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Poverty, Money, and Mobility

Oct. 3, 2012

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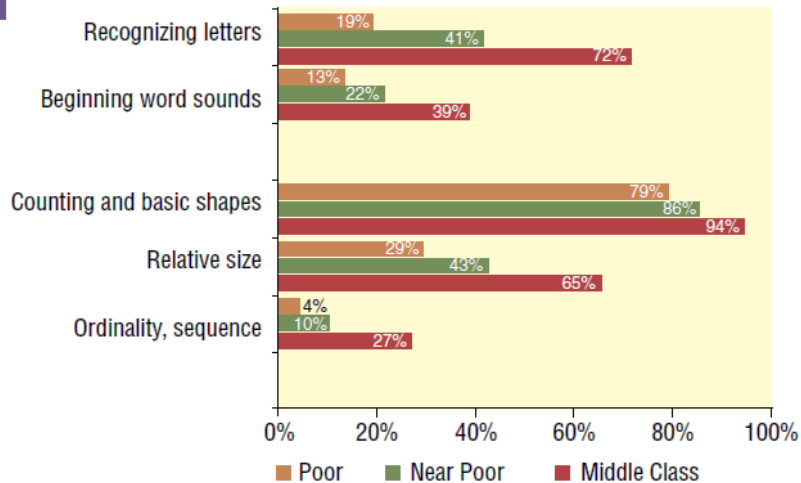
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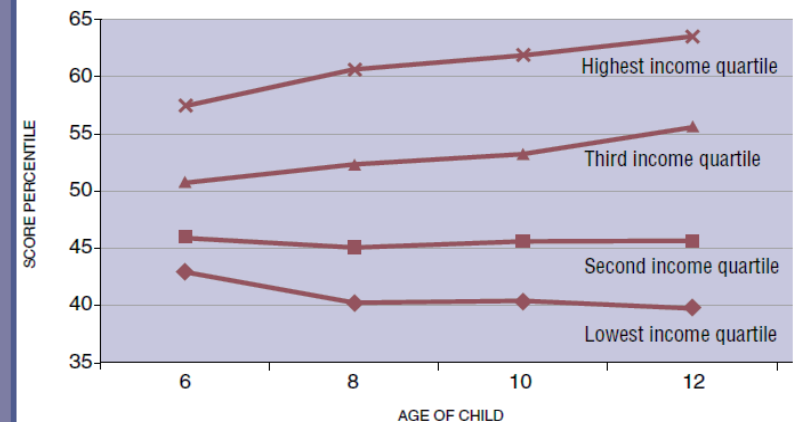
The puzzle

Why do children born into poverty suffer language and math deficits as early as ages 5 and 6?

It's all over by kindergarten: Processes of cumulative advantage then take over (e.g., poor-performing children are tracked and experience lower expectations, less rigorous curricula, less capable peers)

