Behavioral and Emotional Symptoms of Post-Institutionalized Children in Middle Childhood

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Abstract

Background—Experience in institutional/orphanage care has been linked to increased mental health problems. Research suggests children adopted from institutions experience specific difficulties related to inattention/overactivity. Evidence of internalizing and conduct problems relative to non-adopted peers has been found in early childhood and early adolescence, but problems may not differ from other adopted children. This study clarifies the understanding of behavioral and emotional symptoms of post-institutionalized (PI) children during middle childhood.

Methods—Eight to eleven-year-old PI children (n=68) and two comparison groups, children internationally adopted from foster care (n=74) and non-adopted children (n=76), and their parents completed the MacArthur Health and Behavior Questionnaire related to ADHD, externalizing, and internalizing symptoms. Group means for symptom level and number of children with symptoms above clinical cutoffs were compared.

Results—PI children displayed an increased level of ADHD symptoms per parent report. PI child and parent report indicated a higher number of PI children above clinical ADHD cutoff. Both groups of internationally adopted (IA) children had higher levels of externalizing symptoms relative to non-adopted children, with parent report indicating higher numbers of IA children above the externalizing clinical threshold. Informants differed in their report of internalizing symptoms. Parents indicated both IA groups displayed increased internalizing symptom levels and greater numbers above clinical threshold; however, children reported this to be true only for the PI group.

Conclusions—PI children differ from non-adopted peers across symptom domains in middle childhood. Whether these concerns were more broadly associated with international adoption rather than institutional care depended on symptom domain and informant. An understanding of this variability may be beneficial for treatment and intervention.

Keywords

International adoption; institutional care; mental health

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Mental health effects of early deprivation have received increased attention with the rise in international adoption of post-institutionalized (PI) children (Johnson, 2000). Studies document high rates of mental health disorders in children living in orphanage/institutional settings (Zeanah et al., 2009). What is unclear is whether once adopted, PI children are at risk for particular patterns of mental health problems. Some authors have argued for a PI syndrome that excludes internalizing and externalizing disorders, but includes attention deficit/hyperactivity (ADHD), attachment disorders, and quasi-autistic features (Kreppner, O'Connor, & Rutter, 2001; Rutter, Kreppner, & O'Connor, 2001). Others have argued that internationally adopted (IA) children have similar, but fewer, mental health problems than domestic adoptees (Juffer & van Ijzendoorn, 2005).

Increased rates of attention problems have been repeatedly observed in children with an institutional care history (Beverly, McGuinness, & Blanton, 2008; Gunnar, Van Dulmen, & International Adoption Project Team, 2007; Stevens et al., 2008). The persistence of attention problems years after adoption provides support for the hypothesis that difficulties with inattention and impulsivity may be part of a PI syndrome (Kreppner et al., 2001). Externalizing problems have rarely been found to be particular to PI children, although previous reports (Gunnar et al., 2007; Juffer & van Ijzendoorn, 2005) suggest they are elevated for adopted relative to non-adopted children. A high prevalence of internalizing problems has been noted in children living in, and recently adopted from, institutional care (Fisher, Ames, Chisholm, & Savoie, 1997; Zeanah et al., 2009). However, elevated internalizing symptoms have not been reported for PI relative to other IA children several years post adoption, at least when assessed prior to adolescence (Rutter et al., 2001).

Although Rutter and colleagues (2001) have suggested a PI syndrome that explicitly excludes internalizing and externalizing problems, this was based on data obtained in early childhood. Recently, Rutter and colleagues have reported internalizing and conduct problems in PI children increase with entry into adolescence (Colvert et al., 2008; Sonuga-Barke et al., 2009). It is unclear whether these elevated problems reflect an effect of adolescence or if these symptoms might be identified earlier if measured with child report assessments and/or in middle childhood. There are surprisingly few studies of PI children during middle childhood (e.g., Dalen & Rygvold, 2006; Hoksbergen, ter Laak, van Dijkum, Rijk, and Stoutjesdijk, 2003).

