

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

Margot Jackson

Princeton University

# 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?

# Preview of Findings...

- 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.**

# Preview of Findings...

- 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.
  
- 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

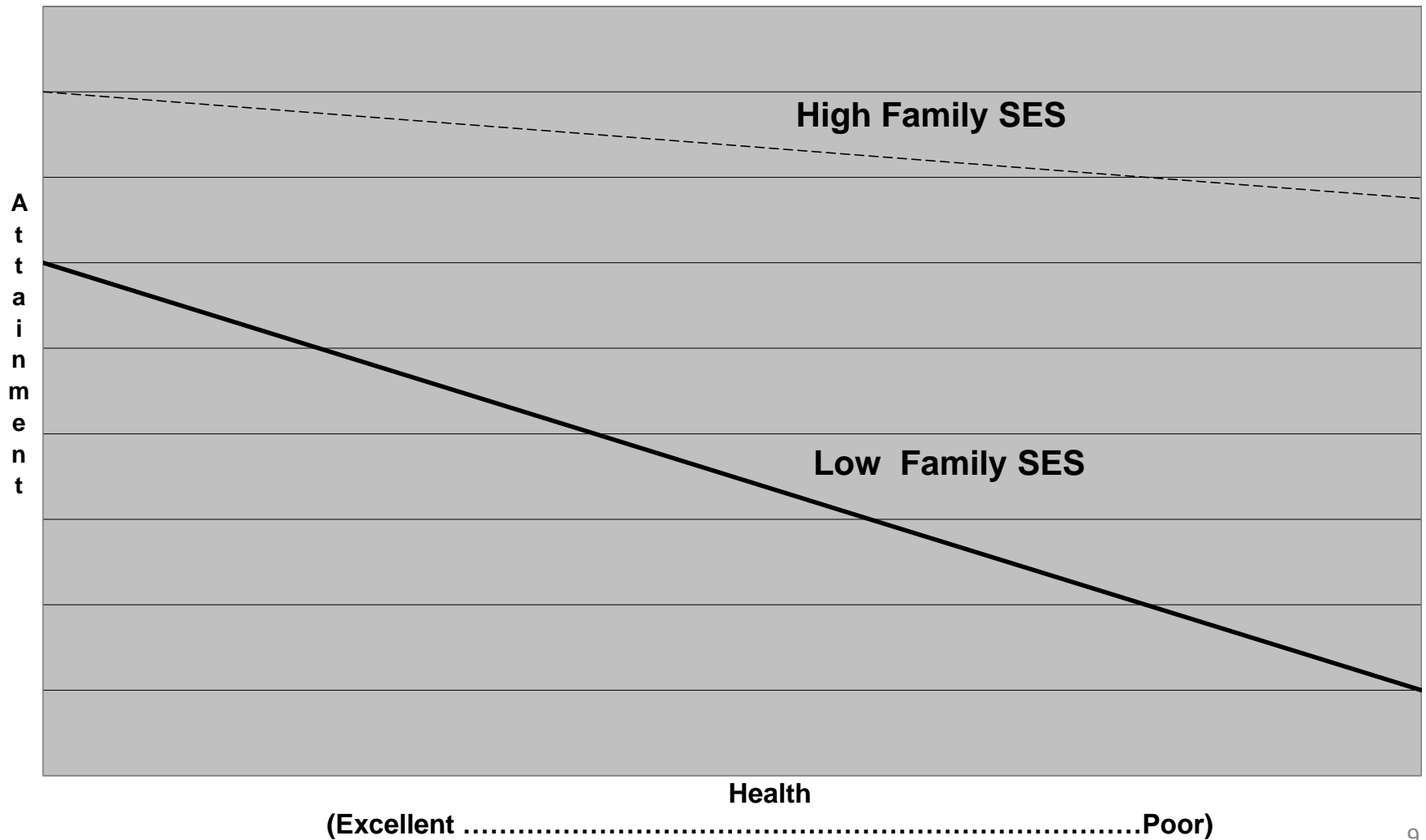
- National Child Development Study:
  - 1958 British cohort
  - Follow-ups at ages 7(1965), 11(1969), 16(1974), 23(1981), 33(1991), 42(2000).
  - Age 49 data now available

# Data: A British Cohort

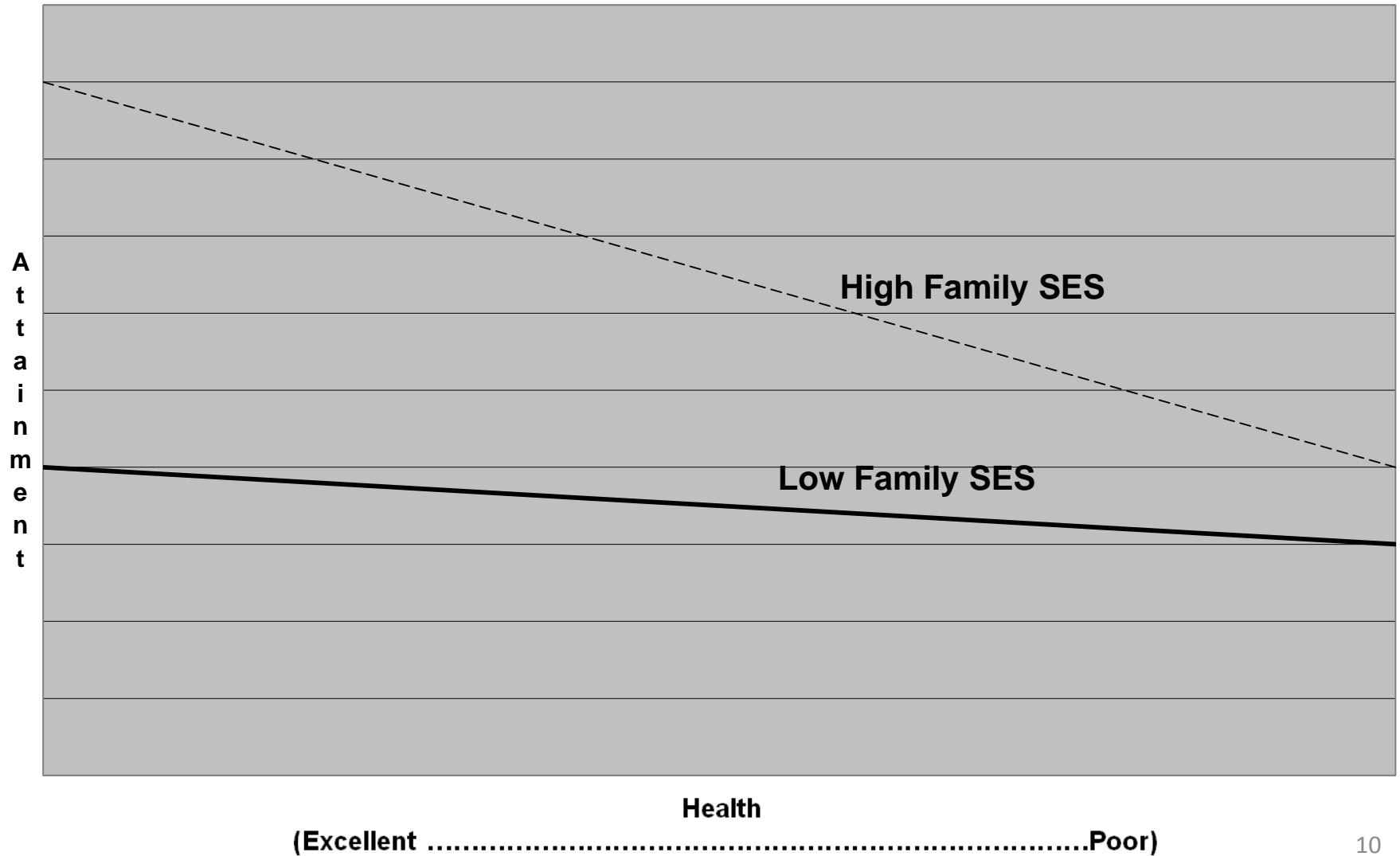
- National Child Development Study:
  - 1958 British cohort
  - Follow-ups at ages 7(1965), 11(1969), 16(1974), 23(1981), 33(1991), 42(2000).
  - Age 49 data now available
- Rigid educational structure of 1950s-1960s Britain.
  - Educational tracking decision at age 11 (“11-plus”) led students into grammar (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*



