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Establishing Norms on the Eyberg Child Behavior Inventory to Identify Disruptive Behaviors in Taiwanese Children

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Abstract

Like other cultures, measures to accurately and sensitively assess and treat disruptive behaviors in Taiwanese children are necessary. This research provides normative and psychometric data (i.e., item-total correlations, split-half coefficients, internal consistency, and internal validity) on the Eyberg Child Behavior Inventory (ECBI), including clinical cut-off scores, with a Taiwanese community sample. The results suggest that the ECBI may be helpful in screening for disruptive behaviors in Taiwanese children, which may allow for appropriate prevention and intervention efforts. Although results are comparable to other research, cultural differences do exist, thereby highlighting the importance of cultural considerations in assessing child behavior, irrespective of country of treatment.

Keywords

Disruptive behavior; Eyberg Child Behavior Inventory (ECBI); norm; psychometric properties

Introduction

Effective, evidence-based treatment of disruptive behaviors in young children requires the use of measures that can accurately and sensitively assess a variety of child behavioral issues. The Eyberg Child Behavior Inventory (ECBI) is a parent rating scale used as a screening and outcome measure of disruptive behaviors in children and adolescents between 2- and 16-years-old (Eyberg & Pincus, 1999). The ECBI is used in many countries/societies during the course of behavioral parent training (e.g., Matos, Bauermeister, & Bernal, 2009; Leung, Tsang, Ng, & Choi, 2017), as it is cost-effective, standardized, and easy to administer and score. The ECBI's two scales, the Intensity and Problem Scales, evaluate the frequency of common child disruptive behaviors and whether caregivers perceive the disruptive behaviors as a problem for them (Eyberg & Pincus, 1999). Although normative

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data exist on the ECBI across many cultures, such data are lacking for Taiwanese children. The purpose of this study was to determine the normative and psychometric data of the ECBI, including clinical cut-off scores, with a Taiwanese community sample.

ECBI normative studies

Normative data for the ECBI have been established in the United States and five other countries; however, these studies have differed in sample size, ages of children, and recruitment strategies. Sample sizes have ranged from 102 (Eyberg & Robinson, 1983) to 4,063 (Reedtz et al., 2008), depending on the context of the research. Children of various ages, ranging from preschool to adolescents, have been used in U.S.-based research (Burns & Patterson, 1990; Burns & Patterson, 2001; Burns et al., 1991; Colvin, Eyberg, & Adams, 1999a, 1999b; Eyberg & Robinson, 1983; Robinson, Eyberg, & Ross, 1980), while the age range in the international community has been more restricted (e.g., 2–7 in a Japanese normative study; Ito, Kamo, Sunohara, Furuichi, & Kimura, 2013). Moreover, past research has utilized several strategies to recruit normative samples. In the United States, children were recruited from pediatric outpatient clinics (Burns et al., 1991; Colvin et al., 1999a, 1999b; Eyberg & Robinson, 1983; Robinson et al., 1980) and an urban school district (Burns & Patterson, 1990). Similarly, schools, educational institutions, and/or community health centers were used in Japan (Ito et al., 2013), Norway (Reedtz et al., 2008), and South Korea (Rhee & Rhee, 2015), while hospitals were used in Spain (García-Tornel Florensa et al., 1998) and the Swedish population register was used in Sweden (Axberg, Johansson Hanse, & Broberg, 2008).

Mean Intensity scores on the ECBI have been similar across cultures, with South Korea being the only country whose scores were lower. Problem scores, however, have been more variable. Reports of problems by Japanese caregivers were similar to U.S. populations, while those from Norway, Spain, Sweden, and South Korea were lower (Axberg et al., 2008; Burns & Patterson, 1990, 2001; Burns et al., 1991; Colvin et al., 1999a, 1999b; Eyberg & Robinson, 1983; García-Tornel Florensa et al., 1998; Ito et al., 2013; Reedtz et al., 2008; Rhee & Rhee, 2015; Robinson et al., 1980). The differences in mean Intensity and Problem Scale scores across different cultures may be attributable to differences in sample sizes, age ranges, recruitment strategies, ethnicities, parental educational levels, and socioeconomic statuses (SES) of the families participating in the research. The differences may also reflect the variability observed in parenting across cultures and parents' unwillingness to endorse behaviors as a problem for them. Despite this, the ECBI has demonstrated adequate to good psychometrics across all normative studies.