One challenge in determining mental health risks for PI children is that, as a group, adoptees are at higher risk for parent reported mental health problems (Keyes, Sharma, Elkins, Iacono, & McGue, 2008). This may reflect adoptive parents' willingness to seek treatment for their children (Miller et al., 2000). Most prior research on mental health symptoms in PI children relied on parent report (see Juffer & van Ijzendoorn, 2005). Although some studies have included teacher report (e.g., Rutter et al., 2001), until adolescence, child report is lacking. Therefore, proper assessment of internalizing problems, best appraised by self-report (Rey, Schrader, & Morris-Yates, 1992), has been limited in PI samples.

Problem behaviors in PI children may not only be due to institutional care, but also to risk factors shared among IA children, including poor prenatal care, prenatal exposure to substances, and mental health problems among parents who relinquish or abandon their children (Johnson, 2000). Relatively few studies of PI children have used appropriate comparison groups to account for these factors. Two studies of Romanian-adopted children (Fisher et al., 1997; Rutter et al., 2001) have compared PI children to Romanian children adopted early (< 4 to 6 months of age), but otherwise destined for prolonged institutional care. Both studies found more problems among PI children than early adopted Romanian children. Studying a more diverse sample, Gunnar et al., (2007) noted no elevation in parent reported externalizing or internalizing problems for PI compared to other IA children.

The primary goal of the current study was to clarify the pattern of behavioral and emotional symptoms of PI children during middle childhood. Parent and child perspectives were utilized to account for adoptive parents' potential reporting bias toward symptom endorsement and to best assess children's internalizing symptoms. To control for factors related to being an IA child, PI children were compared to IA children with little to no institutional care history, as well as with non-adopted children. Because much research regarding mental health outcomes for PI children has focused on children adopted from Eastern Europe (e.g., Colvert et al., 2008; Zeanah et al., 2009), a more diverse sample of PI children adopted from a number of countries was included. In regard to symptom patterns, PI children were expected to exhibit greater ADHD symptoms than other IA and non-adopted children. Externalizing problems were hypothesized to be elevated for both IA groups. No firm predictions were made for internalizing concerns, although we expected children's self-report to be more sensitive to these symptoms.

Methods

Participants

All procedures were approved by the Institutional Review Boards at the two data collection sites. Informed consent/assent was obtained from all participants. Participants were recruited through several studies of neurobehavioral development. Participant groups included: 1) PI children adopted $\geq$ 12 months of age with the majority (73–100%) of their pre-adoptive lives spent in institutional care, 2) children adopted early ($\leq$8 months of age) predominantly from foster care or with $\leq$ 2 months of institutional care (EA/FC), and 3) non-adopted (NA) children (descriptive data in Table 1). Adopted participants were recruited from the Minnesota and Wisconsin International Adoption Project Registries. The MnIAP registry includes 62% of children adopted internationally through Minnesota agencies during the time participants were adopted. MnIAP registry membership was biased slightly towards parents of higher education and those adopting from countries employing institutional care (see Hellerstedt et al., 2008); the WiscIAP registry was established by flyers and letters to families involved in international adoption parent groups. A total of 89% of registrants from the MnIAP registry and 63% of registrants from the WiscIAP contacted participated in the study. Non-adopted children were recruited from a registry of community families interested in research participation in Minnesota and from advertisements in Wisconsin. Typically, 70% of families from the Minnesota community registry agree to participate in research. In Wisconsin, the recruitment rate for community families was 86%. Primary reasons for declining participation at the time of recruitment included lack of interest and time demands. Child participants were screened by parent report of neurological and congenital anomalies and medically diagnosed Fetal Alcohol Spectrum Disorder (FASD). Photographic screening for FASD associated facial dysmorphia was completed during the session (see Loman, Wiik, Frenn, Pollak & Gunnar, 2009 for methodology). Three PI children were excluded due to FASD associated facial dysmorphia.