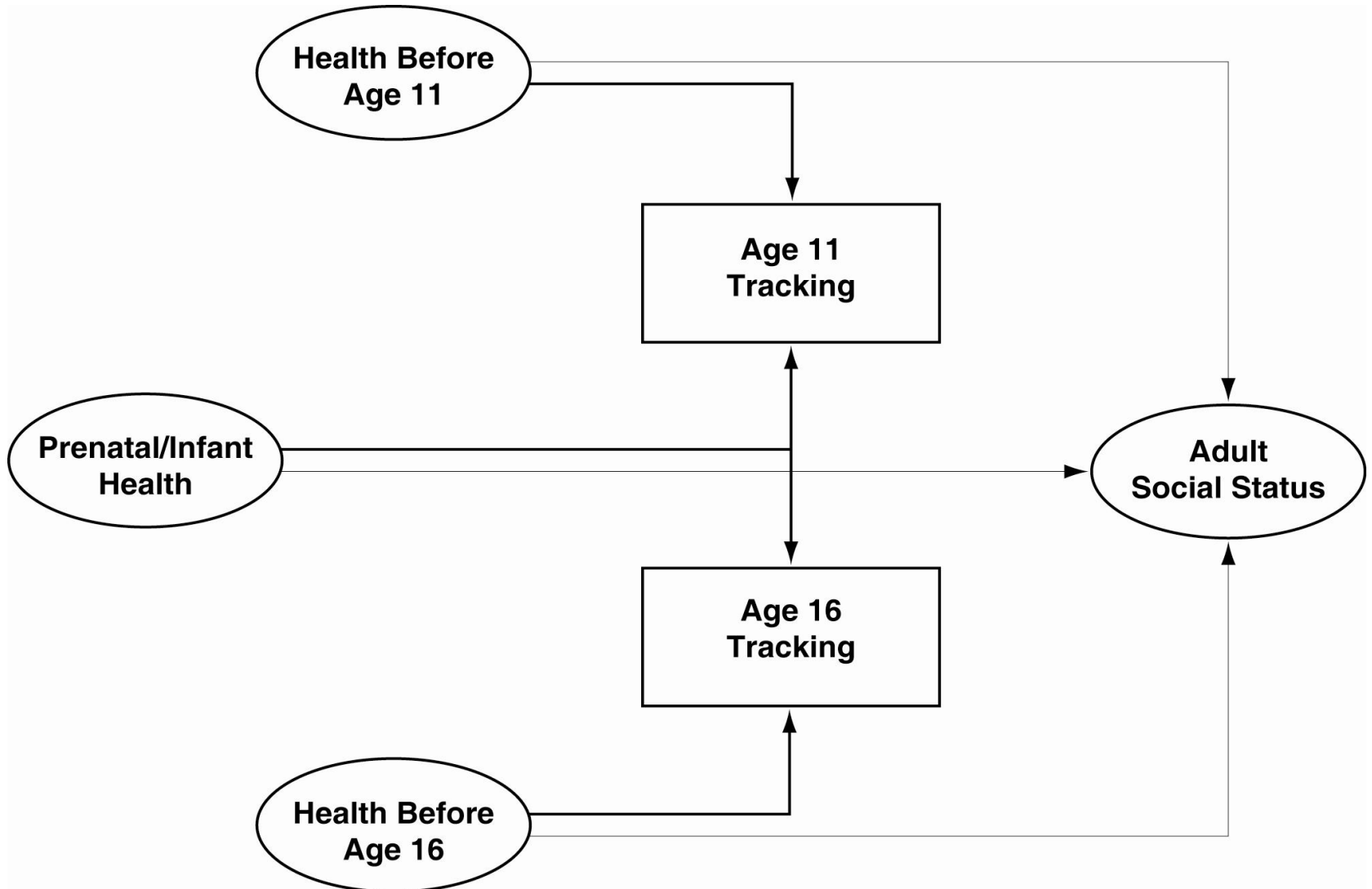
# An Alternative Possibility: *Blaxter Hypothesis*



# 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

- 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

## **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

# 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

## 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

# Measures: Educational Tracking/Performance

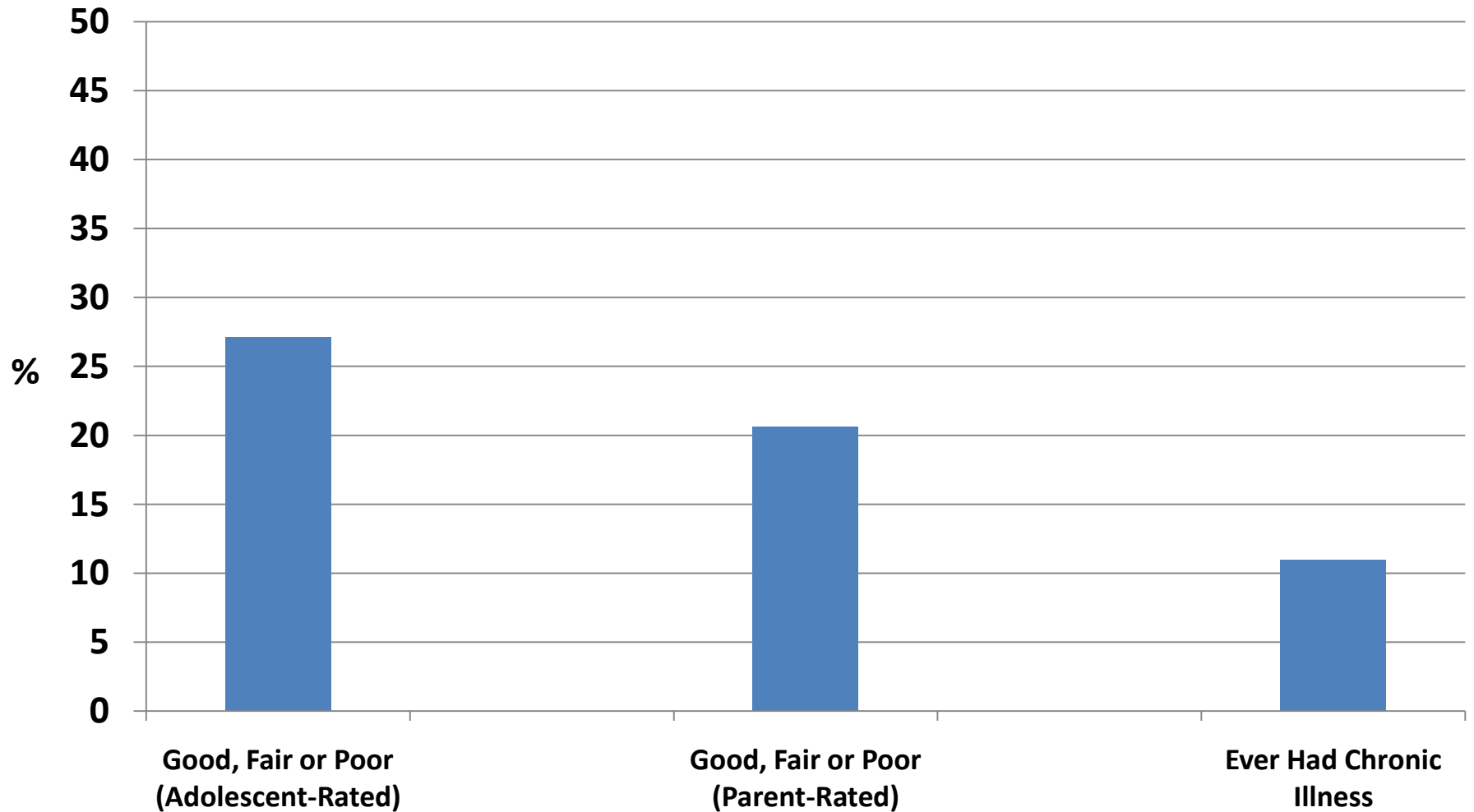
## NLSY97:

