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Earlier is Better for Family Care: What Research Tells Us About Young Children and Institutionalization

In 1989, when the Ceausescu regime fell in Romania, foreign families streamed in to adopt many of the nation's children that had been abandoned in institutions. This was the start of an era of significant growth in intercountry adoption that included many countries in the former Soviet Union and Eastern and Central Europe. The opening of these once closed societies provided researchers with unprecedented opportunities to study child development and early childhood adversity through the impact of children living in institutions. Intercountry adoption in the region provided a unique group of children for study, children that had lived in institutions for various periods of time at different ages in their development and were later adopted. Researchers have also been able to assess children placed in foster care from institutions and those receiving new forms of care within institutions.

This paper briefly summarizes four distinct sets of research on the impact of institutionalization on children. Three are seminal studies specific to the CEE/CIS[1] region, covering a wide range of issues in child development. The fourth is a set of meta-analyses based on thousands of adopted children worldwide. Consistent with these studies are new and important findings on the brain development of children. The findings of these and other

[1] The CEE and CIS countries are those former communist states in Central and Eastern Europe (CEE), and countries formerly in the Soviet Union (many now members of the Commonwealth of Independent States, CIS). They constitute a region in the sense in that they share many of the same characteristics in their transitions, including their child welfare systems.

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similar research studies are many, and can be pursued by further studying the resources highlighted in the appendix to this paper. However, one inescapable conclusion is clear from the research highlighted here: for the sake of their development and wellbeing, it is of the utmost importance for young children to be in nurturing family-based environments early in their young lives.

The English and Romanian Adoption Study (ERA)[2] focuses on 165 Romanian children adopted by English families in the early 1990s. The children are grouped according to their age at the time of their adoption, and then assessed at later ages in their lives. This study is representative of children coming from severely deprived institutional care into family permanency in a country with an advanced social service system. ERA findings include:

- Adversity caused by institutionalization resulted in numerous challenges for children including inattention, overactivity, intellectual impairment, quasi-autism, and disinhibited attachment.
- If adopted before the age of six months, children recovered from their early deprivation to reach levels of child development very similar to children who had never experienced institutional care. Assessments of 11- and 15-year-old adopted children who were institutionalized after six months of age show a higher frequency of mental and behavioral challenges.
- The findings from the assessments after adoption show dramatic recovery for children in the areas of cognitive and physical development.

The Bucharest Early Intervention Project (BEIP)[3] is the first-ever randomized study of foster care as an alternative to institutionalization and a form of intervention to address the deprivation associated with institutional care. The BEIP research began in 2000. Half of the 136 institutionalized children studied were placed in high-quality foster care. One aspect of this research involved measuring the electrical brain activity of children through electroencephalograms (EEGs). Key findings include:

- While institutionalized, the children lagged significantly behind in key areas of cognitive functioning, and also had severe attachment

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[2] **Summary of the English Romanian Adoption Study:** There are many articles from the following researchers, including: Rutter, M., Castle, J., Colvert, E., Kreppner, J., Mehta, M., and Sonuga-Barke, E.J.S., "Effects of profound early institutional deprivation: An overview of findings from a UK longitudinal study of Romanian adoptees" (2007c), *European Journal of Developmental Psychology*, 4.

Also refer to a similar study conducted in Canada with children adopted from Romania: Le Mare, L. and Audet, K., "A longitudinal study of physical growth and health of post-institutionalized Romanian Adoptees" (2006), *Pediatrics and Child Health*, II.

[3] **Resources for the Bucharest Early Intervention Project include:** A comprehensive summary: Nelson, C.A., Furtado, E.A., Fox, N.A., and Zeanah, C.A., "Developmental deficits among institutionalized Romanian children – and later improvements – strengthen the case for individualized care" (2009), *American Scientist*, Volume 97.

A PowerPoint presentation on BEIP can be accessed online at: www.crin.org/docs/PPT%20BEIP%20Group.pdf

The many publications associated with the study can be found at: www.childrenshospital.org/cfapps/research/data_admin/Site2205/mainpageS2205P5sublevel33Flevel38.html

problems. The EEGs showed significantly diminished brain activity relating to awareness, engagement, and responsiveness.

