rates between depressive and somatization symptoms vary as a function of whether individuals are seeking help for mental health problems. Yen, Robins, and Lin (2000), for example, compared mental health outpatient Chinese students with nonreferred Chinese students, as well as Chinese, Chinese American, and European American college students on Somatic and Affective factors. The authors concluded that reporting of somatic symptoms was not any greater

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among Chinese populations but that this tendency may be influenced by help seeking in China. However, no European American clinic-referred sample was assessed and, hence, no clinic-referred versus community sample comparison was possible among the European Americans, which would be necessary to fully evaluate the hypothesis. Further, the Affective and Somatic factors used in Yen et al.'s study did not fit theoretical conceptions regarding depressive affect or somatic complaints/neurasthenia very well (e.g., two items that clearly reflected depressive affect had strong loadings on the Somatic factor).

To test the hypothesis that higher rates of somatic symptoms among Asian populations represent help-seeking behavior, the present study determined whether rates of somatic versus depressive symptoms were higher among Thai versus U.S. children for clinic-referred but not community samples. To address limitations of previous research, we used design enhancements, including (a) use of a comprehensive measure of psychopathology, (b) a fully crossed design with respect to ethnic group and type of sample (referred vs. nonreferred), and (c) a large sample size. We focused on children and adolescents to assess how these social processes might unfold across early stages of development, hypothesizing that cross-cultural effects on depressive versus somatic symptoms would be smaller among adolescents because adults may tend to be more tolerant of younger children violating cultural expectations (e.g., displaying affective symptoms). Our Asian sample was obtained from Thailand, allowing for a strong test of these hypotheses because Thailand and the United States differ substantially in religious and cultural practices and beliefs that might underlie differences in symptom manifestation (Klausner, 2000).

Method

Participants

Data for U.S. participants were obtained from clinical and normative data sets for the parent-report version of the Child Behavior Checklist (CBCL; Achenbach, 1991). These included data for 1,834 clinic-referred and 1,834 nonreferred U.S. children (6–11 years) and adolescents (12–17 years). U.S. clinic-referred participants were obtained from 52 clinics across the United States, with a broad distribution of socioeconomic (SES) and demographic characteristics (Achenbach, 1991). U.S. community participants were selected to be representative of the U.S. population with respect to ethnicity; SES; geographic region of the 48 contiguous states; and urban, suburban, or rural residence.

Data for Thai participants were obtained from clinic and community studies of the Thai Youth Checklist (Weisz, Suwanlert, Chaiyasit, Weiss, & Achenbach, 1993). These data included 1,927 clinic-referred and 768 nonreferred Thai children and adolescents, whose symptoms were reported on by their parents. Thai clinic-referred participants were obtained from six mental health clinics and programs from urban and rural locations across Thailand. Thai community participants were obtained from urban, suburban, and semirural environments in the five major regions of Thailand. The Thai sample selection and data collection were structured to parallel U.S. CBCL data collection procedures (Weisz et al., 1993). For the U.S. participants, the mean age of the children was 11.30 (3.27) years, and 49% were male and 51% were female; for the Thai participants, the mean age was 11.45 (3.27) years, and 52% were male and 48% were female (see Table 1 for demographics for the samples).

Table 1
Comparison of Thai and U.S. Samples on Demographic and Clinical Characteristics

