Focus

Pre-placement Screening in International Adoption*

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Abstract

Background: The number of child adoptions from abroad is increasing, but the adverse living conditions of these children prior to the adoption raise questions on their medical and neurodevelopmental status, particularly since there are no guidelines for pre- or post-adoption medical evaluation.

Objectives: To describe the condition of a cohort of young children who were candidates for adoption in East European orphanages and foster homes, and to determine those attributes associated with a family's decision to adopt or refuse a particular child.

Methods: Eighty-two young children, median age 11 months, were evaluated by Israeli pediatricians in Eastern Europe between 3 weeks and 6 months prior to their adoption. The evaluation consisted of comprehensive medical and neurodevelopmental testing on site using a battery of standardized assessment tools, and observation of free play and social interactive behaviors recorded on videotape. Laboratory tests included complete blood count, chemistries, serology screening, and metabolic and genetic testing.

Results: The children were growth-retarded. Medical problems were classified as resolved (pneumonia and diarrhea) in 32.8%; or ongoing, such as hepatitis B and C, failure to thrive, organomegaly, and visual and hearing disorders, in 14.8%. Neuromotor status was grossly abnormal in 13.4%. Twenty-two percent of the children were rejected for adoption by families in Israel. Factors associated with the adoption decision were performance skills on developmental testing (P = 0.0001), present medical status (P = 0.002), and weight (P = 0.016).

Conclusions: Pre-placement comprehensive screening of children eligible for foreign adoption, which includes developmental screening, helps to identify a wide variety of strengths and impairments in a child's background before the adoption procedure is finalized. A family's decision to adopt or not was associated with the child's performance on Bayley Scales, weight, and current medical status, but not with language delays, serious past medical history or suspect family background.

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Increasing numbers of families are opting to parent through international adoption. In 2002, over 20,000 children were adopted

from abroad by United States citizens. In Israel, the numbers vary from year to year, ranging from 300 to 1,000, mostly from East European countries, the location depending on political, social and economic factors [1,2]. Because of the children's adverse living conditions prior to adoption, it is not surprising that there is concern regarding their medical condition. There exists no mandated set of pre- or post-adoption medical evaluations. Indeed, immigration law in the U.S. as well as in Israel merely requires "screening for certain communicable diseases and for serious physical or mental defects" [2–4]. The only current American Academy of Pediatrics guidelines regarding international adoption emphasize screening tests for infectious diseases, although reference is made to the need for diagnosing "hearing loss and visual abnormalities, growth and developmental retardation, nutritional deficiencies, and congenital anomalies." Other recommendations for a comprehensive evaluation of the child within 2 weeks of arrival in the U.S. have focused on acute illnesses, nutritional state and chronic medical conditions, with few guidelines as to what type of neurodevelopmental evaluation should be done [3–5].

By any account, children adopted from institutions have many "special needs" and numerous risk factors. These include the social circumstances that originally led to the loss of the birth family and later to institutionalization (e.g., alcoholism, drug abuse, poverty and illness), as well as medical issues in the orphanage itself (tuberculosis, hepatitis and other communicable diseases, suboptimal nutrition), and environmental issues (lack of stimulation and inconsistent caretaking) [6,7]. A few children will have suffered additional neglect or abuse while still living with their birth families [8].

Institutionalization during infancy and early childhood may result in developmental impairments and delays in emotional, motor, social, speech and physical development, interruption of normal adult-child attachment processes, severe behavioral and emotional disturbances, as well as learning problems including reading difficulties and problems in critical thinking. Longitudinal studies of conditions at arrival and long-term status among institutionalized adopted children from Eastern Europe emphasize:

growth impairment [9], cognitive deficits [10] and delayed brain growth.

The degree of impairment in any one of the above measures was correlated with the length of pre-adoption institutionalization and mediated by a variety of other contingent factors [11]. Aberrations in social relationships include attachment issues [12], social and emotional problems and quasi-autistic behaviors [13], which are often the extreme expression of an unfortunate convergence of both language impairments – highly prevalent among these youngsters [14] – and sensory integration difficulties. Indeed, a recent study noted that essentially all immigrant adopted children exhibit developmental delays at the time of their arrival at their adoptive family [16]. Infants institutionalized for more than 8 months present with the greatest number of problems and severity, with fully 65% constituting a "moderate to severe" burden to their families [11].

In the light of these problems it has been suggested that prospective adoptive families be more fully educated on the possible effects of early institutionalization [17,19]. One method of preparation would be to obtain detailed medical information and to perform developmental testing *prior* to adoption [18].

The present study sought to characterize the medical and neurodevelopmental impairments in a group of young children eligible for adoption from orphanages and foster homes in three East European countries prior to their arrival in their adoptive country, Israel. The pre-adoption evaluation was performed by a special team of developmental pediatricians who were sent for the specific purpose of evaluating all prospective adoptees. All evaluations were done on site in the host East European country. This pre-adoption evaluation was designed to: a) evaluate the medical and developmental status of infants who had already been screened by the local physicians and been declared eligible for adoption, and b) determine which medical and, especially, which developmental findings were associated with the family's decision whether or not to adopt.