Demographic characteristics and ECBI scores

While some research suggests there is no relationship between the ECBI and demographic variables—including residence, SES, child age, and child gender (e.g., García-Tornel Florensa et al., 1998)—other research suggests that demographic variables are important considerations in normative evaluations of the ECBI (e.g., Axberg et al., 2008; Ito et al., 2013; Rhee & Rhee, 2015). For example, Reedtz et al. (2008) noted regional differences in town districts in their Norwegian sample, while others noted differences based on income

and education, with the lowest income groups and educational levels reporting more behavior problems (Burns & Patterson, 1990; Burns et al., 1991; Colvin et al., 1999a). Three studies (Axberg et al., 2008; Colvin et al., 1999b; Robinson et al., 1980) noted differences based on the gender of the parent reporting on the child's symptoms. Boys were rated as having higher levels of externalizing problems across most countries (Axberg et al., 2008; Burns & Patterson, 1990; Burns et al., 1991; Colvin et al., 1999a; Ito et al., 2013; Reedtz et al., 2008; Rhee & Rhee, 2015; Robinson et al., 1980). Likewise, age predicted higher levels of externalizing symptoms across U.S.-based (Burns & Patterson, 1990; Burns et al., 1991; Robinson et al., 1980), Swedish (Axberg et al., 2008), and Korean (Rhee & Rhee, 2015) normative samples.

Purpose of the present study

A limited number of behavior rating scales have been normed for use in Taiwanese children and adolescents (e.g., Achenbach & Rescorla, 2007, 2010; Gau et al., 2008; Gau, Soong, Chiu, & Tsai, 2006). The purpose of the present study was to establish norms for the ECBI and to examine its psychometric properties with a Taiwanese community sample. Normative data for the Child Behavior Checklist (CBCL) with Taiwanese children suggests that mean ratings of behavior problems are similar, in general, to reports of behavior problems among U.S. parents (Achenbach & Rescorla, 2007, 2010), and as discussed earlier, few major differences exist on the Intensity ratings across cultures. Thus, it was hypothesized that the overall mean scores on the Intensity and Problem Scales for the current Taiwanese normative sample would be similar to those obtained in U.S.-based research. The current study also sought to examine differences between mothers and fathers in their responses to their child's disruptive behavior, as well as child gender and/or age effects. Thus, a final goal was to determine whether the normative data is applicable to both mothers and fathers of Taiwanese children (or only one parent) and whether there is a need to use different clinical cut-off scores based on child gender and/or age.

Method

Participants

Children ranged in age from 2 to 12 ($M = 6.82$, $SD = 2.87$) and most (52.8%, $n = 168$) were boys (girls = 47.2%, $n = 150$). Caregivers ranged in age from 24 to 58 ($M = 37.78$, $SD = 5.12$). Approximately 79.2% ($n = 252$) of caregivers were mothers and 19.2% ($n = 61$) were fathers (1.6% were "other"). Over half of caregivers (65.4%, $n = 208$) had a bachelor's degree, 18.9% ($n = 60$) had a master's or higher degree, and 15.7% ($n = 50$) had a high school (12th-grade) or lower level of education. Most ($n = 231$; 72.6%) families had incomes classifying them as "middle class" in Taiwan, with salaries ranging from \$8,000 to \$40,000 U.S. dollars (USD) per year, based on the conversion of New Taiwan dollars to USD. Other families were below ($n = 7$; 2.2%) or above ($n = 80$; 25.2%) the middle-class range. The current sample is of a somewhat higher educational level and likely less representative of families with the lowest and highest annual incomes in Taiwan than was found in Taiwan nationally for 2016 (National Statistics, Republic of China/Taiwan, 2017a; 2017b).