- Health-Related School/Work Limitations and Absence
- ASVAB Math-Verbal Percentile Score
- Ever Repeated a Grade
- Average Grade Performance in Year Prior to 1999

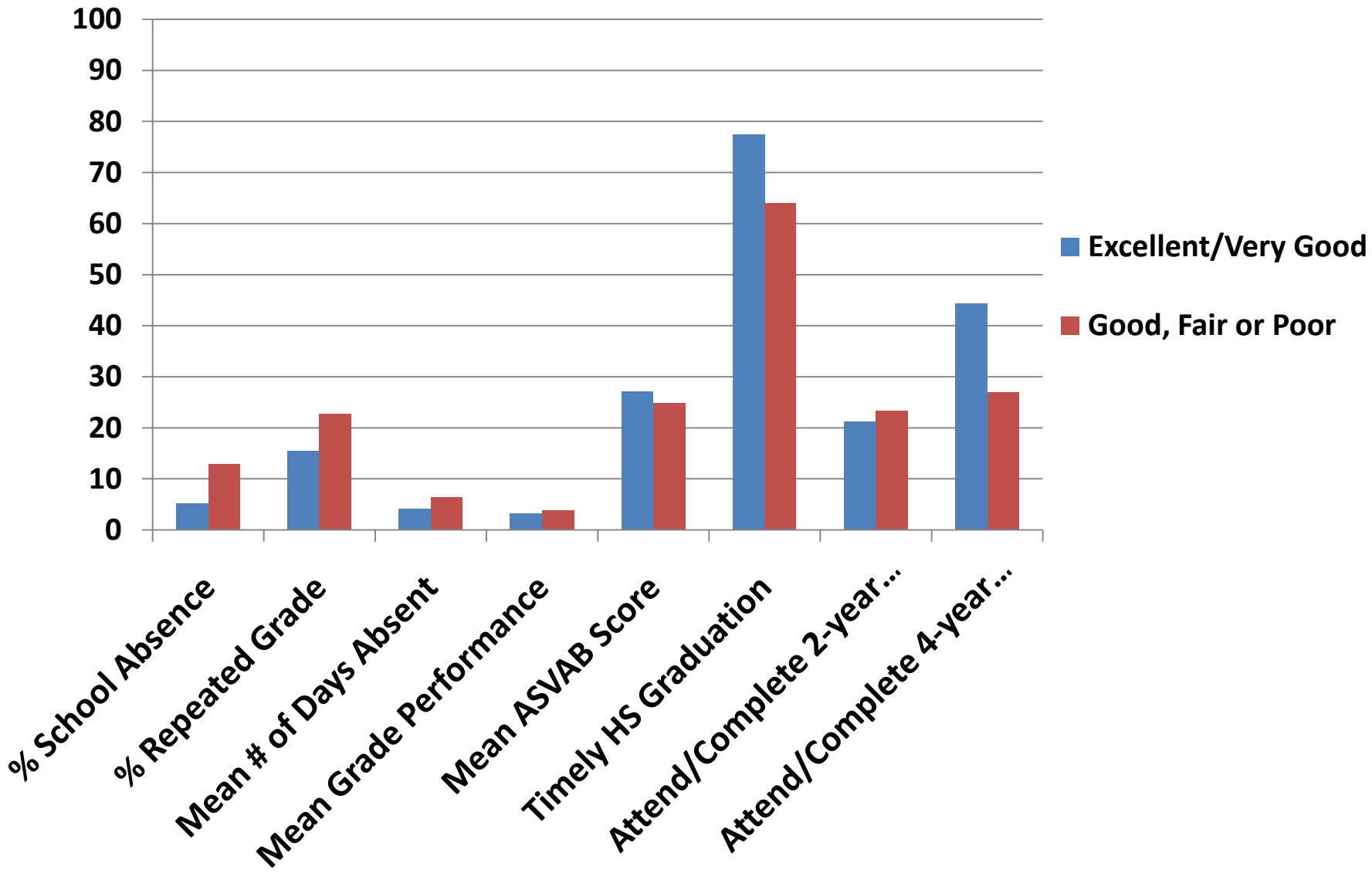
## NCDS:

- 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.)

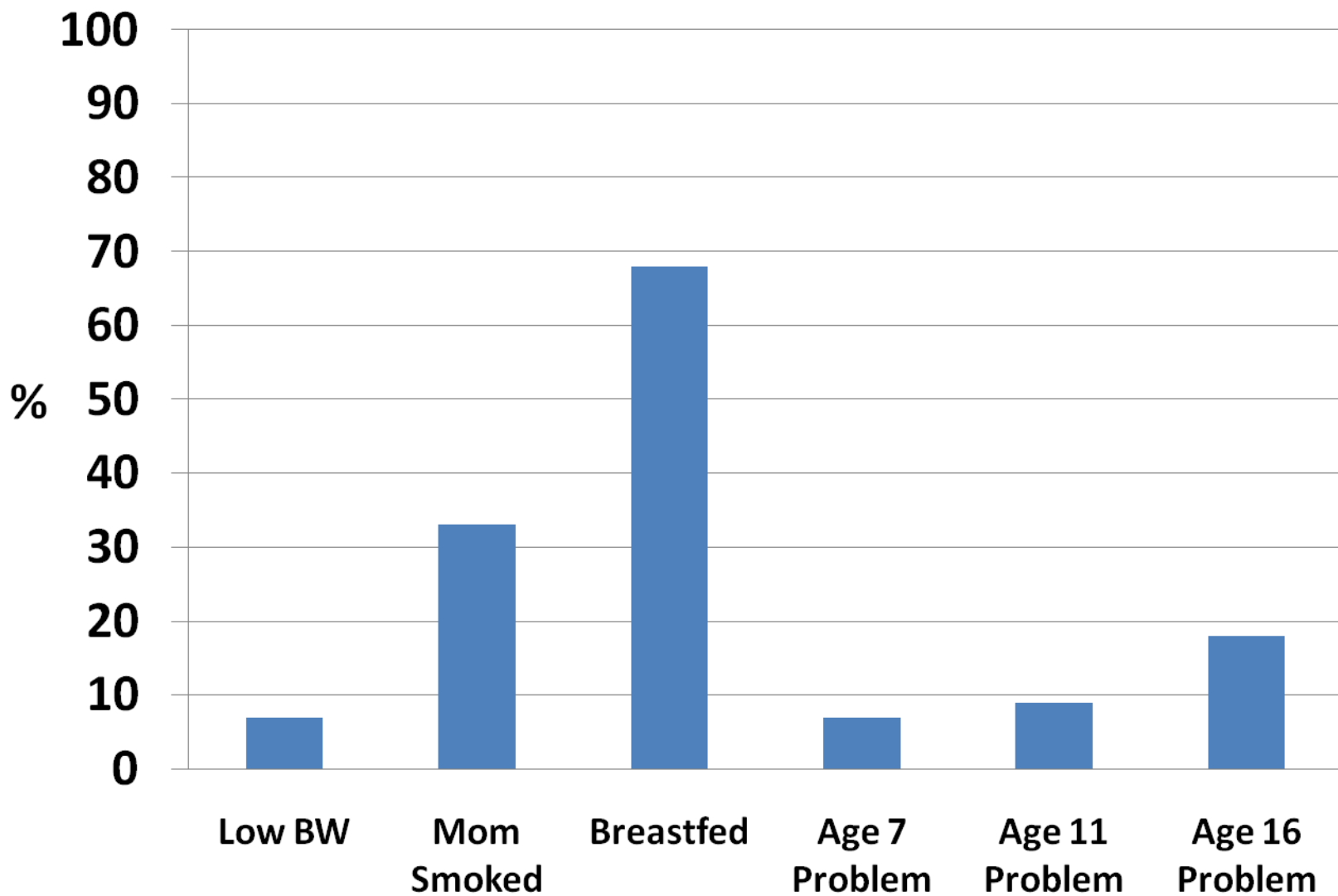
# Adolescent Health: U.S.



