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International Comparisons of Behavioral and Emotional Problems in Preschool Children: Parents' Reports from 24 Societies

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Abstract

International comparisons were conducted of preschool children's behavioral and emotional problems as reported on the CBCL/1½-5 by parents in 24 societies (*N* = 19,850). Item ratings were aggregated into scores on syndromes, *DSM*-oriented scales, a Stress Problems scale, and Internalizing, Externalizing, and Total Problems scales. Effect sizes for scale score differences among the 24 societies ranged from small to medium (3%-12%). Although societies differed greatly in language, culture, and other characteristics, Total Problems scores for 18 of the 24 societies were within 7.1 points of the omnicultural mean of 33.3 (on a scale of 0 to 198). Gender and age differences, as well as gender and age interactions with society, were all very small (effect sizes <1%). Across all pairs of societies, correlations between mean item ratings averaged .78, and correlations between internal consistency alphas for the scales averaged .92, indicating that the rank orders of mean item ratings and of internal consistencies of scales were very similar across diverse societies.

Keywords: preschoolers, international comparisons, behavioral/emotional problems, CBCL, parents' reports

International Comparisons of Behavioral and Emotional Problems in Preschool Children: Parents' Reports from 24 Societies

Preschool children's behavioral and emotional problems have received much less research attention than older children's behavioral and emotional problems (Campbell, 2002; Egger & Angold, 2006). Egger and Angold's (2006) review of epidemiological research on diagnoses in preschoolers identified only four studies, all done in the USA. Two studies (Earls, 1982; Keenan, Shaw, Walsh, Delliquadri, & Giovannelli, 1997) included fewer than 150 children, while two had larger samples (Egger et al., 2006; Lavigne et al., 1993). Across these four studies, prevalence for "any disorder" ranged from 14% to 26%. Lavigne, Le Bailly, Hopkins, Gouze, and Binns (2009) subsequently published a fifth study from the USA. In their sample of 796 4-year-olds in metropolitan Chicago, prevalence rates for various disorders ranged from <0.1% to 13%, depending on the disorder as well as on the impairment criterion used.

One reason for widely varying prevalence rates is that troubling behaviors displayed by most preschoolers with diagnosable disorders (except perhaps autism) differ mainly in degree from behaviors manifested by typical preschoolers. That is, preschoolers generally come to clinical attention because they are overly aggressive, hyperactive, defiant, anxious, volatile, disruptive, stubborn, or distractible, but these behaviors are quite common in typically developing preschoolers (Campbell, 2002, Wakschlag et al., 2007).

To distinguish levels of problems that are typical for preschoolers from levels that are extreme enough to warrant clinical attention, data from general population samples are needed to establish the prevalence of problems. Furthermore, multicultural data are required to identify possible differences in the prevalence of particular kinds of problems across different cultural groups. Instruments such as the Child Behavior Checklist for Ages 1½-5 (CBCL/1½-5;

Achenbach & Rescorla, 2000) and the Strengths and Difficulties Questionnaire (SDQ; Goodman, 1997) are well-suited to large-scale investigations of children's problems because they are inexpensive, do not require training to administer, can be self-administered, and yield quantitative scores.

Findings for the CBCL/2-3, the predecessor of the CBCL/ 1½-5, were presented by Achenbach (1992), who reported a mean Total Problems score of 34.4 for 368 preschoolers from a USA general population sample. Mean Total Problems scores of 27.5 were reported for 109 Icelandic children (Hannesdóttir & Einarsdóttir, 1995) and of 30.4 for 374 Finnish children (Sourander, 2001). Erol, Simsek, Oner, and Munir (2005) reported a mean CBCL/2-3 Total Problems score of 39.5 for a nationally representative sample of 638 Turkish children. For a sample of 684 3-year-olds in the United Arab Emirates (UAE), Eapen, Yunis, Zoubeidi, and Sabri (2004) reported a mean CBCL/2-3 Total Problems score of 34.6 for boys and 30.8 for girls. In the Netherlands, Van den Oord, Koot, Boomsma, Verhulst, and Orlebeke (1995) obtained mean CBCL/2-3 Total Problems scores of 34.4 for boys and 32.3 for girls (N = 420).

When the CBCL/2-3 was revised to span ages 1½-5 (Achenbach & Rescorla, 2000), two items were changed, new normative and clinical samples were obtained, and new factor analyses yielded a 7-syndrome model. To norm the CBCL/1½-5, a national probability sample of 744 18- to 71- month-olds, which closely matched the demographics of the USA population according to census data, was obtained by sampling households from 40 states. Data were obtained via home interviews (completion rate = 94%). Consistent with the procedures used to norm other versions of the CBCL (Achenbach & Rescorla, 2000), the children who had received mental health or special education services in the preceding 12 months (5% of the sample) were excluded when deriving norms, to yield what epidemiologists term a "healthy sample." Mean Total Problems

score was 33.3, with minimal age and gender differences (Achenbach & Rescorla, 2000). Four international studies have also reported Total Problems scores for the CBCL/1½-5. Kristensen, Henriksen, and Bilenberg (2010) reported a mean Total Problems score of only 17.3 for 850 Danish children, whereas Total Problems scores of 30.5 have been reported for 672 Dutch children (Tick, van der Ende, Koot, & Verhulst, 2007), of 33.4 for 466 Italian children (Frigerio et al., 2006), and of 33.6 for 1,385 Chinese children (Liu et al., 2010).