Procedure

The Taiwanese sample was recruited based on three factors: child age, child gender, and child residence. The resulting sample percentages were similar to the corresponding percentages from the Taiwan 2014 child census (Department of Household Registration, Ministry of the Interior, Taiwan, 2014). Caregivers who were between 18 and 59 years old and had a child between 2 and 12 were recruited to participate via flyers, word of mouth, and/or Internet message boards. A total of 350 packets were mailed; 322 (92%) were returned, and 318 were included in the final data analyses, as four were incomplete. Every caregiver was compensated with \$10 USD when the packet was returned. All ECBI were completed with no item omissions; thus, no substitutions occurred for missing and/or incomplete data. Informed consent was obtained from all participants.

Materials

A parental demographic questionnaire assessed child, caregiver, and family characteristics (e.g., age, gender, medical and mental health history, family income). Caregivers also completed the ECBI, which consists of 36 items. Total Intensity Scale scores, which assesses how often each behavior currently occurs, range from 36 to 352, with clinical cut-off scores for U.S. populations being 131–133. Problem Scale scores, which assess whether or not the behavior is a problem, range from 0 to 36; the U.S. clinical cut-off score on the Problem Scale is 15 (Colvin et al., 1999a; Eyberg & Pincus, 1999). For this study, the forward (from English to traditional Chinese) and backward translations of the ECBI was approved by the Psychological Assessment Resources, Inc., USA. Items were translated exactly as written (and were not adapted), given the universality of child behavioral issues and their presence across cultures.

Results

To be comparable with previous ECBI research (Colvin et al., 1999a, 1999b; Rhee & Rhee, 2015), analyses were conducted among 2- to 6-year-old children and 7- to 12-year-old children. No significant differences were found across age groups except for children's experiences (*yes/no*) of receiving mental health services for psychological problem(s) or disorder(s), $\chi^2(1, N = 318) = 7.03, p < .01$, and family income (*low*, *middle*, and *high*), $\chi^2(2, N = 318) = 6.65, p < .05$. The 2- to 6-year-old children had more families in the study-defined middle-class (2–6 years = 75.4% vs. 7–12 years = 70.6%) and low-class (2–6 years = 4.3% vs. 7–12 years = 0.6%) ranges and fewer families in the high class (2–6 years = 20.3% vs. 7–12 years = 28.8%) range than the group of 7- to 12-year-old children. Most children (99.3% of 2–6-year-olds and 93.3% of 7–12-year-olds) in the study had not received mental health services for psychological problem(s) or disorder(s); however, older children were more likely to have received mental health services (e.g., ADHD, learning problems, Tourette's syndrome) than younger children (6.7 vs. 0.7%, respectively), $\chi^2(1, N = 318) = 7.03, p < .01$.

Low, statistically significant, negative Pearson product-moment correlation coefficients (r) and point-biserial coefficients (r_{pb}) were observed between the Intensity Scale and child age, $r = -.15, p < .01$, child gender, $r_{pb} = .14, p < .05$, and caregiver age, $r = .14, p < .05$.

Similarly, low, statistically significant, negative correlations were observed between the Problem Scale and child gender, $r_{pb} = .15, p < .01$, and caregiver age, $r = .12, p < .05$.

