Childhood Family Instability and Adult Health

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Biomarker Network Meeting

April 26, 2017
Family instability

- Changes in family structure
- Intended to capture dynamic trajectory of family experience
- Focuses on parent coresidence
  - Example: Two changes
Family instability

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Example: Two changes

Two biological parent → Divorce → Single parent → Remarriage → Two bio/step-parent
Family stress theory

• Family changes are stressful
• Exposure to stressors in early life has lasting health consequences
• Existing research documents negative consequences for childhood cognitive and behavioral outcomes
• No existing research on long-term health association

▶ Prediction: family instability will be associated with increased health risk
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Data

- National Longitudinal Study of Adolescent to Adult Health (Add Health)

Wave I (1994-95)
  - Respondents aged 12-20
  - Parent interview

Wave II (1996)

Wave III (2001-02)

Wave IV (2008-09)
  - Respondents aged 24-32
  - Biomarker collection
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- Analysis uses parent and adolescent interviews at Wave I and biomarkers of physical health at Wave IV

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• Analysis uses parent and adolescent interviews at Wave I and biomarkers of physical health at Wave IV

• Analytic sample: 9,347 individuals
Measures - Family instability

- Annual family structure measure from birth to age at Wave II
  1. Parent - union history
  2. Parent - current union status
  3. Adolescent - household roster
  4. Adolescent - nonresident biological parent questions
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## Distribution of family instability

<table>
<thead>
<tr>
<th>Number of changes</th>
<th>Percent</th>
</tr>
</thead>
<tbody>
<tr>
<td>No changes</td>
<td>66%</td>
</tr>
<tr>
<td>One change</td>
<td>18%</td>
</tr>
<tr>
<td>Two changes</td>
<td>11%</td>
</tr>
<tr>
<td>Three or more changes</td>
<td>5%</td>
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</tbody>
</table>
Measures - Health outcomes (Wave IV - age 24-32)

- High-sensitivity C-reactive protein (hsCRP)
  - Dried blood spots
  - Elevation indicates systemic inflammation
  - Log transformed

- Body mass index
  - Measured height and weight

- Hypertension
  - Measured systolic and diastolic blood pressure in triplicate
  - Average of measures 2 and 3
  - Systolic \( \geq 140 \), diastolic \( \geq 90 \)

- Metabolic syndrome
  - 3 or more high risk values out of 5 markers - hypertension, glucose, HDL cholesterol, triglycerides, and waist circumference
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### Descriptive Statistics

<table>
<thead>
<tr>
<th>Variable</th>
<th>Mean/Percent</th>
<th>SE</th>
</tr>
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<tbody>
<tr>
<td>hsCRP</td>
<td>2.01</td>
<td>1.10</td>
</tr>
<tr>
<td>BMI</td>
<td>29.12</td>
<td>7.29</td>
</tr>
<tr>
<td>Hypertension</td>
<td>19%</td>
<td></td>
</tr>
<tr>
<td>Metabolic syndrome</td>
<td>15%</td>
<td></td>
</tr>
</tbody>
</table>
Measures - Control variables

- Age
- Sex
- Race/ethnicity (White non-Hispanic, Black non-Hispanic, Asian, Hispanic, Other)
- Two biological parents at birth
- Breastfed
- Family income at adolescence
- Parent’s education
- Adult education
Methods

- CRP and BMI - Linear regression
- Hypertension and metabolic syndrome - Logistic regression
- Sample weights
- Clustered standard errors
Results
Results - High-sensitivity C-reactive protein

Predicted high-sensitivity C-reactive protein
95% confidence interval

$\beta = -0.04^*, p = 0.05$
Results - BMI

Predicted body mass index

95% confidence interval

$\beta = -0.18, p = 0.13$
Results - Hypertension

Predicted probability of hypertension

95% confidence interval

\[ \beta = -0.11^{**}, \ p = 0.01 \]
Results - Metabolic syndrome

Predicted probability of metabolic syndrome
95% confidence interval

$\beta = -.08, p = .10$
Robustness - Validating family instability
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**Predicted externalizing behavior**
95% confidence interval

\[ \beta = 0.20^{***} \]

**Predicted internalizing behavior**
95% confidence interval

\[ \beta = 0.23^{***} \]

**Predicted age at sexual debut**
95% confidence interval

\[ \beta = -0.37^{***} \]

**Predicted number of sexual partners**
95% confidence interval

\[ \beta = 1.09^{***} \]
Robustness - Selective attrition

• Are respondents with high family instability and poor health more likely to be missing?
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Conclusions

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Acknowledgements

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Thank you!

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