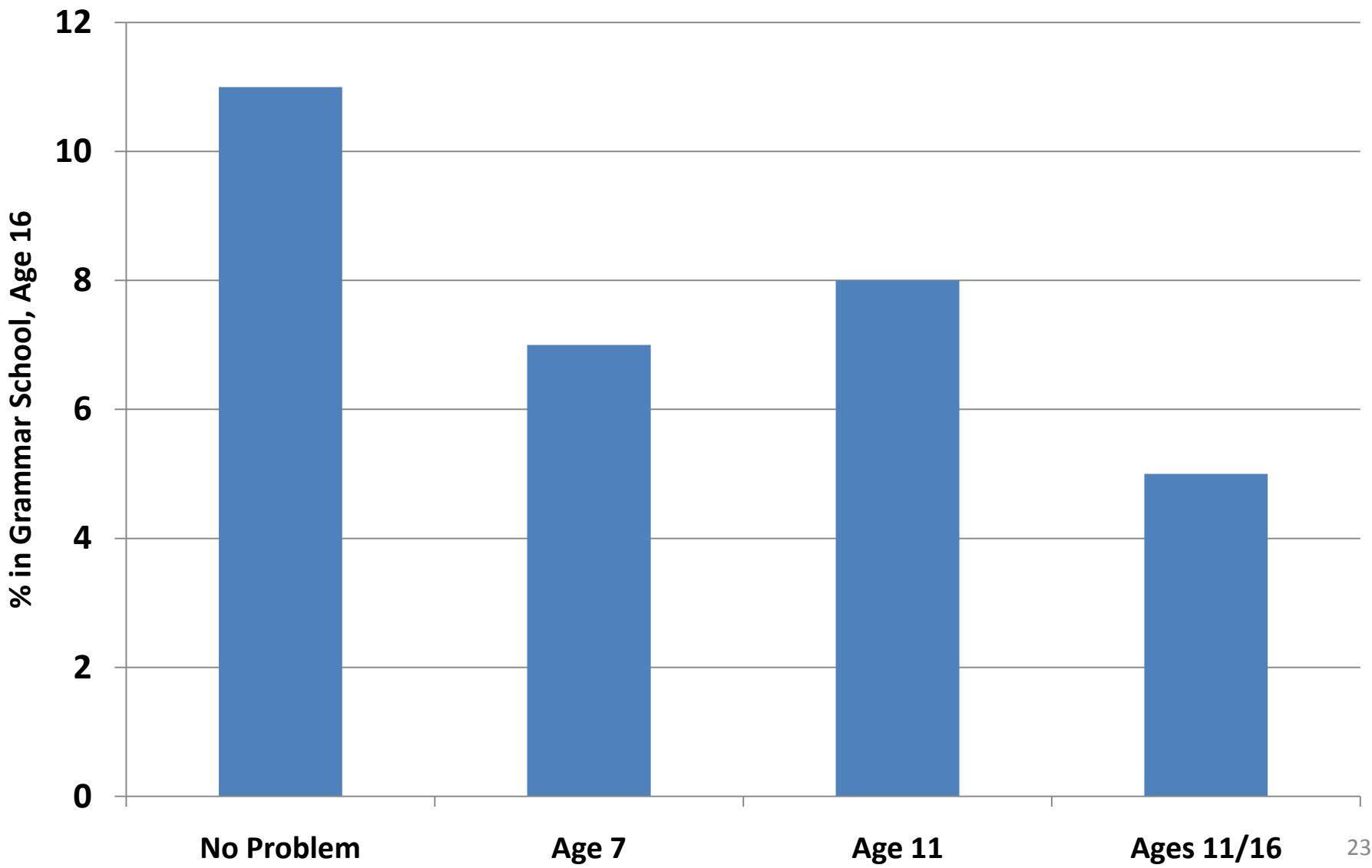
# Health and Education: U.S.



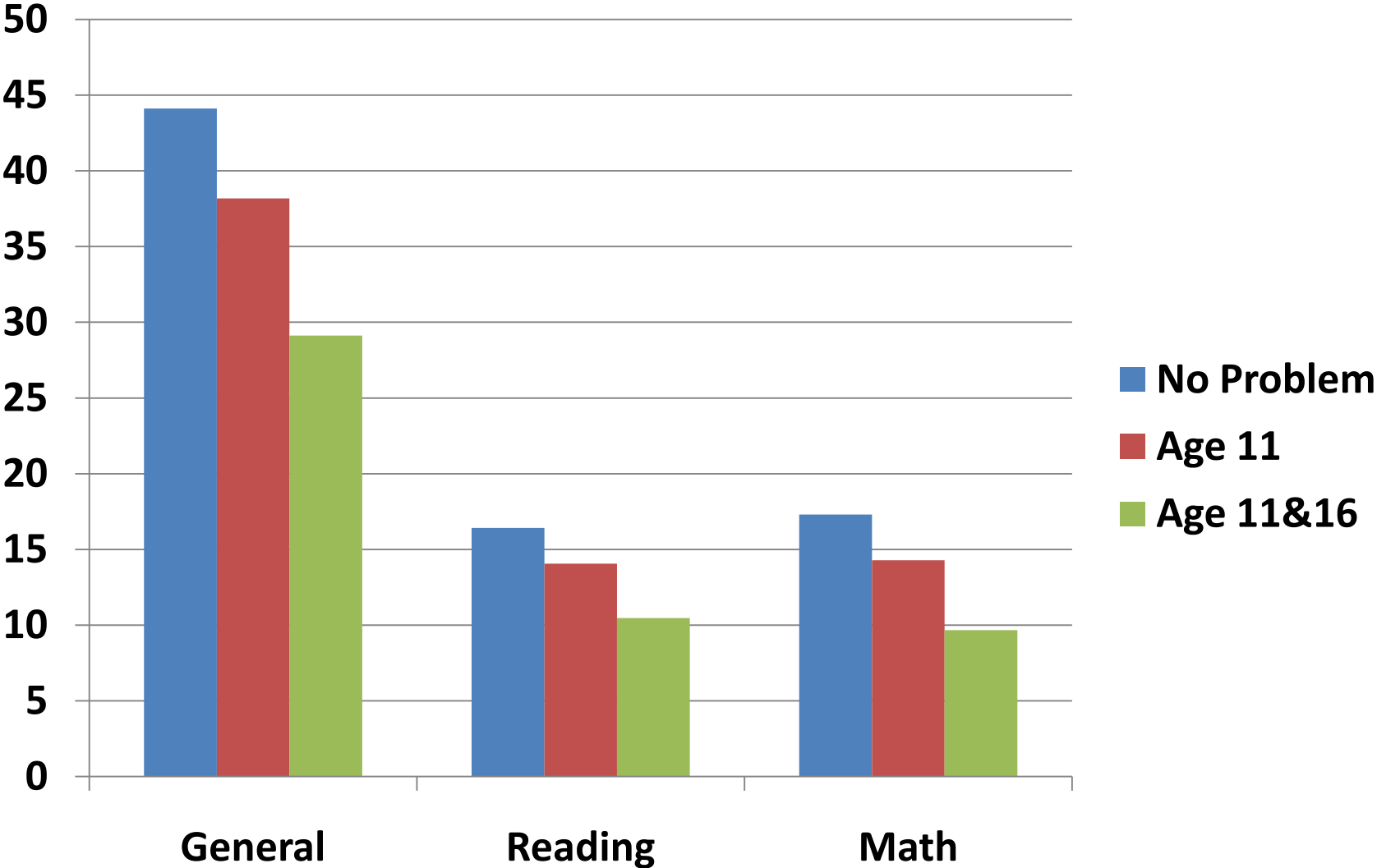
# Health Throughout Childhood: U.K.