To further examine the significant correlations, two separate two-way analyses of variance (ANOVAs) were conducted. Boys' externalizing behaviors were rated significantly higher than girls on the Intensity, $F(1, 314) = 6.42, p < .05$, partial $\eta^2 = .02$, and Problem, $F(1, 314) = 7.05, p < .01$, partial $\eta^2 = .02$, Scales. Preschoolers' behavior problems were rated higher on the Intensity Scale than school-age children, $F(1, 314) = 4.13, p < .05$, partial $\eta^2 = .01$, but no difference was found on the Problem Scale, $F(1, 314) = 0.02, p = .88$, partial $\eta^2 = .00$. On follow-up tests (i.e., one-way ANOVAs), school-age boys had significantly higher Intensity Scale scores, $F(1, 178) = 4.87, p < .05$, partial $\eta^2 = .03$, than school-age girls, but no differences were noted on the Problem Scale, $F(1, 178) = 2.81, p = .10$, partial $\eta^2 = .02$. Conversely, preschool boys had significantly higher Problem Scale scores, $F(1, 136) = 4.36, p < .05$, partial $\eta^2 = .03$, than preschool girls, but no differences were noted on the Intensity Scale, $F(1, 136) = 2.05, p = .15$, partial $\eta^2 = .02$. Descriptive data for the Intensity and Problem Scales by age and gender are reported in Table 1.

Normative data

Descriptive data for *each* Intensity Scale item are included in Table 2. The mean intensity ratings across all 36 items ranged from 1.16 to 3.93 (on a 7-point scale), which suggests that the behaviors *seldom* to *sometimes* occur. Skewness and kurtosis for each item were used to examine the normality of ratings. Values between -1.5 and $+1.5$ were considered acceptable for a normal univariate distribution (Tabachnick & Fidell, 2013). Based on skewness values, the Intensity ratings were normally distributed for 31 items (range = .12 to 1.43); the five remaining items were not normally distributed but were positively skewed with values ranging from 1.51 to 4.45. Based on kurtosis values, 29 items were normally distributed (range = -1.13 to 1.25). The score distribution of the seven remaining non-normally distributed items was leptokurtic, with values ranging from 1.73 to 25.63 (see Table 2). For the Problem Scale, the percentage of caregivers answering *yes* noting the behavior is a problem for them was calculated for each item. The percentages ranged from 7.2 to 39.9%. Thirteen items were endorsed by more than 25% of the caregivers, while five items were endorsed by fewer than 10% of the caregivers (see Table 2). Descriptive statistics for the *entire* Intensity ($M = 98.21, SD = 26.42, SEM = 1.48$, range = 18 to 185) and Problem ($M = 7.71, SD = 7.42, SEM = .42$, range = 0 to 36) Scales were calculated. Total scores on the Intensity (skewness = .26, kurtosis = .06) and Problem (skewness = 1.06, kurtosis = .59) Scales were normally distributed.

One-sample z tests were conducted to compare the Intensity and Problem Scale means of the Taiwanese sample to other normative samples. The mean Intensity score for the Taiwanese sample was significantly lower than the mean obtained in the Robinson et al. (1980) U.S. sample, $z = -2.88, p < .01, d = -.16$, but was significantly higher than the means obtained in the Norwegian (Reedtz et al., 2008), $z = 6.02, p = .00, d = .34$, Swedish (Axberg et al., 2008), $z = 6.87, p = .00, d = .39$, and Korean (Rhee & Rhee, 2015), $z = 22.22, p = .00, d = 1.25$, samples. No significant differences were found between the Taiwanese and the Japanese (Ito et al., 2013) or Spanish (García-Tornel Florensa et al., 1998) samples. On the

Problem Scale, the scores for the Taiwanese children were significantly higher than the means obtained in the Japanese (Ito et al., 2013), $z = 3.15$, $p = .00$, $d = .18$, Spanish (Gar 1a-Tornel Florensa et al., 1998), $z = 11.42$, $p = .00$, $d = .64$, Norwegian (Reedtz et al., 2008), $z = 18.66$, $p = .00$, $d = 1.05$, Swedish (Axberg et al., 2008), $z = 16.38$, $p = .00$, $d = .92$, and Korean (Rhee & Rhee, 2015), $z = 12.38$, $p = .00$, $d = .69$, samples. No significant differences were found between the Taiwanese and Robinson et al. (1980) U.S. samples, $z = 1.62$, $p = .10$, $d = .09$.