Final analysis included 218 children from 197 families. As indicated in Loman et al. (2009), EA/FC families reported higher incomes (median:$100,000–$125,000) than PI and NA (median:$75,000–$100,000), EA/FC fathers were more likely to hold graduate degrees, and PI families provided one fewer enrichment activity, on average, than EA/FC and NA families. Although the differences were generally small, these variables, along with age, were used as covariates. There were no group differences for number of significant life events following adoption as measured by a modified version of Coddington's (1972) child life event scale. Based on IQ screening (see Loman et al., 2009) no child had an estimated IQ below 70.

MacArthur Health and Behavior Questionnaire (HBQ)

The mental health symptomatology section of the HBQ (Boyce et al., 2002; Essex et al., 2002) was administered to child participants (HBQ-C). One parent report (HBQ-P) was obtained for each child. The majority (85%, n = 186) of HBQ-P questionnaires were completed by mothers. The HBQ was derived from the Ontario Child Health Study measure designed to map onto DSM symptom criteria (Boyle, Offord, Racine, Szatmari, & Sanford, 1993). Both the HBQ-P and HBQ-C have strong psychometric properties and have been used to assess child mental health across multiple ages from 4.5 years into adolescence (Ablow et al., 1999; Essex et al., 2006; Shirtcliff & Essex, 2008). The HBQ-P, administered in questionnaire format, assesses symptoms on a 0 ("never or not true") to 2 ("often or very true") scale. The HBQ-C, originally developed in a puppet interview format for younger children (Berkeley Puppet Interview - Symptomatology Scales; BPI-S; Ablow et al., 1999), is administered with parents absent as an age-appropriate questionnaire that parallels the item format and coding system of the BPI (Essex et al., 2006; Shirtcliff & Essex, 2008). Children are asked to choose which of two opposing statements is most like them (e.g., "I'm not a sad kid" vs. "I am a sad kid") and then indicate whether that statement is "sort of", "mostly" or "really" like them. Responses are coded on a 6-point scale based on which statement (positive or negative) is endorsed and to what degree, with 1 representing the most positive and 6 representing the most negative. Symptoms in three domains were analyzed: 1) Attention-Deficit and Hyperactivity Disorder (ADHD) symptoms, consisting of items indexing inattention, impulsivity, and hyperactivity (Parent α=84, Child α=.75), 2) Externalizing symptoms consisting of items indexing oppositional defiant behaviors and conduct problems (Parent α=.66, Child α=.77), and 3) Internalizing symptoms consisting of items indexing symptoms of depression, separation anxiety, and generalized anxiety (Parent α=.82, Child α=.79). In addition to mean symptom level, the percentage of children above clinical cutoffs was examined. Clinical cutoffs for parent reported ADHD, externalizing, and internalizing symptoms (1.2, 0.68, 0.71, respectively) were set based on previous analysis of the HBQ-P (Lemery-Chalfant et al., 2007) with children of approximately the same age as the present study. Because there are no published studies of clinical cutoffs using the HBQ-C, cutoffs for ADHD, externalizing, and internalizing symptoms (3.80, 2.65, 3.55, respectively) were set to define approximately the same percentage of children as defined by the parent report cutoffs.

Data Analysis Plan

Correlations between parent and child report were calculated as standardized regression coefficients, controlling for nesting of children within families. To correct for skewedness, variables were log-transformed for parametric analyses. Sex by group analyses with covariates (ANCOVA) were computed using Proc Genmod in SAS (SAS Institute, 2004). This program controls for nesting of children within families and calculates degrees of freedom based on families (n=197) rather than children (n=218). Using Proc Genmod, main effect results are reported as χ_2 statistics and tests of all possible group comparisons are provided. Crosstabulations were computed to examine group differences in the number of children above clinical cutoffs. Regression with covariates as control variables was used to examine association with duration of institutional care when PI children differed from EA/FC and NA children.

