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The Generalizability of the Youth Self-Report Syndrome Structure in 23 Societies

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As a basis for theories of psychopathology, clinical psychology and related disciplines need sound taxonomies that are generalizable across diverse populations. To test the generalizability of a statistically derived 8-syndrome taxonomic model for youth psychopathology, confirmatory factor analyses (CFAs) were performed on the Youth Self-Report (T. M. Achenbach & L. A. Rescorla, 2001) completed by 30,243 youths 11–18 years old from 23 societies. The 8-syndrome taxonomic model met criteria for good fit to the data from each society. This was consistent with findings for the parent-completed Child Behavior Checklist (Achenbach & Rescorla, 2001) and the teacher-completed Teacher's Report Form (Achenbach & Rescorla, 2001) from many societies. Separate CFAs by gender and age group supported the 8-syndrome model for boys and girls and for younger and older youths within individual societies. The findings provide initial support for the taxonomic generalizability of the 8-syndrome model across very diverse societies, both genders, and 2 age groups.

Keywords: taxonomy, youths, psychopathology, Youth Self-Report, multicultural

To strengthen the theoretical foundations of its science and practice, clinical psychology needs sound taxonomies of emotional and behavioral problems. In other words, research, training, assessment, and treatment all require clear distinctions among different kinds of psychopathology. As systems for delineating such distinctions, taxonomies provide overarching frameworks for conceptualizing similarities and differences among multiple kinds of psychopathology. Taxonomies thus embody hypotheses about which problems should be grouped together to form particular taxa and which should be separated into different taxa.

The American Psychiatric Association's (1994) *Diagnostic and Statistical Manual—4th Edition* (*DSM–IV*) embodies the *DSM–IV* committee's taxonomic hypotheses about distinctions among disorders. However, challenges remain regarding how best to "carve nature at its joints" with respect to child and adolescent emotional and behavioral problems (Beauchaine, 2003; Pickles & Angold, 2003). Additional challenges are posed by increasing urgency to demonstrate taxonomic generalizability (i.e., comparability and relevance of taxonomic constructs) across the diverse populations served by twenty-first-century mental health professionals (Alarcón et al., 2002).

One alternative to the *DSM–IV* approach is to develop taxonomies by using multivariate statistical methods to identify sets of co-occurring emotional and behavioral problems. Designated as "syndromes," statistically identified sets of problems can serve as taxonomic constructs, and groups of syndromes can be viewed as taxonomies. Taxonomies constructed via statistical procedures can provide foundations for theories of psychopathology, as can taxonomies constructed by the committees of experts who formulate the *DSM*.

The generalizability of taxonomic constructs must be tested in different populations. Just as meta-analyses raise our understanding to higher levels by transcending the specifics of individual studies, tests of taxonomic constructs in samples from diverse populations can raise the taxonomic basis for theories of psychopathology to higher levels by transcending the idiosyncrasies of individual populations. Research on taxonomic generalizability across populations should proceed in an orderly fashion, from tests of the replicability of taxa across populations to tests of taxonomic validity, such as associations with other relevant constructs and variables.

If particular syndromes are supported in many different populations, they can serve as cornerstones for a taxonomy of psychopathology common to those populations. Such a taxonomy can generate testable hypotheses about the etiology, course, treatability, and outcome of psychopathology in those populations. It can also generate hypotheses about factors in the development of

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psychopathology that are specific to particular populations, such as particular societies. For example, rule-breaking and aggressive behavior may form two syndromes in societies that distinguish them as separate forms of conduct problems. However, they may form a single syndrome in societies that do not make such a distinction.

We recognize that a particular taxonomic model is only one of many possible taxonomic models. Even when a taxonomy is supported in multiple societies, other taxonomies may also be supported in some or all of those societies. At this early stage of research on taxonomic generalizability, findings that support the generalizability of a particular model cannot be expected to simultaneously prove that the model is uniquely suited to all the relevant societies and that it is superior to all other possible models. It is also unrealistic to expect any one taxonomy to encompass all problems or syndromes that may possibly be important in every society. Equally important, methodological variations need to be considered when interpreting similarities and differences between findings from different societies. Such methodological variations include procedures for recruiting and assessing participants, effects of translations of assessment instruments into different languages, and methods for analyzing data.

The degree to which syndromes found in one society are generalizable to other societies can be tested if data are gathered in the other societies via the same assessment instruments as in the initial society. Factor analysis can be used to evaluate the similarity of syndromes identified in the different societies. Two types of factor analysis are potentially relevant. Exploratory factor analysis (EFA) is performed on correlations among problem items to identify syndromes of co-occurring problems. Confirmatory factor analysis (CFA) is then used to test whether particular patterns of problems, such as syndromes derived by an EFA (or by other means), fit a particular data set.

