

The lasting impact of neglect

Psychologists are studying how early deprivation harms children — and how best to help those who have suffered from neglect.

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June 2014, Vol 45, No. 6



The first time Nathan Fox, PhD, stepped into a Romanian orphanage, he was struck by the silence. "The most remarkable thing about the infant room was how quiet it was, probably because the infants had learned that their cries were not responded to," says Fox, who directs the Child Development Laboratory at the University of Maryland.

The babies laid in cribs all day, except when being fed, diapered or bathed on a set schedule. They weren't rocked or sung to. Many stared at their own hands, trying to derive whatever stimulation they could from the world around them. "Basically these kids were left on their own," Fox says.

Fox, along with colleagues Charles Nelson, PhD, at Harvard Medical School and Children's Hospital Boston, and Charles Zeanah, MD, at Tulane University, have followed those children for 14 years. They describe their Bucharest Early Intervention Project in a new book, "Romania's Abandoned Children: Deprivation, Brain Development, and the Struggle for Recovery" (2014).

Neglect isn't just a Romanian problem, of course. UNICEF estimates that as many as 8 million children are growing up in institutional settings around the world. In the United States, neglect is a less obvious — though very real — concern. According to a report by the U.S. Department of Health and Human Services, 676,569 U.S. children were reported to have experienced maltreatment in 2011. Of those, more than 78 percent suffered from neglect.

The list of problems that stem from neglect reads like the index of the DSM: poor impulse control, social withdrawal, problems with coping and regulating emotions, low self-esteem, pathological behaviors such as tics, tantrums, stealing and self-punishment, poor intellectual functioning and low academic achievement. Those are just some of the problems that David A. Wolfe, PhD, a psychologist at the University of Toronto, and his former student Kathryn L. Hildyard, PhD, detailed in a 2002 review (*Child Abuse & Neglect*, 2002).

"Across the board, these are kids who have severe problems throughout their lifetime," says Wolfe, recent past editor-in-chief of *Child Abuse & Neglect*. Now, researchers are beginning to understand some of the ways that early deprivation alters a person's brain and behavior — and whether that damage can be undone.

The Bucharest project

In 1989 Romanian dictator Nicolae Ceaușescu was overthrown, and the world discovered that 170,000 children were being raised in Romania's impoverished institutions. As the children's plight became public, Fox, Nelson and Zeanah realized they had a unique opportunity to study the effects of early institutionalization.

The trio launched their project in 2000 and began by assessing 136 children who had been living in Bucharest's institutions from birth. Then they randomly assigned half of the children to move into Romanian foster families, whom the researchers recruited and assisted financially. The other half remained in care as usual. The children ranged in age from 6 months to nearly 3 years, with an average age of 22 months.

Over the subsequent months and years, the researchers returned to assess the development of the children in both settings. They also evaluated a control group of local children who had never lived in an institution.

They found many profound problems among the children who had been born into neglect. Institutionalized children had delays in cognitive function, motor development and language. They showed deficits in socio-emotional behaviors and experienced more psychiatric disorders. They also showed changes in the patterns of electrical activity in their brains, as measured by EEG.

For kids who were moved into foster care, the picture was brighter. These children showed improvements in language, IQ and social-emotional functioning. They were able to form secure attachment relationships with their caregivers and made dramatic gains in their ability to express emotions.

While foster care produced notable improvements, though, children in foster homes still lagged behind the control group of children who had never been institutionalized. And some foster children fared much better than others. Those removed from the institutions before age 2 made the biggest gains. "There's a bit of plasticity in the system," Fox says. But to reverse the effects of neglect, he adds, "the earlier, the better."

In fact, when kids were moved into foster care before their second birthdays, by age 8 their brains' electrical activity looked no different from that of community controls. The researchers also used structural MRI to further understand the brain differences among the children. They found that institutionalized children had smaller brains, with a lower volume of both gray matter (which is made primarily of the cell bodies of neurons) and white matter (which is mainly the nerve fibers that transmit signals between neurons).

"A history of institutionalization significantly affected brain growth," Fox says.

The institutionalized children who were moved into foster homes recovered some of that missing white matter volume over time. Their gray matter volume, however, stayed low, whether or not they had been moved into stable homes (*PNAS*, 2012). Those brain changes, the researchers found, were associated with an increased risk of ADHD symptoms.

Many of the children remain with their foster families. (The researchers no longer support those families financially, but the Romanian government continues to provide stipends for the children's care.) Soon, Fox says, he and his colleagues will begin the 16-year assessment. They expect that to be particularly telling, since the effects of adversity in early childhood can re-emerge during adolescence.

Regardless of future findings, Fox has seen enough evidence to draw hard conclusions. "Children need to be in socially responsive situations. I personally think that there aren't good institutions for young children," he says. With millions of children growing up in similar conditions, he adds, "this is a worldwide public health issue."

<http://apa.org/monitor/2014/06/neglect.aspx>