

Adopted Children from Ukraine: Health Outcomes on Arrival and Long-Term

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Abstract: Background: Former Soviet Union countries, and specifically Ukraine, are a frequent geographic area for children adopted abroad by Spanish families. The objective of this study was to describe the epidemiological characteristics and the health outcomes on arrival and long-term in children adopted from Ukraine. **Material & Methods:** Longitudinal observational study on 29 adopted Ukrainian children in Spain from 2002 to 2011, examined according to a standardized protocol at a specialized referral center. The pre-adoption history and the clinical, anthropometric, and laboratory post-adoption records were reviewed. **Results:** All children (females, 55.2%) were adopted from orphanages. 58.6% were terminated of parental rights for abuse/neglect, and 41.4% abandoned at birth. 17.2% were alcohol-exposed, 44.8% preterm birth, and 51.7% low birth weight. The mean age at orphanage entry was 15.9 months, and 42.2 months at adoption. The most frequent health problems on arrival were neurodevelopmental delays (51.7%), short stature (48.3%), self-regulation difficulties (34.5%), underweight (31%), and iron deficiency (27.6%). Twenty (69%) children had more than one health problem. 93% of children recovered their health problems five years after adoption. The most frequent health problems on long-term follow-up were externalizing behavior problems, especially in females. One female showed central precocious puberty, and one male was diagnosed with fetal alcohol syndrome. **Conclusion:** Most of health problems observed on arrival and long-term in adopted children from Ukraine were common conditions described in previous studies among internationally adopted

children from the former Soviet Union countries. International adoption proved to be successful as a means of protecting children's well-being and physical, maturational, and emotional development.

Keywords: Adoption, Child, Health, Ukraine.

INTRODUCTION

Spain is one of the main countries in the world in adopting foreign children. Former Soviet Union countries, and specifically Ukraine, are a frequent geographic area for children adopted abroad by Spanish families. According to the Ministry of Social Rights and Agenda 2030 of the Government of Spain, 2,576 children were adopted from Ukraine during the period 2002-2011, representing 6.7% of all children adopted internationally (Government of Spain, 2022).

Ukraine's political, economic, health, and social background, in addition to other factors that may exist prior to or during institutionalization, result in adoptable children from this country being at risk for physical or mental health problems (Oliván Gonzalvo, G. 2006).

Families adopting from Ukraine are concerned about the influence of pre-adoptive circumstances, especially orphanage living, on their child's future health. Most every child adopted from Ukraine has spent time in an orphanage, albeit not all orphanages provided uniform experiences. Not all children adopted enter orphanages at birth; some children, prior to orphanage living, may have suffered neglect, physical and sexual abuse, malnutrition, and prenatal alcohol or other drug exposure by the birth families. Literature has confirmed that orphanage living is a risk factor for children's well-being, with harmful effects including delays in social and emotional development, altered cognitive functioning, and nutritional and growth deficiencies (Oliván Gonzalvo, G. 2006; Miller, L. *et al.*, 2009; van IJzendoorn, M. H. *et al.*, 2011; & Robinson, C.B. *et al.*, 2015).

Moreover, based on the experience of different researchers, it is considered that in children adopted from Ukraine, the pre-adoption medical report is not sufficient to assess the risk regarding the child's physical and mental health (Albers, L.H. *et al.*, 1997; Jenista, J.A. 2000; & Oliván Gonzalvo, G. 2006).

Therefore, it is necessary to weigh as precisely as possible the uncertainties that might affect the health of Ukrainian children proposed for international adoption. This is one of the key drivers to adoption decisions, as adopting families are more and more risk-averse. Hence, competent administrations, collaborating entities, and doctors in the field of international adoption must update their knowledge and professional practices to face this problem (Oliván Gonzalvo, G. 2006; & Dartiguenave, C. 2012).

Objective of the study

The objective of this study was to describe the epidemiological characteristics and the health outcomes on arrival and long-term in children adopted from Ukraine.

MATERIAL AND METHODS

Study design:

Longitudinal observational study.

Data source and sample:

This study was conducted on 29 Ukrainian children adopted in Spain from 2002 to 2011, who were examined upon arrival and followed up long-term at a specialized referral center.

