

Neurons, Genes, and Policies: How Science Can Contribute to Trauma-Informed Policies

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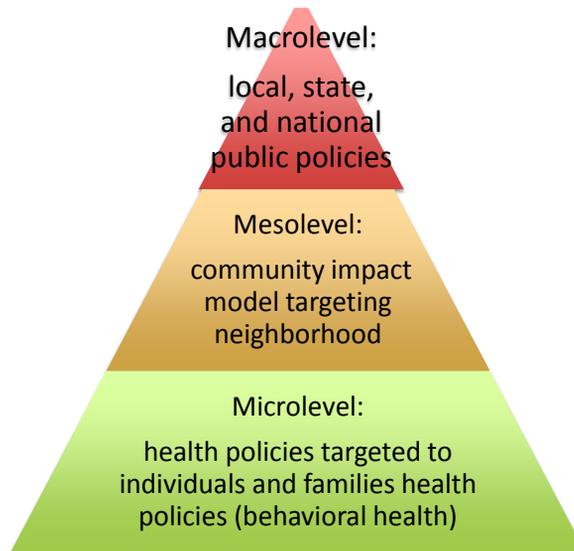
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How science can inform public policy

- Science changes our views of the causes of poverty:
 - No longer moral failure/bad choices of individuals
 - Socioeconomic forces fundamentally shape our biology, but at level of genes and neurons
 - Hopefully this can change the discussion around poverty
 - Science can give us new tools to develop more effective policies addressing poverty

3 levels of policy interventions

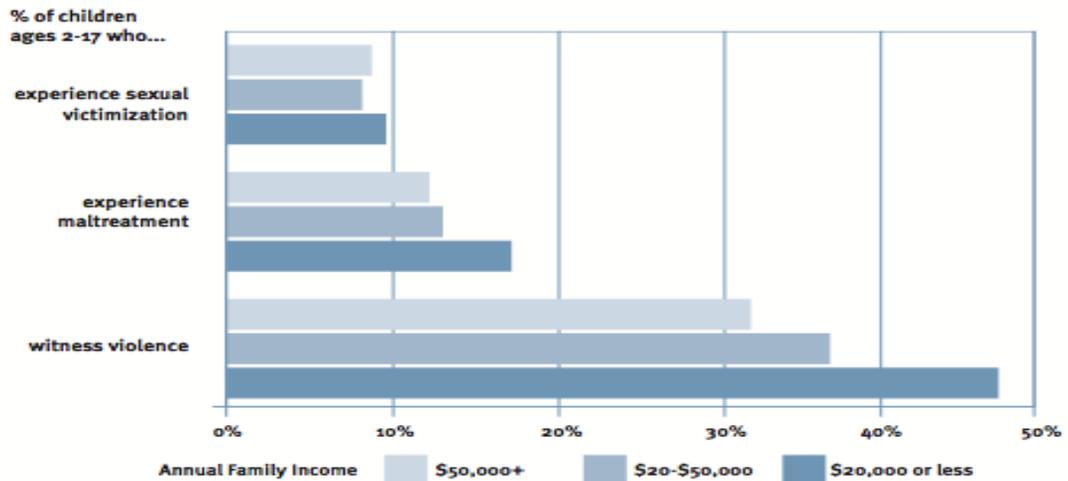


What the science is telling us about poverty and toxic stress

**Poverty can be a stressful environment for both
parents and children**

Economic insecurity can pile on environmental stresses and trauma in children

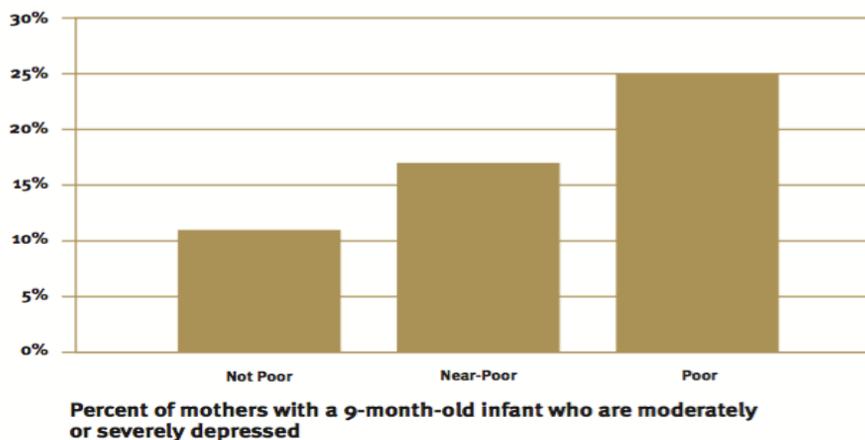
Fear-Inducing Events Disproportionately Affect Children in Low-Income Environments