Methods

Eighty-two East European children were evaluated by pediatricians sent by Israeli NGO (non-governmental organization) adoption agencies on a non-selective basis to evaluate the children in their East European home setting. The mean age of the children was 13 months (median age 11 months, SD 10 months, range 2 months to 4 years) and were almost evenly divided between males (51.2%) and females (48.8%). Sixty were from Romania, 4 from Moldova, and 18 from the Ukraine; 84.1% were in orphanages, with an average duration of stay of 10.5 months (median 10 months, SD 4.5 months), and 15.9% were in local foster care, where the median stay was only 3.5 months owing to the recent introduction of this type of care in the region, primarily Romania. Testing was performed between 1999 and 2001.

All adoptions were processed by government-sponsored NGO agencies under the guidelines of the 1993 Hague Convention, which were ratified by the Knesset (Israeli Parliament) in 1998. All children had been previously screened by local physicians, operating either

NGO = non-governmental agency

under the aegis of the local adoption foundation or the orphanage itself. Local medical records and social service reports were made available, but their authenticity could not always be verified. Attempts were made to interview orphanage personnel and social service aides, as well as local townspeople to verify official documents. Interviews and assessments were conducted both in the native language and through an interpreter. Laboratory analysis of blood samples was performed in laboratories affiliated to medical centers in Israel.

In the case of Romania and Moldova, a child was matched with a prospective adoptive family only after the pediatricians had completed the assessment, thus prospective families were not present during the evaluation. In the Ukraine the practice was to tentatively assign a child to a particular family, and thus the pediatrician's evaluation was performed in their presence. The evaluation consisted of:

- Physical and neurologic examination
- Medical and social history from local records and interviews
- Vision and hearing screening
- Neurodevelopmental testing, using one or a combination of screening tools, including: Denver Developmental Screening Test, Bayley Scales of Infant Development, Gesell Developmental Schedules, Zimmerman Preschool Language Scale
- Laboratory analysis of complete blood count, chemistries, serology screening for human immunodeficiency virus, hepatitis B and C, and syphilis
- Genetic screening for cystic fibrosis, Fragile X and Down syndromes
- Guthrie metabolic screening
- Confirmatory serum analysis for phenylketonuria, and polymerase chain reaction or RNA viral load in cases of indeterminate serology results
- Video documentation of testing results, free play, and social interactive skills.

Results

Children who were offered for adoption were, on average, short (mean height in the 28th percentile), underweight (mean weight in the 30th percentile), and small head circumference (29th percentile). Verbal delay was found to be the most prevalent feature, in 42.7%, with performance skills less adversely affected by institutionalization (9.8%). Language skills were more delayed in younger than in older children (Spearman $r = 0.367$, $P = 0.001$). The neuromotor status was borderline with tonal abnormalities in 9.8%, and grossly abnormal, with spasticity, tremor or extreme hypotonicity in 13.4%.

Abnormal family history (parental psychiatric care, mental retardation, incarceration, and child abuse of siblings) was recorded in 8.5%, and an abnormal neonatal course (perinatal distress or asphyxia, resuscitation or sojourn in the neonatal intensive care nursery) was noted in 14.6%. Both were probable underestimates due to the paucity of available information [Table 1].

Thirty-three percent of the children had a history of a resolved medical issue, such as pneumonia or diarrhea. Fifteen percent of the children were found to have one or a combination of positive

Table 1. Medical and developmental status of candidates for adoption

		%	No.
No.	1.00 sample size	82	100.0
Gender	1 male	42	51.2
	2 female	40	48.8
Foster care	1 yes	13	15.9
	2 no	69	84.1
Country of origin	Romania	60	73.2
	Moldova	4	4.9
	Ukraine	18	22.0
Verbal functioning	1 normal	47	57.3
	2 abnormal	35	42.7
Performance functioning	1 normal	74	90.2
	2 abnormal	8	9.8
Neuromotor functioning	1 normal	63	76.8
	2 abnormal	11	13.4
Head circumference	1 normal	77	93.9
	2 abnormal	5	6.1
Height	1 normal	60	74.1
	2 abnormal	22	25.9
Weight	1 normal	51	62.2
	2 abnormal	31	37.8
Family history	1 normal	75	91.5
	2 abnormal	7	8.5
Birth history	1 normal	70	85.4
	2 abnormal	12	14.6
Past medical status	1 normal	51	62.2
	2 abnormal	31	37.8
Present medical status	1 normal	69	85.2
	2 abnormal	12	14.8
Eventual adoption	1 yes	56	68.3
	2 no	18	22.0
	3 no administrative	8	9.8

Dichotomous categories based on standardized norms on growth curves (2–98% for head circumference, 5–95% for height and weight) and in excess of 2 SD on standardized developmental tests. History, medical status and neuromotor functioning were by subjective clinical assessment.

serology for hepatitis B (3.6%), hepatitis C (1.2%), extreme failure to thrive with all growth parameters falling below the growth curves (2.4%), prolonged elevated multiple liver function tests (4.8%), suspected phenylketonuria (1.2%), hepatosplenomegaly (4.8%), visual disturbances or severe strabismus (4.8%), hearing loss or deafness (3.6%), heart murmurs associated with congenital cardiac malformations (3.6%), and orthopedic anomalies (3.6%).