Because of the vastly unequal sample sizes, Welch's ANOVAs (as opposed to classic ANOVAs) were used to examine the differences between mothers ($n = 252$) and fathers ($n = 61$) in their responses to their child's disruptive behavior. No differences between mother and father ratings were found on the Intensity, $F(1, 94.92) = .01$, $p = .92$ or Problem, $F(1, 80.19) = .09$, $p = .77$, Scales. Moreover, no differences were noted when mother and father responses were compared based on age of the child: (a) for 2- to 6-year-old children, Intensity, $F(1, 29.31) = .96$, $p = .34$, and Problem, $F(1, 24.57) = .21$, $p = .65$, Scales were not significantly different for mothers and fathers; (b) for 7-to 12-year-old children, Intensity, $F(1, 64.28) = 1.06$, $p = .31$, and Problem, $F(1, 55.57) = .00$, $p = .99$, Scales were not significantly different.

Given that child age and gender affected caregivers' ratings of the frequency of disruptive behaviors, different Intensity cut-off scores are needed for each gender by age group. Using one *SD* above the mean as the clinical cut-off criterion, the normative Intensity cut-off values for *boys* aged 2–6 and 7–12 were 131 and 122, respectively, and 124 and 118, respectively, for *girls* of the same age. In addition, since child gender affected ratings of tolerance of disruptive behaviors, different Problem cut-off scores are needed for boys and girls regardless of age group. The normative cut-off value for the Problem Scale for the Taiwanese *boys*, irrespective of age, was 17, and for the Taiwanese *girls*, the cut-off was 13 (see Table 1). Percentile scores allow researchers to establish more meaningful and specific screening criteria than using one *SD* above the mean as a cut-off criterion (Burns & Patterson, 2001). Reedtz et al. (2008) suggested that scores corresponding to the 90th percentile are best for clinical use. Using this criterion, the Intensity cut-off values for the Taiwanese boys aged 2–6 and 7–12 were 142 and 133, respectively, and 126 and 132, respectively, for girls of the same age. The Problem cut-off score was 20 for boys and 17 for girls.

Psychometric properties

Corrected item-total correlations between each Intensity rating and the total Intensity Scale score ranged from .19 to .75; only two items had a correlation coefficient below .30. Likewise, corrected item-total correlations between each Problem rating and the total Problem Scale score ranged from .26 to .64; only two items had a correlation coefficient below .30. The mean corrected item-total correlations were .49 (Intensity Scale) and .47 (Problem Scale). The mean split-half correlations for the Intensity and Problem Scales equaled .95. The Intensity and Problem Scales had excellent internal consistency for all children (as for Intensity and Problem Scales ranged from .92 to .93). Good to excellent internal consistency within demographic subgroups including age and gender also was found

(see Table 1). The Intensity and Problem Scale scores were significantly correlated, $r = .62$, $p < .001$, indicating the two scales are moderately related (and internally valid) but are not identical dimensions.

Discussion

The present study is the first to establish ECBI normative data, which can be used in screening for disruptive behaviors in 2- to 12-year-old Taiwanese children and allowing for appropriate, evidence-based prevention and intervention efforts. Given differences on the ECBI based on child age and gender, normative data, including cut-off values, for each of these variables was obtained. The current study highlights the sound psychometric properties of the ECBI with this normative Taiwanese community sample.

