Early Life Predictors of Risk for Psychopathology

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Learning Objectives

• Describe early environmental influences on child risk for psychopathology

• Identify aspects of infant and child behavior that may convey such risk

• Understand mechanisms through which prenatal and early life experience influence mental health
Psychopathology has Its Roots in Early Childhood

- Psychodynamic and Attachment Theories
- Cross Sectional and Retrospective Studies of Children with a Diagnosis
  - ADHD and Negative Affect as an example
- Benefits of Prospective Studies
  - Sensitivity vs. Specificity
  - Mechanistic Research
- When in Development Can Differences Be Reliably Observed?
Self-Regulatory Difficulties Are a Risk Factor for Psychopathology

- Emotional
- Cognitive
- Physiological
- Behavioral

Self-Regulation

- Over regulation
Infant Negative Affect Predicts Symptoms 3-5 Years Later

6 month Negative Affect

- $r = .22$ for ADHD
- $r = .23$ for Conduct Disorder
- $r = .13$ for Emotional Symptoms
- $r = .14$ for Peer Problems

$N = 1,292$ living in rural, low income communities
Infant Negative Affect Predicts Symptoms 4-6 Years Later

$N = 69$ children, oversampled for family history of ADHD
Early Stress Negatively Impacts Self-Regulation Several Years Later

Intimate Partner Violence -> Effortful Control

6m CTS: .82
15m CTS: .86
24m CTS: .63

58 month Effortful Control

Inhibitory Control: .90
Atten. Focusing: .67
Correlated But Distinct Dimensions of Parenting

<table>
<thead>
<tr>
<th>Sensitivity</th>
<th>Harsh Intrusiveness</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Constructs Assessed:</strong></td>
<td><strong>Constructs Assessed:</strong></td>
</tr>
<tr>
<td>- Sensitivity Detachment (reverse scored)</td>
<td>- Negative Regard for the Child</td>
</tr>
<tr>
<td>- Positive Regard for the Child</td>
<td>- Intrusiveness</td>
</tr>
<tr>
<td>- Animation</td>
<td>- Stimulation of Cognitive Development</td>
</tr>
</tbody>
</table>

Denied structured, supported opportunities to learn to regulate

Can be overarousing, further undermining their ability to regulate
This Effect Is Explained by Reduced Sensitivity
Fathering is Similarly Impacted By IPV

CTS Physical Violence 6 months

CTS Physical Violence 15 months

CTS Physical Violence 24 months

Intimate Partner Violence

24 month Sensitive Mothering

24 month Sensitive Fathering

24 month Harsh-Intrusive Fathering

24 month Harsh-Intrusive Mothering

Correlations:

- .92**
- .83**
- .68**

- -.13*
- -.15**
- .16**
- .14*

- .28**
- -.97**
- .25**

- -.96**
Self Regulation

Stress

Parenting Behaviors

Behavioral and Biological Mechanisms

Self Regulation

Mental Health
Maternal Depressive Symptoms \[ \rightarrow \] 6 Month Negative Affect

\[ .41^* \]

\[ N = 68 \text{ children, oversampled for family history of ADHD} \]
$N = 68$ children, oversampled for family history of ADHD
N = 69 children, oversampled for family history of ADHD
How can you study stress effects without the confound of the postnatal environment?
How can you study stress effects without the confound of the postnatal environment?

Fetal Neurobehavior
- Movement
- Heart Rate
- Coupling
- Heart Rate Variability
There are Expected Trajectories of Fetal Development Across Gestation

Figure 2. Four indices of fetal neurobehavioral development across gestation. Fetal heart rate; fetal heart rate variability (assessed as the standard deviation of fetal heart rate); fetal movement and coupling (cross-correlation of movement and heart rate changes).
Fetuses of Chronically Stressed Women Increase in HR When The Mother Completes a Stroop Task
What are the Long Term Implications of Early Stress?

What Does This Mean for the Next Generation?

Can We See This Effect Independent of the Postnatal Environment?

