

Institution: University of Southampton		
Unit of Assessment: 04 Psychology		
Title of case study: 04-02 Changing our understanding of the lasting impact of severe early deprivation on development: The impact of the English and Romanian Adoption study		
Period when the underpinning research was undertaken: 2000 – 2020		
Details of staff conducting the underpinning research from the submitting unit:		
Name(s): Jana Kreppner Edmund Sonuga-Barke Dennis Golm Wolf Schlotz Mark Kennedy Nickey Knights Robert Kumsta	Role(s) (e.g. job title): Associate Professor Professor Lecturer Lecturer Research Fellow Research Fellow Research Fellow	Period(s) employed by submitting HEI: October 2007 – present December 1997 – December 2016 January 2014 – March 2017; September 2018 – present March 2007 – June 2011 May 2012 – May 2017 May 2012 – October 2015 November 2018 – April 2020 October 2007 – June 2012
Period when the claimed impact occurred: August 2013 – December 2020		
Is this case study continued from a case study submitted in 2014? N		
<p>1. Summary of the impact</p> <p>Researchers at the University of Southampton studying the effects of time-limited, early institutional deprivation on development as part of the world-renowned English and Romanian Adoption (ERA) study, have generated impact across clinical and social work, public policy, and educational sectors.</p> <ol style="list-style-type: none"> 1) Child clinical and social care practice: Our work changed understanding of attachment in children and young people who are adopted from care, in care, or at risk of going into care (e.g., The National Institute for Clinical Excellence, NICE, 2015) and influences current clinical, child and family welfare practice. 2) International campaigns to end institutional care for children: Non-governmental and inter-governmental organisations use the work of the ERA study (e.g., Better Care Network, 2019, LUMOS Foundation, 2019; UNICEF, 2015) to inform their campaigns which influenced the UNGA Resolution on the Rights of the Child in December 2019. 3) Education: Our ERA study is used as an example to teach about risk and resilience associated with exposure to early severe neglect at A-level and university level (e.g., it is a case study in the AQA Psychology A-level curriculum and higher education-level textbooks). <p>Our research has also received international media attention for example via the BBC, Deutschlandfunk, and special interest outlets such as German Ärzteblatt, the official journal of Germany's leading medical bodies, and the Mental Elf.</p>		
<p>2. Underpinning research</p> <p>The pioneering research of the ERA study, set up and led by Professor Sir Michael Rutter, has been undertaken jointly at the University of Southampton and KCL since 2003. Core members of the ERA study team were all employed by the University of Southampton during the recent phases of the study (e.g., Kreppner since 2007, Sonuga-Barke until end 2016). ERA researchers have produced over 60 scientific publications relating to institutional deprivation, of these more than 40 were authored by Southampton researchers and cited over 3000 times (see 5.15).</p> <p>Background to ERA study: ERA is the first comprehensive prospective longitudinal study of the long-term effects on development of early severe deprivation following adoption. It systematically documents the development of a representative cohort of 'Romanian orphans' who were raised in the institutions of the Ceausescu regime during infancy and early childhood and who were subsequently adopted by families living in the U.K. Children and their adoptive families were assessed when children were 4, 6, 11 and 15-years old and in early adulthood (aged 22 - 25 years) [3.1].</p>		

Methods & Scientific Strengths: Based on a 'natural experiment' design, the ERA study comprises a representative sample of 165 Romanian adoptees, removed from their depriving circumstances aged only a few weeks to 43 months old. ERA includes a comparison group of 52 non-deprived within-UK adoptees, all placed before 6 months of age. Children and their families were assessed using a multi-method and multi-reporter approach. The range of assessments included interviews with parents and children/young people, questionnaires completed by parents, teachers and adoptees, standardised cognitive and achievement tests, behavioural observations, DNA and cortisol sampling, and brain imaging. ERA's core research questions concern (i) the impact of such severe early deprivation on children's psychological and social development and the extent to which recovery is possible, and (ii) how adoptions from such severely depriving circumstances would work out and what the needs would be of the families and children.