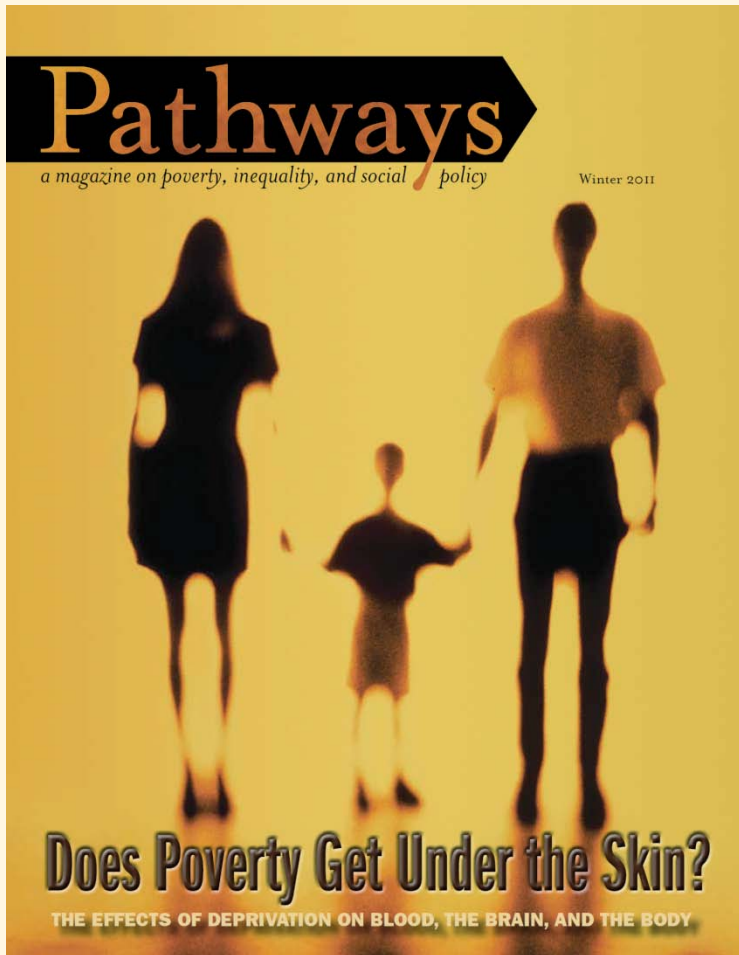


Source: Authors' calculations from the Early Childhood Longitudinal Survey—Kindergarten Cohort



Source: James J. Heckman (2006). "Skill Formation and the Economics of Investing in Disadvantaged Children." *Science*, 312(5782): 1900-1902.

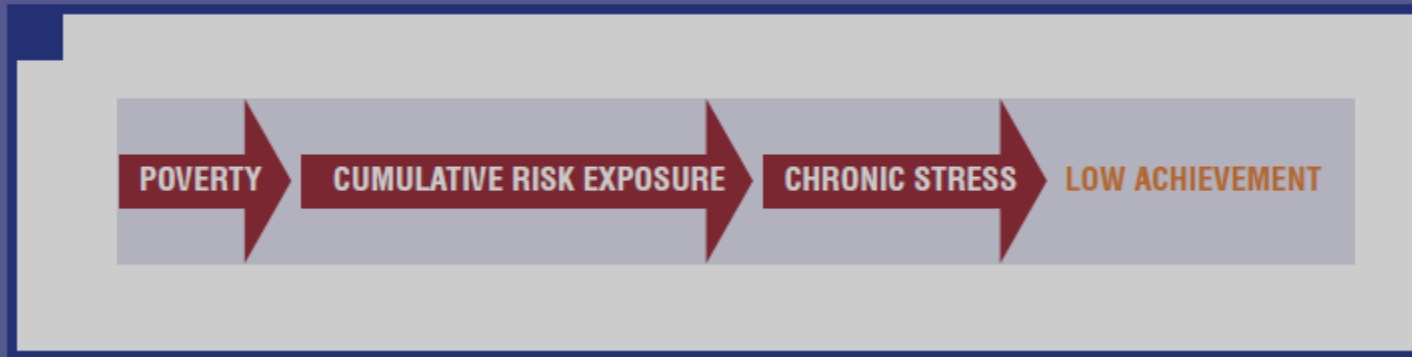
Much rides on addressing early disadvantage



- **Conventional account #1: Middle class parents more likely to practice high-achievement parenting (e.g., responsive, supportive, encouraging)**
- **Conventional account #2: Middle class parents are more likely to engage in cognitive stimulation and enrichment**
- **Supplementary biosocial account: The risk-stress model**