Factor, sample, and nationality	<i>M</i> (<i>SD</i>) or %	Effect size (<i>CI</i>) ^a
Age (in years)		
Clinic		0.02 (–.02 ~ .05)
Thai	11.35 (3.19)	
U.S.	11.30 (3.27)	
Community		0.12** (.08 ~ .16)
Thai	11.69 (3.44)	
U.S.	11.30 (3.27)	
CBCL total		
Clinic		–.03 (–.06 ~ .00)
Thai	52.63 (26.56)	
U.S.	53.46 (27.09)	
Community		–.15*** (–.19 ~ –.11)
Thai	21.56 (13.90)	
U.S.	23.95 (16.47)	
SES ^b		
Clinic		–.22*** (–.25 ~ –.19)
Thai	4.47 (2.70)	
U.S.	5.04 (2.45)	
Community		–.51*** (–.54 ~ –.47)
Thai	4.43 (2.40)	
U.S.	5.57 (2.20)	
Gender ^c		
Clinic		0.04* (.01 ~ .07)
Thai	52% M, 48% F	
U.S.	49% M, 51% F	
Community		0.01 (–.03 ~ .05)
Thai	50% M, 50% F	
U.S.	49% M, 51% F	
Ethnicity		
Clinic sample		0.70*** (.68 ~ .72)
Thai		
Thai	98%	
Other Asian	2%	
U.S.		
African American	13%	
Asian	2%	
Euro-American	80%	
Hispanic	0%	
Community		0.71*** (.69 ~ .73)
Thai		
Thai	99%	
Other Asian	1%	
U.S.		
African American	16%	
Asian	2%	
Euro-American	73%	
Hispanic	6%	

^a Effect sizes for Thai versus U.S. comparisons; continuous variables are *z* scores, categorical variables are contingency coefficients, *CI* = 95% confidence interval.

^b Socioeconomic status (SES) is based on Hollingshead's nine-step scale used by Achenbach (1991) to rate SES based on parent occupation. We make no assumption about the validity of the Hollingshead scale for non-U.S. cultures. Our purpose here was to assess differences in parent occupation across the two national samples, which required that we use the same rating system used previously for U.S. CBCL samples. ^c M = male; F = female.

* $p < .05$. ** $p < .01$. *** $p < .001$.

Measures

Child Behavior Checklist. Child psychopathology data were obtained with the parent-report version of the CBCL (Achenbach, 1991), a 118-item checklist covering a wide range of child emo-

tional and behavioral problems. Parents report whether their child has each problem on a 3-point scale ranging from *Not true* to *Very true* or *Often true*. Reliability and validity of this measure are well established (Achenbach, 1991).

Thai Youth Checklist. Thai psychopathology data were obtained with the parent-report version of the Thai Youth Checklist (TYC; Weisz et al., 1993), a Thai-language version of the CBCL (when referring to the two measures collectively, in this report we refer to the CBCL). CBCL items were translated into Thai through three waves of translation and back-translation, 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 (Weisz et al., 1993).

Dependent variables. To evaluate our hypotheses, items from the CBCL and the TYC were used to derive (a) a Neurasthenia factor, and (b) a Depression factor. An initial pool of symptoms was obtained from diagnostic criteria for neurasthenia (*International Statistical Classification of Diseases and Related Health Problems [ICD-10]*; World Health Organization, 2007) and major depressive disorder (*Diagnostic and Statistical Manual of Mental Disorders*, 4th ed., Text Revision, [*DSM-IV-TR*]; American Psychiatric Association, 2000). Symptoms overlapping across the two scales were dropped, although overlapping items core to a syndrome, as defined by the diagnostic criteria (fatigue for Neurasthenia; sadness, irritability, and anhedonia for Depression), were retained for the syndrome for which they were core. CBCL items were then identified for these symptoms. For the Neurasthenia scale, items included the following: fatigue (No. 54), dizziness (No. 51), aches and pains (No. 56a), headaches (No. 56b), gastrointestinal problems (Nos. 56c, 56f, and 56g), and inability to relax (No. 45). For the Depression scale, items were as follows: depressed mood (No. 103), irritability (No. 86), anhedonia (no CBCL item covered this symptom), weight or appetite problems (Nos. 24, 53, and 55), sleep problems (Nos. 76, 77, and 100), psychomotor problems (No. 102), feelings of worthlessness or excessive guilt (Nos. 35 and 52, respectively), concentration problems (No. 8), and suicidal ideation or behavior (Nos. 91 and 18).

