The E-Risk Longitudinal Twin Study
Design & Future Directions

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A little bit about me

PhD in public health – health policy (UNC)
Postdoc in aging – genetics, geroscience (Duke)
Assistant Professor, Division of Geriatrics & SSRI
Research interest in health disparities in aging

2 Questions

How are human life courses assembled?  Why do human bodies fall apart?
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2 Questions

How are human life courses assembled?
The E-risk Longitudinal Twin Study
E-risk sample:
1994-5 Birth Cohort
1/3 high-risk twins of teen parents
2/3 representative of Britain

Moffitt & E-Risk team 2002, JCPP
Basic sample demographics

- 1116 pairs
- same-sex twins
- National multiple-birth register 1994-95
- 51% female pairs, 49% male pairs
- 55% MZ pairs, 45% DZ pairs
- Youngest mum at twins’ birth = 14
- 20% with annual family income < £10k
- 26% of mums clinically depressed
E-Risk Design

<table>
<thead>
<tr>
<th></th>
<th>Family Home Visit (moms + twins)</th>
<th>Teacher Postal Questionnaire</th>
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</thead>
<tbody>
<tr>
<td>5</td>
<td>1999-2000 1,116 pairs</td>
<td>94%</td>
</tr>
<tr>
<td>7</td>
<td>2000-2001 98%</td>
<td>93%</td>
</tr>
<tr>
<td>10</td>
<td>2004-2006 96%</td>
<td>92%</td>
</tr>
<tr>
<td>12</td>
<td>2006-2007 96%</td>
<td>86%</td>
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<tr>
<td>18</td>
<td>2012-2014 93%</td>
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Informants

- Odgers et al. 2012 JCPP
Mothers
Direct observation
Teachers
Self-report
Family Environment

**Mothers**
- Personality
- Reading ability
- Psychiatric diagnoses
- Antisocial behavior
- Family history

**Parenting**
- Discipline
- Maltreatment
- Neglect
- Domestic violence

**Household**
- Poverty
- Food Insecurity
- HOME Ratings
- Social Support
- Fathering

**Domestic violence**
Neighborhoods

- Self-report
- Resident surveys
- ACORN
- Police Data
- Google

Greater London Area ACORN SES MAP
Illumina HumanOmni Express 12v1.1 BeadChip arrays (Illumina CA, USA)
A human development approach to human genetics

- GWAS Discoveries
- Longitudinal cohort studies
- Causal inference & intervention
- Representative samples
- Prospective, longitudinal design
- Detailed measures of phenotype & context

Belsky et al. 2013 Am J Public Health
Belsky et al. 2013 JAMA Psychiatry
Belsky et al. 2013 Lancet Respiratory Medicine
Belsky et al. 2012 JAMA Pediatrics
Acknowledgement
Thank you