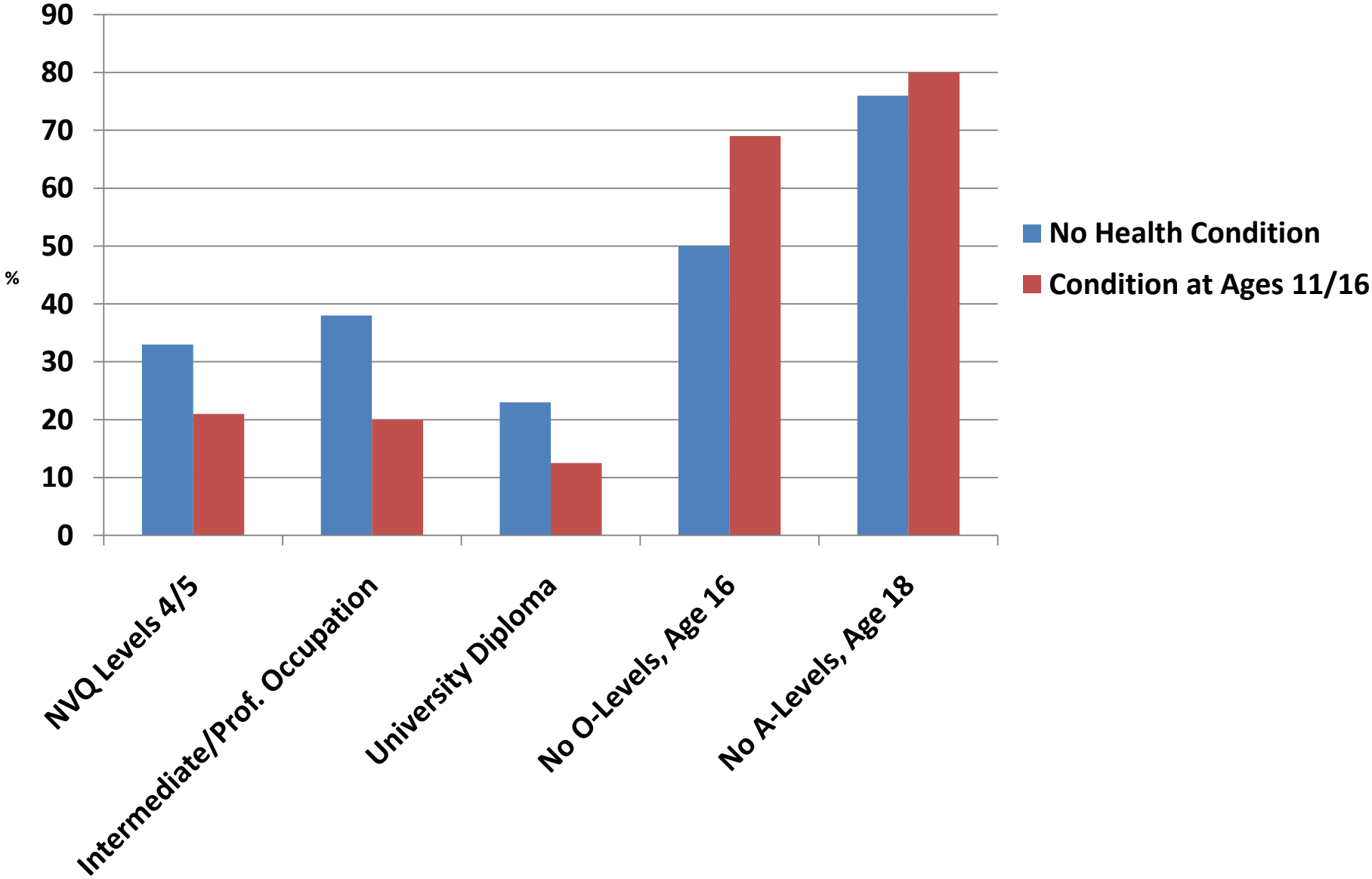
# Health and Educational Tracking: U.K.



# 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.

# 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.

## U.K.:

- Ordinal regression models

# 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.

## U.K.:

- Ordinal regression models

## **In both settings:**

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

# 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.

## U.K.:

- Ordinal regression models

## In both settings:

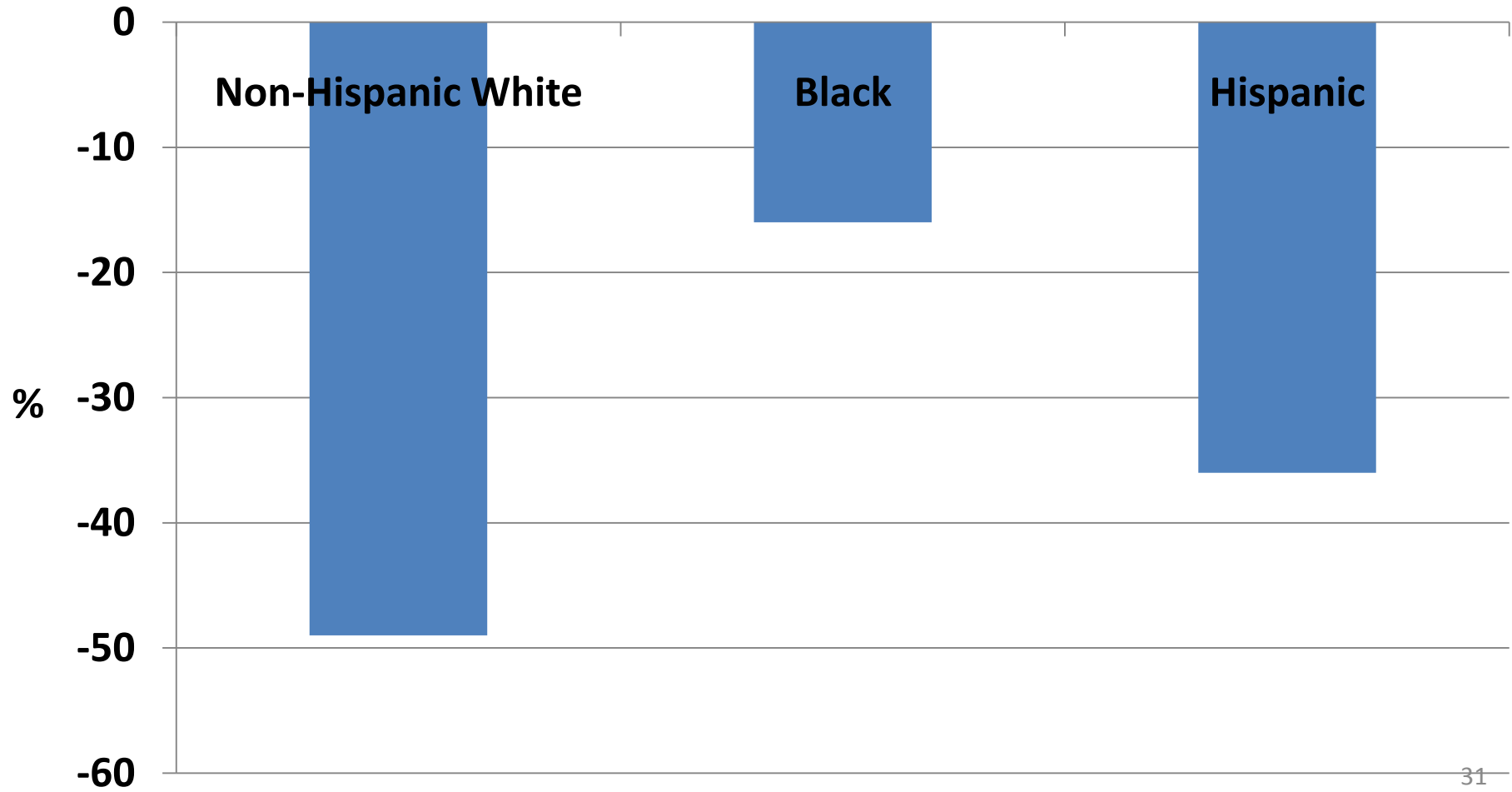
- Health measured prior to attainment
- Interactions between health and social status
- Assess role of educational tracking/performance through predicted probabilities.