Of the children evaluated, 68.3% were eventually adopted; 22% were rejected by Israeli families due to medical and/or developmental impairments, and 9.8% were withdrawn from the process by a local administrative decision. Further statistical analysis was performed for 72 of the 82 children; withheld were those withdrawn administratively, plus another 2 children for whom data were incomplete.

The findings for children in foster care did not differ from those for children in orphanages, since the foster care system in Romania had been operating only for several months prior to the survey and was not yet sufficiently established to make an overriding impact on the developmental outcomes.

Table 2. Factors influencing families whether to adopt a child from a foreign country

Variable	Chi-square	df	P
Country of origin	6.197	1	0.013
Verbal functioning	4.690	1	0.030
Performance score	16.606	1	0.0001
Neuromotor status	38.173	2	0.0001
Head circumference	15.33	1	0.0001
Height	4.026	1	0.045
Weight	6.224	1	0.013
Birth history	5.6	1	0.018
Present medical status	7.676	1	0.006

Each factor associated with adoption that was examined in the study was statistically compared with the adoption outcome of the child (yes/no) by chi-square analysis. df indicates degrees of freedom and P the level of significance.

The decision to adopt was most closely associated with performance skills on developmental testing (16.606, df = 1, P = 0.0001), neuromotor functioning (38.173, df = 2, P = 0.0001), head circumference (15.33, df = 1, P = 0.0001), and present medical status (7.676, df = 1, P = 0.006) [Table 2]. When factors associated with the decision to adopt were subjected to logistic regression analysis (Wald stepwise method), the most salient factors were performance skills (P = 0.0001), present medical status (P = 0.002), and the child's current weight (P = 0.016).

By performing this study and carrying out comparative statistical analysis of the results, we came to understand the perceptions and value systems of the Israeli families and to generalize about who they regarded as "the ideal adopted child." Using regression analysis, it was easier to predict which children would most likely be adopted, barring any administrative obstacle at the last minute (positive predictability of 96.4%), as compared to being able to predict who was likely to be rejected, for whatever reason (negative predictability 58.8%). The discrepancy between the two kinds of predictability appears to be related to deficiencies in the way we evaluated certain aspects of the child's behavior during testing.

Discussion

The medical problems identified in this cohort of children – such as hepatitis, phenylketonuria, failure to thrive, and hearing and visual disorders – reflect data from previous studies, although our prevalence rates were lower possibly due to the fact that the children in the present study had previously been screened to a certain extent by local physicians and were younger than reported elsewhere [18–24].

Despite the relatively small number of children in this study compared to other adoption series with between 100 and 200 children examined at the time of or after the adoption, the testing at the time of adoption was relatively extensive compared with the other series [11]. Frequencies of identified impairments were similar in comparable series, especially pervasive delays in verbal functioning and the extent of neurosensory impairments [6].

There were no identified cases of fetal alcohol syndrome. This can be attributed to either the pre-screening by local medical

personnel or to lifestyle characteristics of this primarily Romanian rural population. There was a relative paucity of both communicable and potentially serious chronic illnesses, such as hepatitis B and C, as well as HIV (absent), as well as genetic syndromes and malformations in this pre-selected cohort.

The characterization of the developmental impairments in this group of very young children from East European orphanages and foster homes clearly reflects previous studies where verbal functioning was found to be overwhelmingly delayed, in comparison with performance skills (in our case, 42.7% vs. 9.8%). The younger children tended to be more verbally delayed than the older ones (Spearman $r = 0.367$, $P = 0.001$), presumably due to conditions in the orphanages where caretakers aren't "expected" to verbally interact with younger children and were more preoccupied with meeting the child's physical needs. The importance of the developmental screening is underscored by the results of the logistic regression analysis, where two of the three most salient factors influencing the decision by Israeli parents to adopt were "developmentally" related, namely the performance score on the developmental testing and the child's body weight.

The aversion of families to adopting young children with performance delays on developmental testing may signal their hesitancy to deal with potentially more pervasive cognitive delays such as mental retardation, whereas the early language delays at this age, which were more widespread, may have indicated isolated impairments that the families were willing to deal with later on upon the child's arrival at his or her new home.

One of the most glaring omissions of the present study is a quantification of the signs of environmental deprivation, namely self-stimulatory behaviors, sad affect, and poor interpersonal relatedness on the initial contact with the child in the orphanage. Fully one-third of all the children evaluated exhibited such behaviors. Quite possibly, the weak "negative predictability" of the model (58.8%) – where there was no sound objective reason, based on statistical analysis of the parameters we chose to examine, for why families rejected certain children with a normal medical and developmental profile – can be attributed to their "gut feeling" after having witnessed problems of interpersonal relatedness on the videotape.

This study is unique in its use of pediatricians sent from the adoptive country to directly test the children waiting to be adopted, rather than relying on videotapes, which is common practice elsewhere [25]. Long-term studies are needed to assess the impact of pre-placement screening in the adjustment process of adopted children.

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HIV = human immunodeficiency virus