To our knowledge, multicultural comparisons of preschoolers' problem scores have not been conducted to date. However, multicultural comparisons of problems among 6- to 16-year-olds (N = 55,508) have indicated considerable similarity in findings across 31 societies (Rescorla et al., 2007). Although societal groups had an 8% effect size (ES) on Total Problems scores, 19 of 31 societies had a mean Total Problems score within 5.7 points of the omnicultural mean of 22.5 on a scale that could range from 0 to 224. Correlations between societies for mean item ratings averaged .74, and internal consistency alpha coefficients were very similar across societies. Age and gender effects, all small, were also quite consistent across societies.

The Rescorla et al. (2007) study was *etic* in orientation, meaning that the same instrument was used to measure behavioral and emotional problems in many different societies. This contrasts with *emic* research, whereby the meanings of items are explored in different societies. When etic research reveals important differences between societies, emic research may illuminate possible reasons for those differences. Because, to our knowledge, no rigorous comparisons of preschoolers' behavioral and emotional problems across many societies have been published, etic studies are needed.

Purpose of the Present Study

The present study conducted multicultural comparisons of parent-reported CBCL scores

for 19,850 1½- to 5-year-olds from 24 societies. In a related study, Ivanova et al. (2010) conducted confirmatory factor analyses (CFAs) of data from the 23 non-USA societies. The CFA procedure applied was the "weighted least squares with standard errors and mean- and variance-adjusted chi-square estimator" (WLSMV) on tetrachoric correlations of 0 vs. 1 and 2 item ratings. This was the same procedure Achenbach and Rescorla (2000) applied to the 7-syndrome model in the USA. Although the Ivanova et al. (2010) findings supported the USA CBCL 7-syndrome model in all 23 samples, this does not mean that scores on the syndromes or on other scales would be similar in all the societies. An important purpose of our study was therefore to determine the magnitude of differences between societies on each scale and to identify societies that had particularly low or high scale scores. Whether or not societies differed much in scale scores, societal differences in gender roles and in customs related to children's age argued for testing interactions between gender, age, and society in our analyses. Because societies might also differ in the kinds of problems that parents rated high versus low, we tested these differences by computing correlations between the mean ratings of the 99 items in each society versus each other society. Finally, to measure societal variations in internal consistencies of scale scores, we computed correlations between Cronbach's alpha coefficients on all scales for each society versus every other society.

Method

Samples

As presented in Table 1, samples were obtained from 24 societies, with *N*s ranging from 301 for Singapore to 2,327 for Korea. Following the recommendation of Nunnally and Bernstein (1994), we required a minimum *N* of 300 per society. The total sample comprised 19,850 children ages 1½ to 5, but the full age range was not represented in eight societies. Boys

comprised from 47% to 55% of the samples. The sampling frame was national in eight societies and regional in 16 societies. CBCLs were either mailed to parents, sent home from schools, completed at school, or completed at home in the presence of a research assistant or during an interview. Response rates varied widely, ranging from 30% in Germany to 99% in Peru. In most of the data sets sent to us for analysis, children referred for mental health or special education services had not been excluded or counted. In a few data sets, they were included and coded as such, and in four samples they had been explicitly excluded. In each society, conventions for obtaining informed consent required by the investigator's research institution were followed. Cases were identified only by numerical codes. Based on procedures used in norming the CBCL (Achenbach & Rescorla, 2000), children were excluded if ratings were missing for > 8 problem items, with ≤ 1% of cases excluded for 22 societies and 2-3%% excluded for two societies.

Measure

The CBCL/1½-5 was used for all children in 21 societies. The CBCL/2-3 was used in the UAE, Finland, and for 625 children in the Turkish sample, as these data were collected prior to 2000. The Turkish sample included 200 additional children assessed with the CBCL/1½-5 at a later date. When the CBCL/2-3 was revised, items 51 and 79 were replaced by new items *51. Shows panic for no good reason* and *79. Rapid shifts between sadness and excitement*. For samples in which the CBCL/2-3 was used, scores for items 51 and 79 were replaced with imputed scores, as described later.

Foreign language versions were created by translators fluent in both English and the foreign language in question. To verify that translations captured the original meanings, independent back-translations into English were done, which then guided additional fine-tuning of the translation in an iterative process.

Each of the 99 CBCL/1½-5 problem items was rated 0 = *not true (as far as you know)*, 1 = *somewhat or sometimes true*, and 2 = *very true or often true*, based on the preceding 2 months. Item 100, an open-ended item, was excluded from all analyses. With the exception of items 51 and 79 (for which values were imputed in the samples assessed with the CBCL/2-3), missing ratings were recoded as 0, after excluding all children with > 8 missing ratings.