How Is this Risk Conveyed?
- Depression
- Sleep
Part of the Intergenerational Transmission of Trauma Occurs Prior to Birth
Briefly Teaching Pregnant Women How to Soothe Babies, About Infant Crying, Can “Prevent” Postpartum Depression and Lessen Infant Crying
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Measures:
Still Face Paradigm
(sadness/fear)
Measures: Frustration
Measures: Free play (6 and 15m)

“We would like for you to play with [infant’s name] as you normally would if you had a little free time during the day.”
“The activity involves a puzzle for [TC], and although it is for him/her to do, you can give him/her any assistance that you think he/she needs.”
Measures: Executive Functioning

Day/Night Task

Flexible Item Selection Task (FIST)
Measures: Intimate Partner Violence

- Intimate Partner Violence
  - Conflict Tactics Scale (CTS-R; Straus & Gelles, 1990)
  - Self-report measure completed by the Mother at 30m
  - Report on both herself and her partner (summed)
  - 9 item physical violence subscale

Ex: “[how often in the past 12 months have you/your partner] kicked, bit, or hit him/her/you with a fist.”

0 = Never, 1 = Once, 2 = Twice, 3 = 3-5 times, 4 = 6-10, 5 = 11-20, 6 = More than 20
Measures: Fetal Neurobehavior
<table>
<thead>
<tr>
<th>Age of Embryo (in weeks)</th>
<th>Fetal Period (in weeks)</th>
<th>Full Term</th>
</tr>
</thead>
<tbody>
<tr>
<td>1-2 weeks</td>
<td>3-4 weeks</td>
<td>5-8 weeks</td>
</tr>
<tr>
<td>C.N.S.</td>
<td>heart</td>
<td>eye</td>
</tr>
<tr>
<td>heart</td>
<td>heart</td>
<td>eye</td>
</tr>
<tr>
<td>eye</td>
<td>heart</td>
<td>ear</td>
</tr>
<tr>
<td>heart</td>
<td>palate</td>
<td>ear</td>
</tr>
<tr>
<td>external genitalia</td>
<td>brain</td>
<td>ear</td>
</tr>
</tbody>
</table>

- Indicates common site of action of teratogen.

- Not susceptible to teratogens

Prenatal death

Major congenital anomalies (red)

Functional defects & minor congenital anomalies (yellow)

* Red indicates highly sensitive periods when teratogens may induce major anomalies.
Maternal Prenatal Stress → 6 month Negative Affect

6 month Negative Affect → Child ADHD Symptoms

Indirect effect: $\beta = -.29$, $p = .007$
Correlated Constructs, But (Bi)Directionality Unclear
Early Stress Has a Cascading Influence On Parenting Behaviors
IPV Associated with Poorer Short-term, Working, and Deliberate Memory at 5 years

30M Total Intimate Partner Violence

- .50**
- .23*
- .13*

60 month Digit Span – Forward Span

60 month Digit Span – Backward Span

60 month Object Memory Task – Total Number of Deliberate Intervals

Intimate Partner Violence and Children’s Memory

Hanna C. Gustafsson and Jennifer L. Coffman
The University of North Carolina at Chapel Hill

Latonya S. Harris
University of California Cooperative Extension

Hillary A. Langley, Peter A. Ornstein, and Martha J. Cox
The University of North Carolina at Chapel Hill
Infant Physiological Regulation Moderates the Effect of Stress on 7 year Olds’ Cognitive Regulation
Evidence of a Priming Effect in the Fetus
Early Stress Negatively Impacts Self-Regulation Several Years Later

**Durham Child Health & Development Study**

N = 208 children, oversampled for low-income status

- 24m IPV -> Intimate Partner Violence: .77**
- 30m IPV -> Intimate Partner Violence: .98**
- 36m IPV -> Intimate Partner Violence: .97**
- Intimate Partner Violence -> 60 month Executive Functioning: -.32*
- 60 month Executive Functioning -> 60 month Executive Functioning: .88**
- 60 month Executive Functioning -> Digit Span BD: .39**
- 60 month Executive Functioning -> Day/Night: .32**
Disturbances in Parenting Behaviors Explain This Association

Maternal Sensitive Parenting Behaviors

- 24m PCX
- 36m PCX
- 60m PCX

Intimate Partner Violence

- 24m IPV
- 30m IPV
- 36m IPV

60 month Executive Functioning

- FIST
- Day/Night

Correlations:
- 0.70**
- 0.67**
- 0.80**
- 0.35**
- 0.40**
- 0.77**
- 0.98**
- 0.97**
- 0.88**
- 0.39**
- 0.32**

Note: *p = .10*