To test the similarity of syndromes in multiple societies, one should apply the same analytic methods to data obtained with the same standardized instrument in each society. Because the Youth Self-Report (YSR; Achenbach & Rescorla, 2001) has been used to assess self-rated problems in many societies, it enables us to test its syndrome structure in those societies. The YSR obtains 11- to 18-year-olds' self-ratings of 104 specific emotional, behavioral, and social problems, plus an open-ended item for describing and rating somatic complaints not included among the more specific items.

The initial factor structure of the YSR was derived from analyses of clinical samples by Achenbach and Edelbrock (1987) and has subsequently been refined through analyses of new samples (Achenbach, 1991; Achenbach & Rescorla, 2001). The 2001 versions of the YSR syndromes were derived from self-ratings by 2,581 youths 11–18 years old whose Total Problems scores were at or above the median in a U.S. general population sample, plus clinically referred youths from Australia, England, and the United States (Achenbach & Rescorla, 2001). A correlated eight-syndrome structure was derived via multiple EFA procedures applied to parent ratings on the Child Behavior Checklist (CBCL; Achenbach & Rescorla, 2001) and teachers' ratings on the Teacher's Report Form (TRF; Achenbach & Rescorla, 2001), as well as self-ratings on the YSR. The eight-syndrome structure was then tested with CFA procedures. CFAs were performed with the weighted least squares with standard errors and mean- and variance-adjusted chi-square estimator (WLSMV) via Mplus 3.0 (Muthén & Muthén, 2001/2004). Because the WLSMV is an asymptotically distribution-free estimator, it can be used with ordinal item distributions without incorrectly assuming multivariate normality.

The eight 2001 syndromes are designated as Anxious/Depressed, Withdrawn/Depressed, Somatic Complaints, Social Problems, Thought Problems, Attention Problems, Rule-Breaking Behavior, and Aggressive Behavior. These syndromes correlate highly with the 1991 versions of the YSR syndromes (Achenbach, 1991; Achenbach & Rescorla, 2001). The eight-syndrome structure has thus been firmly established in samples drawn mainly from the United States. However, to determine whether a taxonomy based on the correlated eight-syndrome structure would be generalizable to youths in other societies, the syndrome structure needs to be tested in other societies.

Factor Analyses of the YSR in Single Societies

Several studies have tested the 1991 YSR syndrome structure in single societies. De Groot, Koot, and Verhulst (1996) tested the 1991 YSR structure in a clinical sample of 1,139 Dutch 11- to 18-year-olds. EFAs were conducted with half the Dutch sample, followed by CFAs that tested both the model derived from half the Dutch sample and the 1991 U.S. model with the other half of the sample. EFAs consisted of principal factor analyses with promax rotation, while CFAs consisted of unweighted least-squares factor analyses of polychoric correlations. CFAs indicated that the Dutch factor model fit the Dutch data only slightly better than did the U.S. factor model. The authors concluded that the six-factor Dutch model derived from EFAs was very similar to the U.S. model, except that most items comprising the U.S. Anxious/Depressed and Withdrawn syndromes formed a single Dutch syndrome, as did most items comprising the U.S. Delinquent and Aggressive Behavior syndromes.

Kuramoto et al. (2002) performed a principal components EFA of YSR ratings by 631 Japanese 10- to 15-year-olds who participated in a general population survey and whose Total Problems scores (the sum of all problem items) were at or above the 75th percentile. A varimax rotation yielded six syndromes that were similar to the U.S. syndromes. As in the De Groot et al. (1996) study, most items comprising the U.S. Anxious/Depressed and Withdrawn syndromes formed a single syndrome. However, another syndrome was formed by most items comprising the U.S. Attention Problems and Social Problems syndromes.

Lambert et al. (2003) conducted a CFA on YSR ratings by 625 youths 11–18 years old receiving psychological services in Jamaica. The CFA consisted of maximum likelihood estimation performed on Pearson correlations. The eight-factor model that was tested by Lambert et al. differed from the original U.S. model in two important ways. First, only three items were chosen to measure each syndrome. Second, by assigning the Social Problems, Thought Problems, and Attention Problems syndromes to both Internalizing and Externalizing groupings, Lambert et al. specified hierarchical groupings of syndromes that differed from the Internalizing and Externalizing groupings found for the U.S. data (Achenbach, 1991). Lambert et al. concluded that their version of the U.S. model did not fit Jamaican data. However, the authors did not directly test the original U.S. syndrome model.

In summary, several studies have performed factor analytic tests of YSR syndromes in a single society. However, methodological differences between the procedures used in those studies versus the procedures used to derive the eight-syndrome model make it difficult to interpret the differences in findings. Potentially important methodological differences included the specific factor analytic procedures that were used and differences in the models that were tested.

