

# Evidence mounting that poverty causes lasting physical and mental health problems for children



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Sheila Good faced the decision most mothers dread. Should she spend more time raising her son or earning a paycheck? Should she be a better mom or a better provider?

For her 6-year-old son, Benjamin, a little redhead dedicated to baseball, either choice would induce stress. It's one of those puzzles of poverty with health impacts on children. Three recent studies add to mounting evidence that poverty can exact a lasting toll on a child's mental and physical well-being, with stress representing a key pathway.

Those studies focus on poverty's impact on a child's brain volume, the adverse impact of childhood poverty on adult health, and the mental and behavior problems associated with substandard housing.

Realizing the high stakes for her son, Ms. Good, 29, of Pulaski, Beaver County, went part time for Benjamin's sake last summer despite living in poverty. Soon after that decision, a car accident on Aug. 2 left her in seizures from a concussion. Her car was totaled. She lost her part-time job. She and Benjamin now struggle to live on \$940 a month, with \$425 going for rent and \$12,000 in arrears for accident-related medical expenses. Ever since Benjamin's birth, Ms. Good said, they've lived under or near the federal poverty threshold. Savings, food stamps and child support payments fund the family's monthly budget.

Without a family car, Benjamin no longer can go to the park, the batting cages or the skating rink.

"We're not doing as many things as we did before," said Ms. Good. "I don't like to let my anxiety trickle down to him, but he gets it [himself]. His quality of life has changed. I have to tell him no."

She links her son's anxieties directly to household income. He's now in therapy.

"My son never had difficulty with anxiety or a sleeping disorder until our recent struggles to make ends meet," said Ms. Good, who has post-traumatic stress disorder from an impoverished childhood, bipolar disorder and anemia from a genetic bone-marrow disorder. "One small event can lead to a chain of events for a single-income household. One month we were living comfortably and then the next we had no car, no job and no health insurance -- and I was in poor health."

### **Causes and effects**

Since the 1970s, 22 percent of American children have lived below the federal poverty level. The rate in the Greater Pittsburgh area exceeds 18 percent.

"How can this be the wealthiest country in the world when one in four of America's children has been living in poverty for over four decades?" Thomas K. McInerny of the American Academy of Pediatrics stated at a May conference on the topic. Reducing childhood poverty, he said, would be "a major step to improve the health of our nation's children, our most precious resource."

A recent study led by Carnegie Mellon University psychologist Sheldon Cohen found that adults raised in poverty face a significantly higher risk of upper respiratory infections and the common cold.

A higher risk of a cold might sound unremarkable. But it portends a higher risk of chronic diseases, which in turn can reduce the length of a person's life. Poverty-induced stress can begin shrinking the protective protein caps of chromosomes during early childhood. These caps, known as telomeres, are likened to the plastic or metal end caps of shoestrings and shrink throughout life, but they do so more quickly from chronic stress.

The constant barrage of stress hormones causes an immune response of excess inflammation that eventually can lead to heart disease, hypertension, type 2 diabetes, autoimmune disease, gastrointestinal problems and depression among many other problems linked to stress.

The many stressors of poverty include rundown housing, dangerous and polluted neighborhoods, family turmoil, childhood abuse, the lack of nutrition, and the lack of parental, educational and psychological support.

"There are lots of possible pathways that may link low socioeconomic status in childhood to adult disease risk," said Mr. Cohen, a doctor of psychology and director of CMU's Laboratory for the Study of Stress, Immunity and Disease. "The burning question is, which early environments -- physical, social and educational -- are responsible?"

The study, published in *Brain, Behavior and Immunity*, showed a direct association between low socioeconomic status and shortened telomeres, helping to explain how early poverty can lead to adulthood illness, as indicated by the higher rate of colds and respiratory infections in adults raised in poverty.

In the study involving 196 people, about 46 percent of the adults raised in housing not owned by their parents caught colds in laboratory settings when exposed to rhinoviruses. That compares with 26 percent of adults raised in parent-owned housing. Adults who grew up in poorer environments also had shorter telomeres than those growing up in wealthier ones.