Control for age, sex, household income, parental education, family structure (marital status, # of children), early adult factors (U.K.).<sup>29</sup>

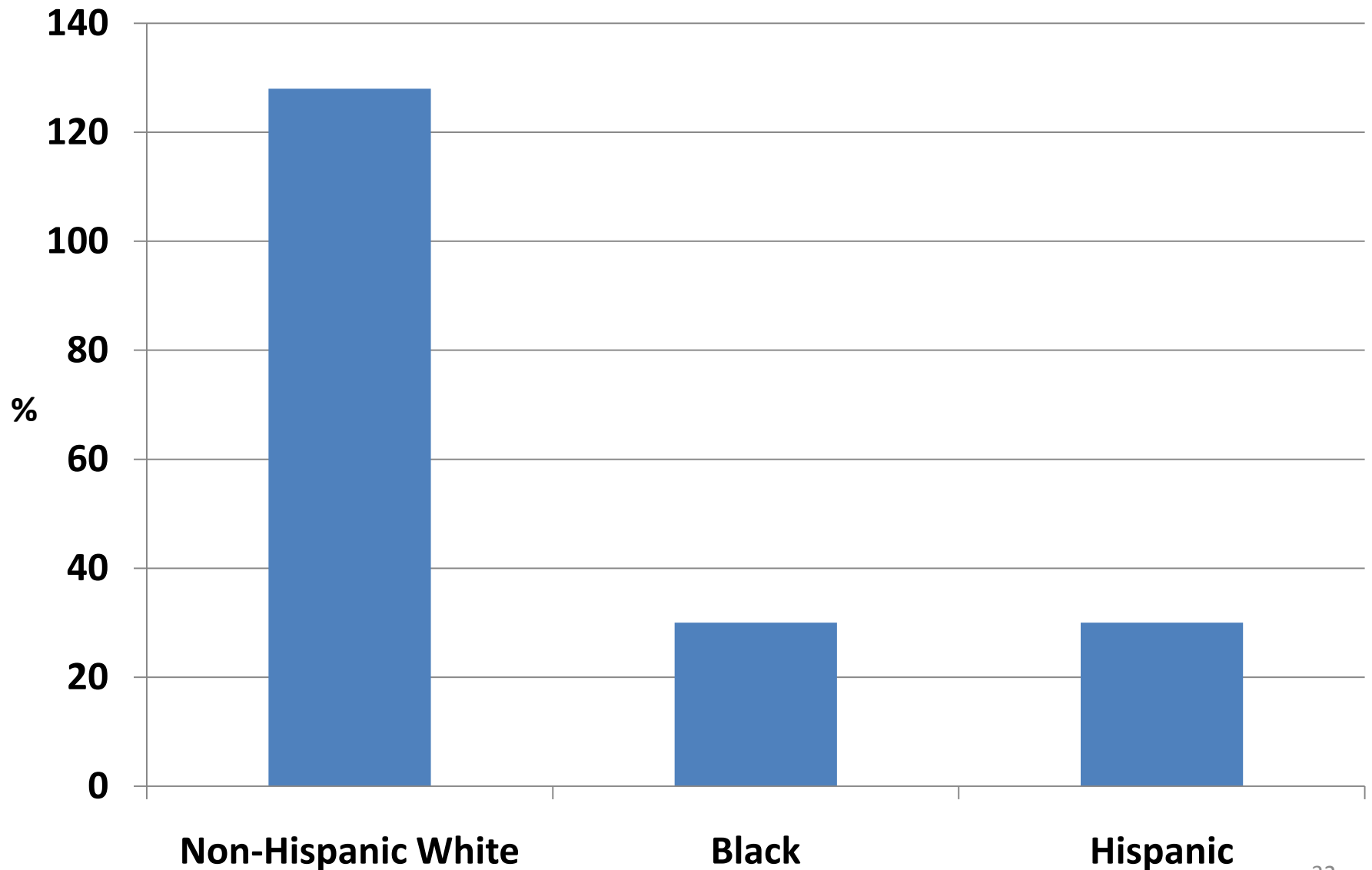
# For Which Children is Poor Health Most Detrimental?

# For Which Children is Poor Health Most Detrimental?

Odds Decrease in Timely HS Graduation  
(Good/Fair/Poor Health, vs. Excellent/Very Good)



# 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.

# Is Education a Mediator?

Yes, in both settings.

## **U.K.:**

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

# Is Education a Mediator?

Yes, in both settings.