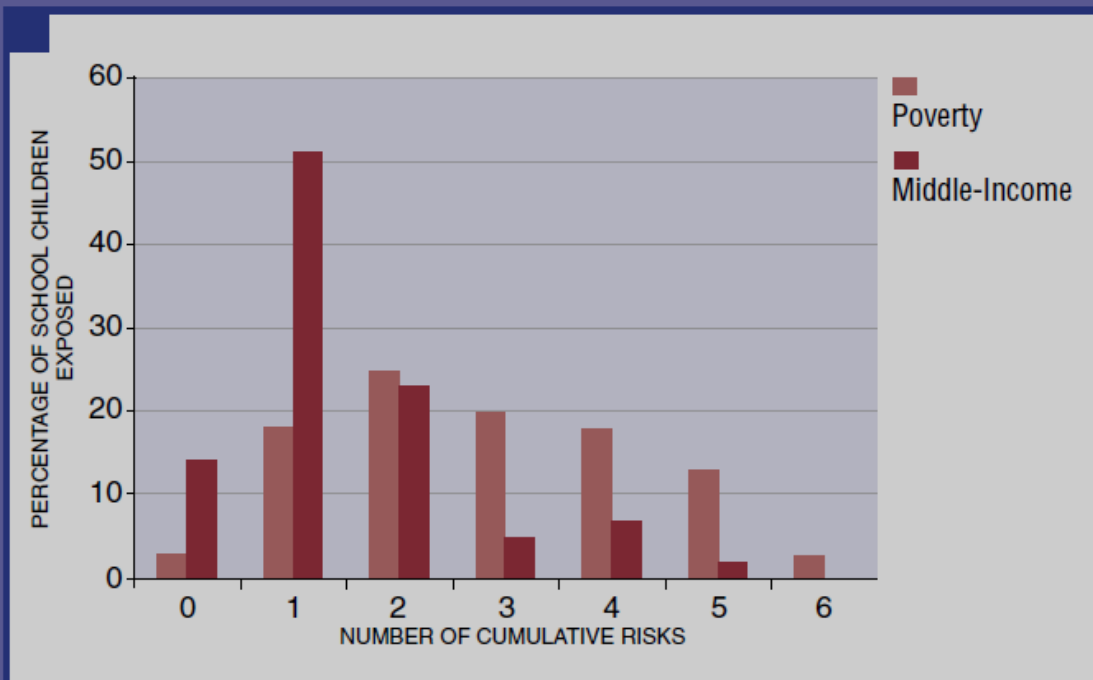
The risk-stress model

FIGURE 1 A new pathway to account for the income-achievement gap.



- **Poverty exposes children to stressful environments and then “gets under the skin” by affecting stress management systems and how the brain develops**
- **This in turn leads to lower achievement and long-lasting diasadvantage**
- **Draw heavily on research of Gary Evans, Jeanne Brooks-Gunn, Pamela Kato Klebanov, Greg Duncan, Jack Shonkoff**