Summary of key findings: At the time of adoption, the severity of developmental delay and ill physical health of the children was evident. On average, the children were reported to function at a developmental level of two to three standard deviations below the expected levels for their age. They were equally severely delayed in their physical growth and many presented with significant health problems, including respiratory, skin, and gastro-intestinal infections [3.2].

By the time the children were 6 years old, substantial recovery in psychological, social and physical development was noted but a significant minority presented with a surprisingly specific set of psychological difficulties involving autistic-like features, disinhibited social engagement, inattention and overactivity and cognitive impairment. Difficulties in these areas persisted for many across childhood and adolescence and was associated with experiencing prolonged deprivation lasting beyond the first 6 months of life [3.3]. Importantly, most of the children adopted from institutions before 6 months appeared to have 'caught-up' with the non-deprived comparison group by the time they were 6 years old, and they remained indistinguishable from the non-deprived UK adoptees across adolescence and early adulthood [3.1]. ERA's work on attachment has changed our understanding of attachment and associated disorders following early deprivation [3.4]. Importantly, our most recent data provides the first evidence of the long-term neurobiological toll of childhood deprivation demonstrating that it is related to alterations in adult brain structure despite intervention through adoption in early childhood into caring, supportive families [3.5].

Taken together, the work by Southampton researchers on the long-term impact of institutional deprivation has significantly influenced knowledge, practice, and policy across clinical, social care, educational and scientific communities.

3. References to the research

- 3.1 Sonuga-Barke, E., Kennedy, M., Kumsta, R., Knights, N., Golm, D., Rutter, M., Maughan, B., Schlotz, W., & Kreppner, J.** (2017). Child-to-adult neurodevelopmental and mental health trajectories after early life deprivation: the young adult follow-up of the longitudinal English and Romanian Adoptees Study. *The Lancet*, 389, pp.1539-1548. [https://doi.org/10.1016/S0140-6736\(17\)30045-4](https://doi.org/10.1016/S0140-6736(17)30045-4)
- 3.2 Rutter, M., Beckett, C., Castle, J., Colvert, E., Kreppner, J., Mehta, M., Stevens, S. and Sonuga-Barke, E.** (2007) 'Effects of profound early institutional deprivation: An overview of findings from a UK longitudinal study of Romanian adoptees', *European Journal of Developmental Psychology*, 4:3, 332 – 350. <https://doi.org/10.1080/17405620701401846>
- 3.3 Kreppner, J., Rutter, M., Beckett, C., Castle, J., Colvert, E., Grothues, C., Hawkins, A., O'Connor, T. G., Stevens, S. & Sonuga-Barke, E.** (2007). Normality and impairment following profound early institutional deprivation: A longitudinal examination through childhood. *Developmental Psychology*, 43, 931-946. <https://doi.org/10.1037/0012-1649.43.4.93>
- 3.4 Rutter, M., Kreppner, J., and Sonuga-Barke, E.** (2009). Emanuel Miller Lecture: Attachment insecurity, disinhibited attachment, and attachment disorders: Where do research findings leave the concepts? *Journal of Child Psychology and Psychiatry*, 50(5), 529-543. <https://doi.org/10.1111/j.1469-7610.2009.02042.x>
- 3.5 Mackes, N., Golm, D., Sarkar, S., Kumsta, R., Rutter, M., Fairchild, G., Mehta, M., Sonuga-Barke, E. & ERA Young Adult Follow-up team** (2020). Early childhood deprivation

is associated with alterations in adult brain structure despite subsequent environmental enrichment. *Proceedings of the National Academy of Sciences*, 117 (1), 641-649.
<https://doi.org/10.1073/pnas.1911264116>

Key Grants awarded to Southampton supporting the ERA research:

1. The Economic and Social Research Council (ESRC) (2012-2015; RES-062-23-3300; £630,352; PI: Sonuga-Barke).
2. Medical Research Council (MR/K022474, Sept 2013 to Aug 2017; £1,107,409; PI: Sonuga-Barke) for a related study on imaging the young adults' brain structure and function.