Purposes of the Present Study

Syndromes derived from factor analyses of the YSR in mainly U.S. samples have been used to test hypotheses in many studies done in many populations (Berube & Achenbach, 2007). Several studies have also tested the replicability of the eight-syndrome model in single societies. As a step toward strengthening the theoretical basis for the eight-syndrome model as a taxonomy for psychopathology, the present study went well beyond the previous studies by testing the generalizability of the model in samples from 23 diverse societies. This was done by applying uniform CFA procedures to YSR ratings provided by youths from each of the 23 societies. We hypothesized that the eight-syndrome model would be supported in most societies.

Our study differed from previous tests of YSR syndrome structures (a) by capitalizing on advances in CFA methodology, (b) by applying the same statistical procedures to data from each society, and (c) by testing the 2001 eight-syndrome structure that was derived from a combination of EFAs and CFAs of parent, teacher, and self-ratings. To provide especially stringent tests of the eight-syndrome structure within individual societies, we also conducted separate CFAs of self-ratings by boys and girls and by younger and older youths. Good fit for both genders and for different ages within individual societies would further support the taxonomic generalizability of the eight-syndrome structure to each gender and age group.

Method

Participants

The participants resided in 23 societies. It should be noted that the Swiss participants resided in the German-speaking canton of Zurich, which is not necessarily representative of other Swiss cantons, where the dominant language is French, Italian, or Romansh.

Table 1 describes the sources of data used in this study, including the main reference for each source, number of participants, age range, gender distribution, response rate, and sampling procedure. Because socioeconomic structures (SES) differed among the 23 societies and no single measure could have incorporated these differences, the SES data were not analyzed. Data from the same sources were also used by Rescorla et al. (2007) in their comparisons of scores on YSR items and scales across societies, although Rescorla et al. did not test the taxonomic generalizability of the syndrome structure. Selected for having Total Problems scores greater than the 75th percentile, 25% of the Japanese YSRs that we analyzed had been used in the previously discussed Kuramoto et al. (2002) study. Sample sizes ranged from 301 for Puerto Rico to 2,622 for Lithuania. To be consistent with standard procedures for analyzing YSR data (Achenbach & Rescorla, 2001), we excluded YSRs that had more than eight omitted problem items. These YSRs, plus YSRs that were excluded because of missing informa-

Table 1
Sources of Data for Confirmatory Factor Analyses of the Youth Self-Report (YSR) in 23 Societies

Society	Reference	*N*	Ages in years (Mean)	Male (%)	Response rate (%)	Sampling frame
1. Australia	Sawyer et al., 2001	1,275	12–17 (14.8)	48	91	National household
2. Denmark	Bilenberg, 1999	389	11–16 (13.3)	43	56	Regional household
3. Ethiopia	Mulatu, 1997	674	11–18 (13.9)	48	91	Regional school-based
4. Finland	Weintraub, 2004	827	11–17 (12.8)	47	67	Regional school-based
5. Germany	Döpfner et al., 1997	1,793	11–18 (13.9)	51	73	National household
6. Greece	Roussos et al., 2001	1,435	11–18 (15.1)	49	100	National school-based
7. Hong Kong	Leung et al., 2006	1,593	12–18 (14.7)	53	86	Territory school-based
8. Iceland	Hannesdottir & Einarsdottir, 1995	579	11–18 (14.0)	47	64	Regional school-based
9. Iran	Minaei, 2005	815	11–18 (14.3)	53	96	Regional school-based
10. Israel	Zilber et al., 1994	614	11–17 (13.9)	48	81	Jerusalem household
11. Jamaica	Lambert et al., 1998	468	11–18 (14.6)	49	90	Regional school-based
12. Japan	Kuramoto et al., 2002	2,542	11–15 (13.1)	48	93	Regional school-based
13. Korea	Oh et al., 1997	3,211	12–17 (14.8)	39	86	National school-based
14. Lithuania	Zukauskiene & Kajokiene, 2004	2,622	11–18 (14.6)	48	98	National school-based
15. The Netherlands	Verhulst et al., 1997	1,097	11–18 (14.4)	50	78	National household
16. Norway	Novik, 1999	434	11–17 (13.8)	45	37	Regional household
17. Poland	Wolanczyk, 2003	2,176	11–18 (14.6)	50	95	National school-based
18. Puerto Rico	Achenbach et al., 1990	301	12–16 (14.0)	48	100	Island-wide household
19. Romania	Domuta, 2004	502	11–18 (14.0)	49	98	Regional school-based
20. Spain	Abad et al., 2002	1,337	11–16 (13.7)	51	97	Barcelona school-based
21. Switzerland	Steinhausen et al., 1997	1,144	11–17 (13.8)	51	98	Regional school-based
22. Sweden	Broberg et al., 2001	2,248	12–18 (14.7)	49	85	Regional school-based
23. Turkey	Erol & Simsek, 1997	2,167	11–18 (14.3)	51	79	National household
Total:		30,243				

Note. Response rate is defined as percentage of adolescents in original target sample for whom completed YSRs were obtained.

tion about the adolescents' age or gender comprised less than 5% of the total sample size. There were no outliers in the data, as all items were rated as 0, 1, or 2, and no scores fell outside this range. Translations of the YSR were used, except for Jamaica and Australia, where English is the dominant language. Professional translators and linguists typically translated the YSR then back-translated it into English to ensure that the translation accurately captured the meaning of the original items.