Investigators in each society provided raw data for our analyses, namely 0-1-2 ratings on the 99 problem items for each participant. These item ratings were used to compute scores for the seven syndromes derived by factor analysis for the CBCL/1½-5 (Emotionally Reactive, Anxious/Depressed, Somatic Complaints, Withdrawn, Sleep Problems, Attention Problems, and Aggressive Behavior), for the two second-order factors (Internalizing and Externalizing), and for Total Problems (the sum of all 99 items). Scores were also computed for five scales identified by an international group of child psychologists and psychiatrists as being very consistent with diagnostic categories of the *Diagnostic and Statistical Manual – 4th Edition* (*DSM-IV*; American Psychiatric Association, 1994). These *DSM*-oriented scales included Affective Problems, Anxiety Problems, Pervasive Developmental Problems, Attention Deficit/ Hyperactivity Problems, and Oppositional Defiant Problems (Achenbach and Rescorla, 2000). Scores were also computed for a 7-item Stress Problems scale (Achenbach & Rescorla, 2010), derived from research with preschoolers who varied in their exposure to traumatic events. The Stress Problems scale includes items such as *5. Can't concentrate, can't pay attention for long*; *47. Nervous, highstrung, or tense*; and *82. Sudden changes in mood or feelings*.

Items 51 and 79 both load on the Emotionally Reactive syndrome and hence are also included in calculating Internalizing and Total Problems. Item 51 also loads on the *DSM*-Anxiety Problems scale. Missing values for items 51 and 79 were imputed for Turkey, Finland, and the

UAE using the Missing Values Multiple Imputation Module of SPSS, Version 17. Ratings obtained on all nine Emotionally Reactive items in 21 societies, plus ratings on the seven non-imputed items in the three societies subjected to imputation, were used as predictors in the linear regression imputation procedure, which was constrained to yield values of 0, 1, or 2. Five imputed data sets were generated, in which mean scores for the four scales containing the imputed items were calculated. Mean scores on these scales for the five imputed data sets usually differed only in the third decimal place.

Data Analysis

Scale scores were positively skewed, as is typical for problem scores in general population samples where most children have relatively few problems. However, because the analysis of variance (ANOVA) and multivariate analysis of variance (MANOVA) models used were very robust with respect to deviations from normality, especially with large samples manifesting the same skew pattern (Kirk, 1995), we analyzed untransformed raw scores.

MANOVAs tested the differences between scale scores by society, gender, and age group (18 to 47 months vs. 48 to 71 months) when multiple scales with non-overlapping items could be tested in a single analysis (i.e., the seven syndromes, the five *DSM*-oriented scales, and Internalizing/Externalizing). Total Problems and the Stress Problems scale were tested in separate ANOVAs. Because the large samples used in this study provided such high statistical power that even very small effects could be statistically significant, we used a stringent *p* value of .001. Effect sizes (ESs) were measured by partial Eta squared, which represents the percent of total variance uniquely accounted for by a given factor with the other factors partialed out. These ESs were interpreted using Cohen's (1988) criteria (*small* = 1 to 5.9%, *medium* = 6 to 13.9%, and *large* ≥ 14%). Correlations between mean item ratings for every pair of societies were

computed, with mean imputed ratings for items 51 and 79 for Finland, Turkey, and UAE. Cronbach's alphas were calculated for each scale within each sample, and correlations were computed between alphas for every pair of societies.

Results

Mean Scale Score Comparisons

For each scale, Table 2 displays the range of mean scores, the omnicultural mean (derived by averaging the 24 society means) and its standard deviation (*SD*), as well as the omnicultural *SD* (derived by averaging the 24 *SD*s). The omnicultural mean for Total Problems was 33.3. Mean Total Problems scores for the 24 societies arrayed in ascending order are displayed in Figure 1. On a scale that could range from 0 to 198, three societies (Denmark, Iceland, and Spain) had scores > 7.1 points (1 *SD*) below the omnicultural mean of 33.3, three other societies (Taiwan, Lithuania, and Chile) had scores > 7.1 points above the omnicultural mean, and 18 of the 24 societies had scores within 7.1 points of the omnicultural mean. Student-Newman-Keuls (S-N-K) post-hoc tests indicated that scores for Denmark, Iceland, and Spain were significantly lower ($p < .001$) than those of all other societies, with Denmark's score significantly lower than Iceland's and Spain's. Korea's score (the fourth lowest) was not significantly different from the next seven scores in the ascending array (i.e., Germany through France). S-N-K post-hoc tests also indicated that Chile's mean Total Problems score was significantly higher ($p < .001$) than those of all other societies. The four next highest mean scores (Iran, Turkey, Taiwan, and Lithuania) were not significantly different from each other.

Table 2 also indicates that the omnicultural *SD* (the mean of the 24 *SD*s) was 19.0, more than double the *SD* of 7.1 for the omnicultural mean. This finding indicates that there was much greater variation within than between societies in Total Problems scores. As shown in Table 3,

the ANOVA for Total Problems yielded a medium ES for society of 9%. Gender, age, and the society x age interactions yielded ESs < 1%, indicating very small effects. No other effects were significant. Boys and younger children obtained slightly higher Total Problems scores than girls and older children.