Across its entire programme of work, the ERA study received funding of over £3 million.

4. Details of the impact

i. Changing our understanding of attachment and attachment disorders in children with histories of severe early deprivation and informing new treatment approaches: ERA's findings provided "crucial evidence to underpin the re-classification of attachment disorders in the 5th edition of the Diagnostic and Statistical Manual of Mental Disorders (DSM-5; APA, 2013) which is a manual for assessment and diagnosis of mental disorders used internationally by experts in all areas of mental health" [5.1]. ERA's work has since been central to the new diagnostic classifications of early childhood disorders (DC:0-5; ZERO TO THREE, 2016, see [5.1]), which complements the DSM-5, and the NICE guidelines (2015) on 'Attachment in children and young people who are adopted from care, in care, or at risk of going into care' [5.2]. Specifically, ERA has provided evidence to enhance knowledge in this area as corroborated by Professor Charles Zeanah who states ERA has "contributed to a real shift in our understanding that variations in attachment security and insecurity are distinct from reactive attachment disorder (RAD) and disinhibited social engagement disorder (DSED)" [5.1]. This is also referenced in the NICE guidelines [5.2] with explicit reference to [3.4]: "A significant body of research has investigated the causes of variations in the attachment patterns shown by infants and young children. The evidence is quite clear that the causal factors giving rise to security versus insecurity are distinct from those influencing the development of attachment disorders (Rutter et al., 2009)." [5.2, p.21]. Zeanah adds "these are quite crucial distinctions that clinicians must appreciate." [5.1]. In addition, the 'American Academy of Child and Adolescent Psychiatry's Practice parameters for the assessment and treatment of children and adolescents with reactive attachment disorder and disinhibited social engagement disorder', co-authored by Zeanah [5.3] "relies in part on ERA's findings" as it is currently "the only data available for DSED presentation in young adulthood and the longest longitudinal study of disinhibited social behavior conducted to date" [5.1]. Dr John Simmonds, Director of Policy, Research and Development at CoramBAAF, Britain's leading membership organisation of agencies and professionals involved in supporting children separated from their birth parents emphasises that "The work of ERA has led to enhanced understanding and interventions of children with complex histories of deprivation and neglect. The research has informed a change in classification of these behaviours, documented in NICE guidance which has been crucial to developing changes to legislation that include improved assessment, treatment, support approaches, service provision and ultimately better outcomes for families." [5.4].

ii. **Influencing campaigns to end institutional care for children world-wide:** Over the last 10 years, the number of children worldwide living in residential care has substantially reduced from an estimated 8 million to 2.7 million (Petrowski, et al. 2017). ERA findings have played an important role in forming a wider body of evidence that has contributed to global progress to better the lives of children without parental care.

Evidence from eight ERA scientific papers authored by Southampton researchers was included in the highly influential Berens and Nelson review 2015 [5.5] in which the ERA study is explicitly mentioned (i.e. six times) to evidence the developmental sequelae associated with institutional care: "The ERA Study published detailed results through to 17 years of age on the developmental outcomes [...] with analysis indicating persistent developmental deficits associated with institutional care experienced past 6 months of age" (p.391), or "... decreased head circumference among neglected children could arise from an excess of neural pruning in response to under-stimulation. Supporting this contention, the ERA study noted that duration of

deprivation longer than 6 months [...] was associated with smaller head circumference independent of nutritional status” (p.391-392). The Berens and Nelson review, informed by the ERA, was used to underpin **key recommendations [5.6a]** for the 2019 United Nation General Assembly (UNGA) Resolution on the Rights of the Child put forward by the **Better Care Network (BCN)**, an international network of organisations and agencies committed to supporting children without adequate family care around the world, which promotes collaboration, research and information sharing, and advocates for changes to national and international policies to improve alternative care provision. In their key recommendations to the UNGA, the BCN emphasised the need to put an end to child institutionalization by highlighting the harm it does to children’s development. Specifically, **BCN key recommendation 4a states** “*Recognize the harm of institutionalization and institutional care to children’s growth and development across domains and throughout the life-course...*” (p.4). The evidence cited for this key recommendation is the Berens and Nelson review which explicitly reports the findings from our ERA study. The Resolution on the Rights of the Child was formally adopted by the UNGA on 18th December 2019, including the recommendation and commitment to put an end to child institutionalization **[5.7]**.