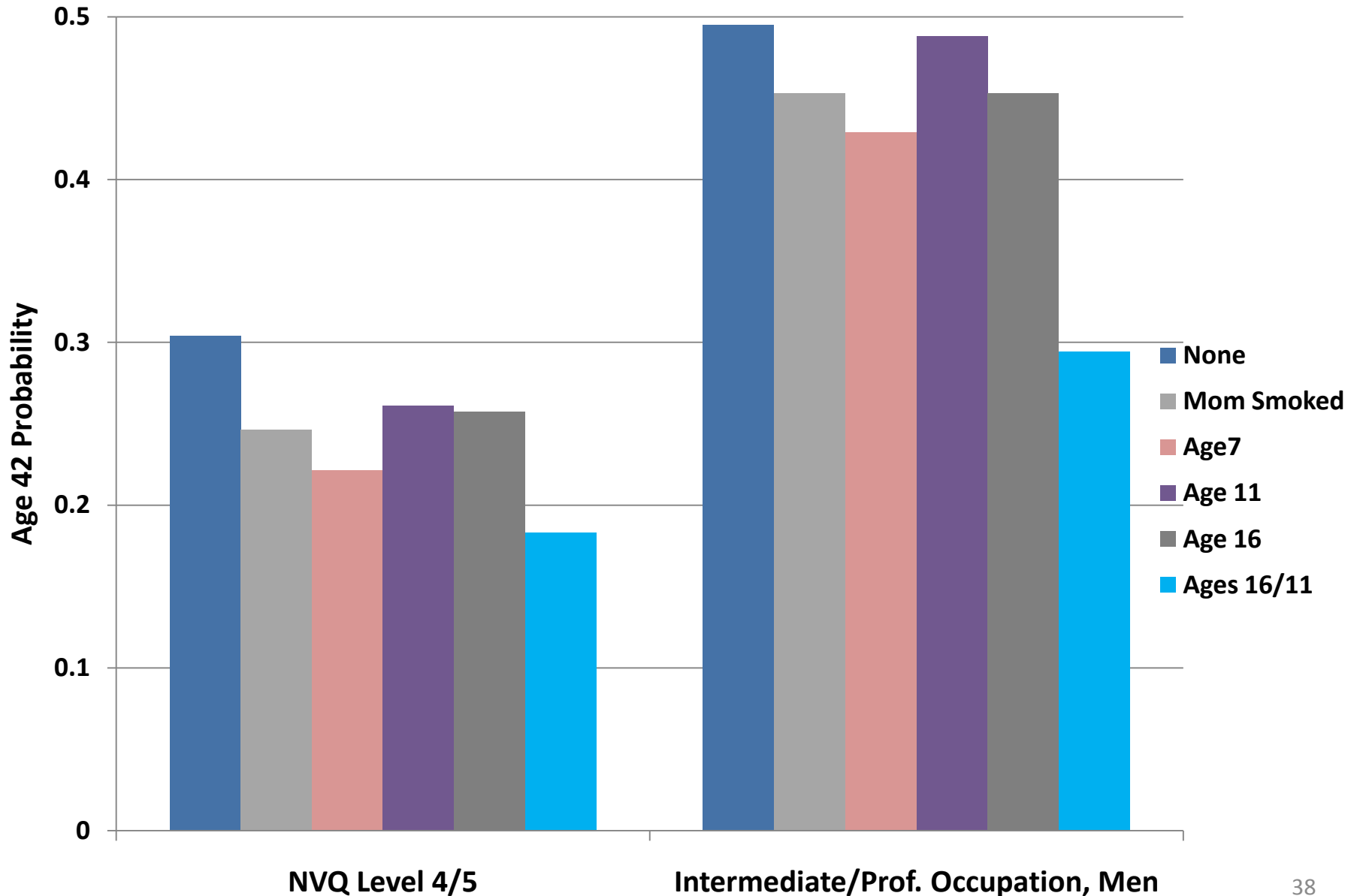
## **U.K.:**

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

## **U.S.:**

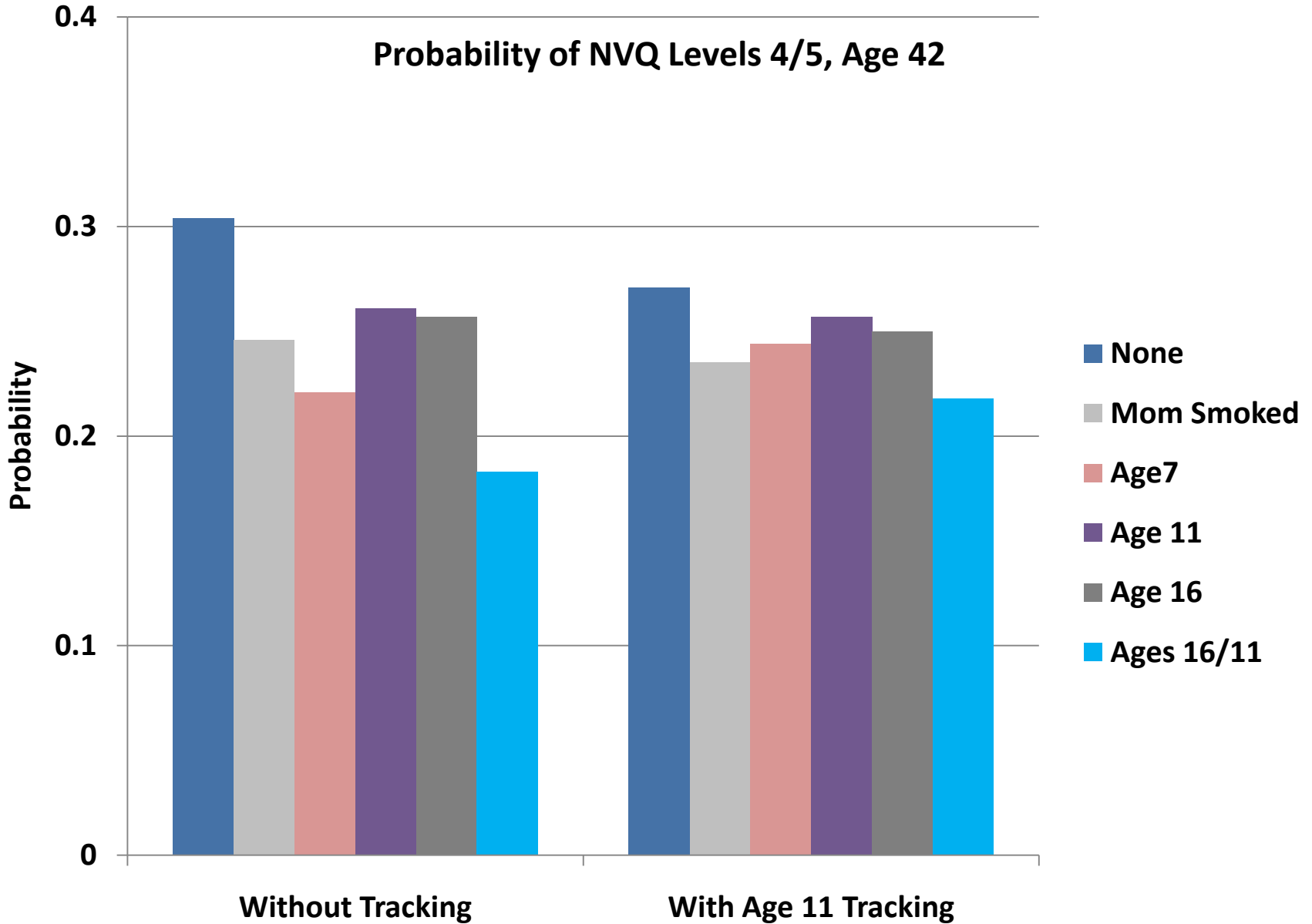
- Educational performance explains much of the health/attainment relationship, for all racial/ethnic groups.