Model Tested

The 105 problem items of the YSR are rated 0 = *not true,* 1 = *somewhat or sometimes true,* and 2 = *very true or often true,* based on the preceding 6 months. The nine items that do not load on any of the eight YSR syndromes are included in the calculation of the Total Problems score. Participants in 20 societies completed the 1991 edition of the YSR, while participants in Iran, Lithuania, and Romania completed the 2001 edition. Six problem items (items 2, 4, 5, 28, 78, and 99) on the 2001 edition were new. Elimination of the nine items that did not load on any syndrome, the six items that were new on the 2001 edition of the YSR, and the one open-ended item for describing additional physical problems yielded 89 items for our analyses.

Figure 1 illustrates the model that was tested. It comprised the 89 items that were common to the 1991 and 2001 editions of the YSR and that loaded on the eight 2001 YSR syndromes (Achenbach & Rescorla, 2001). For consistency with the Achenbach and Rescorla (2001) model, the eight latent factors were correlated and all item error variances were uncorrelated. Each item loaded on a single syndrome.

The model was fitted separately for the data from each society. In addition, the model was fitted separately for boys and girls from each society where the sample size was at least 300 for each gender. The model was also fitted separately for ages 11–14 and ages 15–18 from each society where the sample size was at least 300 for each age group.

Data Analysis

Following procedures specified by Achenbach and Rescorla (2001), we transformed item ratings to 0 versus 1 or 2 in order to use tetrachoric correlations for the CFA. To account for the non-normal distribution of item ratings, we used WLSMV, implemented via Mplus 3.0 (Muthén & Muthén, 2001/2004).

We selected the root-mean-square error of approximation (RMSEA; Browne & Cudeck, 1993) as the primary index of model fit because it has been generally recommended as the best model fit index (Loehlin, 1998) and identified as the best performing index for the WLSMV method (Yu & Muthén, 2002). Yu and Muthén (2002) found that RMSEA values of less than .06 reliably indicated good model fit for binary or ordered categorical variables, while other model fit indices did not perform well. However, to follow the convention of using multiple fit indices, we also computed the Comparative Fit Index (CFI; Bentler, 1990) and the Tucker–Lewis Index (TLI; Tucker & Lewis, 1973). We considered the results of the CFI and the TLI secondary to the results of the RMSEA because it is not known how well these indices perform with categorical data. Hu and Bentler (1999) proposed that CFI and TLI values greater than .95 be regarded as indicating good model fit. However, this criterion has been criticized as being too stringent and increasing the probability of rejecting a well-specified model (Marsh, Hau, & Wen, 2004). Because our model was complex, we used Browne and Cudeck's (1993) less stringent criterion of greater than .90 as indicating good model fit and .80 to .90 as indicating acceptable model fit.