Source: Finkelhor, et al. (2005)²

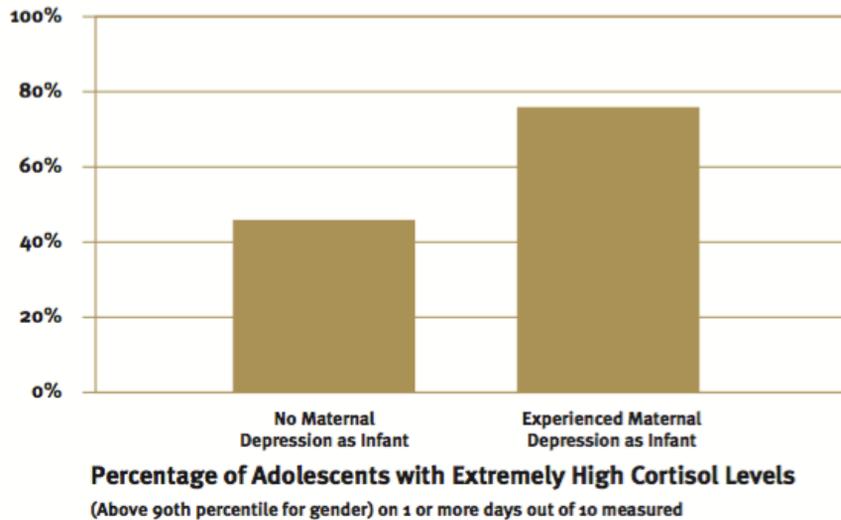
and create stressful environment for adults

Maternal Depression Affects Children in Low-Income Families Disproportionately



Source: Calculations based on analyses of the Early Childhood Longitudinal Study, Birth Cohort 9-month restricted-use data (NCES 2006-044) by Danielle Crosby, PhD, University of North Carolina Greensboro. Maternal Depression is measured by the 12-item version of the Center for Epidemiological Studies' Depression Scale (CES-D). Elevated symptoms of moderate to severe depression are identified by scores of 10 points or higher on a scale that ranges from 0-36. Analytic weights (WtRo) were applied to ensure data were nationally representative of mothers with 9-month-old infants born in 2005. Poor refers to family income less than or equal to 100% Federal Poverty Threshold (FPT). Near poor refers to family income greater than 100% of FPT but less than 200% of FPT. Not poor refers to income greater than 200% of FPT.

Exposure to Maternal Depression in Infancy Causes Stress Hormone Levels to Become More Extreme in Adolescence



Source: Halligan, Herbert, Goodyer, and Murray (2004).

The effects of neglect

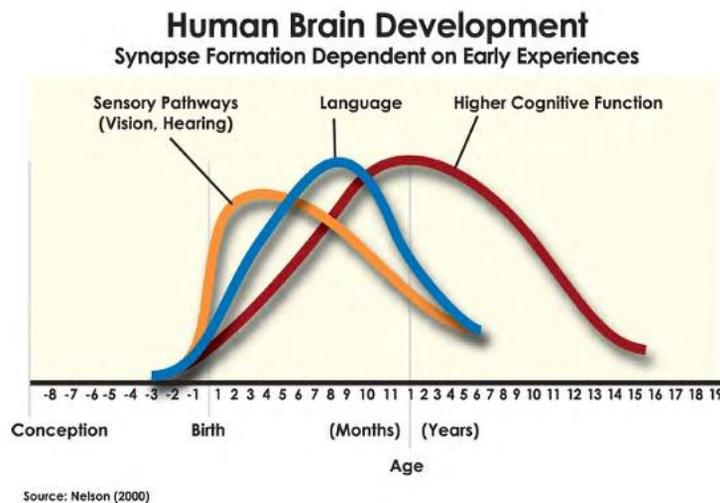
- Parent with chronic depression may be hostile or disengaged/withdrawn, and less likely to respond to children's cues or to engage with them in positive interactions.
- This interruption in “serve and return” can disrupt brain architecture in the child and their stress responses systems, leading to behavioral, learning, and health problems in later life

– Source: Center for Developing Child, Working Paper 12.