Results

Correlations between Parent and Child Report

Parent and child report were correlated for all symptom domains, ADHD: $B = .31$, $p<.01$, externalizing: $B = .27$, $p<.01$, and internalizing: $B = .16$, $p<.05$.

Effects of Covariates and Child Sex

Of the six ANCOVAs computed, two yielded significant covariate effects. Parental education was negatively associated with child report ADHD symptoms, $B = −.027$, $SE(B) = .014$, $p<.05$, and child age was positively associated with parent reported internalizing symptoms, $B = .010$, $SE(B) = .005$, $p<.05$. Despite negligible impact of covariates, results are reported with covariates included.

As predicted, boys displayed more behavior problems than girls. This was significant for both parent and child report ADHD (parent: $\chi_2 (1) = 11.70$, $p<.001$; child: $\chi_2 (1) = 4.79$, $p<.05$) and externalizing symptoms (parent: $\chi_2 (1) = 13.88$, $p<.001$; child: $\chi_2 (1) = 4.53$, $p<.05$). None of the analyses yielded significant sex by group interactions. This interaction term was removed in subsequent analyses.

Group Differences

For ADHD, parent report revealed a main effect of group, $\chi_2 (2) = 32.48$, $p<.001$, with parents reporting higher symptom levels for PI than EA/FC or NA children, who did not differ (Table 2). The same pattern was noted for parent report above the clinical cutoff for ADHD symptoms, $\chi^2(2) = 18.24$, $p<.001$. For child report of ADHD symptoms, the pattern was slightly different. While there was a main effect of group, $\chi_2 (2) = 14.80$, $p<.001$, PI and EA/FC children did not differ, with both groups reporting higher symptom levels than NA. When the percentage above the clinical cutoff was analyzed, only the PI group had high numbers, $\chi^2(2) = 6.47$, $p<.05$. Thus for three of four comparisons, ADHD appeared to be more of a concern for PI than EA/FC children. The results also indicated that by child report, $B = .003$, $SE(B) = .001$, $p<.01$, but not parent report, $B = −.001$, $SE(B) = .001$, ns, ADHD symptoms increased with duration of institutional care.

For externalizing symptoms, there was a main effect for both parent and child report, $\chi_2 (2) = 17.85$, $p<.001$, and $\chi_2 (2) = 9.88$, $p<.01$, respectively, with PI and EA/FC children reported to exhibit higher levels of externalizing symptoms than NA (Table 2). For parent report, a group difference was noted for the percentage of children above the clinical cutoff, which was marginal when all groups were compared, $\chi^2(2) = 5.09$, $p = .078$, and significant when all IA children were compared to NA, $\chi^2(1) = 5.08$, $p<.05$. Although the pattern was similar for child report of externalizing symptoms, there was no difference in group percentage above clinical cutoff, $\chi^2(2) = 4.37$, ns.

For internalizing symptoms, parent report indicated a group main effect, $\chi_2 (2) = 13.43$, $p<.01$, with both PI and EA/FC children reported to exhibit greater internalizing symptoms than NA (Table 2). When the IA groups were combined and compared to NA children, parents reported more IA children above clinical cutoff, $\chi^2(1) = 4.32$, $p<.05$. Child report presented a different pattern. Although a main effect of group, $\chi_2 (2) = 7.25$, $p<.05$, was present, only PI children reported higher levels of internalizing symptoms than NA (see Table 2). Additionally, more PI than EA/FC or NA children reported internalizing symptoms above clinical cutoff, $\chi^2(2) = 7.78$, $p<.05$. Child reported internalizing symptoms were associated with duration of institutional care, $B = .002$, $SE(B) = .001$, $p<.05$.