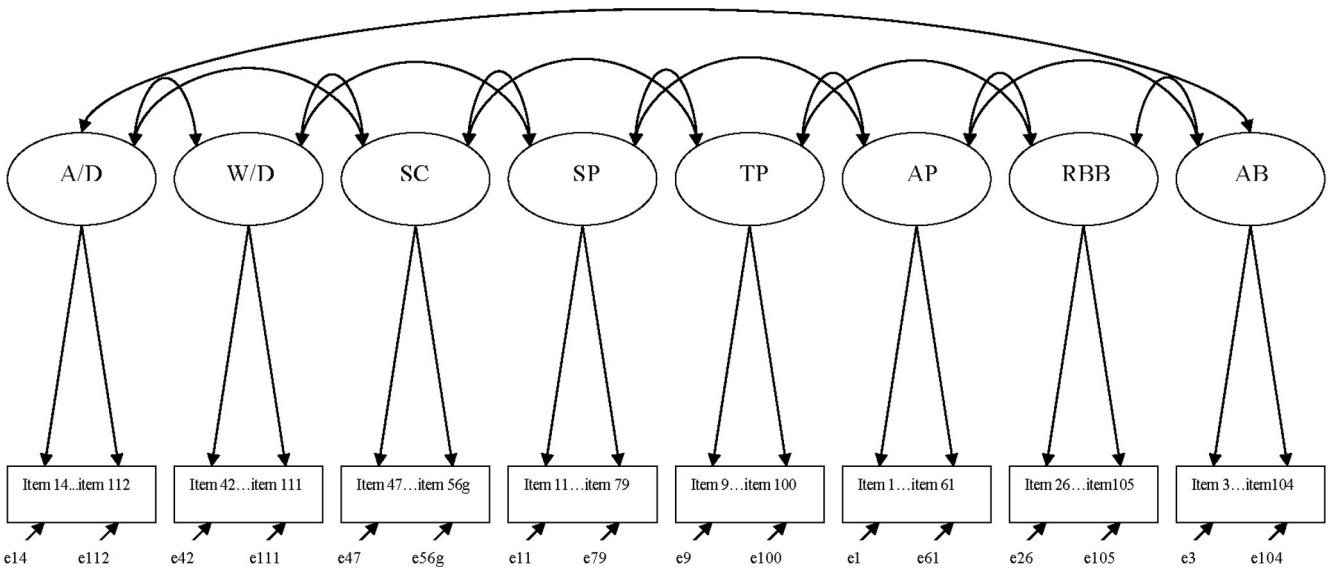

Figure 1. The model that was tested in the study. A/D = Anxious/Depressed; W/D = Withdrawn/Depressed; SC = Somatic Complaints; SP = Social Problems; TP = Thought Problems; AP = Attention Problems; RBB = Rule-Breaking Behavior; AB = Aggressive Behavior. For the purposes of clear presentation, some latent factor correlations are not depicted.

Results

As Table 2 shows, the correlated eight-syndrome model converged for all 23 societies. The RMSEAs ranged from .035 for Ethiopia to .050 for Jamaica, indicating good model fit. To give a better sense of the RMSEA distribution across the 23 societies, the RMSEA equaled .039, .042, and .046 at the 25th, 50th, and 75th percentiles, respectively. The CFI values ranged from .753 for Greece to .913 for Iran, indicating acceptable to good fit for all societies except Greece. The TLI ranged from .841 for Greece to .952 for Australia, indicating acceptable to good model fit for all societies.

The model converged smoothly for all societies. For 19 societies, all 89 items had statistically significant loadings on their respective factors. One item had a nonsignificant loading for Ethiopia and Norway, four items had nonsignificant loadings for Puerto Rico, and all 16 items comprising the Aggressive Behavior syndrome had nonsignificant loadings for Sweden. For Norway, one item also had a negative residual variance. Thus, only this 1 of the 4,738 estimated parameters was outside the admissible parameter space. An admissible solution was obtained by fixing the single offending parameter to a value within the admissible parameter space.

Table 3 presents medians and ranges of factor loadings for each society. The median factor loading of the 89 items ranged from .53 for Greece to .67 for Finland, with an overall median of .59. Table 4 presents the items comprising each syndrome, as well as the medians and ranges of factor loadings across all societies. The median factor loading for each item ranged from .34 (item 64: "I prefer being with younger kids") to .84 (item 103: "I am unhappy, sad, or depressed"), with an overall median of .60. For items within syndromes, the median factor loadings ranged from .55 for Attention Problems to .63 for Anxious/Depressed and Somatic Complaints. Table 4 also presents medians and ranges of latent factor covariances across all societies. The latent factor covariances ranged from .62 to .79, with an overall median of .73. Finally, the items comprising each syndrome are presented in Table 4.

Gender and Age Group Analyses

The 16 societies with sufficiently large sample sizes to conduct separate CFAs by gender were Australia, Ethiopia, Finland, Germany, Greece, Hong Kong, Iran, Japan, Korea, Lithuania, the Netherlands, Poland, Spain, Sweden, Switzerland, and Turkey. All 32 RMSEAs were less than .06, providing support for the correlated eight-factor model for each gender analyzed separately. For boys, the RMSEAs ranged from .035 (Switzerland) to .045 (Finland), and for girls, the RMSEAs ranged from .036 (Ethiopia and Korea) to .044 (Hong Kong and Lithuania).

The 14 societies with sufficiently large sample sizes to conduct separate CFAs by age group were Australia, Germany, Greece, Hong Kong, Iran, Japan, Korea, Lithuania, the Netherlands, Poland, Spain, Sweden, Switzerland, and Turkey. All 28 RMSEAs were less than .06, providing support for the correlated eight-factor model for each age group analyzed separately. For the 11- to 14-year-old group, the RMSEAs ranged from .034 (Germany) to

Table 2
Results of Confirmatory Factor Analyses of the Eight-Syndrome Model for 23 Societies