Two additional campaigns, informed by ERA’s work, also targeted the same UNGA Resolution on the Rights of the Child: i) LUMOS, a UK and US foundation created by author J.K. Rowling actively campaigns for ending institutionalisation of children across the world. ERA research **[3.1]** informs Lumos’s recent report (2019) ‘A Goal Within Reach: Ending the institutionalization of children to ensure that no one is left behind’ **[5.8]**; ii) UNICEF’s (2015) Making Decisions For The Better Care of Children: The role of gatekeeping and strengthening the family-based care and reforming alternative care systems **[5.9]** discusses and references findings from the ERA study including reference to **[3.3]**. Moreover, ERA’s recent findings **[3.1, 3.5]** continue to inform the BCN via inclusion in their recommended evidence library **[5.6b]**.

In June 2020, The Lancet Group Commission on institutionalisation and deinstitutionalisation of children launched, which ‘advocates global reform of the care of separated children’. The Chair, Professor Sonuga-Barke, PI of ERA’s young adult assessment phases, is senior author of the Commission’s systematic and integrative review of evidence regarding effects of institutionalization on development **[5.10]**. This review extensively references the work by the ERA study team and explicitly discusses its findings **[3.1]** “*The clearest example of the relationship between duration of deprivation and the scale of post institutional recovery comes from the English and Romanian Adoptees study. In this study, even after 20 years in adoptive homes, children who had extended institutional care showed significantly elevated prevalence of autism spectrum disorder, attention-deficits hyperactivity disorder, and disinhibited social engagement symptoms. Children exposed to shorter durations of institutional care were largely indistinguishable from the non-deprived adoptive control group. This difference between children exposed to extended or short periods of institutional care was already established by the age of 6 years.*” (p.714).

iii. Impact in Education: The ERA study has become one of the most influential studies in developmental psychology and child psychiatry over the last 10 years, cited many thousands of times in the scientific literature. The most recent version of the AQA A level psychology syllabus, revised in 2015, specifically requires students to learn about Romanian orphan studies as an example of the effects of institutional care. **[5.11a, b]**. Over 60,000 pupils were registered in 2020 for A-level Psychology in the UK, about 80% of which study the AQA curriculum **[5.11a]**. In 2016 the ERA team was invited to share their findings in the UK’s leading Psychology Review Magazine for A-level students **[5.12]**. This Magazine has approximately 3000 subscriptions in the UK and internationally (as international schools often follow the AQA exam), including students, teachers, and libraries. Our ERA article is re-published by Hodder Education as part of a new resource called ‘Psychology Review: Exam Skills and Practice’, which combines new revision material and practice questions whilst incorporating past Psychology Review magazine articles. The re-publication of ERA’s original article for this new resource underscores ERA’s critical relevance to the teaching and learning of A-level Psychology with a three years sales projection of 7,750 **[5.11b]**. Cara Flanagan, Senior Editor of Psychology Review states: “*As the findings of the English and Romanian Adoption Study have been so influential in informing our understanding of the long-term effects of early institutional deprivation on human development,*

Psychology Review was keen for the ERA team to share their most recent findings with our readership to provide a clear and up-to-date account of their results and conclusions. Their study is a model of good research as it has enabled controlled investigation of so many different aspects of child development.” [5.11a]. ERA’s importance in the field of developmental psychology is further reflected in its inclusion as a case study in many higher education-level course textbooks nationally and internationally [5.13a & b].

