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Poverty, Parenting, and Psychiatry

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If poverty persists in America, it is not for lack of resources.

—Matthew Desmond, Harvard sociologist and author,
Evicted: Poverty and Profit in the American City

I have a rough time wanting to spend billions and billions and trillions of dollars to help people who won't help themselves, won't lift a finger, and expect the federal government to do everything.

—Senator Orrin Hatch (R-Utah)

Just my soul is messed up.. Sometimes I find my body trembling or shaking. I'm tired, but I can't sleep. I'm fitting to have a nervous breakdown. My body is trying to shut down.

—Arleen, mother

Poverty is a precarious predicament. The life of Arleen, a single mother raising two children on \$20 a month after rent, reflects this instability. *Evicted: Poverty and Profit in the American City* chronicles her family's struggle through multiple evictions, having their utilities cut off, and the loss of their possessions (to say nothing of the loss of dignity). She temporarily loses her children to Child Protective Services because of unsafe living conditions. She becomes plagued with symptoms of anxiety and depression. Yet still she dreams of a brighter future: when her children are grown and employed and can look back and laugh off their tribulations.

Her children are not alone. Nineteen percent of children in the United States—nearly 14 million children—live below the federal poverty level (1). And the sad truth is that poverty itself limits the chance that these children will achieve a brighter future. Children growing up poor have greater academic, behavioral, and health problems (2). Even when they are adults, these same health disparities will persist. While the negative impact of poverty on mental health is well documented, the mechanism(s) through which it occurs remain opaque: what pathways connect these early experiences to later outcomes?

In the past decades, several studies have explored this question, often focusing on the brain's stress response system. Under ordinary circumstances, stress causes activation of the hypothalamic-pituitary-adrenal axis, thereby stimulating the release of glucocorticoids

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(cortisol in humans) from the adrenal cortex. For acute stressors, this can help facilitate an appropriate response (e.g., escape or improved concentration) and is not thought to have any long-term detrimental effects. In contrast, the chronic release of cortisol can be toxic, particularly in the developing brain. It may be that prolonged stress is the mechanism through which poverty leads to adverse mental health outcomes.

The three regions most consistently shown to be affected by poverty are the amygdala, hippocampus, and prefrontal cortex. Studies of poverty have found changes to both size and functioning of the amygdala. Since the amygdala helps identify and respond to salient emotional cues in the environment, including those relating to fear and threat, these changes are thought to increase vulnerability to anxiety, posttraumatic stress disorder, and depression (3). In the hippocampus, chronic glucocorticoid exposure is thought to lead to neuronal death, and decreased hippocampal volume has consistently been linked to depression. The same finding has been shown in individuals who come from families of lower socioeconomic status [the largest study illustrating this finding was conducted by Noble *et al.* (4) and included more than 1000 subjects]. Lastly, studies have shown that poverty is associated with decreased medial prefrontal cortex volume and activation. This can lead to impaired suppression of the amygdala during stressful situations (5), which may increase risk for the development of mood disorders. Parallel findings from animal models in which rats are raised in deprived environments suggest that atrophy of dendrites and weakened synaptic connectivity may underlie this vulnerability (6).

While these data suggest that poverty (and stress) can have a broad impact on brain development and function, they are also complicated: How much do these alterations have to do with poverty per se, and how much might they relate to its many “comorbidities” (e.g., malnutrition)? One important factor to consider is the negative impact that poverty can have on parenting behavior. Decisions on how to spend limited resources can increase parenting stress. This stress, in turn, can lead to increased distractibility or even disengaged or impaired caregiving. For example, Arleen was constantly preoccupied by difficult forced decisions, such as trying to find a place to live and having to decide whether to buy basic need items (e.g., food or diapers) or to pay for utilities. Ultimately, this stress caused depression, which negatively impacted her parenting abilities. At best, these types of challenges make it far more difficult for children in poor families to succeed. At worst, poverty also increases the risk of child maltreatment, leading to even greater vulnerability for medical and psychiatric illnesses later in life (7). The reality is that poverty is a complex and multifaceted phenomenon, encompassing a wide range of risk factors that can affect brain development in several different ways (Figure 1).

We also know that not all children who experience poverty develop mental health problems—the effects of poverty are probabilistic rather than deterministic. A variety of internal and environment factors interact to determine resilience. So what can be done to foster resilience against poverty?

One of the most important factors that can buffer against the adverse effects of poverty is positive parenting. Warmth—characterized by care, affection, acceptance, and support to the child’s needs—is a foundational element of positive parenting. To study warmth,

researchers typically observe a parent and child together in the laboratory. They allow them to interact for 10 to 20 minutes while being recorded. The parent and child are instructed to discuss a fun topic, such as planning for an upcoming vacation, or a topic of conflict, such as how much television watching is permitted. Observers then code certain positive behaviors, such as validation, making a joke, physical affection, and positive emotions. Parental warmth has been associated with secure attachment, good mental health, and fewer externalizing behaviors (8). Perhaps reflecting the underlying mechanism, parental warmth with children has also been shown to predict decreased amygdala growth 4 years later when participants were adolescents (9).

In the current issue of *Biological Psychiatry*, Holmes et al. (10) present a powerful exploration of the complex interplay between environmental risk and parenting behaviors. The authors documented parent–child communication in African American children of low socioeconomic status from the rural South in late childhood. When these children turned 25 years old, the researchers used functional magnetic resonance imaging to see how different regions of the brain interact at rest (known as resting-state functional connectivity). The authors were particularly interested in the role of the anterior salience network, a circuit responsible for orchestrating other brain networks and determining what information is important versus not important. Intriguingly, the authors showed that positive parent–child interaction during childhood was associated with stronger functional connectivity in the anterior salience network at 25 years of age. This in turn was associated with less harmful alcohol use and emotional eating. Importantly, even after accounting for major risk factors (such as child maltreatment and parental substance use), positive parenting still conferred a long-term benefit on children, thus suggesting that salience network functional connectivity may be a marker of resiliency in the face of poverty. As one of few imaging studies focusing on a diverse, low-income population, the results provide hope that parenting has a positive effect in at-risk populations.

The impact of poverty and the role of parenting are not academic questions—there are real and immediate implications for public policy. Improving access to programs that support positive parenting could dramatically reduce the negative consequences of poverty; however, at the same time, it is equally important to attend to the context in which parenting occurs. When politicians propose cuts to safety net programs under the assumption that such cuts will somehow motivate impoverished families who otherwise “won’t help themselves,” they may paradoxically create the problems that they (ostensibly) seek to fix. At the end of the day, our most effective neuroscience-informed intervention to alleviate the burden of psychiatric illness may be to address the structural factors that perpetuate poverty.

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Figure 1.

The role of poverty on brain development. Poverty increases the risk of altered brain development through multiple pathways (e.g., material hardship). This risk is greatest during childhood. However, the risk varies within each phase of life, reflecting resilience.