Society	*N*	RMSEA	CFI	TLI	Items with negative residual variances[a]	Items with nonsignificant factor loadings[a]
1. Australia	1,275	.042	.899	.952		
2. Denmark	389	.045	.906	.940		
3. Ethiopia	674	.035	.906	.934		69
4. Finland	827	.043	.906	.945		
5. Germany	1,793	.038	.880	.948		
6. Greece	1,435	.048	.753	.841		
7. Hong Kong	1,593	.043	.845	.929		
8. Iceland	579	.041	.905	.934		
9. Iran	815	.038	.913	.944		
10. Israel	614	.039	.897	.920		
11. Jamaica	468	.050	.838	.880		
12. Japan	2,542	.037	.856	.948		
13. Korea	3,211	.038	.863	.950		
14. Lithuania	2,622	.046	.818	.935		
15. The Netherlands	1,097	.040	.864	.893		
16. Norway	434	.041	.877	.925	67	66
17. Poland	2,176	.046	.803	.924		
18. Puerto Rico	301	.046	.900	.910		56d, 69, 85, 105
19. Romania	502	.046	.875	.899		
20. Spain	1,337	.043	.822	.882		
21. Sweden	2,248	.043	.807	.905		16, 19, 20, 21, 22, 23, 37, 57, 68, 86, 87, 89, 94, 95, 97, 104
22. Switzerland	1,144	.039	.862	.915		
23. Turkey	2,167	.041	.820	.918		

Note. RMSEA = root-mean-square error of approximation; CFI = comparative fit index; TLI = Tucker-Lewis index.
[a] The numbers are the numbers that the items bear on the Youth Self-Report. Table 4 displays abbreviated versions of the items.

Table 3
Descriptive Statistics for Factor Loadings and Factor Covariances by Society

		Factor loadings		Factor covariances	
Society	*N*	Median loading	Range	Median covariance	Range
1. Australia	1,275	.65	.37–.92	.74	.52–.91
2. Denmark	389	.62	.30–.92	.78	.64–.99
3. Ethiopia	674	.54	.08–.71	.79	.56–.97
4. Finland	827	.67	.33–.88	.74	.52–.95
5. Germany	1,793	.63	.37–.84	.73	.55–.94
6. Greece	1,435	.53	.15–.84	.63	.21–.87
7. Hong Kong	1,593	.58	.31–.86	.71	.47–.93
8. Iceland	579	.61	.30–.86	.71	.51–.91
9. Iran	815	.58	.13–.86	.77	.54–.98
10. Israel	614	.59	.33–.82	.73	.45–.91
11. Jamaica	468	.59	.17–.76	.73	.54–.93
12. Japan	2,542	.62	.37–.83	.73	.55–.95
13. Korea	3,211	.59	.31–.81	.74	.51–.95
14. Lithuania	2,622	.63	.19–.83	.76	.50–.96
15. The Netherlands	1,097	.55	.26–.88	.63	.40–.84
16. Norway	434	.62	.21–1.07[a]	.74	.50–.96
17. Poland	2,176	.62	.34–.85	.73	.44–.92
18. Puerto Rico	301	.57	.09–.90	.74	.48–.96
19. Romania	502	.59	.18–.84	.66	.32–.94
20. Spain	1,337	.56	.25–.84	.62	.30–.88
21. Sweden	2,248	.59	.09–.82	.67	.34–.91
22. Switzerland	1,144	.58	.35–.87	.70	.31–.87
23. Turkey	2,167	.57	.33–.86	.78	.53–.96

[a] The loading of 1.07 is for the single parameter that was outside the admissible parameter space.

.048 (Greece), and for the 15- to 18-year-old group, the RMSEAs ranged from .038 (Korea) to .052 (Lithuania).

Discussion

The present study tested the fit of the 2001 YSR syndrome structure in data from 23 societies. The results indicated that the correlated eight-syndrome model fit the data well for all societies. The model converged, and the RMSEA, which was used as the primary model fit index, indicated good model fit for all 23 societies. Across all societies, the median loading of items on their respective factors was a substantial .60. Of the 4,738 estimated parameters, the single one that was outside the admissible parameter space probably reflected sampling error. Separate CFAs also indicated that the correlated eight-syndrome model fit well for both boys and girls, and for younger and older adolescents.

The data used in this study came from societies representing very different world regions that vary greatly in language, religion, and ethnicity, as well as social and political systems. Other sources of variation included methodological differences among the studies (e.g., recruitment procedures) and differences in sample characteristics (e.g., age distribution, response rate). Despite the many factors that could have contributed to the differences among societies, Table 2 shows that the correlated eight-syndrome model fit quite well in each society.

The results of this study are consistent with findings for parent and teacher ratings of emotional and behavioral problems. Ivanova et al. (2007, in press) tested the fit of the eight-syndrome model scored from the CBCL and the TRF (Achenbach & Rescorla, 2001). The CBCL and TRF share the YSR's syndrome structure. However, it is important to note that the syndrome model derived from the TRF also includes a hierarchical substructure for the Attention Problems syndrome (Achenbach & Rescorla, 2001; Dumenci, McConaughy, & Achenbach, 2004). For the CBCL, Ivanova et al. (2007) tested the eight-syndrome model in 30 societies, which included all societies tested in the present study except Spain. The model converged for all 30 societies, and all 30 RMSEA values indicated good model fit. For the TRF (Ivanova et al., in press), the syndrome model was tested in 20 societies, which included all societies tested in the present study except Ethiopia, Germany, Iceland, Israel, Korea, Norway, Spain, Sweden, and Switzerland. The model converged for all 20 societies, and the RMSEA values indicated acceptable to good model fit for all societies.