Factor analysis. We next conducted a factor analysis with the clinic-referred samples to determine the actual structure for these items. We did not want to weight analyses by the number of CBCL items representing a particular symptom (e.g., three CBCL items involve sleep problems, whereas one CBCL item involves sadness), so for each symptom area (e.g., sleep problems, sadness), we computed and analyzed the mean of the underlying CBCL items, generating item parcels for these symptoms. Because we had selected items on a theoretical basis, we considered using a confirmatory factor analysis. However, because our item-level CBCL data were neither normally distributed nor interval level, we conducted an exploratory factor analysis with unweighted least squares estimation (which is less dependent on the data distribution) with a loading criterion of .40 on the factor structure and a promax rotation of the two factors. This analysis produced a Neurasthenia factor (see Table 2), with symptom parcels Dizziness, Fatigue, Aches and Pains, Headaches, and Gastrointestinal Problems as well as a depression syndrome with symptom parcels Affect, Low Self-Esteem and Worthlessness, and Suicidal Ideation and Behavior. To assess the adequacy of the fit, we computed confirmatory factor analysis fit statistics, which were as follows:

Table 2
Factor Loadings and Parcel Items

Symptom	CBCL parcel items	Factor 1 loadings: Neurasthenia	Factor 2 loadings: Depression
Dizziness	51	.63	.18
Fatigue	54	.45	.36
Aches and pains	56a	.62	.24
Headaches	56b	.75	.19
Gastrointestinal problems	56c, 56f, 56g	.65	.25
Concentration problems	8	.05	.33
Psychomotor problems	10, 102	.32	.31
Suicidal ideation or behavior	18, 91	.18	.40
Weight or appetite problems	24, 53, 55	.31	.33
Low self-esteem and worthlessness	35, 52	.24	.61
Affect: irritability, depressed mood	86, 103	.27	.72

Note. Factor loadings of .40 or greater were significant ($p < .05$) and are presented in boldface. CBCL items refer to the Child Behavior Checklist (CBCL; Achenbach, 1991) and the Thai Youth Checklist (Weisz, Suwanlert, Chaiyasit, Weiss, & Achenbach, 1993), which is derived from it. Original items are from the "Manual for the Child Behavior Checklist/4-18 and 1991 Profile" by T. M. Achenbach, 1991, Burlington: University of Vermont, Department of Psychiatry. Copyright 1991 by T. M. Achenbach.

nonnormed index = .93, normed fit index = .95, and root mean square error of approximation (*RMSEA*) = .06, indicating good fit (Kline, 2004).¹

Results

Tests of Background Characteristics

We compared community and clinic-referred Thai and U.S. samples on age, gender, SES, total CBCL score, and ethnicity. The Thai and U.S. community samples differed significantly on age and total CBCL score (see Table 1); in the clinic-referred samples, the two groups differed on sex. As expected, the Thai and U.S. participants in both samples differed significantly on ethnicity and SES. Consequently, we conducted our main analyses twice: once with no covariates and once with SES and total CBCL score as covariates (age and sex were already included in our models). Total CBCL was nested within sample (community vs. clinic-referred), as differences in total problem level represented a fundamental difference between the community and clinical samples. Inclusion of SES and total CBCL score resulted in minimal differences; therefore, for simplicity's sake we report results without these variables in the models.

Main Analyses

We first conducted a repeated measures profile analysis, with ethnicity (Thai vs. U.S.), source (community vs. clinic-referred),

¹ Although this process produced factors that were internally consistent, these factors were derived for specific theoretical purposes, that is, to test the relations among specific subsets of CBCL items that were initially selected on the basis of theoretical considerations. Thus, we are not suggesting that the CBCL be modified to fit the factors derived from these analyses.