We used ANOVA to test the effects of response rate on Total Problems scores by grouping the 24 societies into three response rate categories: low <70% (8 societies, N = 3,220, mean = 30.6), medium 70-89% (9 societies, N = 7,531, mean = 35.3), and high ≥ 90% (7 societies, N = 8,248, mean = 32.8). The ES for response rate was significant ($p < .001$) but very small (< .01), with S-N-K tests indicating significant differences between all three groups (lowest mean score in the "low" group and highest mean score in the "medium" group). When the societies were dichotomized into low versus medium/high, the significant ES for response rate was also very small (< .01), with mean Total Problems scores of 30.6 versus. 34.0. The r of .19 between response rate and mean Total Problems scores, which falls in the "small" range according to Cohen (1988), was not significant, perhaps due in part to the small sample size (24 societies). Taken together, these findings suggest that low response rates (< 70%) were associated with slightly lower problem scores, but that variations in response rates from 70% to 99% were not monotonically related to Total Problems scores.

Internalizing, Externalizing, and the 13 narrow-band scales (seven syndrome scales, five *DSM*-oriented scales, and Stress Problems) all showed the same pattern of larger within-society than between-society variation (i.e., their omnicultural *SDs* were much larger than the *SDs* of their omnicultural means). As can be seen in Table 3, the ESs for society were 10% for Internalizing and 7% for Externalizing. For Externalizing, boys and younger children scored higher than girls and older children (both ES < 1%). S-N-K post-hoc tests for Internalizing

indicated that only Denmark's mean was significantly lower than all other means, with the next three lowest societies (Iceland, Spain, and Australia) not significantly different from one another. The six societies with the highest mean Internalizing scores (Singapore, Iran, Romania, Lithuania, Turkey, and Chile) did not differ significantly from each other. For Externalizing, Denmark's mean was significantly lower than those of the next four societies (Spain, Korea, Iceland, and Kosovo), which did not differ significantly from each other. Chile had a significantly higher Externalizing mean than the next two societies (Lithuania and Taiwan), which did not differ significantly from each other.

The MANOVAs for the two sets of narrow-band scales (syndrome scales and *DSM*-oriented scales) yielded ESs for society ranging from 3% (Sleep Problems) to 12% (Anxious/Depressed). For scales with significant gender or age differences, boys and younger children scored significantly higher scores than girls and older children (all ESs $\leq$ 1%). The few significant interactions all had ES < 1%. The ANOVA for Stress Problems yielded an ES for society of 6%, with all interaction ESs < 1%. Boys scored slightly higher than girls, while older children scored slightly higher than younger children, with very small but significant variations across societies.

Denmark obtained the lowest mean on 11 of the 13 narrow-band scales (with Iceland lowest on *DSM*-Affective and Korea lowest on *DSM*-Oppositional Defiant). Denmark's mean was significantly lower than those of all other societies on five scales: Anxious/Depressed, Aggressive Behavior, *DSM*-Pervasive Developmental Problems, *DSM*-Attention Deficit/ Hyperactivity, and Stress Problems. Chile's mean was the highest of all societies on seven scales, whereas Lithuania scored highest on Emotionally Reactive, Attention Problems, and *DSM*-Attention Deficit Hyperactivity. Singapore scored highest on Withdrawn, Taiwan scored

highest on Sleep Problems, and Romania scored highest on Stress Problems. The highest mean was significantly different from all other means on only four scales: Withdrawn, Sleep Problems, Aggressive Behavior, and *DSM*-Oppositional Defiant Problems.

Mean Item Ratings

For each society, within-society mean ratings for each item were calculated by averaging the 0-1-2 ratings for the entire sample from that society. These 24 sets of 99 mean item ratings were then correlated with one another, yielding a matrix of bi-society *Q* correlations (so designated because they are calculated over items rather than cases). All bi-society *Q* correlations between mean item ratings for all pairs of societies were large according to Cohen (1988), ranging from .63 (UAE with Denmark) to .94 (Chile with Peru). When the 23 bi-society *Q* correlations for each society were averaged, the mean bi-society *Q* for each society ranged from .70 (UAE) to .84 (USA), with a mean of .78 across all 24 societies. These findings indicate strong similarity with regard to which items received relatively high versus relatively low mean ratings.

To further explore multicultural findings at the item level, we identified the 10 items that had the highest mean ratings for the full sample of 19,850 children (Table 4). Table 4 also lists the number of societies for which these items made each society's own "top 10" list. The first two items (*8. Can't stand waiting; wants everything now* and *16. Demands must be met immediately*) were among the "top 10" items for all 24 societies. The third item (*96. Wants a lot of attention*) was in the "top 10" list for 21 societies (not China, Taiwan, or the UAE). The fourth item (*59. Quickly shifts from one activity to another*) was in the "top 10" list for 19 societies (not Turkey, Iran, Korea, Iceland, or Germany). The remaining six items were in the "top 10" lists for 15, 9, 12, 14, 12, and 9 societies, respectively. Four additional items made the "top 10" lists for

at least seven societies when societies were analyzed separately: *15. Defiant* (10 societies); *81. Stubborn, sullen, or irritable* (8 societies); *10. Clings to adults or too dependent* (7 societies), and *85. Temper tantrums or hot temper* (7 societies). These four items fell at positions 11, 13, 12, and 17 for the full sample.