Step #1: Poverty-induced exposure to stressors

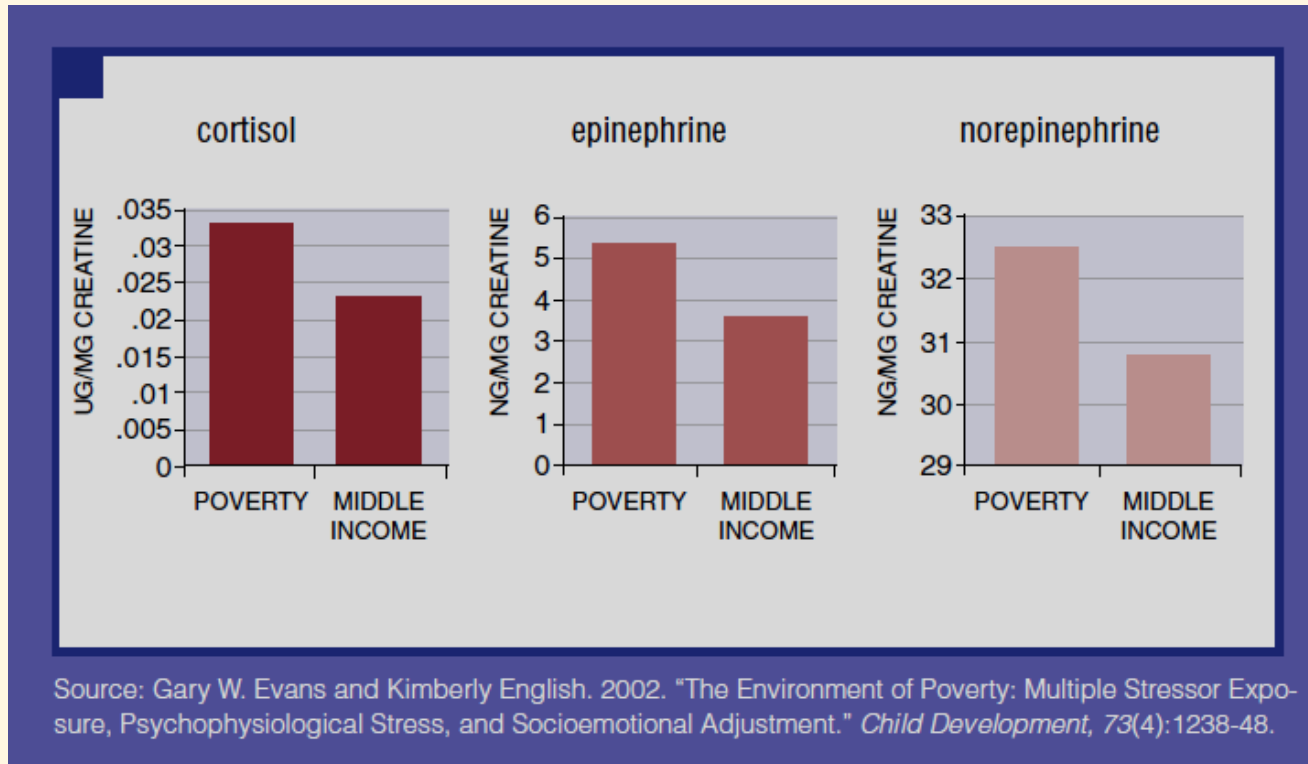


Note: Cumulative risks include family turmoil, violence, child separation from family, noise, crowding, and housing quality.

Source: Gary W. Evans and Kimberly English. 2002. "The Environment of Poverty: Multiple Stressor Exposure, Psychophysiological Stress, and Socioemotional Adjustment." *Child Development*, 73(4):1238-48.

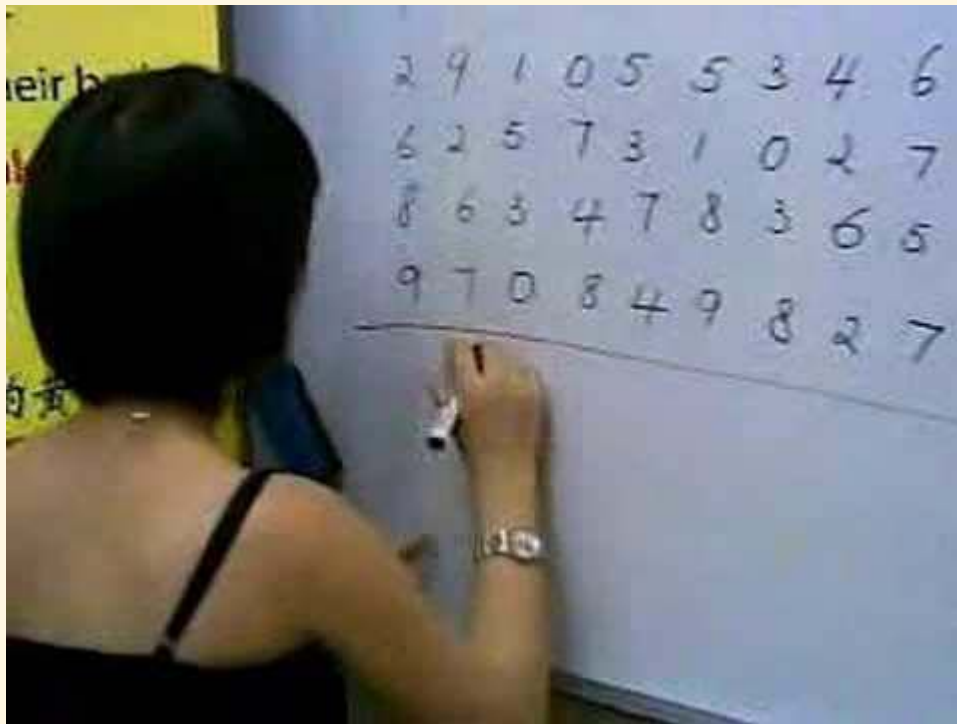
- **Poor children experience more stressors than middle-income children**
- **Physical stressors: Crowding, crime, residential turnover**
- **Psycho-social stressors: Family turmoil, family separation, violence**