age group (child vs. adolescent), and gender as independent variables and the contrast between depressive symptoms and neurasthenia symptoms as the dependent variable, representing the within-subject effect of domain of psychopathology.² On the basis of the “cultural help-seeking behavior” hypothesis, we predicted that the Domain of Psychopathology \times Ethnicity \times Source interaction would be significant, reflecting a greater difference in the domain contrast (depressive minus neurasthenia symptoms) for the Thai versus U.S. comparison in the clinic-referred versus community sample. That is, we predicted that the differences between the Thai and U.S. participants with regard to the depressive minus neurasthenia symptoms contrast would be greater in the clinic-referred sample than in the community sample, with the Thai sample showing relatively higher levels of neurasthenia symptoms in the clinic sample. This three-way interaction was significant, $F(1, 6347) = 244.85, p < .0001$. In addition, the Domain of Psychopathology \times Ethnicity \times Source \times Age interaction also was significant, $F(1, 6347) = 4.53, p < .05$. This latter interaction reflected differences in the Domain of Psychopathology \times Source \times Ethnicity interaction across adolescents, $F(1, 3137) = 86.16, p < .0001$, versus across children, $F(1, 3218) = 161.42, p < .0001$, with the hypothesis thus confirmed for both adolescents and children, but more strongly so for children.

Interaction Breakdown

We broke down the Domain of Psychopathology \times Source \times Ethnicity interactions by assessing the Ethnicity \times Domain of Psychopathology interactions in the clinic-referred and community samples, separately for the children and for the adolescents. For the clinic-referred children, the effect of Domain of Psychopathology \times Ethnic Group was significant (see Table 3), with the depressive versus neurasthenia symptom contrast positive for the U.S. children and negative for the Thai children (see Table 4); that is, in the clinic-referred sample, U.S. parents reported higher levels of depressive symptoms, whereas Thai parents reported higher levels of neurasthenia symptoms. A similar significant effect, although a little smaller, was found for the clinic-referred sample

Table 3
Effects Underlying Significant Source \times Domain \times Ethnic Interactions in Children and Adolescents

Age group/Source	df	F
Clinic sample		
Adolescents		
Domain	1, 1846	49.18****
Domain \times Ethnic	1, 1846	155.69****
Children		
Domain	1, 1911	59.36****
Domain \times Ethnic	1, 1911	318.23****
Community sample		
Adolescents		
Domain	1, 1291	2.77
Domain \times Ethnic	1, 1291	0.09
Children		
Domain	1, 1307	30.62****
Domain \times Ethnic	1, 1307	0.11

**** $p < .0001$.

Table 4
Means and Standard Deviations by Source, Age Group, and Ethnicity

Source, nationality, and domain	M (SD)	Contrast (SD) ^a	Effect size (CI) ^b
Adolescents			
Clinic			0.63 (.58 ~ .68)
Thai		-.06 (.51)	
Depressive	.52 (.40)		
Neurasthenia	.58 (.48)		
U.S.		.22 (.43)	
Depressive	.59 (.39)		
Neurasthenia	.37 (.40)		
Community			0.00 (-.05 ~ .05)
Thai		.01 (.24)	
Depressive	.16 (.18)		
Neurasthenia	.15 (.20)		
U.S.		.01 (.26)	
Depressive	.19 (.22)		
Neurasthenia	.18 (.25)		
Children			
Clinic			0.85 (.81 ~ .89)
Thai		-.10 (.47)	
Depressive	.42 (.33)		
Neurasthenia	.52 (.47)		
U.S.		.26 (.41)	
Depressive	.53 (.38)		
Neurasthenia	.27 (.34)		
Community			0.00 (-.05 ~ .05)
Thai		.04 (.24)	
Depressive	.19 (.18)		
Neurasthenia	.14 (.21)		
U.S.		.04 (.24)	
Depressive	.17 (.19)		
Neurasthenia	.13 (.21)		

^a “Contrast” refers to the depressive symptoms minus neurasthenia symptoms contrast within ethnic group. ^b Effect size is the standardized effect size for the Domain of Psychopathology \times Ethnic Group interaction within source and age group; CI = 95% confidence interval.

adolescents (see Tables 3 and 4). For the community sample, in contrast, the Domain \times Ethnic Group interaction was not significant for either children or adolescents, indicating that the Thai and U.S. parents were reporting similar relative levels of neurasthenia versus depressive symptoms. The z -score effect size estimates (and 95% confidence intervals) for the Domain of Psychopathology \times Source \times Ethnicity interactions (the effect testing our hypothesis) for children and adolescents, respectively, were $z = .85$ (.82 to .88) and $z = .63$ (.60 to .66).