Also listed in Table 4 is the percentage of children in the full sample (N = 19,850) whose parents gave ratings of 1 (*somewhat or sometimes true*) or 2 (*very true or often true*) to the 10 highest scoring items. All 10 items received ratings of 1 or 2 for > 50% of children in the full sample, with the most common being *8. Can't stand waiting; wants everything now* (74%). On average, items were about twice as likely to be rated 1 as 2, with the exception of item *22. Doesn't want to sleep alone* (29% 1s and 24% 2s) and item *20. Disobedient* (57% 1s and 7% 2s). Although an in-depth analysis of item ratings by age group within each society is beyond the scope of this report, for the most commonly endorsed item (*8. Can't stand waiting; wants everything now*), we calculated the percentage of children rated 0 in the two age groups by society. For the 20 societies with children in both age groups, the difference in younger versus older percentage was 0-2% for five societies, 3-6% for five societies, 7-9% for four societies, 10-12% for five societies, and 19% for one society (Denmark). In Turkey and Kosovo, younger children were more likely to be rated 0, whereas in all other societies older children were more likely to be rated 0, consistent with the age trends for scales, whereby younger children tended to have higher scores.

Internal Consistency

For each scale, we averaged the alphas across societies to yield a mean alpha (see Table 2). Mean alphas for Total Problems, Internalizing, and Externalizing were .94, .84, and .88 respectively, with the minimum alpha being .91, .80, and .85. As shown in Table 2, three narrow-

band scales had mean alphas < .60, seven had mean alphas from .60 to .69, two had mean alphas from .70 to .79, and one had a mean alpha > .80. When alphas for each society were correlated with those for every other society, bi-society correlations ranged from .78 (Italy with China) to .99 (Denmark with Peru, Germany with France, and Germany with the USA), with a mean bi-society *r* of .92. Mean bi-society *r*s for each society ranged from .89 for China to .95 for the USA, France, and Germany. These high correlations indicate that the internal consistencies of the CBCL/1½-5 scales were very consistent across societies, with Total Problems, Internalizing, Externalizing, and Aggressive Behavior having the largest alphas and most narrow-band scales having alphas < .70.

Discussion

The current study provided systematic multicultural comparisons of quantitative data on behavioral and emotional problems for 19,850 preschool children from general population samples in 24 societies, all with *N*s > 300. Our findings revealed small-to-medium differences between societies in mean scale scores but miniscule differences between societies in gender and age effects. We also found large correlations between mean item ratings and between internal consistency alphas across the 24 societies. These results complement Ivanova et al.'s (2010) CFAs, which supported the 7-syndrome USA model in the 23 non-USA samples analyzed for the present study.

Our results revealed substantial consistency in CBCL mean scores across many societies, despite great variation among them in geography, political/economic system, size, population, ethnicity/race, and religion. Whereas the mean of the 24 *SD*s for the 24 Total Problems scores was 19.0, the *SD* of the Total Problems score omnicultural mean was only 7.1. This indicates much more variance within than between societies in problems scores. The 18 societies scoring

within 7.1 points of the omnicultural mean on Total Problems score (on a scale ranging from 0 to 198) included, among others, the USA, Iran, China, Peru, the UAE, France, the Netherlands, Australia, Korea, and Portugal. These societies differ in many ways. It is hard to find features in common for the 18 middle-scoring societies, the three lowest-scoring societies, or the three highest-scoring societies, or features that differentiate among the low-, middle-, high-scoring societies. For example, although Denmark and Iceland had low mean Total Problems scores, Finland, another Nordic society, did not. Similarly, Lithuania had a high mean Total Problems score, but Romania and Kosovo, the two other former Eastern Bloc societies in our sample, did not. Chile had a much higher mean Total Problems score than Peru, and Taiwan had a higher mean Total Problems score than China.

The eight societies with the lowest response rates (30% to 67%) had significantly lower Total Problems scores than the rest of the societies, but the ES was very small (< .01). Societies with response rates ranging from 70% to 89% had significantly higher mean Total Problems scores than societies with response rates $\geq$ 90%, indicating a non-monotonic association between response rate and problem scores. This may have contributed to the small *r* of .19 between response rate and Total Problems scores, which was not significant. The societies with the three lowest response rates (Singapore, Germany, and Portugal) had mean Total Problems scores within 1 *SD* of the omnicultural mean.

Effect sizes for differences between societies ranged from 3% (Sleep Problems) to 12% (Anxious/Depressed*)*, with 12 of the 16 *ES*s < 10%. Nevertheless, ESs for society were consistently higher than ESs for gender and age, which never exceeded 1%. No ESs for society reached Cohen's (1988) threshold for large effects. S-N-K post-hoc tests indicated that the highest and lowest scoring societies often differed significantly from all other societies, but most

other societies did not differ significantly from each other.