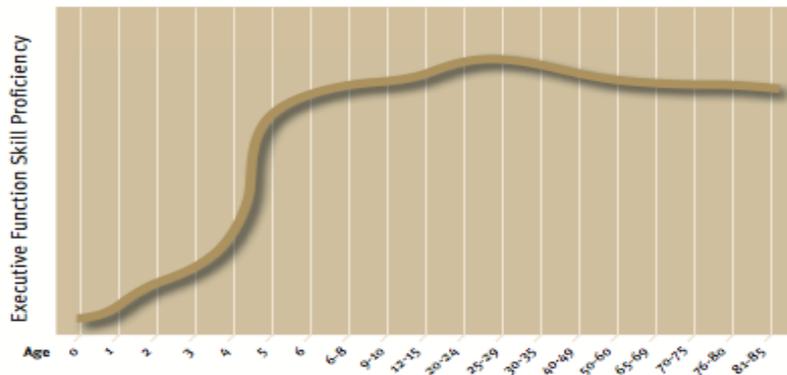


What are the implications of science for microlevel policies?

1. Children in impoverished households are at high risk of experiencing multiple traumatic experiences.
2. Early intervention (birth to 3) has big pay-offs in reducing effects of toxic stress due to critical time of brain development.
3. However, it is not too late to intervene after early childhood. Neuroplasticity.
4. We also need a 2 generation approach:
 - to address the trauma experienced by the adults as well as the children
 - To build healthy brain architecture in the children
 - to break the cycle of intergenerational trauma



Executive Function Skills Build Throughout Childhood and Adolescence



A range of tests measuring different forms of executive function skills indicates that they begin to develop shortly after birth, with ages 3 to 5 providing a window of opportunity for dramatic growth in these skills. Growth continues throughout adolescence and early adulthood; proficiency begins to decline in later life.

Source: Weintraub et al. (In Press).²⁹

Examples of trauma informed policies at microlevel: Head Start Trauma Smart

Early childhood program

Head Start Trauma Smart Program: Addressing toxic stress in children and caregivers

1. Multigenerational:
 - Teaching at-risk children and adult caregivers how to reduce stress from traumatic events.
 2. Center-based care.
- http://www.rwjf.org/en/culture-of-health/2014/03/head_start_programu.html

Head Start Trauma Smart: trauma-informed care for children and their caregivers (from parents to teachers to bus drivers)



- http://www.rwjf.org/en/culture-of-health/2014/03/head_start_programu.html

Trauma informed policies at mesolevel: community impact model in Amani neighborhood

Building a healthy community at the neighborhood level: community impact model

- **Community impact model** targets a neighborhood with coordinated cluster of services.
 - Example of Amani neighborhood in Milwaukee.
- Why this approach:
 - Address the broader environment that causes toxic stress and illness
 - Targeting a specific neighborhood is better use of resources than spread across an entire city
 - Addressing trauma requires multi-faceted community-based solutions; coordination can overcome silos, gaps, and duplication among providers Building connectedness among residents and beyond
- Effectiveness is being assessed, but crime dropped >25% in first year.
- <https://projects.jsonline.com/news/2017/3/29/the-unlikeliest-neighborhood.html>

Amani: creating connectedness and ending isolation among residents



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Macrolevel policy interventions to prevent poverty and trauma in the first place

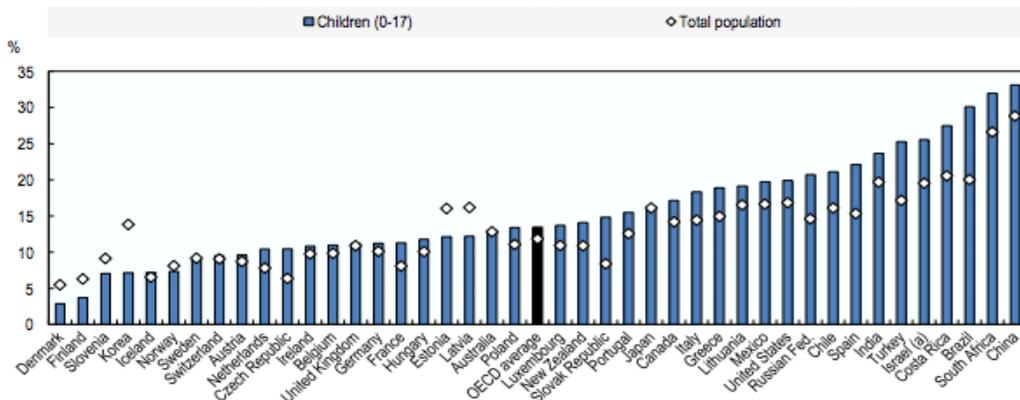
Using comparative analysis to see what works

Broader public policies at local, state, and national level

- Health care policies.
 - Yet access to care affects only 30% of health outcomes
- Policy domains that we don't normally think of as health policy, but they have profound health effects.
 - They can mitigate effects of or even prevent poverty, and by extension, trauma that arises from economic insecurity.
 - They can give parents ability to balance work and family and the time they need to develop positive relationships with their kids
- Examples: family policies, income support/wage policies, housing policies, education policies.