Study procedure and diagnosing method:

All children were assessed and followed up medically according to a standardized protocol (Oliván Gonzalvo, G. 2006). The pre-adoption history and the clinical, anthropometric, and laboratory post-adoption records were reviewed. Weight and stature growth delay were defined as weight and height for age and sex below 2 standard deviations (SD) with respect to the growth standards of the World Health Organization (World Health Organization. 2022). Microcephaly was defined as a head circumference for age and sex below 2 SD with respect to the World Health Organization growth standards (World Health Organization. 2022). To define neurodevelopmental delay the interpretation guidelines of the Haizea-Llevant and Denver II developmental screening tests were followed (Spanish

Association of Primary Care Pediatrics. 2009). Fetal alcohol syndrome was diagnosed according to the Diagnostic guide for fetal alcohol spectrum disorders: the 4-digit diagnostic code (Astley, S.J. 2004). The Child Behavior Checklist (CBCL), a parental report measure designed to assess the social competencies and behavior problems of children ages 4-18 years, measured problem behavior. The CBCL Internalizing Problems subscale measured the degree of symptoms associated with child anxiety, sadness, and guilt. The CBCL Externalizing Problems subscale includes symptoms such as disruptive behaviors like physical aggression, conduct, and attentional problems (Achenbach, T.M. & Rescorla, L. 2001).

Data collection:

The following variables were collected: sex; reason for institutionalization; city of institutionalization; age at orphanage entry; time in the orphanage; age at adoption; pre-adoptive medical report available; vaccination certificate available; prenatal/neonatal history; health outcomes observed on arrival assessment; health outcomes observed in the long-term follow-up. An Excel® sheet was used to calculate: mean age at orphanage entry, time in the orphanage, and at adoption; mean (SD) of pubertal development variables; absolute frequencies and percentages of the qualitative data. The data was used in accordance with Organic Law 3/2018 on the Protection of Personal Data and guarantee of digital rights, in force in Spain.

RESULTS

Epidemiological characteristics and history in adopted Ukrainian children are summarized in Table 1. All children (females, 55.2%) were adopted from orphanages and had a pre-adoption medical report. 58.6% were terminated of parental rights for abuse/neglect, and 41.4% abandoned at birth. Alcohol-exposed were 17.2%, preterm birth 44.8%, and low birth weight 51.7%. The mean age at orphanage entry was 15.9 months. The mean time in the orphanage was 26.3 months. The mean age at adoption was 42.2 months.

Table 1. Epidemiological characteristics and history in adopted children from Ukraine (n = 29)

Variable	n (%)
Sex	
- Female	16 (55.2)
- Male	13 (44.8)
Reason for institutionalization	
- Abandoned at birth	12 (41.4)
- Termination of parental rights for abuse/neglect	17 (58.6)
City of institutionalization	
- Kiev	6 (20.7)
- Odessa	5 (17.2)
- Cherkasy	3 (10.3)
- Dnipropetrovsk	2 (6.9)
- Donetsk	2 (6.9)

- Kharkov	2 (6.9)
- Pryluky	2 (6.9)
- Bila Tserkva	1 (3.4)
- Chernobyl	1 (3.4)
- Krivoy Rog	1 (3.4)
- Lviv	1 (3.4)
- Mykolaiv	1 (3.4)
- Nikopol	1 (3.4)
- Zhytomyr	1 (3.4)
Vaccination certificate available	26 (89.7)
Pre-adoptive medical report available	29 (100)
Prenatal/neonatal history	
- Alcohol exposure	5 (17.2)
- Exposure to Hepatitis C Virus	4 (13.8)
- Exposure to Human Immunodeficiency Virus	4 (13.8)
- Drug exposure	2 (6.9)
- Preterm birth	13 (44.8)
- Low birth weight	15 (51.7)

Health outcomes on arrival assessment in adopted Ukrainian children are summarized in Table 2. The most frequent problems were neurodevelopmental delays (51.7%), short stature (48.3%), self-regulation difficulties (34.5%), underweight (31%), and iron deficiency (27.6%). Two (6.9%) children had global growth delay (height, weight, and head circumference). Growth disturbance of femoral condyle in one girl was

after osteomyelitis. Twenty (69%) children had more than one health problem. No health problems were observed in five (17.2%) children. Regarding laboratory tests on human immunodeficiency virus 1/2 antibodies and p24 antigen, hepatitis B virus surface antigen, hepatitis C virus antibodies, and syphilis (VDRL/RPR), the results were negative.