Step #2a: Exposure to risk affects stress-management systems



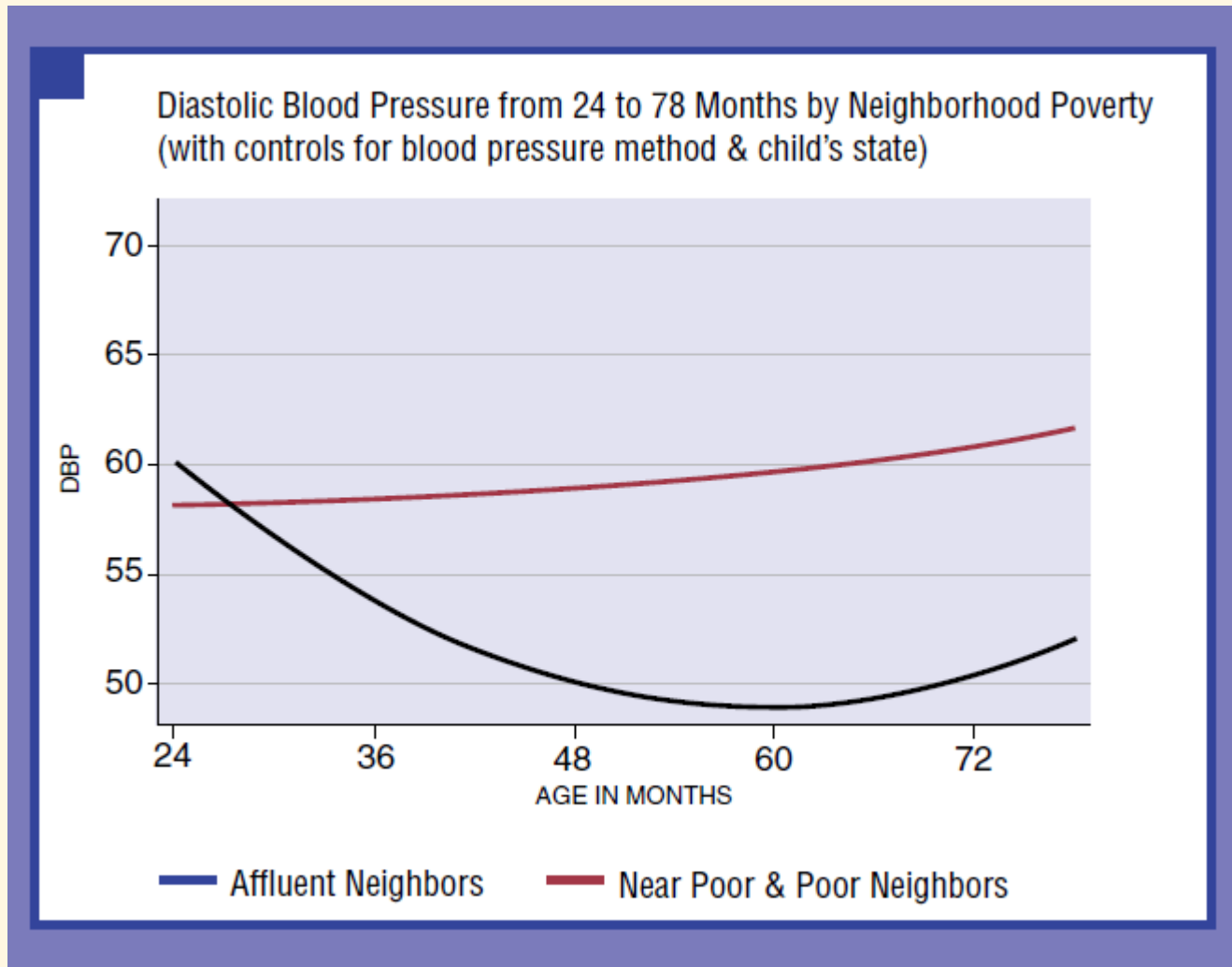
- **Constant exposure to risk leads to overactivation of body's stress-management systems**
- **Children in poverty have higher levels of chronic "stress hormones" (such as cortisol)**