- Placing institutionalized children in foster care before two years of age is crucial in order to secure the best chance for significant improvements over the next several years in IQ and attachment wellbeing. Placement in foster care prior to 15 months of age is key to promote strong improvements in language abilities. The EEG measurements of children in foster care approached the levels of the never-institutionalized children within 42 months of being in foster care.
- As children in the foster care group have grown older, they have continued to face higher levels of emotional and behavioral challenges than never-institutionalized children. These challenges include attention deficit and hyperactivity disorder (ADHD).

The St. Petersburg-USA Orphanage Team Research project[4]

studied three baby homes in St. Petersburg, beginning in 2000. The baby homes met reasonable medical and nutritional standards, but children there clearly lacked strong socio-emotional relationships with their caregivers. As part of the project, caregivers were offered *training* in early childhood development and mental health, emphasizing the need for responsive and developmentally appropriate childcare. *Structural changes* were also implemented, which included a reduction in the number of children cared for by each caregiver, the promotion of interactive "family time" play, and fewer changes in caregivers for children. This was intended to provide more family-like care. Close to 1,000 children and over 500 caregivers have been involved in the study. Findings include:

- Children receiving care from trained caregivers in the structurally changed environment improved substantially in a comprehensive range of developmental areas, including physical growth and cognitive, attachment, and behavioral functioning.
- Children receiving care from trained caregivers outside of the structurally changed environment saw improved development as well, but their improvements were far less significant.
- Children with disabilities showed significant improvements in all areas of health measured, particularly in general behavioral categories. The results varied depending on the severity of the child's disability, but changes that were observed were substantial.

[4] **Resources for the St. Petersburg-USA Orphanage Research Team include:**

A comprehensive research summary: www.ocd.pitt.edu/Files/PDF/relationshipexperience.pdf

The St. Petersburg-USA Orphanage Research Team, "The effects of early socio-emotional and relationship experience on the development of young orphanage children" (2008), *Monographs of the Society for Research in Child Development*, Serial No. 291, 73 (3). This and other documents pertaining to institutionalized children can be found at: www.ocd.pitt.edu/Institutionalized-Children/53/Default.aspx

Meta-analyses are research projects in which results of other studies published on the same topic are combined. After reviewed and selected for quality, this pooled data can provide strong evidence from which to draw conclusions. Most of the results below are drawn from social scientists associated with Leiden University[5] in the Netherlands, who specialize in research based on thousands of adopted individuals worldwide, many of them adopted from residential care.

- Children adopted before one year of age are generally as securely attached to their adoptive mothers as their non-adopted peers; less so if they are adopted after their first birthday.
- Children adopted after one year of age generally show less optimal school achievement than children adopted in their first year of life.
- There is no significant difference in self-esteem between adopted and non-adopted children. This is equally true among the domestic, international, and transracial adoptees that participated in the study.
- Longer institutional stays prior to adoption are strongly and linearly associated with more delayed physical growth.

Longer institutional stays prior to adoption are strongly associated with more delayed physical growth.

Psychosocial Growth Failure[6]: The Need for Nutrition and Nurture

Historically, institutions in the CEE/CIS region have been established to provide children with the basic needs of food, medical care, shelter, and education. This is also true for many institutions in other developing regions of the world.

Measuring physical growth is, of course, a common means to assess development of children. It is clear, however, that factors beyond disease

[5] **Leiden University Meta-analyses:** Information can be accessed online at: www.socialsciences.leiden.edu/educationandchildstudies/childandfamilystudies/research/adoption/currentadoptionstudies.html Other studies from which conclusions are drawn in this paper:Juffer, F. and van IJzendoorn, M.H., "Adoptees Do Not Lack Self-Esteem: A Meta-Analysis on Self-Esteem of Transracial, International, and Domestic Adoptees" (2007), *Psychological Bulletin*, 133.

Van den Dries, L., Juffer, F., Van IJzendoorn, M.H., and Backermans-Kranenburg, M.J., "Fostering security? A meta-analysis of attachment in adopted children" (2009), *Children and Youth Services Review*, 31.

Van IJzendoorn, M.H., Juffer, F., and Klein Poelhuis, C.W., "Adoption and cognitive development: A meta-analytic comparison of adopted and non-adopted children's IQ and school performance" (2005), *Psychological Bulletin*, 131.

Van IJzendoorn, M.H., Luij, M., and Juffer, F., "IQ of children growing up in children's homes: A meta-analysis on IQ delays in orphanages" (2008), *Merrill-Palmer Quarterly Journal of Developmental Psychology*, 54.