Table 2. Health outcomes on arrival in adopted children from Ukraine

Problem	Female	Male	Total
	(n=16) n (%)	(n=13) n (%)	(n=29) n (%)
Neurodevelopmental delays	8 (50.0)	7 (53.8)	15 (51.7)
Short stature	9 (56.3)	5 (38.5)	14 (48.3)
Self-regulation difficulties	7 (43.8)	3 (23.1)	10 (34.5)
Underweight	4 (25.5)	5 (38.5)	9 (31.0)
Iron deficiency (with/without anemia)	4 (25.0)	4 (30.8)	8 (27.6)
Microcephaly	3 (18.8)	2 (15.4)	5 (17.2)
Strabismus	3 (18.8)	1 (7.7)	4 (13.8)
Flat feet	3 (18.8)	1 (7.7)	4 (13.8)
Atopic dermatitis	3 (18.8)		3 (10.3)
Refractive errors	3 (18.8)		3 (10.3)
Dental caries		2 (15.4)	2 (6.9)
Adenoid hypertrophy	1 (6.3)	1 (7.7)	2 (6.9)
Serous otitis media	2 (12.5)		2 (6.9)
Subclinical hypothyroidism	1 (6.3)	1 (7.7)	2 (6.9)
Giardia Lamblia infection	2 (12.5)		2 (6.9)
Latent tuberculosis infection	2 (12.5)		2 (6.9)
Rickets		1 (7.7)	1 (3.4)
Madelung's deformity		1 (7.7)	1 (3.4)
Growth disturbance of femoral condyle	1 (6.3)		1 (3.4)

Health outcomes on long-term follow-up in adopted Ukrainian children are summarized in Table 3. The most frequent were externalizing behavior problems, especially in females. The case of central precocious puberty was diagnosed six months after arrival. The

case of fetal alcohol syndrome (FAS) was definitively diagnosed twelve months after arrival. Pubertal development data in 12 adopted Ukrainian girls is summarized in Table 4.

Table 3. Health outcomes on long-term follow-up in adopted children from Ukraine

Problem	Female	Male	Total
	(n=16) n (%)	(n=13) n (%)	(n=29) n (%)
Attention-deficit/hyperactivity disorder	3 (18.8)	2 (15.4)	5 (17.2)
Disruptive behavior disorder	3 (18.8)		3 (10.3)
Central precocious puberty	1 (6.3)		1 (3.4)
Fetal alcohol syndrome		1 (7.7)	1 (3.4)
Failure of catch-up growth		1 (7.7)	1 (3.4)
Severe amblyopia	1 (6.3)		1 (3.4)

Table 4. Pubertal development in adopted Ukrainian girls (n = 12)

Variable	Tanner stage 2 mean (SD)	Menarche mean (SD)
Age (months)	109.2 (14.5)	134.3 (15.2)
Weight (kg)	28.9 (3.2)	43.2 (4.7)
Height (cm)	131.0 (9.1)	149.6 (8.1)
Body mass index	16.9 (1.4)	19.3 (0.5)
Body fat (%)	16.9 (1.5)	20.2 (0.6)

DISCUSSION

Vashchenko *et al.*, conducted a study among orphanages staff in Ukraine that noted deficiencies in care: high caregiver-child ratio, frequent care disruptions, and lack of stimulation. Direct caregivers (in-room "nannies," educators, and nurses) and other providers (e.g., clinic nurses, physicians, therapists) differed in university-degree attainment, professional motivation, enjoyment of children, professional satisfaction, and perceptions of self as substitute mother (Vashchenko, M. *et al.*, 2010). In our study, all Ukrainian children were adopted from orphanages and the meantime of stay in the institution was 26.3 months. We believe that the stay of more than two years in deficient institutional care could have adverse effects on the development of children.

McGuinness *et al.*, found that many children adopted from the former Soviet Union countries had experienced abuse, abandonment, or neglect between birth and entry to the institution, their mean birth weight was 2637 g, and alcohol abuse by the birth mother was 41% (McGuinness, T. M. *et al.*, 2000). Landgren *et al.*, found in children adopted from Eastern Europe countries that 48% were low birth weight and 33% were prenatal alcohol-exposed (Landgren, M. *et al.*, 2006). Robert *et al.*, found in children adopted from Eastern Europe countries that 21% were prenatal alcohol-exposed (Robert, M. *et al.*, 2009). In our study, 58.6% of the children had experienced abuse or neglect prior to entry to the institution, 51.7% showed low birth weight, and alcohol abuse by the birth mother was confirmed in the pre-adoptive medical report in 17.2%. Unfortunately, as it is well known, the history of prenatal alcohol exposure is frequently omitted from pre-adoptive medical records in Eastern European countries. It is important to be aware that the absence of documentation of alcohol abuse by the birth mother

does not rule out their presence (Oliván Gonzalvo, G. 2011).