The results of the present study indicate similar patterns of co-occurrence among problems assessed by YSR items in the tested societies. This appears to be true for both genders and for different ages within societies. These important findings allow us to meaningfully compare scores on the eight syndromes in these societies. In a companion study, Rescorla et al. (2007) compared scores on the YSR syndrome scales for youth in the 23 societies used in this study, plus a U.S. general population sample. While the present study tested the structure of problem item ratings in the 23 societies, Rescorla et al. statistically tested differences in scale scores across the same societies. For scores on the eight-syndrome scales, the effect sizes for differences among societies were in the small to medium range, on the basis of Cohen's (1988) criteria. The within-society variance greatly exceeded the between-societies variance in youths' self-ratings of their emotional, behavioral, and social problems.

Table 4
Median Item Loadings and Ranges on the Eight Youth Self-Report Syndromes Across 23 Societies

Syndrome and item[a]	Median loading	Range
Anxious/Depressed	**.63**	**.37–.72**
14. Cries a lot	.56	.46–.71
29. Fears	.37	.29–.59
30. Fears school	.57	.33–.71
31. Fears doing bad	.54	.32–.70
32. Must be perfect	.42	.19–.61
33. Feels unloved	.68	.41–.82
35. Feels worthless	.72	.59–.86
45. Nervous, tense	.66	.52–.82
50. Fearful, anxious	.63	.44–.75
52. Feels too guilty	.66	.54–.76
71. Self-conscious	.56	.33–.69
91. Suicidal ideation	.68	.53–.84
112. Worries	.72	.47–.85
Withdrawn/Depressed	**.59**	**.43–.84**
42. Rather be alone	.49	.26–.58
65. Refuses to talk	.63	.44–.79
69. Secretive	.59	.08–.76
75. Shy, timid	.49	.25–.61
102. Lacks energy	.59	.22–.75
103. Sad	.84	.71–.92
111. Withdrawn	.43	.29–.62
Somatic Complaints	**.63**	**.40–.77**
47. Nightmares	.60	.37–.76
51. Feels dizzy	.68	.52–.85
54. Overtired	.77	.63–.90
56a. Aches, pains	.63	.46–.73
56b. Headaches	.58	.34–.67
56c. Nausea	.68	.47–.79
56d. Eye problems	.48	.12–.68
56e. Skin problems	.40	.28–.64
56f. Stomachaches	.63	.41–.78
56g. Vomiting	.62	.45–.84
Social Problems	**.58**	**.34–.69**
11. Too dependent	.43	.13–.59
12. Lonely	.66	.47–.82
25. Doesn't get along	.58	.42–.78
27. Jealous	.60	.44–.77
34. Others out to get him	.69	.48–.78
36. Accident prone	.46	.29–.60
38. Gets teased	.59	.43–.72
48. Not liked	.64	.47–.77
62. Clumsy	.58	.37–.71
64. Prefers younger kids	.34	.15–.46
79. Speech problems	.46	.29–.65
Thought Problems	**.59**	**.44–.75**
9. Can't get mind off	.59	.21–.72
18. Harms self	.75	.41–.89
40. Hears things	.60	.41–.72
46. Twitching	.60	.24–.69
58. Picks skin	.52	.42–.73
66. Repeats acts	.55	.21–.74
70. Sees things	.58	.40–.73
76. Sleeps less	.49	.25–.65
83. Stores things	.44	.23–.55
84. Strange behavior	.62	.44–.71
85. Strange ideas	.59	.28–.76
100. Trouble sleeping	.56	.48–.69
Attention Problems	**.55**	**.47–.72**
1. Acts young	.47	.30–.57
8. Can't concentrate	.58	.40–.70
10. Can't sit still	.55	.40–.70
13. Confused	.72	.59–.86
17. Daydreams	.52	.35–.66
41. Impulsive	.62	.48–.76
61. Poor schoolwork	.51	.37–.73
Rule-Breaking Behavior	**.62**	**.42–.71**
26. Lacks guilt	.42	.19–.62
39. Bad friends	.61	.46–.73
43. Lies, cheats	.71	.57–.77
63. Prefers older kids	.47	.33–.58
67. Runs away	.66	.46–1.07[b]
72. Sets fires	.60	.40–.76
81. Steals at home	.65	.43–.79
82. Steals outside home	.66	.44–.84
90. Swearing	.68	.48–.84
96. Thinks of sex too much	.61	.45–.73
101. Truant	.62	.38–.78
105. Uses drugs	.59	.09–.72
Aggressive Behavior	**.61**	**.53–.70**
3. Argues a lot	.60	.09–.76
16. Mean to others	.63	.44–.72
19. Demands attention	.53	.20–.65
20. Destroys own things	.59	.50–.74
21. Destroys others' things	.63	.48–.82
22. Disobedient at home	.61	.53–.71
23. Disobedient at school	.61	.50–.72
37. Gets in fights	.56	.39–.71
57. Attacks people	.65	.53–.80
68. Screams a lot	.66	.53–.76
86. Stubborn, sullen	.58	.33–.73
87. Mood changes	.70	.44–.82
89. Suspicious	.62	.38–.79
94. Teases a lot	.61	.39–.74
95. Temper	.64	.40–.73
97. Threatens others	.68	.49–.76
104. Loud	.60	.49–.70