Discussion

In middle childhood, PI children displayed higher levels of ADHD, externalizing, and internalizing symptoms compared to non-adopted children. Nonetheless, PI children were not more vulnerable than other adopted children to all types of behavior problem symptoms. Consistent with prior research, the present findings suggest PI children are especially vulnerable to ADHD symptoms, vulnerability not shared with children internationally adopted early from foster care. This study also revealed increased externalizing problems

were not specifically linked to institutional care history. Instead, all IA children are at greater risk for these symptoms during middle childhood. Finally, for internalizing problems, whether or not PI children were particularly vulnerable depended on reporter. Per parent report, internalizing problems were equally prevalent among IA children. However, only PI children endorsed elevated internalizing problems relative to non-adopted children and their risk increased with duration of institutional care.

Consistent with prior literature (Beverly et al., 2008; Gunnar et al., 2007; Kreppner et al., 2001; Stevens et al., 2008), 8 to 11-year-old PI children with prolonged institutional histories were at particular risk for ADHD symptoms. These findings are similar to research comparing children in institutional care and foster care within the same country (e.g., Roy, Rutter, & Pickles, 2000). Therefore, it appears risk for increased ADHD symptoms is related to early experiences rather than the countries from which PI and non-PI children are adopted. Approximately 23% of PI children by parent report and 20% by child report experienced clinically significant ADHD symptoms. The percentage of EA/FC children above clinical cutoff for ADHD was similar to that of NA children, suggesting increased ADHD symptoms are specifically associated with a history of institutionalization.

Recent evidence has indicated genetic polymorphisms are related to attention problems following early institutional care. Notably, research by Stevens and colleagues (2009) revealed a gene by early experience interaction, such that only children with the "risk" version of the gene were at increased risk of attention problems following prolonged institutional care. It is likely that genetic risk factors and the systems in which they operate may provide clues to neurodevelopmental processes underlying mental health effects of early deprivation and the diversity of outcomes among individuals.

The present findings are consistent with evidence that externalizing symptoms are not specific to institutional care history. While elevated externalizing symptoms for PI and EA/FC children may reflect shared risks (e.g., genetic factors, poor prenatal care, disruptions in care), it is notable that their rates above clinical cutoff (range: 7–13% based on group and reporter) were not particularly high, while clinical rates for NA children were quite low (parent report: 1.3%, child report: 4.1%). In their meta-analysis, Juffer and van Ijzendoorn (2005) noted IA children generally exhibit lower rates of externalizing disorders than domestic adoptees, and their rates are elevated only when compared to NA children in families of comparable socioeconomic class. The present results are consistent with these conclusions. Nonetheless, the report of increased externalizing symptoms relative to NA children raises questions of why, after an average of seven years in their adoptive homes, IA children exhibit more externalizing symptoms than their NA peers.

Certainly, genetic risk and prenatal exposure to malnutrition, maternal stress and substances might explain these externalizing symptom findings. If so, experiences in the adoptive home may not completely ameliorate these risks. Parent-child interactions also play a role in the development and maintenance of externalizing problems (e.g., Mullineaux, Deater-Deckard, Petrill, & Thompson, 2009). There are currently few studies of parenting in international adoption. One study demonstrated that training adoptive parents to be sensitive and responsive promotes more secure, less disorganized attachments in their IA children (Juffer, Bakermans-Kranenburg, & van Ijzendoorn 2005). Another study indicated PI Romanian children's cognitive and behavioral delays provoked negative parental behavior which decreased as the children's competencies improved post-adoption (Croft, O'Connor, Keavene, Groothuse, & Rutter, 2001). There is also evidence that children at risk for externalizing problems are more susceptible to both negative and positive aspects of parental discipline than other children (van Zeijl et al., 2007). Taken together, these data suggest IA children may be at risk for externalizing problems. Thus, adoptive families may benefit from

programs supporting the use of positive rather than negative discipline and parenting strategies. Unfortunately, few adoption agencies provide extensive post-adoption services. Parent training prior to adoption, while sometimes offered, is typically not extensive. Enhancing opportunities for such training is warranted and might help avoid publicized, yet thankfully rare, instances of parenting failure associated with international adoption (Gunnar & Pollak, 2007).