In interpreting our findings, we focus on major trends in the data supported by statistically significant differences. Our results suggested that variations among societies were due more to a tendency to score high or low overall than to a tendency to score high or low on only a few specific scales. Denmark and Chile were the most extreme cases of this tendency. To a somewhat lesser extent, Iceland and Spain tended to have low scores and Lithuania and Taiwan tended to have high scores, regardless of the scale. However, a few within-society differences are worth mentioning. Because several previous studies have reported elevated scores for Turkish school-age children on the Anxious/Depressed syndrome (Achenbach & Rescorla, 2007), it is noteworthy that Turkey was the second highest-scoring society on Anxious/Depressed in this study and was fourth or fifth highest on the other three Internalizing syndromes. However, it was only sixth-to-ninth highest on the three Externalizing syndromes. This suggests that Turkish parents may have a tendency to report more Internalizing than Externalizing problems in their preschool children. An even more striking example is Korea, which ranked third from the bottom on Externalizing but eleventh from the bottom on Internalizing. While it is tempting to attribute this pattern to persons in Asian cultures tending to internalize rather than externalize problems, it should be noted that Taiwan and Singapore, also Asian societies, ranked third and fourth from the *top* on Externalizing.

Despite the fact that an iterative translation and back-translation process was used to adapt the CBCL, we cannot be certain that CBCL items hold identical meanings for all parents in every society. Even parents speaking the same language might interpret some items in slightly different ways. However, the mean bi-society *r* of .78 suggests that parents' ratings in 24 societies were quite consistent in terms of which CBCL items tended to receive high, medium, or

low ratings. This finding suggests that the items operated similarly in very different societies. Furthermore, although variations in translations may have resulted in subtle differences in meaning across languages, CBCL scale scores from societies with extremely different cultures and languages were very comparable. For example, as can be seen in Figure 1, the USA, Italy, the UAE, China, and Peru had mean Total Problems scores that were virtually identical.

Six of the seven syndrome scales and three of the five *DSM*-oriented scales had mean alphas < .70. However, in Achenbach and Rescorla's (2000) USA sample, all nine of these scales had test-retest reliabilities ≥ .80 and significantly differentiated referred from non-referred children. Thus, low alphas did not preclude scales from having strong test-retest reliability and criterion-related validity. Furthermore, the mean bi-society *r* of .92 for scale alphas in the current study indicated that the 24 societies were very similar with regard to which scales had the highest alphas (Total Problems, Internalizing, Externalizing, and Aggressive Behavior) and the lowest alphas (Withdrawn and *DSM*-oriented Affective Problems). These internal consistency findings, in conjunction with Ivanova et al.'s (2010) CFA findings, support the multicultural consistency of the preschool CBCL's scales across 24 very different societies.

Limitations

A possible limitation of our study is its etic approach, whereby the same standardized assessment instrument was used in all 24 societies. However, several of our etic findings provide a basis for emic studies exploring differences in scale scores. For example, it would be important to test why Danish scores so low and Chilean scores are so high, compared to those from other societies in the same region (e.g., Peru vs. Chile)? It would also be important to test why Turkey had a higher rank order on Internalizing than on Externalizing (second vs. eighth highest) but Iran, a neighboring Muslim country, did not (fourth vs. fifth highest).

Although the current study only used parents' ratings, a parallel study (Rescorla et al., 2010) used ratings on the Caregiver-Teacher Report Form (C-TRF; Achenbach & Rescorla, 2000) for 8,974 children in 11 of the 24 societies studied here. C-TRF results were very similar to those for the CBCL: ESs for society ranged from 5% to 12%, the overall *r* when mean item ratings were correlated between societies was .76; scale alphas were very comparable across societies; and six of the "top ten" C-TRF items matched those for the CBCL.

The wide range in response rates constitutes a limitation of our study. However, response rates were not significantly correlated with scale scores, and the association between response rates and Total Problems scores was not monotonic. Differences in sample sizes could also have affected our findings. It is possible that societies in which response rate was low and the sample size was small relative to the overall population (e.g., Singapore, Portugal, and Taiwan) might have yielded somewhat different scores had the response rate been higher and the sample larger.

Finally, information about children's referral status was unavailable for most societies. However, the paucity of services for preschoolers in most societies suggests that few would have been referred. For example, in the Lavigne et al. (2009) study, only 12 of 796 USA 4-year-olds (2%) had received any mental health services. To further address the effect of including versus excluding referred children, we analyzed data for the USA sample both with and without the 5% of the children who had been referred in the preceding 12 months for mental health or special education services. Mean Total Problems score differed by only 0.5 points when referred children were excluded. Inspection of mean scores in the present study suggests that inclusion versus exclusion of referred children had little effect. For example, the Danish sample included referred children and had the lowest mean problem scores, whereas the Chilean sample excluded referred children and had the highest mean scores.

Implications for Research, Policy, and Practice

To our knowledge, ours is the largest and most diverse international data base for comparing parents' reports of preschoolers' behavioral and emotional problems across many societies. Although 18 of 24 societies had very similar scores, three societies had substantially lower mean scores and three had substantially higher mean scores according to a commonly used—albeit arbitrary—1 *SD* threshold. To take account of these differences in Total Problems scores, separate multicultural norms for the CBCL/1½-5 have been constructed for societies whose mean Total Problems scores were lower than 1 *SD* below the omnicultural mean, between -1 and +1 *SD* from the omnicultural mean, and higher than 1 *SD* above the omnicultural mean (Achenbach & Rescorla, 2010).