"That is setting a trajectory of telomere length that will last a lifetime," Mr. Cohen said. "There are quite a few studies that show that early childhood

socioeconomic status is a risk factor for adult health. People who grow up in low socioeconomic conditions have a greater risk of developing disease in adulthood."

The study raises the need to identify what childhood experiences drive these biological effects. "Certainly it appears that telomere length is one of the mechanisms," he said.

### **Houses of horror**

Substandard housing can impose heavy stress on poor children, with resulting behavioral problems.

A study from Boston College and Tufts University published in the Journal of Developmental Psychology found that conditions found inside rundown houses and apartments hinder children's emotional and educational development. Data drawn from 2,400 children, teens and young adults in the six-year study "found emotional and behavioral symptoms of anxiety, depression, lying and aggressive behavior were closely connected to poor housing quality and the related stress placed on parents, children and families."

These were among the factors that were found to increase problems for the children, which led to a decline in school performance:

- \* Restrictions on utility use -- for example, hot water, electricity and heating and air conditioning in the home.
- \* Leaking roofs, broken windows and peeling paint.
- \* Debris and vermin, such as rats and cockroaches.
- \* Exposure to lead.

"Through no fault of their own, children and teens whose families live in substandard housing are paying a steep price in terms of their emotional and behavioral well being," said Rebekah Levine Coley, a professor of education at Boston College, with a doctorate in developmental psychology, who led the study.

The stress of moving place to place also disrupts household stability.

"We know that environmental stress can come not just from outside the home, but from the home itself when we consider the impact of living day to day with exposed wiring, peeling paint, rodents, poor sanitation and a lack of natural light, or with frequent moves from home to home," Ms. Coley said.

Data from 2005 found 2 million children nationwide living in rundown, unsafe housing.

"What our findings suggest is that housing quality may be more important than the cost of housing when it comes to the growth and development of children," Ms. Coley said. "The data suggest policy makers make housing quality a priority as they work to resolve the housing crises facing low-income families."

### **Brain drain**

A study involving 145 children led by Joan Luby of the Washington University School of Medicine, St. Louis, associates poverty in early childhood with smaller brain volumes from ages 6 to 12. Smaller brain volumes occurred in the hippocampus and amygdala, along with smaller volumes of white and cortical gray matter. All of these areas generally are involved in emotional processing, cognition and memory. Problems in these areas of the brain can lead to chronic depression and degenerative brain diseases, Dr. Luby said.

"The brain was only smaller if the child also had a parent who was less supportive and the child encountered stressful life events at a higher level," she said. "The key factor is parenting.

"We've known for decades that poverty is the most robust predictor of bad outcomes for children," Dr. Luby said.

The study underscores the importance of good care-giving in early childhood. Better education and support for parents and preschool programs would "provide high-quality supplementary care-giving and a safe haven to vulnerable young children," she said.

Bruce S. Rabin, the University of Pittsburgh immunologist who helps people reduce stress, said the impact of poverty-induced stress on children is well established.

"The more stressors one is exposed to early in life, the greater the influence is on a poor quality of mental and physical health, with decreased longevity," he said. "Pregnant mothers in poverty typically don't get adequate nutrition while experiencing family and social pressures and stress."

Dr. Rabin said the effort to improve childhood health must also involve reducing the amount of physical, mental and sexual abuse and bullying that children are exposed to.

### **Survival mode**

Ms. Good and Benjamin recently qualified for free health insurance. She's also on an 18-month waiting list for free or subsidized day care. After graduating from the Community College of Beaver County with top grades in February, she has received scholarships to Geneva College, where she begins online classes in February.

Her eventual goal is to establish an after-school care center for children in the New Brighton area to help those struggling in similar circumstances to her own.

But her own challenges continue. Her food stamps through the federal Supplemental Nutritional Assistance Program got cut recently by \$47 a month, which means 34 fewer meals a month for her and Benjamin.

Yet, she said, she refuses to complain. She values support from her landlords, whom she calls godparents, as well as family, friends and her church. Now her efforts are focused on acquiring a car so she can return to work.

"I have tried to look at the positive. We may be poor and without transportation, but I have life skills and people in my life to encourage and teach me to live resourcefully," Ms. Good said. "Without these resources we likely would be in a much more destitute situation."

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