Normative data

The means and *SDs* found on most of the Intensity items (see Table 2) and on the Intensity and Problem Scales (see Table 1) suggest that the items were sensitive to the frequencies of different types of disruptive behaviors exhibited by Taiwanese children and overall were sensitive to a broad range of behavioral differences across children. For the Problem Scale, five items were rated by less than 10% of the caregivers. This is comparable to other research on the measure, which has found that between 0 (Axberg et al., 2008) and 23 (Reedtz et al., 2008) items are endorsed by fewer than 10% of caregivers. Four of the five items endorsed by less than 10% of caregivers in this study also were rated by less than 10% of caregivers in previous U.S.-based (Burns & Patterson, 1990; Burns et al., 1991; Colvin et al., 1999a, 1999b; Robinson et al., 1980), Spanish (García-Tornel Florensa et al., 1998), and Norwegian (Reedtz et al., 2008) normative samples. However, two items rated by less than 10% of caregivers in the United States (Eyberg & Robinson, 1983; Burns & Patterson, 1990; Burns et al., 1991; Colvin et al., 1999b; Robinson et al., 1980), Spanish (García-Tornel Florensa et al., 1998), and Norwegian (Reedtz et al., 2008) samples were endorsed by more caregivers herein. These findings suggest that distress levels related to behavior problems rated by the caregiver may vary across cultures and caregivers' willingness to admit to problems may vary. Although the differences were few, the values for skewness and kurtosis in the present study revealed a normal distribution for most of the items and for the two scales, thereby suggesting that the psychometrics are sound and further validating potential cross-cultural variations.

Comparisons of the means of the two ECBI scales of this sample with U.S. and other international samples suggest some cultures might not report the frequency of child disruptive behaviors as high as others, with U.S. caregivers reporting the highest frequency of disruptive behaviors. The U.S. normative data also suggest that caregivers are more likely to report behaviors as a problem for them than many other cultures. Somewhat different from our hypothesis, Taiwanese caregivers reported a lower mean frequency of behavior problems but a similar level of behaviors that were a problem for them when compared to caregivers' ratings in the Robinson et al. (1980) U.S. sample. The parenting beliefs and practices of Taiwanese parents who live in a democratic society may be influenced by both Western and Chinese culture (e.g., collectivism, Confucianism, or traditional Chinese

philosophy; Chen & Luster, 2002). Research has demonstrated that parents of preschool-aged children in Hong Kong and/or Taiwan have begun to recognize and implement authoritative child-rearing practices, which are more prevalent in Western cultures (Chen & Luster, 2002; Lieber, Fung, & Leung, 2006). Acceptance and use of authoritative child-rearing practices have likely made it more acceptable for parents to admit that certain child behaviors are a problem for them rather than considering it as dishonoring or shame/"loss of face" for the family, even though these behaviors reportedly do not occur frequently.

Although mothers comprised the majority of the current sample, no differences were noted between the ratings of mothers and fathers. Thus, the normative data obtained in this study might adequately represent the views of both Taiwanese parents. Using one *SD* above the mean, the cut-off scores established for the Intensity and Problem Scales in the United States are 132 and 15 irrespective of the gender and age of the child/adolescent (Eyberg & Pincus, 1999), which are higher than those for Taiwanese girls and for Taiwanese boys aged 7–12 on the Intensity Scale (see Table 1). The U.S.-derived cut-off scores may not be sensitive enough to screen for treatment needs or to assess treatment outcome effects for Taiwanese children with disruptive behavior problems. Consistent with previous research (e.g., Burns & Patterson, 1990; Rhee & Rhee, 2015), the current study resulted in different Intensity cut-off scores for gender and age group and in different Problem cut-off scores for gender, irrespective of age for Taiwanese children (see Table 1).

Psychometric properties

The item-total correlations for most items in this sample were comparable to other research (e.g., Axberg et al., 2008; Colvin et al., 1999a, 1999b; García-Tornel Florensa et al., 1998; Reedt et al., 2008; Rhee & Rhee, 2015). Excellent split-half coefficients and internal consistency were found for each of the ECBI scales, which is consistent with prior research suggesting that the two scales are internally consistent and homogenous (e.g., Axberg et al., 2008; Burns et al., 1991; Eyberg & Robinson, 1983; García-Tornel Florensa et al., 1998; Reedt et al., 2008; Rhee & Rhee, 2015). The internal validity was noted in the significant moderate positive correlation between the two scales; this correlation was similar to correlations observed in U.S. normative studies (Burns & Patterson, 1990; Burns et al., 1991; Colvin et al., 1999a, 1999b; Robinson et al., 1980). The findings suggest that caregivers who perceived their children to have disruptive behaviors also found these behaviors to be a problem for them, and while the ECBI scales were highly related, they were not identical dimensions.