Physical growth delays on arrival are frequent among post-institutionalized Eastern European countries adoptees. Judge examined the degree of growth recovery during the first year of placement in a sample of 124 children adopted from Eastern European orphanages. At the time of adoption, substantial growth delays on weight and on height were identified in about half of children. Results indicated that there was considerable catch-up at post-adoption. Regression analysis revealed that the degree of growth delay at the time of adoption, along with the duration of time spent in the adoptive home and age at adoption placement, predicted significant amounts of variance associated with catch-up growth (Judge, S. 2003). Dobrova-Krol *et al.*, observed physical growth delays in 31% of Ukrainian institution-reared children (Dobrova-Krol, N. A. *et al.*, 2008). Miller *et al.*, observed that on arrival growth measurements for height, weight, and head circumference were all within the normal range in 36% of children adopted from Eastern Europe/former Soviet Union countries. About one-third of the children showed significantly delayed growth in at least one area (height, weight, or head circumference), and 12% of children had global growth delay. After more than five years post-adoption, compared to measurements at arrival, growth at follow-up had significantly improved in most children (Miller, L. *et al.*, 2009). Robert *et al.*, observed in children adopted from Eastern Europe countries five years after adoption, that 7% still presented growth delay and 24% microcephaly (Robert, M. *et al.*, 2009). Miller *et al.*, conducted an auxological evaluation in 148 institutionalized children adopted from Russia, Kazakhstan, and Ukraine. On arrival, 22% were short stature. Catch-up growth was seen in 62% of adoptees at 6 months after adoption; 7% of children remained short stature (two had growth hormone

deficiency). Younger age, greater degree of initial growth failure, and higher caloric intake were significantly associated with improved linear growth (Miller, B. S. *et al.*, 2010). Kroupina *et al.*, observed physical growth delays on arrival in most of the children adopted from Russia, Kazakhstan, and Ukraine. At 6 months, there was statistically significant improvement in means for height, weight, and head circumference in comparison to baseline values. At 30 months, the means for height and weight had normalized in most of the children (Kroupina, M. G. *et al.*, 2015). Canzi *et al.*, observed in international adoptees in Italy that on arrival nearly half of children had growth measurements in the normal range, and all the children showed a significant recovery in height and weight at 6 and 12 months postplacement (Canzi, E., *et al.*, 2021). Goutines *et al.*, observed in newly arrived international adoptees in France that the prevalence of stunting, underweight, wasting and microcephaly were, respectively, 25%, 22%, 15%, and 8%, and stunting was more frequent in children from Eastern Europe countries (Goutines, J. *et al.*, 2021). Ivey *et al.*, conducted a systematic review to describe the nutritional status of children adopted internationally. They found that older children, those adopted from institutionalized care or with underlying disability, were more likely to be malnourished. They concluded that though children adopted internationally are at high risk of malnutrition on arrival to adoptive country, marked catch-up growth is possible, including for those older than two years of age on arrival (Ivey, R. *et al.*, 2021). In our study, the prevalence of short stature, underweight, and microcephaly was, respectively, 48.3%, 31%, and 17.2%. All the children (except the child with FAS) showed a significant catch-up growth at 12 months postplacement; three years after adoption height, weight, and head circumference had normalized.

Neurodevelopmental delays and self-regulation difficulties on arrival are frequent among post-institutionalized Eastern European countries adoptees (Miller, L. C. 2005). Country of origin, pre-adoption residence, age at arrival, and arrival nutritional status all related to the presence of these problems (Judge, S. 2003; Jacobs, E. *et al.*, 2010; & Tirella, L. G., & Miller, L. C. 2011). Judge examined the degree of developmental recovery during the first year of placement in a sample of 124 children adopted from Eastern European orphanages. At the time of adoption, substantial developmental delays were identified in about half of children. Results indicated that there was considerable catch-up in all areas at post-adoption. Regression analysis revealed that the degree of developmental delay at the time of adoption, along with the duration of time spent in the adoptive home and age at adoption placement, predicted significant amounts of variance associated with developmental catch-up (Judge, S. 2003). Jacobs *et al.*, observed that the level of neurodevelopment on arrival ranged from average to very below average in most children (Jacobs, E. *et al.*,