Van IJzendoorn, M.H., Backermans-Kranenburg, M.J., and Juffer, F., "Plasticity of growth in height, weight and head circumference: Meta-analytic evidence of massive catch-up in children's physical growth after adoption" (2007), *Journal of Developmental and Behavioral Pediatrics*, 28. www.who.int/child_adolescent_health/documents/chs_cah_99_3/en/index.html

[6] **Psychosocial Growth Failure** A review of the history, literature and research related to this topic appears in a chapter entitled "Growth Failure in Institutionalized Children," co-authored by Dana E. Johnson and Megan Gunnar, in the 2012 monograph published by the Society for Research in Child Development: *Children Without Permanent Parents: Research, Practice, and Policy* (http://www.wiley.com/WileyCDA/WileyTitle/productCd-1118307003.html).

and the lack of nutrition can inhibit growth. "Psychosocial growth failure" is a term that reflects the additional adversity experienced by children that can contribute to failure in growth. For young institutionalized children, this adversity comes from the lack of attentive and nurturing care that normally comes from parents.[7] For example, the feeding of infants requires close personal attention as opposed to propping up a bottle. An infant with disabilities may require specialized feeding. Unfortunately, many institutions lack the budgets and the staff necessary to perform these functions.

Growth suppression in adversity – and eventual recovery with nurturing care – is found in all the research concerning children that have been institutionalized. The St. Petersburg-USA Orphanage Team Research confirms this, in that enhanced social and emotional support by caregivers resulted in improved growth for infants and young children, without any changes in their nutrition.

Overall growth failure is linked, to varying degrees, with cognitive, emotional, and behavioral challenges. As the English and Romanian Adoption Study demonstrates, if an institutionalized child is placed in family-like care within six months of age, the risk of early and persistent growth failure is significantly lowered.

The Sensitive Brain of a Young Child

Profound changes occur in the brain early in a child's life as important neural foundations are built. But it is difficult to study the brain and its functioning in relation to the impact of institutionalization, due to the timing challenges of assessing brains before, during, and after potentially sensitive periods of brain development within different care environments. Additionally, the brain is known to adjust and compensate for deficits in ways that are difficult to measure, let alone fully understand.

Neurons in the brain connect via synapses, enabling crucial circuitry development in the brain. Neurons and synapses experience great growth in the prenatal period, to the point of overproduction. This process is controlled through genetics, though adversity during pregnancy – such

[7] **Two informative reviews under the auspices of the World Health Organization are:**
Richter, Linda, "The Importance of Caregiver-Child Interactions for the survival and healthy development of young children" (2004), available online at: www.who.int/child_adolsecent_health/documents/924159134X/en/index.html

Pelto, Gretel, Dickin, Katherine, and Engle, Patrice, "A Critical Link: Interventions for physical growth and psychological development" (1999), available online at: www.who.int/child_adolescent_health/documents/chs_cah_99_3/en/index.html 8 Fetal Alcohol Syndrome (FAS) A systematic study of children in baby homes in Murmansk, Russia indicated high FAS rates among children residing in these homes, as well as resulting developmental challenges compared with their institutionalized peers. This study provides background and an extensive list of references: Miller, L.C., Chan, W., Litvinova, A., Rubin, A., Comfort, K., Tirella, L., Cermak, S., Morse, B., Kovalev, I., Boston-Murmansk Orphanage Research Team, "Fetal Alcohol Spectrum Disorders in Children Residing in Russian Orphanages: A Phenotypic Study" (2006), Alcoholism: Clinical and Experimental Research, Volume 30, Issue 3.

as fetal exposure to alcohol – can have a negative impact.[8] "Pruning back" and shaping this overproduction begins after a child is born. The central nervous system changes and adapts in response to environmental cues, experience, behavior, injury, or disease. A great deal of this brain shaping occurs in the early months and years of a child's life. Thus, the deprivation experienced by institutionalized children early in their lives can negatively impact their brain circuitry development.

Decreased head circumference is associated with psychosocial growth failure in young children who have been institutionalized, though there is an opportunity for the child to catch up to normal measurements if placed in a nurturing environment early in life. Additional information can be found in studies on the brain's chemical/hormonal functioning, in anatomical images, and through neuro-psychological testing to better understand what happens in a child's brain as a result of adversity caused by institutional care.