US has high rates of poverty among children (>20% in poverty)

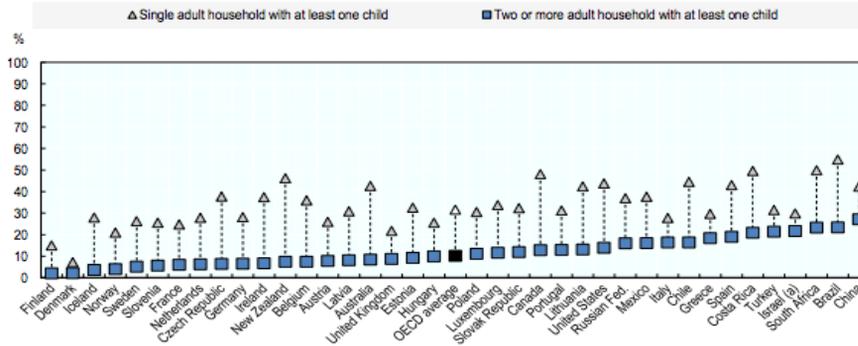
Chart CO2.2.A. Child relative income poverty rate, 2015 or latest available year
Relative income poverty rate (%), for the total population and for children (0-17 year-olds)



Note: Data are based on equivalised household disposable income, i.e. income after taxes and transfers adjusted for household size. The poverty threshold is set at 50% of median disposable income in each country. Data for China, India and the Russian Federation refer to 2011, for Japan to 2012, for Brazil to 2013, and for Australia, Hungary, Iceland, Mexico and New Zealand to 2014.

and high rates of poverty among single-parent households (>40%)

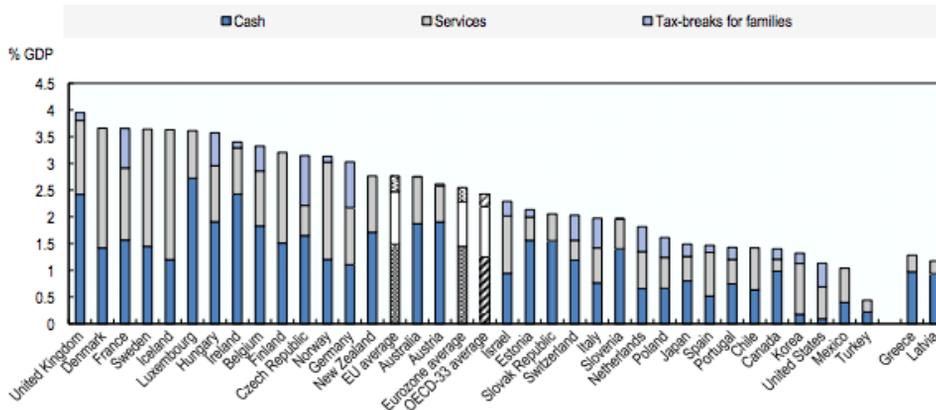
Chart CO2.2.C. Poverty rates in households with children by household type, 2015 or latest available year
Relative income poverty rates (%), individuals in working-age households with at least one child, by type of household



Notes: Data are based on equivalised household disposable income, i.e. income after taxes and transfers adjusted for household size. The poverty threshold is set at 50% of median disposable income in each country. Working-age adults are defined as 18-64 year-olds. Children are defined as 0-17 year-olds. Data for China and the Russian Federation refer to 2011, for Brazil to 2013, and for Australia, Hungary, Iceland, Mexico and New Zealand to 2014.
a) See note a) to Chart CO2.2.A
Source: [OECD Income Distribution Database](#)

US is also a low spender on family benefits

Chart PF1.1.A. Public spending on family benefits
Public expenditure on family benefits by type of expenditure, in per cent of GDP, 2013 and latest available^a



Note: Public spending accounted for here concerns public support that is exclusively for families (e.g. child payments and allowances, parental leave benefits and childcare support), only. Spending in other social policy areas such as health and housing support also assists families, but not exclusively, and is not included.