Figure 1 summarizes these results, collapsed across children and adolescents. In this figure, the z -axis represents the depression–neurasthenia contrast, with groups with their block above the 0 point having a positive mean contrast (i.e., reporting more depressive than neurasthenia symptoms) and groups with their block below the 0 point having a negative mean contrast (i.e., reporting more neurasthenia than depressive symptoms). The figure illus-

² We also conducted these analyses with the uncollapsed items (i.e., where each CBCL item, rather than the symptom parcel, was analyzed). Although parameter estimates changed slightly, results were substantively unchanged.

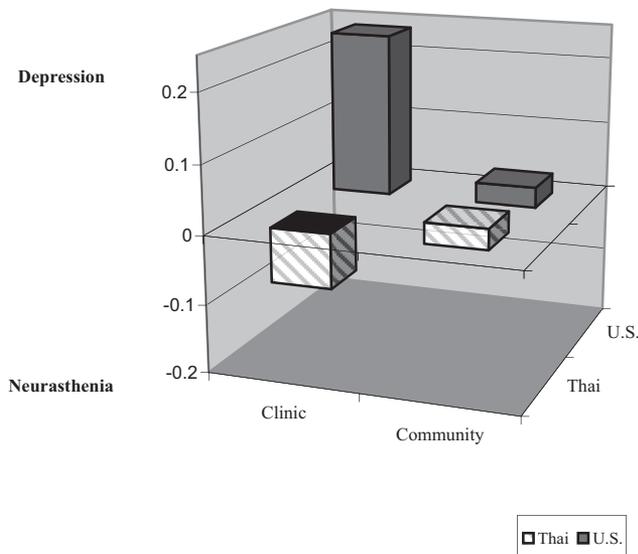


Figure 1. Contrast for depressive minus neurasthenia symptoms.

trates that in the clinic-referred sample, Thai parents reported higher levels of neurasthenia symptoms, whereas U.S. parents reported higher levels of depressive symptoms, but in the community sample, both Thai and U.S. parents reported similar relative levels of depressive versus neurasthenia symptoms.

Controlling for Overall Level of Psychopathology

The Ethnicity \times Domain of Psychopathology \times Source (clinic-referred vs. community samples) interaction reflects the fact that relations between ethnicity and both domain and level of psychopathology differed across the community and clinical samples. One possible difference between the community and clinical samples underlying this effect may have been the overall level of child psychopathology, which was much higher in the clinic-referred than in the community sample. To evaluate whether these effects of source might be due to differences in psychopathology levels, we repeated our primary analysis including the main effect of total CBCL score as well as its interaction with ethnicity and domain of psychopathology. The value of the F test for the Domain of Psychopathology \times Ethnicity \times Source interaction decreased from 244.85 to 160.94 but remained significant, $F(1, 6345) = 160.94, p < .0001$. The fact that the F decreased approximately 33% but remained significant suggests that effects of source vis-à-vis differential reporting were partially, but not primarily, due to differences in overall levels of psychopathology. We also tested whether the source (clinic-referred vs. community samples) effect was due to differences in overall psychopathology level by testing the Domain of Psychopathology \times Ethnicity interaction among community sample participants whose total CBCL score was above the 35th percentile for the clinical sample, which equated the community sample's mean for total CBCL score with the clinical sample's mean. This produced a community sample with 342 participants. In this subsample, we tested the Domain of Psychopathology \times Ethnicity interaction, which was nonsignificant. The fact that we did find a significant Domain of Psychopa-

thology \times Ethnicity interaction in the clinical sample but not in the community sample when it was restricted to children and adolescents with psychopathology levels comparable to those in the clinical sample suggests that effects of source are due to factors other than differences in overall psychopathology levels.