Growth hormone production begins in the pituitary gland, situated at the base of the brain, upon stimulation from the hypothalamus. Growth hormone, which is important for cognitive development as well as for growth, is converted into other active products in the liver, and is excreted primarily by the kidneys. This system can be altered if psychosocial growth failure is experienced.

Strong, frequent, and/or prolonged abuse leads to a condition known as "toxic stress."[9] Abnormal levels of stress hormones, such as cortisol, can disrupt brain development in young children, and affect other organ systems as well. It can also negatively impact growth. Research links early toxic stress with poor cognitive and emotional functioning well into the adult years. Studies of children who have lived in institutions have shown higher and lower levels of cortisol in the children at various times of the day. This has been found in children with a history of institutional care adopted from Romania, Russia, and China, and has also been found in youth in the U.S. who suffered physical neglect prior to their placement in foster care.[10] Studies of adopted children coming from particularly adverse institutional environments show that they may have higher cortisol levels for years if they are not placed in nurturing family care by 4-6 months of age.[11]

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[8] **Fetal Alcohol Syndrome (FAS)** A systematic study of children in baby homes in Murmansk, Russia indicated high FAS rates among children residing in these homes, as well as resulting developmental challenges compared with their institutionalized peers. This study provides background and an extensive list of references: Miller, L.C., Chan, W., Litvinova, A., Rubin, A., Comfort, K., Tirella, L., Cermak, S., Morse, B., Kovalev, I., Boston-Murmansk Orphanage Research Team, "Fetal Alcohol Spectrum Disorders in Children Residing in Russian Orphanages: A Phenotypic Study" (2006), Alcoholism: Clinical and Experimental Research, Volume 30, Issue

[9] **Toxic Stress Harvard University's Center on the Developing Child provides the following resources:**
The Impact of Early Adversity on Children's Development (In Brief series), available online at: http://developingchild.harvard.edu/index.php/resources/briefs/inbrief_series/

Toxic Stress Response: The Facts, available online at: http://developingchild.harvard.edu/topics/science_of_early_childhood/toxic_stress_response/

[10] **The Brain and Hormones** Tarullo, A.R. and Gunnar, M.R., "Child maltreatment and the developing HPA axis" (2006), *Hormones and Behavior Journal* 50 (4).11 Higher Cortisol Levels Gunnar, M.R., Bruce, J., and Grotevant, H.D., "International adoption of institutionally reared children: research and policy" (2000), Development and Psychopathology, 12.

[11] **Higher Cortisol Levels** Gunnar, M.R., Bruce, J., and Grotevant, H.D., "International adoption of institutionally reared children: research and policy" (2000), *Development and Psychopathology*, 12.

A number of *brain imaging procedures* shed further light on the impact of institutionalization on early childhood development. The EEG findings of the Bucharest Early Intervention Project are verified by an additional study on children adopted from Asia.[12] Another imaging procedure, Positron Emission Tomography (PET), enables images and measurements of metabolism of different brain regions. When applied to Romanian adoptees institutionalized for an average of about three years, one PET study[13] showed that their metabolism was significantly reduced in brain regions involved with higher cognitive functions, memory, and emotion – and this was linked to impulsivity, attention disorder, and social deficits.

Magnetic Resonance Imaging (MRI)[14] has been performed on children that faced institutional deprivation early in their lives. Studies show images of diminished brain "white matter" that connects areas involved in higher cognitive and emotional functioning, which normally grows dramatically in the period before three years of age. Amygdalae[15] in the brains of institutionalized children have been shown to have differing sizes compared to never-institutionalized children, as seen in the English and Romanian Adoption Study and another study of adoptees mostly from China.[16]

The above studies and others provide clear evidence that the early institutionalization of young children can have a number of harmful impacts on the brain, by

- Reducing and altering brain electrical and metabolism activity;
- Altering key hormone levels impacting growth, emotions, and cognition;
- Changing the size of brain areas; and
- Compromising the white matter in the brain, which plays a role in connecting brain regions.

[12] **Electroencephalograms (EEGs)** See Bucharest Early Intervention Project (item ii above). For the Asia study, see Tarullo, A.R., Gunnar M.C., and Gunnar, A.R. (2011), "Atypical EEG power correlates with indiscriminately friendly behavior in internationally adopted children," *Developmental Psychology* 47 (2).

