10-2-2019

The Biopsychology of Ending Poverty: Lessons from Research on Economic Instability, Household Chaos, and Child Cortisol

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The Biopsychology of Ending Poverty

LESSONS FROM RESEARCH ON ECONOMIC INSTABILITY, HOUSEHOLD CHAOS, AND CHILD CORTISOL

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Acknowledgments

- Mentor: Brian Ackerman
- Collaborators: Kate Anderson, Mallory Gamett, Erin Hill
- WCU ECCEL research assistants
- Settlement’s Kaleidoscope Preschool and other Head Start preschools
- WCU ORSP, CAS/CSM, and Psychology Department
- Journal of Family Psychology
Significance of Poverty
#1: END POVERTY IN ALL ITS FORMS EVERYWHERE

The targets under Goal 1 include aiming for a world where the poor are not vulnerable to climate change, and have “equal rights to economic resources.”
Ending Poverty

- Structural change
- Cultural change
- Individual change
  - Those with economic power and resources
  - Those facing economic hardship
Traditional Frame

- Social address
- Deficit
- Individual blame
Traditional vs Alternative Frame

- Social address
- Deficit
- Individual blame
- Ecology
- Diversity
- Social causation
Social Address Model

- **Unit:** Individual
- **Cause:** Bad genes
- **Mechanism:** Faulty neural pathways
- **Symptoms:** Poor impulse control; academic failure and conduct problems
- **Treatment:** Eugenics, social control
Focus on Children in Poverty

- Diversity (in persons)
- Within group variation
- Ecology
Social Address vs Alternative Model

- **Unit:** Individual
  - **Cause:** Bad genes
  - **Mechanism:** Code for faulty neural pathways
  - **Symptoms:** Poor impulse control; academic failure, and conduct problems
  - **Treatment:** Eugenics, social control

- **Unit:** Ecology
  - **Cause:**
  - **Mechanism:**
  - **Symptoms:**
  - **Treatment:**
Cumulative Contextual Risk

- Diversity (in context)
- Ecology, as a whole
- Synergy
- Equifinality
Social Address vs Alternative Model

- **Unit:** Individual
- **Cause:** Bad genes
- **Mechanism:** Code for faulty neural pathways
- **Symptoms:** Poor impulse control; academic failure, and conduct problems
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- **Unit:** Ecology
- **Cause:** Cumulative risk
- **Mechanism:**
- **Symptoms:**
- **Treatment:**
Instability and Chaos

- Diversity (in process)
- Unpredictability of proximal processes
- Burdens stress response systems
- Impact on brain and behavior
Hypothalamic Pituitary Adrenal (HPA) Axis
Diurnal Cortisol Trajectory

- **Wake** 10am 4pm Bedtime
- **Cortisol (ug/dl)**

**Typical**

**Elevated**
Diurnal Cortisol Trajectory

**Cortisol (ug/dl)**

- **Typical**
- **Elevated**
- **Flattened**

**Time of Day**
- Wake
- 10am
- 4pm
- Bedtime
Stress hormones and AMPA receptor trafficking in synaptic plasticity and memory
Harmen J. Krugers, Casper C. Hoogenraad & Laurent Groc
Nature Reviews Neuroscience 11, 675-681 (October 2010)
HPA Axis

- Diversity (across time)
- Adaptive → problematic
- High allostatic load
- Experiential canalization
Model of the Experiential Canalization of Self-Regulation Development

Social Address vs Alternative Model

- **Unit**: Individual
- **Cause**: Bad genes
- **Mechanism**: Code for faulty neural pathways
- **Symptoms**: Poor impulse control; academic failure, and conduct problems
- **Treatment**: Eugenics, social control

- **Unit**: Ecology
- **Cause**: Cumulative risk; instability and chaos
- **Mechanism**: Unpredictable proximal processes, high allostatic load, experiential canalization
- **Symptoms**: Self-regulatory difficulties; cognitive and social-emotional problems
- **Treatment**: 
Gaps in Understanding

- Poverty “gets under the skin”
  - Emergent area of research

- Limitations of family investment models
  - Few studies include robust account of contextual risk

- Unique importance of instability and chaos
  - Few studies examine isolate instability and chaos
  - No studies isolate economic instability in relation to cortisol
  - No studies examine chaotic living conditions as a family process variable in relation to young children’s cortisol
Present Study

- Economic adversity in relation to child cortisol
- Limitations of family investment models
- Prepotency of economic instability
- Role of chaotic living conditions
Participants

- 374 children, and caregivers
- 50.8% female
- 55.1% African American, 15.2% Latino/Hispanic American, 9.9% Asian American, and 19.8% Caucasian/European American.
- Mean age was 4 years, 1 month
- 98.3% of the children were from poor or low-income families.
Procedure

- Ethical standards
- Recruitment
- Parent Measures
  - Demographics
  - Economic Events
  - CHAOS
- Child Measure
  - Cortisol
Diurnal Cortisol Trajectory

- Typical
- Elevated
- Flattened
Data Analyses

- Zero-order correlations
- Structural equation modeling
  - Latent variables:
    - Economic Adversity
      - Three subscales
    - Child cortisol
      - Two days
  - Path model
    - Income, economic hardship, family chaos, child cortisol
Summary of Results

- Income → Economic Adversity → Economic Instability, Financial Strain, Material Hardship, Family Chaos

- Economic Adversity → Economic Instability → Child Cortisol

- Economic Adversity → Chaos → Child Cortisol

- Economic Instability → Child Cortisol

- Economic Instability → Family Chaos → Child Cortisol
Limitations

- Snapshot representation
- Parent report
- Morning cortisol
- Present sample
Implications

- Income is necessary, not sufficient
- Unique significance of instability
- Role of family-level chaos
- Deconstruction of moral model
Contribution of the Present Study

- Diversity (persons, contexts, processes, time)
- Social causation
- Intervention
Social Address vs Alternative Model

- **Unit**: Individual
- **Cause**: Bad genes
- **Mechanism**: Code for faulty neural pathways
- **Symptoms**: Poor impulse control; academic failure, and conduct problems
- **Treatment**: Eugenics, social control

- **Unit**: Ecology
- **Cause**: Cumulative risk; instability and chaos
- **Mechanism**: Unpredictable proximal processes, high allostatic load, experiential canalization, concurrent effects
- **Symptoms**: Self-regulatory difficulties; cognitive and social-emotional problems
- **Treatment**: Possibilities for prevention and intervention
Biopsychology of Ending Poverty

- Poverty alleviation
  - Fernald & Gunnar (2009)

- Stability
  - Economic resources
  - Microsystem processes

- Stress reduction

- Early childhood
Conclusion

- More than money
- All about money
- Ending poverty is possible
- Requires a change in frame