Limitations

There are several limitations that must be acknowledged. First, data collection required the return of mailed questionnaires, which is likely to result in a heavily middle-class sample (Robinson et al., 1980). In fact, the majority of the caregivers recruited in this study were of middle-income and were mothers. Moreover, most of the raters' educational levels were at the bachelor's-degree level. Caution must be exercised when generalizing these conclusions to populations under-represented in the study. In addition, this study did not examine the test-retest reliability of the ECBI, which limits its use in assessing treatment progress because of an inability to know for certain that no confounding factors occurred during the

intervening time interval. Finally, a small convenience sample was used in establishing these norms and the age range was somewhat restricted, which limits the generalizability of findings to adolescents.

Implications and future directions

When comparing the ECBI normative data and reliability and validity across different cultures/societies, some differences were noted, but patterns were similar, in general, suggesting that the ECBI is useful for assessing behavioral issues in Taiwanese children. Gender and age, however, should be considered when interpreting the clinical elevation of scores for Taiwanese children. The present study provided different Intensity and Problem cut-off scores for the total sample, for boys and girls, and for each gender based on age. These cut-off scores will be invaluable in screening for the potential need for behavioral treatment and assessing treatment outcome effects for disruptive behavior problems. Information regarding the mean frequency of each Intensity Scale item, which highlights how often a certain disruptive behavior occurs, and the percentage of each Problem Scale item that caregivers rated as a problem in Table 2 is important for Taiwanese researchers and clinicians to know, as it helps to better understand which child behaviors are developmentally appropriate and which are clinically elevated based on caregivers' reports. Previous research also has demonstrated adequate internal consistency, convergent and divergent validity with the CBCL Externalizing Scale, discriminative validity, and five-and six-factor structures of the ECBI in clinically referred Taiwanese children and their matched peers (Chen & Fortson, 2015; Chen, Fortson, & Tiano, under review). Future studies are needed to examine the test-retest reliability in Taiwanese families. Findings of this study should be confirmed with a larger sample and a more diverse age range, as well as with families from different income and educational levels and including multiple informants.

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Table 1.

Normative data on the ECBI Intensity and Problem Scales.

						Percentile			
	<i>N</i>	<i>α</i>	<i>M</i>	<i>SD</i>	<i>M</i> + 1 <i>SD</i>	80th	90th	95th	98th
Intensity Scale									
All children (2–12)	318	.93	98.21	26.42	125	119	133	142	154
Boys	168	.92	101.74 ^a	25.76	128	124	136	147	155
Girls	150	.93	94.25 ^a	26.67	121	114	131	138	151
All children (2–6)	138	.92	101.47 ^b	26.08	128	122	133	147	156
Boys	71	.92	104.55	25.97	131	129	142	150	157
Girls	67	.92	98.21	25.99	124	117	126	133	144
All children (7–12)	180	.93	95.71 ^b	26.47	122	116	132	140	151
Boys	97	.92	99.69 ^c	25.54	122	119	133	140	149
Girls	83	.95	91.05 ^c	26.93	118	112	132	139	150
Problem Scale									
All children (2–12)	318	.92	7.71	7.42	15	14	18	22	25
Boys	168	.93	8.73 ^d	7.91	17	14	20	24	29
Girls	150	.91	6.56 ^d	6.67	13	11	17	20	22
All children (2–6)	138	.92	7.76	7.26	15	13	18	21	24
Boys	71	.93	9.00 ^e	8.08	17	15	21	23	27
Girls	67	.89	6.45 ^e	6.06	13	11	16	17	19
All children (7–12)	180	.93	7.67	7.56	15	14	19	23	26
Boys	97	.92	8.54	7.82	16	14	19	24	27
Girls	83	.93	6.65	7.16	14	11	18	21	23

Note. *N*: sample size; *M*: mean; *SD*: standard deviation; α : alpha; *M + 1 SD*: one standard deviation above the mean. Column means with the same superscripts differ significantly. Bolded items are suggested cut-off scores for the ages and gender of children as applicable.