[13] **Positron Emission Tomography (PET)**Chugani, H.T., Behen, M.E., Muzik, O., Nagy, F., and Chugani, D.C., "Local brain functional activity following early deprivation: A study of post institutionalized Romanian orphans" (2001), *Neuroimage* 14.

A vivid color PET image can be found at the Child Welfare Information Gateway website below. The slide compares the brain functioning of two young children: one who was institutionalized shortly after birth, and another who was never institutionalized: www.childwelfare.gov/calendar/cbconference/fourteenth/presentations/ahdc/sld046.cfm

[14] **Magnetic Resonance Imaging (MRI)** Eluvanthingal, T.J., Chugani, H.T., Behen, M.E., Juhasz, C., Muzik, O., Maqbool, M., and Makki, M., "Abnormal brain connectivity in children after early severe socio-emotional deprivation: A diffusion imaging study" (2006), *Pediatrics*, 117.

[15] *Amygdalae* are almond-shaped neurons located deep in the temporal lobes of the brain. They are considered part of the limbic system, which supports a variety of functions including emotion, behavior, and memory.

[16] **Amygdalae** Tottenham, N., Tanaka, J.W., et al., "The NimStim set of facial expressions: Judgments from untrained research participants" (2009), *Psychiatry Research*, 168.

Conclusion

The diversity of studies of the brain brings us a depth of knowledge on how and why institutional care is so damaging for children. The English and Romanian Adoption Study shows that it is critical to place children in a nurturing family care environment before six months of age, such as through adoption. The Bucharest Early Intervention Project demonstrates the importance for children of alternative systems such as quality foster care, though this needs to happen very early in a child's life for the strongest impact. The St. Petersburg-USA Orphanage Team Research confirms that, for children in residential care awaiting a safe and nurturing family – including the large number of institutionalized children that are disabled – the quality of care can be improved and lead to significant gains in child development.

Finally, the meta-analyses of thousands of adopted children is a testament to the resiliency of children that have been given the opportunity to be cared for and nurtured in permanent, loving families. Many children available for international adoption are older, and many infants cannot be easily adopted before the age of six months due to the nature of intercountry adoption. Yet even among children adopted at older ages, there is a great deal of variability in their outcomes, and the majority of children thrive in their adoptive families.

The severity of deficits and pace of recovery is different for each child who has experienced institutionalization, depending on a child's prenatal and/or after-birth experience in a family and the adversity experienced prior to residential care. Genetics also plays an important, but not yet well understood, role. Conditions in institutions vary widely in size, training, operational methods, and financial resource availability, all of which have a bearing on child development. As a result, researchers agree that more study is needed on the topics covered in this paper.

It is clear, however, that the sum total of the research establishes a most compelling and urgent humanitarian need for the youngest of children to be saved from the adverse impact of institutionalization. Sensitive developmental periods during which a child needs nurturing care come very early and span a broad array of functions related to physical, cognitive, emotional, and behavioral wellbeing.

Family-based alternatives provide a far better environment for child development and often prove to be cost-effective when compared to institutional care. Along with efforts to strengthen adoption and foster care programs, stronger support services must be provided to struggling families so that children can remain with their families in a safe and healthy environment. A care model centered on institutions is simply too risky a gamble for orphaned, abandoned, and vulnerable children.

About the Author

Gary Nelson Gamer is a consultant specializing in international child welfare and organizational development and the former CEO of Holt International Children's Services. He has spent over 17 years developing programs to prevent the institutionalization of children through family- and community-based care in Africa, Asia, the CEE/CIS region, Latin America, and the U.S. Much of the information from this paper comes from Gary's participation in and follow-up to a 2009 symposium of child welfare researchers and practitioners convened in Leiden, Netherlands. Out of this symposium, a book-sized monograph has recently been published by the Society for Research in Child Development: http://onlinelibrary.wiley.com/doi/10.1111/j.1540-5834.2011.00632.x/abstract

This paper is an adaptation of a report Gary produced for Parliamentarians in the CEE/CIS region with support from the Inter-Parliamentary Union and UNICEF. He hopes that this information will encourage child welfare advocates to challenge the current reliance on institutions and promote family-based alternatives for children, especially the very young. He can be reached at garygamer@comcast.net.