Our findings should prove useful to both researchers and practitioners. Researchers from societies not represented in this study can collect CBCL/1½-5 data using a general population sample of at least 300 and then compare the mean scores, mean item ratings, and scale alphas obtained from these data with those reported here. The mean Total Problems score they obtain can indicate which CBCL/1½-5 multicultural norm group is appropriate for their society (Achenbach & Rescorla, 2010). Researchers can also use our etic findings as a basis for emic studies of why mean scale scores in some societies were significantly lower or higher than in all other societies or why scores on one scale were lower than those on another scale in certain societies. For practitioners, parents' ratings can be scored using norms appropriate for relevant societies. For example, ratings by a Chinese father can be evaluated in relation to the middle-scoring norms that include mainland China, while ratings by a Taiwanese mother are evaluated in relation to the high-scoring norms that include Taiwan. Moreover, combined with the Ivanova et al. (2010) findings, our findings support use of the CBCL/1½-5 to assess preschool children

from many societies in terms of ratings by their parents. Finally, our findings are very consistent with findings reported by Rescorla et al. (2007) for 55,508 children ages 6 to 16 from 31 societies, indicating that the patterns of multicultural similarities and differences reported here for preschoolers resemble those found for older children.

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Table 1

Characteristics of Samples from 24 Societies

Society	Reference	*n*	Ages	Percent males	Sample	Method	Response rate[a]	Referred excluded[b]
Australia	Zubrick et al., 2007	1793	2-3	51%	regional birth cohort	mailed	85%	no
Belgium	Van Leeuwen et al., 2009; De Pauw et al., 2009	1117	1.5-5	52%	regional school-based	at home; from schools	73%	no
Chile	Lecannelier et al., 2009	483	1.5-5	50%	regional school-based	from schools, at home	80%	yes
China	Liu et al., 2010	908	4-5	53%	regional school-based	at home, from schools	91%	no
Denmark	Kristensen et al, 2010	851	1.5-5	50%	regional household	mailed	52%	no
Finland	Sourander, 2001	370	3	50%	regional well-baby clinic	at clinic	71%	no
France	Capron & Duyme, 2009	1204	1.5-5	53%	regional school-based and pediatric	from schools, medical offices	91%	no

Society	Reference	*n*	Ages	Percent males	Sample	Method	Response rate	Referred excluded
Germany	Döpfner & Plueck, 2009	850	2-5	55%	regional school-based prevention project	from schools	30%	no
Iceland	Gudmundsson & Bjarnadóttir, 2009	305	1½-5	51%	national school-based	from schools	60%	no
Iran	Esmaeili, 2009	1346	1½-5	49%	national school-based	interviews at schools	97%	no
Italy	Frigerio et al., 2006	466	1½-5	50%	regional school-based	from schools	70%	yes
Korea	Oh & Kim, 2009; Kim et al., 2009	2327	1½-5	51%	national school-based	from schools	92%	yes
Kosovo	Shahini, et al. (2009)	481	1½-5	52%	regional school-based	from schools	77%	no
Lithuania	Jusiene et al., 2007	931	1½-5	53%	national school-based (some households)	at home	80%	no
Netherlands	Tick et al., 2007	608	1½-5	53%	regional household	at home	84%	no
Peru	Pomalina, et al., 2009	1027	1½-5	52%	regional household-based	at home	99%	no
Portugal	Dias et al., 2009	407	1½-5	50%	regional school based	from schools	44%	no
Romania	Dobrean et al. 2008	938	2-5	47%	national school-based	from schools	75%	no
Singapore	Ooi et al. , 2009	301	1½-5	51%	regional school-based	from schools	36%	no

Society	Reference	*n*	Ages	Percent males	Sample	Method	Response rate	Referred excluded
Spain	Ezpeleta et al., 2009	570	3-5	51%	regional school-based	from schools	58%	no
Taiwan	Wu et al., 2009	306	1½-5	54%	birth cohort; regional school-based	by mail; from schools	53% [c] (56%; 50%)	no
Turkey	Erol et al., 2005; Erol, et al, 2010	825	2-3; 1½-5	50%	national household; regional school-based	at home/ from schools	86% [d] (95%; 60%)	no; yes
UAE	Eapen et al., 2006	692	3	50%	national household	at home	96%	no
USA	Achenbach & Rescorla, 2000	744	1½-5	51%	national household	at home	94%	no

Note. Complete references for each sample are available from the first author; [a]Response rates, which were calculated by the investigators who provided the data for each society, represent the ratio of completed forms to the target sample; in some societies, settings in which data were collected (e.g., different schools) may have varied widely in response rate; [b]Samples in which the investigator indicated that referred children had been excluded are coded "yes;" for all other samples, it is assumed that some referred children may have been included and these samples are coded "no;" [c]The overall response rate for Taiwan was the weighted average of the response rates of the two subsamples; [d]The overall response rate for Turkey was the weighted average of the response rates of the two subsamples.