Table 2.

ECBI item statistics.

Item	Problem Scale		Intensity Scale				
	Percentage	<i>r</i>	Skewness	Kurtosis	<i>M</i>	<i>SD</i>	<i>r</i>
1. Dawdles in getting dressed	24.5	.45	0.55	−0.52	3.26	1.46	.47
2. Dawdles or lingers at mealtime	39.0	.39	0.26	−0.91	3.63	1.70	.43
3. Has poor table manners	32.1	.54	0.52	−0.27	3.22	1.47	.56
4. Refuses to eat food presented	27.4	.43	0.58	0.05	2.97	1.35	.46
5. Refuses to do chores when asked	13.2	.51	0.63	−0.12	2.85	1.26	.50
6. Slow in getting ready for bed	33.3	.52	0.24	−0.95	3.75	1.62	.56
7. Refuses to go to bed on time	33.3	.51	0.37	−0.89	3.33	1.60	.51
8. Does not obey house rules on own	22.3	.64	0.72	0.22	2.87	1.24	.65
9. Refuses to obey until threatened with punishment	31.4	.64	0.60	−0.22	3.28	1.50	.75
10. Acts defiant when told to do something	24.8	.63	0.65	−0.26	2.98	1.33	.69
11. Argues with parents about rules	20.8	.60	0.57	−0.31	2.86	1.33	.60
12. Gets angry when doesn't get own way	32.7	.49	0.12	−0.45	3.93	1.49	.67
13. Has temper tantrums	27.4	.59	0.53	−0.23	3.45	1.43	.70
14. Sasses adults	25.8	.63	0.52	−0.26	3.06	1.41	.60
15. Whines	13.8	.39	0.75	−0.04	2.87	1.37	.53
16. Cries easily	21.7	.39	0.77	−0.04	3.03	1.44	.47
17. Yells or screams	17.0	.37	0.96	0.46	2.47	1.31	.50
18. Hits parents	9.1	.41	1.59	1.93	1.63	0.96	.41
19. Destroys toys and other objects	11.6	.48	1.16	1.19	2.03	1.07	.52
20. Is careless with toys and other objects	19.2	.51	0.88	0.12	2.39	1.32	.52
21. Steals	7.2	.38	4.45	25.63	1.16	0.50	.19
22. Lies	20.4	.50	1.43	2.37	1.89	0.98	.39
23. Teases or provokes other children	11.9	.47	1.42	1.73	1.75	0.97	.36
24. Verbally fights with friends own age	10.7	.39	0.80	0.21	2.38	1.19	.37
25. Verbally fights with sisters and brothers	32.7	.39	0.19	−1.13	3.34	1.76	.34
26. Physically fights with friends own age	11.0	.40	1.82	3.76	1.78	1.07	.42
27. Physically fights with sisters and brothers	26.1	.49	0.88	−0.24	2.53	1.56	.41
28. Constantly seeks attention	15.4	.43	0.70	−0.07	2.84	1.45	.51
29. Interrupts	21.7	.58	0.61	−0.24	2.98	1.44	.58
30. Is easily distracted	39.9	.53	0.28	−0.90	3.61	1.66	.55
31. Has short attention span	33.0	.51	0.37	−0.66	3.38	1.61	.53
32. Fails to finish tasks or projects	16.7	.51	1.00	0.54	2.54	1.33	.54
33. Has difficulty entertaining self alone	7.2	.29	1.28	1.25	2.11	1.24	.30
34. Has difficulty concentrating on one thing	18.9	.48	0.95	0.44	2.54	1.35	.45
35. Is overactive or restless	8.2	.31	1.51	1.93	1.96	1.25	.41
36. Wets the bed	9.1	.26	2.22	5.33	1.82	1.23	.21

Note. *r*: corrected item-total correlation. The values for skewness and kurtosis greater than +1.5 or less than −1.5 are shown in bold.