2010). Tirella *et al.*, observed that 49% had self-soothing/self-stimulating behaviors, 48% had sleep disturbances, and 34% had eating issues. Many had difficulties in more than one area (Tirella, L. G., & Miller, L. C. 2011). Park *et al.*, evaluated 58 internationally adopted children, mainly from Russia and Ukraine. At arrival, more than 50% had neurodevelopmental delays, and more than 75% were undernourished. Longitudinally, these children were able to show motor and cognitive gains toward the normal range with improvements in their nutritional status (Park, H. *et al.*, 2011). In our study, 51.7% had neurodevelopmental delays, and 34.5% had self-regulation difficulties (sleeping disturbances and self-soothing/self-stimulating behaviors). Ninety percent of these children had recovered five years after adoption. We consider that anticipatory guidance from the pediatrician can assist families and children with this major life transition. While maximizing nutrition after periods of under-nutrition is crucial to support cognitive recovery, ensuring adequate and consistent nutrition for vulnerable children with developing minds to prevent cognitive injury is paramount.

Park *et al.*, evaluated 58 internationally adopted children, mainly from Russia and Ukraine, and 11.5% had anemia on arrival (Park, H. *et al.*, 2011). Fuglestad *et al.*, found that 26% of post-institutionalized children adopted from Eastern Europe countries had iron deficiency after arrival (Fuglestad, A. J. *et al.*, 2013). In our study, iron deficiency (with/without anemia) was observed in 27.6% of adopted Ukrainian children. All children had normalized iron levels at six months after adoption. Iron deficiency is associated with neurobehavioral alterations months after arrival, mediated by the effect on attention and activity levels. We consider that iron status needs to be monitored at least through the first half-year post-adoption, particularly in children exhibiting rapid catch-up growth.

Studies performed on adopted children from Eastern Europe countries have communicated that present a high frequency of visual and ocular abnormalities (refractive errors, strabismus, amblyopia, visual-perceptual problems, etc.), especially those with sentinel findings of fetal alcohol syndrome disorders (Grönlund, M. A. *et al.*, 2004; Andersson Grönlund, M. *et al.*, 2010; Oliván Gonzalvo, G. 2018; & Castillo Castejón, O. *et al.*, 2019). In our study, a high percentage of visual and ocular abnormalities was detected (strabismus, 13.8%; refractive errors, 10.3%; severe amblyopia, 3.4%), although significantly lower than that reported by other researchers, and only two children had a history of prenatal alcohol exposure.

Dental caries is one of the most prevalent pathologies worldwide. Most children from international adoption have a history of exposure to potential risk factors for dental health and the development of dental caries, both before and during

institutionalization before adoption. Recently, Oliván Gonzalvo *et al.*, determined that the prevalence of dental caries on arrival in 264 intercountry adopted children, mainly from Eastern European countries, was 9.1% (Oliván Gonzalvo, G. & de la Parte Serna, A. C. 2021). In our study, the prevalence of dental caries in adopted Ukrainian children was 6.9%. We considered it is necessary to reinforce pediatricians and dentists to promote dental health to prevent tooth decay once they have adapted and integrated into the host community.

Oliván Gonzalvo, in a retrospective study of national cases and review of the literature among adopted children from the former Soviet Union countries, found rickets in 1-6%, and no cases of thyroid function deficiency were reported (Oliván Gonzalvo, G. 2006). In our study, one child had rickets (3.4%) and two children had subclinical hypothyroidism (6.9%). Both problems had normalized two years after adoption.

Previous studies reported discrepant results regarding the prevalence of infectious and parasitic diseases in internationally adopted children from the former Soviet Union countries. Oliván Gonzalvo, in a retrospective study of national cases and review of the literature, found the following percentage limits: parasitic infections (12-67%), latent tuberculosis infection (5-30%), hepatitis B virus infection (0-20%), hepatitis C virus infection (0- 2%), and congenital syphilis (0-1%) (Oliván Gonzalvo, G. 2006). Recently, Chiappini *et al.*, retrospectively studied parasitic infections in 955 children adopted from Eastern European countries. The percentage of positive tests for parasites (by stool tests or serology) was 21.4%. The most frequently detected parasites were *Toxocara canis* (15%) and *Giardia lamblia* (5.8%). The percentage of parasitic infections was significantly lower than that observed in internationally adopted children from Latin America and Africa (Chiappini, E. *et al.*, 2022). In our study, the prevalence of infectious and parasitic diseases was low, with parasitic infection (*Giardia lamblia*) and latent tuberculosis infection being detected in 6.9% of the children, respectively.