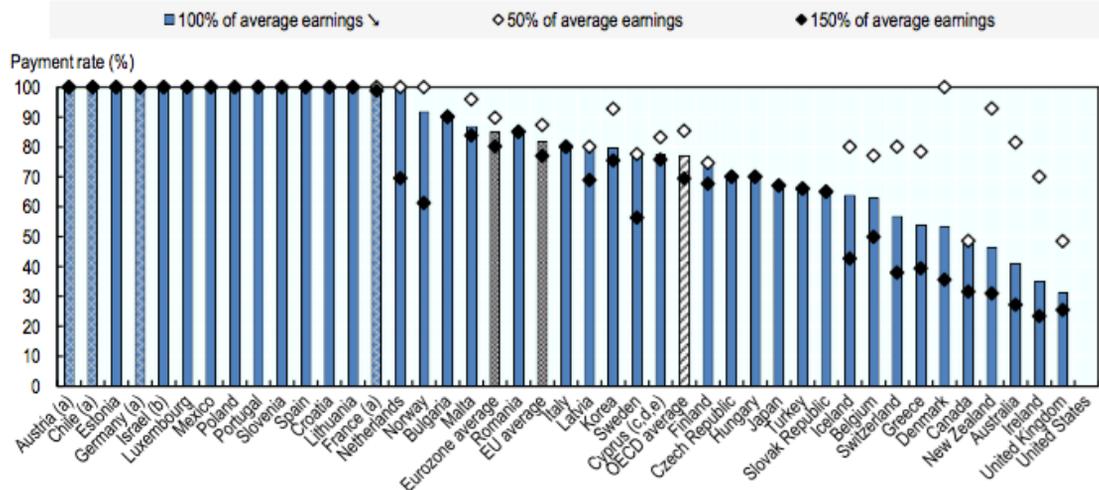
Family policies in US and OECD peer nations

- In OECD peer nations:
 1. Parental leave: 18 weeks on average paid at 50-100% of wages. After that, paid parental leave at flat rate or no payment.
 2. Child/family cash allowances (flat rate per child, mostly universal).
 3. Universal daycare/early childhood programs that are heavily funded by taxes.
- US family policy:
 - 12 weeks of unpaid parental leave in larger firms
 - Child tax credit up to \$2,000
 - Daycare is individual responsibility (except for TANF)

Maternity leave payment rates

Chart PF2.4.A. **Maternity leave payment rates, 2014**

Proportion of gross earnings replaced by maternity benefits across paid maternity leave^a, by level of earnings



What does parental leave have to do with toxic stress and health?

- In the US, 25% of women return to work 4 weeks after birth of a child.
 - (*Financial Times* 2015)
- Studies of mothers in US who return to work later in the first year following birth of child reported less depression than those who returned to work earlier.
- Studies of US showed that children whose mothers returned to work before 12 weeks following birth had lower immunization rates, shorter period of breastfeeding, and more behavioral problems later in life (at age 4).
- Comparative studies show longer paid parental leave is associated with lower infant mortality rates.

(Dagher, McGovern and Dowd 2014; Gregg and Waldfogel 2005; Tanaka 2005)

How US and peer nations approach poverty, esp. in families, has implications for the level of stress they experience

- US: TANF is time-limited and low benefit, mostly targeted to mothers, little for men
- Germany and Sweden:
 - social assistance has no time limit; set relative to median income
 - job retraining (esp. in Scandinavia)
 - work exemption for single mothers with very young children

The US 20+ years after welfare reform

POSITIVES:

- Welfare reform got single mothers into work, and permanently reduced enrollments in TANF.
- EITC and child tax credit have boosted incomes of those in low-wage work.

CONCERNS:

- TANF payments have not kept up with inflation; worth 35% less today. \$673 or less/month in WI.
- Surveys show that TANF clients report trouble meeting utility bills, shelter, and food costs.
- Many states put work ahead of training that could lead to better-paying jobs later on.
- Jobs for unskilled are low-paying (min wage is \$7.25 nationally). EITC not enough to pull many out of poverty (average EITC for family is ~\$3,000/year).
- Lack of affordable housing: 25% of Milwaukee renters spend > 70% of income on rent.
- Welfare reform targeted single mothers but did little for unskilled men.
- Did US welfare reform address stress in poor households?
- http://www.pbs.org/newshour/bb/government_programs-jan-june05-welfare_2-14/

Conclusions

- Both-and, not either-or approach is needed:
 - Behavioral health or early childhood programs to treat trauma in kids and parents AND
 - Policies that address structural causes of toxic stress (neighborhoods and nations) that can reduce or prevent poverty, associated stressors, incl. trauma
- Natural and social sciences together can help design more effective policies
 - Employment and education policies that do not address trauma will not work
 - But health policy alone cannot address structural causes of trauma
- Policy learning from comparative analysis
- Up-front costs of family/early childhood programs pay off in the long run

Conclusions: understanding trauma and how to address it

- Paul Farmer:
 - “Thus do fundamentally social forces and processes come to be embodied as biological events.”
- David Williams: “All policies are health policies”
 - education policy, employment policies, income support policies, family policies