Note. Values in bold are descriptive statistics for syndromes.
[a] Abbreviated versions of items on the Youth Self-Report (Achenbach & Rescorla, 2001). [b] The loading of 1.07 is for the single parameter that was outside the admissible parameter space.

In summary, CFAs of the YSR, CBCL, and TRF indicate that the eight-syndrome structure fits patterns of problem ratings by different informants in a wide range of societies. The good fit between the eight-syndrome structure and YSR data from many societies supports the taxonomic generalizability of the YSR version of the eight-syndrome structure in these societies and for each gender and different age groups within individual societies.

Implications and Limitations of the Findings

It is important to note that, because we did not explicitly test the external validity of the eight-syndrome structure in each of the 23 societies, use of the syndromes in different societies should proceed with caution, until their external validity is formally established. However, studies from many societies

have found numerous meaningful correlates of the syndrome constructs operationalized in terms of the sum of ratings on their constituent items (Berube & Achenbach, 2007). The findings of both good fit and many meaningful correlates of the syndrome constructs support the taxonomic value of the eight-syndrome structure in many societies. Taken together, these findings suggest that the taxonomic constructs operationalized in terms of the eight-syndrome structure delineate meaningful boundaries between different patterns of psychopathology in many societies. Mental health professionals in different societies can therefore use the eight syndromes to organize their thinking about patterns of youth psychopathology. Use of the eight-syndrome structure can facilitate communication and collaboration among mental health professionals in different societies. It can also facilitate the training of mental health workers who serve people from diverse backgrounds.

The findings do not necessarily mean that the eight-syndrome structure includes all important problems or syndromes that could potentially be identified in every society, nor do they mean that every syndrome is equally strong in every society. For instance, we found that, while the eight-syndrome structure fit the Swedish data overall, the factor loadings of items comprising the Aggressive Behavior syndrome did not reach statistical significance. Although this may reflect sampling error, the failure of Swedish adolescents' self-ratings to load significantly on the Aggressive Behavior syndrome is interesting and should be explored in further research. Weisz, Weiss, Suwanlert, and Chaiyasit (2006) theorized that sociocultural processes, including cultural sanction and social facilitation, shape syndrome structures within particular groups and may explain group differences in syndrome structures. Cultural sanction refers to the systematic discouragement of a set of behaviors by a social group, leading to a lack of co-occurrence of these behaviors within the group's behavioral repertoire. Its opposite, social facilitation, refers to the systematic encouragement of a set of behaviors by members of a social group, leading to the co-occurrence of these behaviors within the group's behavioral repertoire. According to the Weisz et al. theoretical model, aggressive behaviors that are socially facilitated in Sweden may not have been captured by the YSR. Or it may be that aggressive behaviors captured by the YSR are culturally sanctioned in Sweden but not in the other 22 societies.

It is important to consider the findings of the present study in relation to the realities of the CFA. CFA support for a particular taxonomic model does not necessarily mean that it is the only model compatible with a particular data set. Furthermore, to establish with certainty that a single model fits data obtained in two populations equally well, one would need to formally conduct a multigroup CFA. To account for the nonnormal distribution of our data, we used the WLSMV estimator, a recently developed estimator that is robust to violations of multivariate normality (Muthén & Muthén, 2001/2004). Because the WLSMV is so computationally intensive, it is not now feasible to conduct multigroup CFAs of the YSR with the WLSMV. It is therefore important to recognize that our results should be interpreted as preliminary evidence of the taxonomic generalizability of the eight-syndrome structure across the 23 societies and across gender and age groups. It is also important to note that other assessment methods, analytic models, and items could yield different syndromes in data from one society, a few societies, or many societies. It is always possible that new theories and assessment procedures will yield findings that require any existing taxonomy to be revised, augmented, subsumed, or superseded by other taxonomic constructs.

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