Table 2

Ranges, Omnicultural Means, Standard Deviations, and Alphas Across 24 Societies

CBCL scale	Range of scale scores[a]	Omnicultural *M (SD)*[b]	Omnicultural *SD*[c]	Mean alpha
Total Problems	17.2-47.5	33.3 (7.1)	19.0	.94 (99)[d]
Internalizing	3.9-13.9	9.6 (2.6)	6.7	.84 (36)
Externalizing	6.7-16.9	12.0 (2.3)	7.3	.88 (25)
Emotionally Reactive	1.1-4.0	2.7 (0.7)	2.4	.69 (9)
Anxious/Depressed	1.1-4.6	3.1 (1.0)	2.3	.65 (8)
Somatic Complaints	1.0-3.3	2.3 (0.6)	2.1	.56 (11)
Withdrawn	0.7-2.9	1.7 (0.6)	1.8	.62 (8)
Sleep Problems	1.8-4.0	2.7 (0.3)	2.4	.67 (7)
Attention Problems	0.9-3.2	2.3 (0.6)	1.8	.60 (5)
Aggressive Behavior	5.8-13.8	9.7 (1.8)	6.1	.87 (19)
DSM-Affective Problems	1.0-3.5	2.3 (0.7)	2.1	.57 (10)
DSM-Anxiety Problems	1.6-6.0	3.8 (1.2)	2.6	.63 (10)
DSM-Pervasive Developmental Problems	1.6-4.8	3.2 (0.9)	2.8	.67 (13)
DSM-Attention-Deficit/Hyperactivity Problems	2.3-6.4	4.7 (1.0)	2.7	.74 (6)
DSM-Oppositional Defiant Problems	2.3-4.9	3.3 (0.6)	2.4	.75 (6)
Stress Problems	0.9-3.0	2.0 (0.5)	1.8	.59 (7)

Note. CBCL = *Child Behavior Checklist* (Achenbach & Rescorla, 2000); [a]all analyses utilized raw data for all participants in each society; [b] omnicultural mean (*SD*) obtained by averaging 24

society means; [c]omnicultural *SD* obtained by averaging 24 society *SD*s; [d]number of items per scale.

Table 3

Significant Effect Sizes (η^2) at $p < .001$ for CBCL Scale Scores

CBCL Scale	Society	Gender	Age	S x G	S x A
Total Problems	9%	< 1%	< 1%	*ns*	< 1%
Internalizing	10%	*ns*	*ns*	*ns*	< 1%
Externalizing	7%	< 1%	< 1%	< 1%	< 1%
Emotionally Reactive	7%	*ns*	*ns*	*ns*	< 1%
Anxious/Depressed	12%	*ns*	*ns*	*ns*	*ns*
Somatic Complaints	7%	*ns*	*ns*	< 1%	< 1%
Withdrawn	5%	< 1%	*ns*	*ns*	< 1%
Sleep Problems	3%	*ns*	< 1%	*ns*	< 1%
Attention Problems	9%	< 1%	< 1%	*ns*	*ns*
Aggressive Behavior	6%	< 1%	< 1%	*ns*	< 1%
DSM-Affective Problems	6%	*ns*	*ns*	*ns*	< 1%
DSM-Anxiety Problems	11%	*ns*	*ns*	*ns*	< 1%
DSM-Pervasive Developmental Problems	6%	< 1%	< 1%	*ns*	< 1%
DSM-Attention Deficit/Hyperactivity Problems	11%	< 1%	< 1%	*ns*	< 1%
DSM -Oppositional Defiant Problems	6%	< 1%	< 1%	*ns*	< 1%
Stress Problems	6%	1%	*ns*	1%	1%

Note. S = Society, G = gender, A = Age, CBCL = *Child Behavior Checklist* (Achenbach & Rescorla, 2000); *DSM = Diagnostic and Statistical Manual of Mental Disorders – Fourth*

Edition (American Psychiatric Association, 1994). No gender x age or society x gender x age interactions were significant at $p < .001$.

Table 4

The Ten Highest Scoring Items Across All 24 Societies

Item		Mean rating	*N* of societies [a]	Percent rated 1 [b]	Percent rated 2 [c]
8.	Can't stand waiting; wants everything now	1.00	24	47%	27%
16.	Demands must be met immediately	.88	24	50%	19%
96.	Wants a lot of attention	.84	21	45%	20%
59.	Quickly shifts from one activity to another	.78	19	44%	17%
22.	Doesn't want to sleep alone	.76	15	29%	24%
30.	Easily jealous	.73	9	44%	14%
33.	Feelings are easily hurt	.71	12	44%	14%
20.	Disobedient	.71	14	57%	7%
6.	Can't sit still, restless, or hyperactive	.71	12	36%	17%
36.	Gets into everything	.67	9	37%	15%

Note. For all items, 0 = *not true*, 1 = *somewhat or sometimes true*, 2 = *very true or often true*. [a]Number of societies for which item was in its "top 10" list; [b]Percentage of children rated 1 across the full sample of 19,850; [c] Percentage of children rated 2 across the full sample of 19,850.

Figure Captions

Figure 1. Mean Total Problems scores from 24 societies (*N* = 19,850).