iv. Media coverage of Southampton’s research on the long-term impact of early life

adverse experiences: ERA’s most recent young adult findings [3.1, 3.5] have been widely discussed in national and international news and social media [5.14]. According to Altmetric data [see 5.15], both [3.1]’s and [3.5]’s attention scores places them in the top 5% of all research outputs scored by Altmetric, and both are in the top 1% of outputs of the same age. Altmetric data for our publication in the *Lancet* [3.1] records >400 tweets by >370 tweeters with an upper bound of >1.5 million followers. The PNAS publication [3.5] has >300 tweets with an upper bound of over 750,000 followers. Our publications [3.1, 3.5] were reported in several national and international public media outlets [see 5.14] including BBC articles on adopted Romanian children ‘still suffering in adulthood’ (Feb 2017), and ‘Neglected children end up with ‘smaller brains’ (Jan 2020). Further media coverage appeared in Deutschlandfunk (Jan 2020), and in Mental Elf’s blog (Feb 2017) ‘Early life deprivation, neurodevelopment, mental health and resilience: ERA study’. Both ERA articles are also discussed in the German *Ärztblatt*, the official journal of Germany’s leading medical bodies, the German Medical Association and the National Association of Statutory Health Insurance Physicians.

5. Sources to corroborate the impact

- 5.1 Impact on clinical practice (letter from Professor Charles Zeanah, Tulane University).
- 5.2 NICE (2015) Guidelines on Attachment: <https://www.nice.org.uk/guidance/ng26/evidence>
- 5.3 AACAP’s Practice parameters for the assessment and treatment of children and adolescents with reactive attachment disorder of infancy and early childhood and disinhibited social engagement disorder. Zeanah et al. (2016). *J. Am. Acad. Child Adolesc. Psychiatry* 55(11):990–1003. <https://doi.org/10.1016/j.jaac.2016.08.004>
- 5.4 Impact in Social Care sector (letter from Dr John Simmonds OBE, CoramBAAF).
- 5.5 Berens and Nelson (2015) review, *Lancet* 386: 388–98. Referenced in BCN recommendation for the UNGA, see 5.6a. [https://doi.org/10.1016/s0140-6736\(14\)61131-4](https://doi.org/10.1016/s0140-6736(14)61131-4)
- 5.6 a) The Better Care Network [key recommendations for UNGA](#), 4a, p.4; b) [BCN library link to 3.1](#) and [BCN library link to 3.5](#)
- 5.7 UNGA Resolutions 18 December 2020 with specific reference to ending institutional care in 22, 26, 35f, & 35g. <https://undocs.org/en/A/RES/74/133>
- 5.8 LUMOS (2019) A Goal Within Reach: Ending the Institutionalization for Children to Ensure that No One is Left Behind. [3.1] is cited on p.25
- 5.9 UNICEF (2015) Making Decisions For The Better Care of Children: The role of gatekeeping and strengthening the family-based care and reforming alternative care systems. pp.83, 90, 95 reference four ERA publications affiliated with Southampton.
- 5.10 The Lancet Group Commission on institutionalisation and deinstitutionalisation of children: Systematic review of the evidence, *Lancet Psychiatry* 2020; 7: 703-[https://doi.org/10.1016/S2215-0366\(19\)30399-2](https://doi.org/10.1016/S2215-0366(19)30399-2)
- 5.11 Impact on A-level Psychology teaching: a) Letter from Cara Fanagan, Senior Editor of *Psychology Review Magazine*; b) Correspondence from Hodder Education regarding republication of [5.12] and three years projected sales.
- 5.12 Kreppner, J., Sonuga-Barke, E. & the ERA team (2016). Update on the English and Romanian Adoptee (ERA) study. *Psychology Review*, 21(4), 2-5.
- 5.13 Examples of University-level Developmental Psychology Textbooks where ERA is used as a case example: **a)** Siegler, R., Saffran, J. R., Eisenberg, N., DeLoache, J., & Gershoff, E. (2017). *How children develop* (5th Edition). New York: Macmillan; **b)** Slater, A., and Bremner, G. (2017). *An Introduction to Developmental Psychology* (3rd Edition). Chichester: The British Psychological Society and John Wiley & Sons Ltd.
- 5.14 Examples of media coverage of Southampton’s ERA research.
- 5.15 Scopus and Altmetric data.