Parent report of internalizing symptoms indicated an increased risk shared by both IA groups. This may reflect heightened sensitivity of adoptive parents to their children's mental health concerns (Brand & Brinich, 1999; Miller et al., 2000). On the other hand, the child report data revealed that PI, but not EA/FC children, experienced greater internalizing symptoms than NA children and a significant percentage of PI children (15.2%) reported symptom levels above clinical threshold. Therefore, a history of institutional care appears to be a risk factor for internalizing problems and these symptoms increase with prolonged institutional care. These data are consistent with animal models linking early deprivation with later heightened stress reactivity and fear/anxiety behavior (Loman, Gunnar, & the Early Experience, Stress, & Neurobehavioral Development Center, 2009) and recent work showing that as Romanian PI children progress through adolescence, significant anxiety and depression symptoms emerge (Sonuga-Barke et al., 2009). The present results indicate that by considering the more sensitive child self-report of internalizing problems (Rey et al., 1992), elevated internalizing symptoms are present prior to adolescence.

There are a number of limitations to the present study. First, these results offer a description of behavioral and emotional problems in PI children rather than specific insights into the developmental processes involved in psychopathology within this population. Second, there were group differences in recruitment: a portion of non-adopted participants were recruited from advertisements while all others were recruited from university based participant registries. This should be considered when interpreting findings. Third, parent report was obtained predominantly from mothers; therefore we were unable to assess potential differences in mother versus father report. When father report data were excluded, however, the reported group differences held despite loss of statistical power. Although parent and child report was obtained, the addition of teacher report would have further strengthened our design. We also considered parent and child report separately. As discussed by Kraemer et al. (2003), future studies would benefit from integrating multiple informant perspectives (e.g., teachers, caregivers, self), while attempting to resolve discrepancies across informants. Fourth, while the parent report HBQ has been shown to be a reliable index of emergent psychopathology in younger children (Luby et al., 2002; Lemery-Chalfant et al., 2007), our participants were approximately one year older than children included in these prior studies. This raises questions regarding the appropriateness of parent report cutoffs based on earlier research. Further, because there are no published studies identifying clinical thresholds using child report HBQ, cutpoints were defined to identify approximately the same percentage of high-risk children as identified by parent report cutpoints. Despite these limitations, the majority of findings are consistent with previous studies of PI children's mental health. In addition, although EA/FC children provided an international adoption comparison group, they were by definition younger than PI children at adoption. The EA/FC group criteria were chosen based on the typical age at adoption for children internationally adopted from foster care, who tend to reach their families earlier than PI children. However, results should be interpreted cautiously because age at adoption, rather than prior institutional care, may account for observed differences between PI and EA/FC groups. Finally, type of pre-adoptive care (institutional vs. foster care) was confounded with country of origin because at the time participants were adopted, countries typically provided only one type of substitute care. Although children were included from various regions of the world, there were too few children from any one region to compare EA/FC and PI children holding region of origin

constant. Thus, our findings might be less robust were group comparisons made between children from institutional and foster care adopted from the same world region. Nonetheless, results regarding ADHD and externalizing problems were consistent with prior studies of PI children, including those that held country constant (e.g., Roy et al., 2000). More caution is warranted for the internalizing findings, particularly for child report where little prior literature exists.

Conclusions

The present findings suggest in middle childhood PI children are at risk for ADHD symptoms compared to other IA and non-adopted children. In contrast, risks for externalizing problems do not appear to be sensitive to early institutional history, but are instead shared with children internationally adopted early from foster care. The mixed findings based on reporter for internalizing problems argue for enhanced attention to PI children's views of their struggles to manage their emotional concerns. Because PI children appear to be at greater risk for problems in some, but not all domains, these children and their parents may be best served by mental health professionals knowledgeable about the specific needs of PI children. Finally, as PI children may experience increased problems in adolescence, identifying and treating mental health concerns in early and middle childhood may be particularly important.