# The U.K. Case



Note: Adjusted for individual and family characteristics

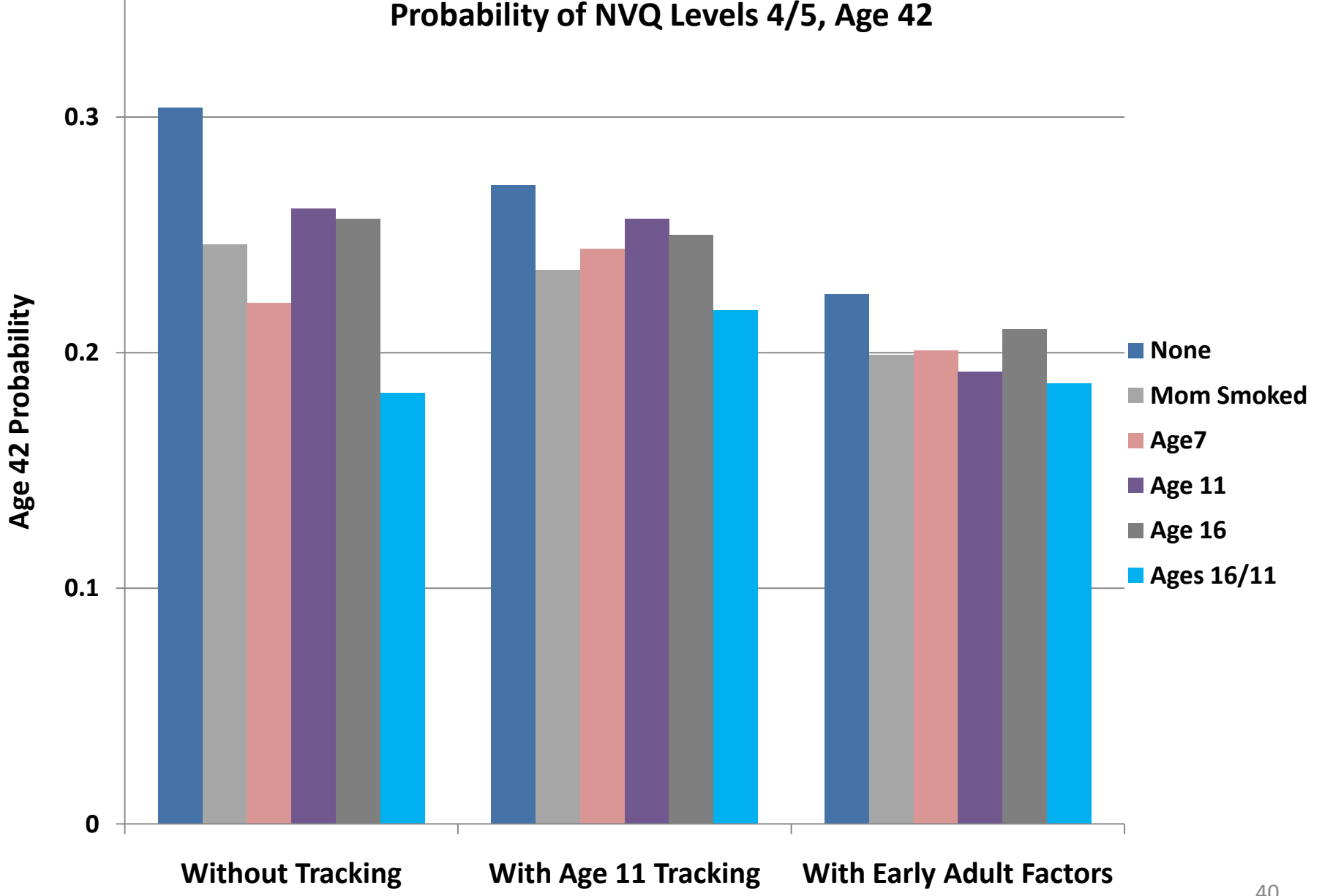
# The Role of Age 11 Tracking



Note: Adjusted for individual and family characteristics

# Early Adult Factors

Probability of NVQ Levels 4/5, Age 42

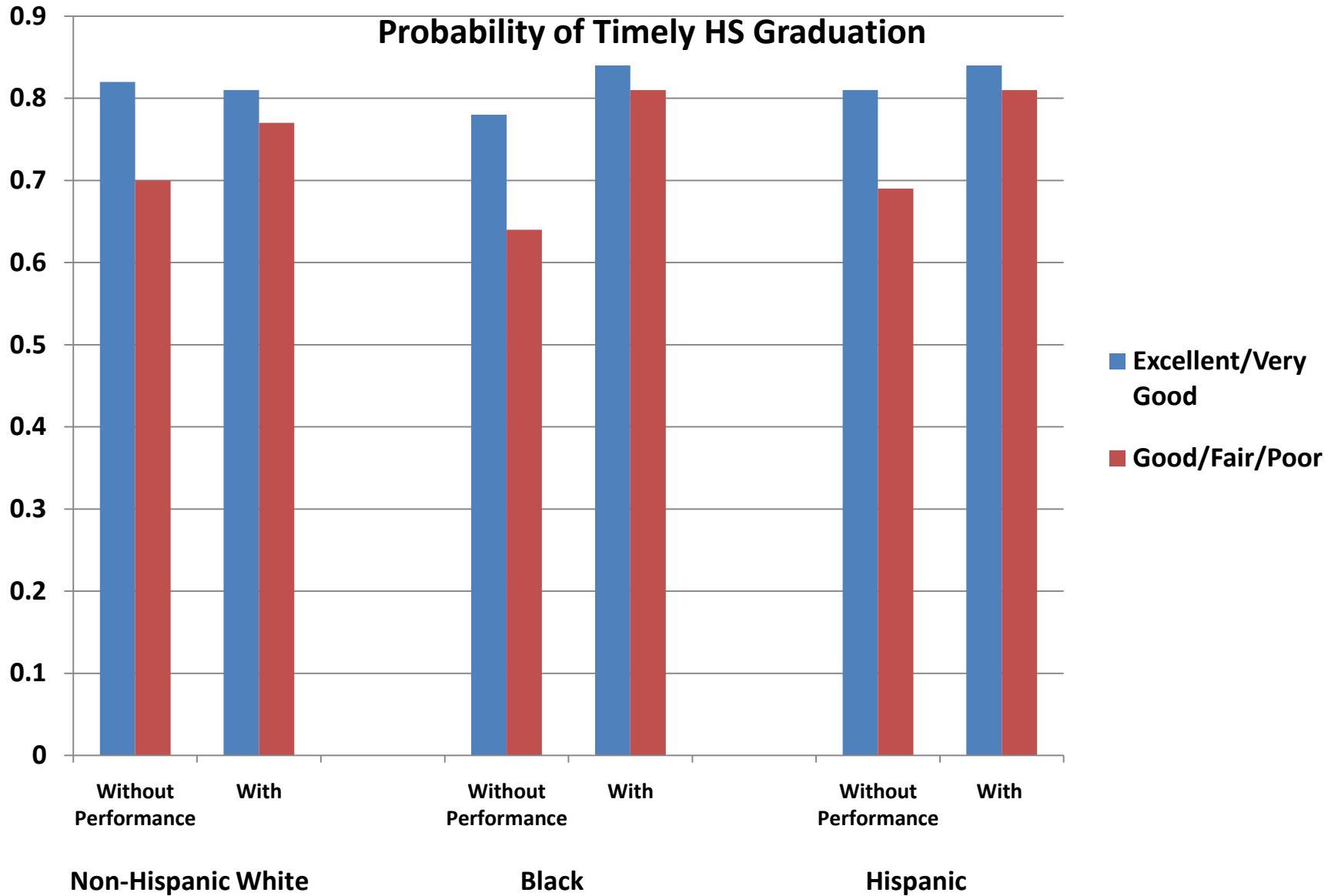


Note: Adjusted for Individual and Family Characteristics

# Other Measures of Attainment...

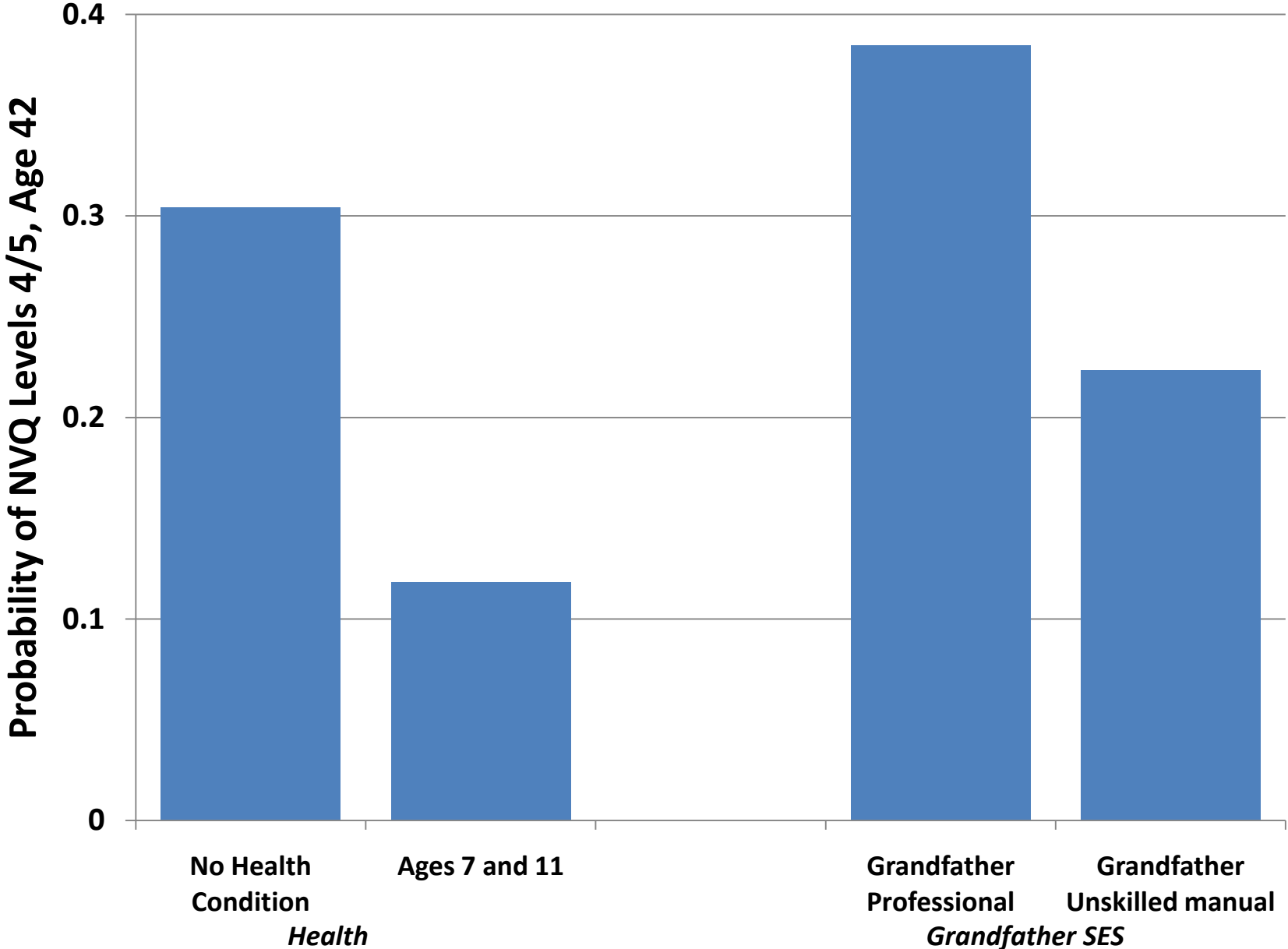
- Patterns hold across other attainment measures
- Age 11 tracking/performance plays large role
- Age 16 does not
- Early adult factors explain remaining gaps
- Tracking process may apply in U.S. case as well

# The U.S. Case



Note: Adjusted for Individual and Family Characteristics

# How Big Are These Relationships?



# Conclusions

# Conclusions

- 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