Discussion

Before discussing our findings we should note that although we selected Thailand for theoretical reasons, it still represents a single country from a diverse continent, and other cultures might produce different results. Our results are consistent with the hypothesis that when seeking clinical services, Asian populations report higher levels of somatic problems relative to Western populations but that when not seeking services, the two populations report similar levels of depressive versus somatic symptoms; however, any conclusion about Asian and Western populations in general would certainly require data from Asian countries other than Thailand and Western countries other than the United States.

Differential rates between clinic-referred and community samples may not only reflect differences in help-seeking behavior but also how worrisome, how treatable, and so forth the various problems are perceived to be (Weisz & Weiss, 1991). Thus, there are several possible explanations for our findings: Thai parents may (a) be more concerned about somatic symptoms relative to depressive affect symptoms and, hence, more likely to seek treatment for the somatic symptoms; (b) be more likely to seek treatment for somatic symptoms because they view them as more likely to be successfully treated than affective symptoms, perhaps because the somatic symptoms are more congruent with their cultural conceptualizations of child problems; (c) view somatic symptoms as more socially acceptable reasons to seek treatment; or (d) view somatic symptoms as more likely to provide access to services. All of these possibilities potentially could lead to the observed higher rates of somatic symptoms reported for Thai clinical samples.

In considering these alternatives, it is important to note that the clinic-referred samples were obtained from mental health clinics, where one might expect a level of acceptance regarding depressive symptoms. Thus, it will be important to understand how stigma and social desirability operate (Sue & Chu, 2003) when reporting child symptoms to a stranger, such as a research assistant, versus a mental health professional with whom one may have a helping relationship for a relatively extended period. An alternative explanation for our findings is that Thai parents were more open about affective symptoms with strangers with whom they knew that they would not have an ongoing relationship (i.e., when assessed as part of the community sample) in contrast to someone with whom they knew they were likely to have an ongoing relationship.

The finding that the Thai and U.S. community samples did not differ significantly on depression vs. neurasthenia might seem contradictory to previous comparisons of U.S. and Thai children (e.g., Weisz et al., 1993) that have found some internalizing problems are more prevalent among Thai children. However, neurasthenia and depression are both internalizing problems, and the higher overall levels of internalizing problems among Thai children apparently were not differential across subtypes (neurasthenia, depression) of internalizing problems.

With regard to clinical implications, these results highlight the importance of clinicians not taking presenting problems at face

value, and this may be particularly true for families in or from less developed countries. The results also emphasize the importance of understanding how parents view various mental health problems, as their beliefs and perceptions about the appropriateness and treatability of the problems may influence their reactions to the problems and, hence, the treatment. Theoretically, our results suggest that an important part of understanding service access and mental health disparities will involve not only objective conditions but also personal beliefs, with cultural factors likely, at least in part, to underlie these beliefs (Sue, 1991).

Our results are clear that the Thai and American clinical samples differed substantially with regard to depressive versus neurasthenia symptoms, whereas the community samples did not. Nonetheless, clinical implications and study limitations suggest areas where future research may be fruitful. For instance, we did not directly assess stigma or other attitudes toward mental health problems (cf. Ryder et al., 2008) such as treatability; assessment of these factors and inclusion as covariates to determine whether such factors may underlie the differential symptom reports would be useful. Another limitation of the study was that our Neurasthenia and Depression factors were derived from the parent-report version of the CBCL, and it is possible that we might have obtained different results if these factors had included all of the precise symptoms defining them. Moreover, different results might have been obtained if other informants had been used.

Finally, our sample sizes were large, with sufficient power to detect small effects. Therefore, as effect size estimates, we computed standardized scores for the depressive–neurasthenia symptoms contrast for the U.S. and Thai children; $z = .85$ for the children and $z = .63$ for the adolescents. On the basis of Cohen's (1988) widely used definitions of small (.2), medium (.5), and large (.8) effect sizes, these effects appear substantial in size.

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