Key Points

- Early experience in institutional/orphanage care is a risk factor for mental health problems years after adoption; however, the pattern of these symptoms in middle childhood is not yet well described.

- In middle childhood, post-institutionalized children were at specific risk for ADHD symptoms compared to other internationally adopted and non-adopted children.

- Increased levels of externalizing symptoms were found more broadly in internationally adopted children and were not specific to institutional care experience.

- Internalizing symptom findings varied by reporter, with parents endorsing increased symptoms for internationally adopted children generally, while child report suggested a specific institutional effect.

Acknowledgments

Abbreviations

PI	post-institutionalized
IA	internationally adopted
EA/FC	early adopted/foster care

HBQ   Health and Behavior Questionnaire

NA   non-adopted

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Table 1

Descriptive information for PI, EA/FC, and NA groups

	PI	EA/FC	NA
Sample size	*n*=68	*n*=74	*n*=76
	35 females	41 females	38 females
Child age at assessment	*M*=9.6 yrs	*M*=9.7 yrs	*M*=9.6 yrs
	SD=1.2 yrs	*SD*=1.1 yrs	*SD*=1.2 yrs
Region-of-origin[a]	Eastern Europe =39	Eastern Europe =0	U.S. =76
	Asia =28	Asia =60	
	South America =1	South America =14	
Child age at adoption	*M*=28.6 mos	*M*=5.1 mos	
	SD=18.1 mos	*SD*=1.6 mos	
Time spent in adoptive families at assessment	*M*=7.3 yrs	*M*=9.3 yrs	
	SD=2.0 yrs	*SD*=1.1 yrs	
Time spent in pre-adoption institutional care	*M*=27.3 mos	*M*=.27 mos	
	SD=18.2 mos	*SD*=.64 mos	
	Range=10–83 mos	*Range*=0–2 mos	
Time spent in pre-adoption foster care	*M*=.72 mos	*M*=4.4 mos	
	SD=3.3 mos	*SD*=1.9 mos	
	Range=0–24 mos	*Range*=0–8 mos	

[a]PI Group: Russia (n=17), Romania (n=8), Ukraine (n=7), Slovakia (n=3), Bulgaria (n=3), Kazakhstan (n=1), China (n=12), India (n=10), Philippines (n=4), Cambodia (n=2), Ecuador (n=1). EA/FC Group: Korea (n=55), Vietnam (n=5), Guatemala (n=7) and Colombia (n=7).

Table 2

Marginal means for each symptom cluster by group and effect sizes (Cohen's d) for the differences between internationally adopted and non-adopted children.

| | Parent report | | | | | Child report | | | | |
| | Marginal means | | | Effect size | | Marginal means | | | Effect size | |
	PI	EA/FC	NA	PI vs. NA	EA/FC vs. NA	PI	EA/FC	NA	PI vs. NA	EA/FC vs. NA
ADHD	.25$_a$	.15$_b$	.13$_b$	.46	---	.44$_a$	.40$_a$	.33$_b$	.27	.20
Clinical Percentage	22.7	5.6	2.7			19.7	7.0	8.3		
Externalizing	.12$_a$	.10$_a$	.07$_b$	.29	.19	.26$_a$	.25$_a$	.19$_b$	.20	.18
Clinical Percentage	9.0	9.6	1.3			13.6	7.0	4.1		
Internalizing	.13$_a$	.12$_a$	.09$_b$	.25	.17	.36$_a$	.33$_{a,b}$	.29$_b$	.19	---
Clinical Percentage	11.9	9.7	2.7			15.2	4.2	4.1		

Note. Means with different subscripts are significantly different at $p < .05$. Mean comparisons control for age, sex, family income, average parental education, and enrichment. Effects of child age, sex, parental education, income, and enrichment are controlled before effect sizes are calculated. Effect sizes are shown for significant contrasts.