Implications for achievement



- Children exposed to many stressors don't respond well when challenged by mental arithmetic problems
- Muted rise in blood pressure
- Longer recovery time to pre-stressor baseline levels

Elevated stress shows up very early in childhood





Step #2b: Exposure to risk affects brain architecture

- **Exposure to risk and stress affects architecture of brain**
- **Resulting deficits**
 - Language
 - Long-term memory
 - Working memory
- **Working memory of poor children only deteriorates if they are subjected to chronic stress (see research of Evans, Brooks-Gunn, Klebanov)**
- **Implication: Chronic stress may be key link between poverty and achievement**

Summary

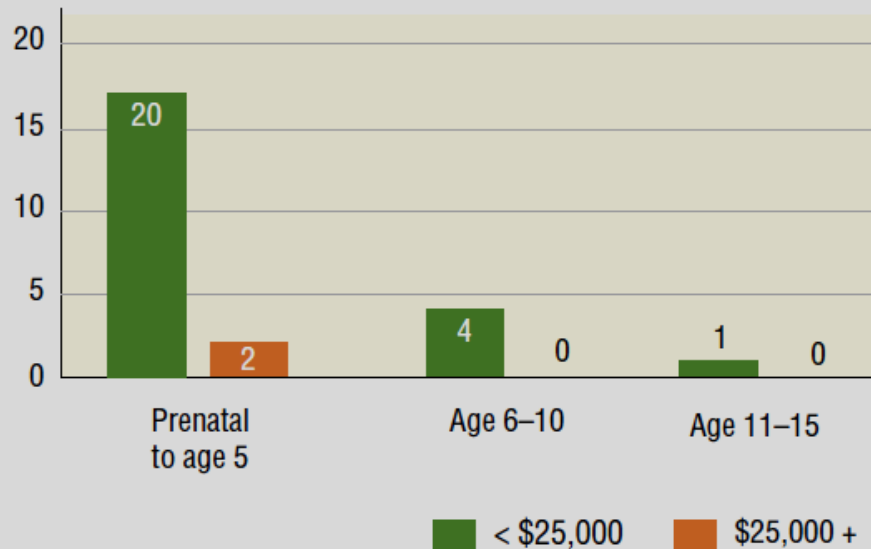
FIGURE 1 A new pathway to account for the income-achievement gap.



- **Why does achievement disadvantage show up so early?**
- **Conventional accounts**
 - Inadequate cognitive stimulation
 - Poor parenting
- **Supplementary account: Poverty leads to exposure to multiple risks, compromised stress management system and brain architecture, and poor performance that then cascades over time**

Why money matters

FIGURE 3 Percentage increase in adult earnings associated with a \$3,000 annual increase in childhood income



Where to intervene?

- **Option 1:** The tendency of poverty to come with risks
- **Option 2:** The effects of such risks on stress management systems & brain architecture
- **Option 3:** The effects of these physiological conditions on achievement

- Only **Option 1** is viable (by making poverty less extreme)
- Requires income support (e.g., food stamps, EITC, unemployment insurance) when children are young
- Explains why early income intervention matters