Juffer *et al.*, in a meta-analysis study found that international adoptees with preadoption adversity, among which there was a significant representation of children from Eastern European countries, showed more total behavior problems and externalizing behavior problems than international adoptees without evidence of extreme deprivation (Juffer, F., & van Ijzendoorn, M. H. 2005). Gunnar *et al.*, found that children adopted from Eastern Europe and Russia were at higher risk of developing internalizing and externalizing behavior problems in several domains compared to children adopted from other areas of the world. Moreover, children who remained institutionalized longer and who were adopted above 2 years of age, had higher rates of behavior problems

(Gunnar, M. R. *et al.*, 2007). Miller *et al.*, observed among post-institutionalized Eastern European adoptees with a follow-up for more than five years that behavioral problems were common (externalizing 44%, internalizing 18%, attention-deficit/hyperactivity disorder 46%) (Miller, L. *et al.*, 2009). Robert *et al.*, observed in children adopted from Eastern Europe countries five years after adoption, that 31% presented attention-deficit/hyperactivity disorder (Robert, M. *et al.*, 2009). Landgren *et al.*, in adopted children from Eastern Europe evaluated five years after adoption, observed attention-deficit/hyperactivity disorder for 51% of the children, but it should be noted that fetal alcohol spectrum disorders were identified for 52% of the children (Landgren, M. *et al.*, 2010). Robinson *et al.*, observed high rates of internalizing and externalizing behavior problems in children adopted from Russia and Ukraine, and that being female does contribute to problem behavior with the passage of time (Robinson, C. B. *et al.*, 2015). In our study, long-term follow-up predominated the externalizing behavior problems (attention-deficit/hyperactivity disorder, 17.2%; disruptive behavior disorder, 10.3%), especially in females. These problems were significantly lower than that reported by other researchers. We consider that a protective family environment may assist in decreasing problem behaviors.

The Global Status report of the World Health Organization establishes that the highest per capita consumption of alcohol (10 liters or more by year) is observed in countries of the WHO European Region, among which Ukraine stands out where heavy episodic drinking among alcohol consumers is very high (World Health Organization. 2018). Robert *et al.*, observed in children adopted from Eastern Europe countries that 3.5% had FAS (Robert, M. *et al.*, 2009). However, a recent clinical study performed in Spain among children adopted from Russia and Ukraine showed that 20.4% of children had FAS (Colom, J. *et al.*, 2021). In our study, only one child (3.4%) had FAS. In any case, we consider that it is important to establish a pre-adoption protocol that takes into account this disorder and adequately informs families. As the intervention is important and potentially beneficial, it would be imperative to identify children with FAS at an early stage after adoption.

According to the study of Salmanov *et al.*, for Ukrainian school-aged girls, the mean age (SD) of Tanner stage 2 was 11.0 (1.0) years, and the mean age (SD) of menarche was 12.2 (0.9) years (Salmanov, A. G. *et al.*, 2021). Yermachenko *et al.*, have observed in Ukrainian girls that maternal smoking during pregnancy and low protein intake reported during childhood may decrease a probability of late age at menarche (Yermachenko, A. *et al.*, 2017). We observe that in the Ukrainian adopted girls, Tanner stage 2 was advanced by almost 2 years and menarche was advanced by 1 year. It is known that foreign adopted children have an

increased risk of precocious puberty and that older age at adoption increases the risk for premature onset of puberty, which may suggest that environmental factors influence the risk of precocious pubertal development in adopted children (Teilmann, G. et al., 2006). In our study, the girl with central precocious puberty was adopted at the age of 7.1 years and puberty manifested 6 months after adoption.

In summary, most of health problems observed on arrival and long-term in adopted children from Ukraine were common conditions described in previous studies among internationally adopted children from the former Soviet Union countries. International adoption proved to be successful as a means of protecting children's well-being and physical, maturational, and emotional development. Despite the fact that a significant percentage of adopted Ukrainian children have health problems upon arrival and during follow-up, some of which are difficult to recover or irrecoverable, the vast majority of families who have adopted a child from Ukraine would adopt him again (Price, P. 2000).

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