Early-Life Health Disadvantage and Adult Social Status: Variation and Pathways

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Variation and Pathways: Health During the Educational Process

• Focus on health during the educational process.

• Need greater detail in our investigation of health and attainment:
  • Who, when, and how?
Goals

1) For which children is the relationship between health and social status strongest?

2) Do educational tracking and performance mediate links between health and attainment?
1) For which children is the relationship between health and social status strongest?
   a. No evidence of socioeconomic variation in U.K.
   b. In U.S., racial/ethnic variation: non-Hispanic white adolescents most harmed by a health problem.
   c. Some evidence for stronger relationships among chronically unhealthy children.
1) For which children is the relationship between health and social status strongest?
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2) Do educational tracking and performance mediate links between health and attainment?
   a. Yes, in both settings.
Data: United States

- National Longitudinal Survey of Youth 97
  - Nationally representative panel study beginning in 1997
  - 9,000 adolescents 12-17 in 1997
  - Follow-ups every year
  - Here, will use data from 1997-2003
Data: A British Cohort

• National Child Development Study:
  – 1958 British cohort
  – Age 49 data now available
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• Rigid educational structure of 1950s-1960s Britain.
  – Educational tracking decision at age 11 (“11-plus”) led students into grammar (rigorous) or secondary (vocational) schools
  – School-leaving decision at age 16: enter labor force or continue for college prep (“O” and “A” level exams)
For Which Children is Poor Health Most Detrimental?

*Double Jeopardy*

![Diagram showing the relationship between family SES, health, and attainment.](image-url)
An Alternative Possibility: *Blaxter Hypothesis*

![Graph showing the relationship between family SES and health attainment.](image)
Educational Tracking and Performance as a Pathway

• Does poor health reduce the ability to effectively navigate the educational system?
A Simple Model
Measures: Childhood Health

• Global measures of health.
Measures: Childhood Health

• Global measures of health.

NLSY97:
• Adolescent-Rated Health (1=Excellent, 5=Poor)
• Also compare to parent rating and measures of chronic illness
• Measure health in 1997, at first time point
Measures: Childhood Health

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NCDS:
• Physician-diagnosed condition at ages 7,11,16.
  – Must limit “normal functioning”
• Prenatal environment (maternal smoking)
• Infant health (birth weight, breastfeeding)
• Differentiate between chronic and transitory illness
Measures: Adult Socioeconomic Attainment

NLSY97:

– Timely High School Graduation (by age 19)
– Attendance/completion of 4-year, 2-year or no college
  • Conditional on HS completion
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NCDS:
- Ages 23, 33 and 42
- Occupational class (5 point scale)
- Educational/professional qualifications (NVQ)
- Academic credentials
  • University diploma, A-level exams, some O-levels, none
Measures: Educational Tracking/Performance

NLSY97:

- Health-Related School/Work Limitations and Absence
- ASVAB Math-Verbal Percentile Score
- Ever Repeated a Grade
- Average Grade Performance in Year Prior to 1999
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NCDS:
- Age 16 educational track (grammar, secondary, etc)
- Age 11 NCDS exam performance
- Children’s and parents’ educational expectations
- Children’s and parents’ educational expectations (U.S. and U.K.)
Adolescent Health: U.S.

Crop and Parent-Rated

Ever Had Chronic Illness

<table>
<thead>
<tr>
<th></th>
<th>%</th>
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<tbody>
<tr>
<td>Good, Fair or Poor (Adolescent-Rated)</td>
<td>25</td>
</tr>
<tr>
<td>Good, Fair or Poor (Parent-Rated)</td>
<td>20</td>
</tr>
<tr>
<td>Ever Had Chronic Illness</td>
<td>10</td>
</tr>
</tbody>
</table>
Health and Education: U.S.
Health Throughout Childhood: U.K.
Health and Educational Tracking: U.K.

% in Grammar School, Age 16

- No Problem: 100%
- Age 7: 7%
- Age 11: 8%
- Ages 11/16: 5%
Health and Educational Performance: U.K.
Health and Attainment: U.K.
Methods
U.S.:

– Random-effects models
  • Adjust for clustering of adolescents within households.

– Fixed-effects models
  • Remove confounding influence of unobserved, time-invariant factors shared by adolescents within households.
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In both settings:

- Health measured prior to attainment
- Interactions between health and social status
- Assess role of educational tracking/performance through predicted probabilities.
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In both settings:

– Health measured prior to attainment
– Interactions between health and social status
– Assess role of educational tracking/performance through predicted probabilities.

Control for age, sex, household income, parental education, family structure (marital status, # of children), early adult factors (U.K.).
For Which Children is Poor Health Most Detrimental?
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Odds Decrease in Timely HS Graduation
(Good/Fair/Poor Health, vs. Excellent/Very Good)

- Non-Hispanic White
- Black
- Hispanic
Odds Increase in No College Attendance
(Good/Fair/Poor Health, vs. Excellent/Very Good)
Fixed Effects Results

• Relationship does not persist for high school completion

• Still strong relationship for college attendance

• Fixed-effects sample composition might play a role in driving high school results.
  – Random-effects models on FE samples produce identical results.
The U.K. Case

• No evidence of socioeconomic variation

• Overall, similar patterns for SES in both countries

• Sample not diverse enough to examine racial/ethnic variation
Is Education a Mediator?

Yes, in both settings.
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U.K.:

– Educational performance and tracking at age 11 plays a particularly strong role.
– Factors in early adulthood explain remaining associations.
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U.K.:

– Educational performance and tracking at age 11 plays a particularly strong role.

– Factors in early adulthood explain remaining associations.

U.S.:

– Educational performance explains much of the health/attainment relationship, for all racial/ethnic groups.
The U.K. Case

Note: Adjusted for individual and family characteristics
The Role of Age 11 Tracking

Probability of NVQ Levels 4/5, Age 42

Note: Adjusted for individual and family characteristics
Early Adult Factors

Probability of NVQ Levels 4/5, Age 42

Note: Adjusted for Individual and Family Characteristics
Other Measures of Attainment...

• Patterns hold across other attainment measures

• Age 11 tracking/performance plays large role

• Age 16 does not

• Early adult factors explain remaining gaps

• Tracking process may apply in U.S. case as well
The U.S. Case

Probability of Timely HS Graduation

Without Performance | With
--- | ---
Non-Hispanic White | Black | Hispanic

Note: Adjusted for Individual and Family Characteristics
How Big Are These Relationships?

Probability of NVQ Levels 4/5, Age 42

<table>
<thead>
<tr>
<th>Health</th>
<th>Probability</th>
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<tbody>
<tr>
<td>No Health Condition</td>
<td>0.30</td>
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<tr>
<td>Ages 7 and 11</td>
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</table>

<table>
<thead>
<tr>
<th>Grandfather SES</th>
<th>Probability</th>
</tr>
</thead>
<tbody>
<tr>
<td>Professional</td>
<td>0.40</td>
</tr>
<tr>
<td>Unskilled manual</td>
<td>0.25</td>
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Conclusions
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• Strong association between adolescent health and attainment

• Does not vary by SES (U.S. and U.K.), but does by race/ethnicity (U.S.):
  – Negative attainment consequences not limited to most disadvantaged adolescents

• Health’s influence largely explained by academic tracking and performance
  – Academic factors stronger mediators than psychosocial factors
Thanks!
EXTRA SLIDES
Attrition in the NCDS...

- Low BW children slightly more likely to drop out before age 7
  - 7.1% vs. 5.1%

- No systematic differences by health or SES at other ages