

Musings on Measurement and Meaning

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INRICH 7th Annual Workshop
June 27, 2015

Goals for today

- Set the stage
- Highlight trajectory of my own work
 - Old and new
- Share some thoughts
 - Meaning
 - Measurement
- Pose questions for discussion

The top banner features the INRICH logo on the left, which consists of the word "INRICH" in a bold, sans-serif font with a red stylized crossbar. Below it, the full name "International Network for Research on Inequalities in Child Health" is written in a smaller, red font. The background of the banner is a grayscale photograph of several hands clasped together, overlaid with a white grid pattern.

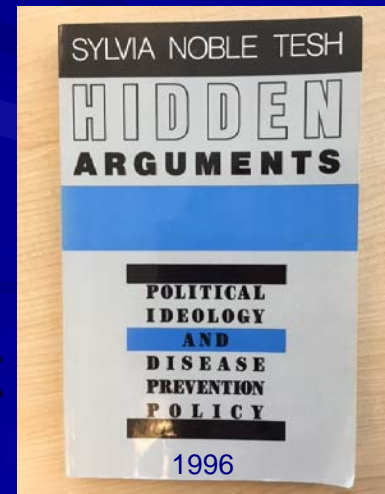
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What is Research?

- Google “research definition” → 534M results
- “the systematic investigation into and study of materials and sources in order to establish facts and reach new conclusions” Oxford Dictionaries
- Considered objective
 - Rules of science basis for this assumption
 - Transparency
 - Replicability
- Interpretation is often subjective
 - even though we often don’t admit that



Research and Measurement

- Scientific methods involve measurement
 - Observation
 - Examination
 - Experimentation
- Hope is that knowledge gained will advance social justice → a better world

“Sometimes, what can be measured, does not count; and what counts can not be measured.”

-adapted from Albert Einstein

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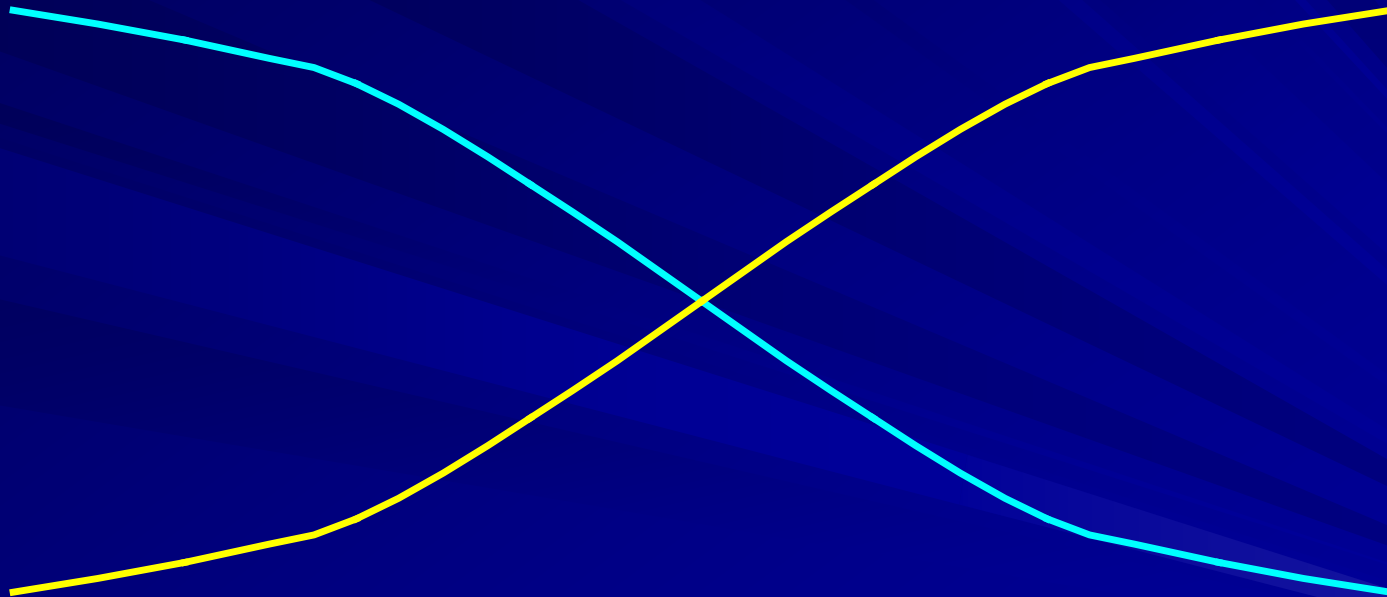
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Socioeconomic Transitions in Adolescence

Family Determined

Self Determined

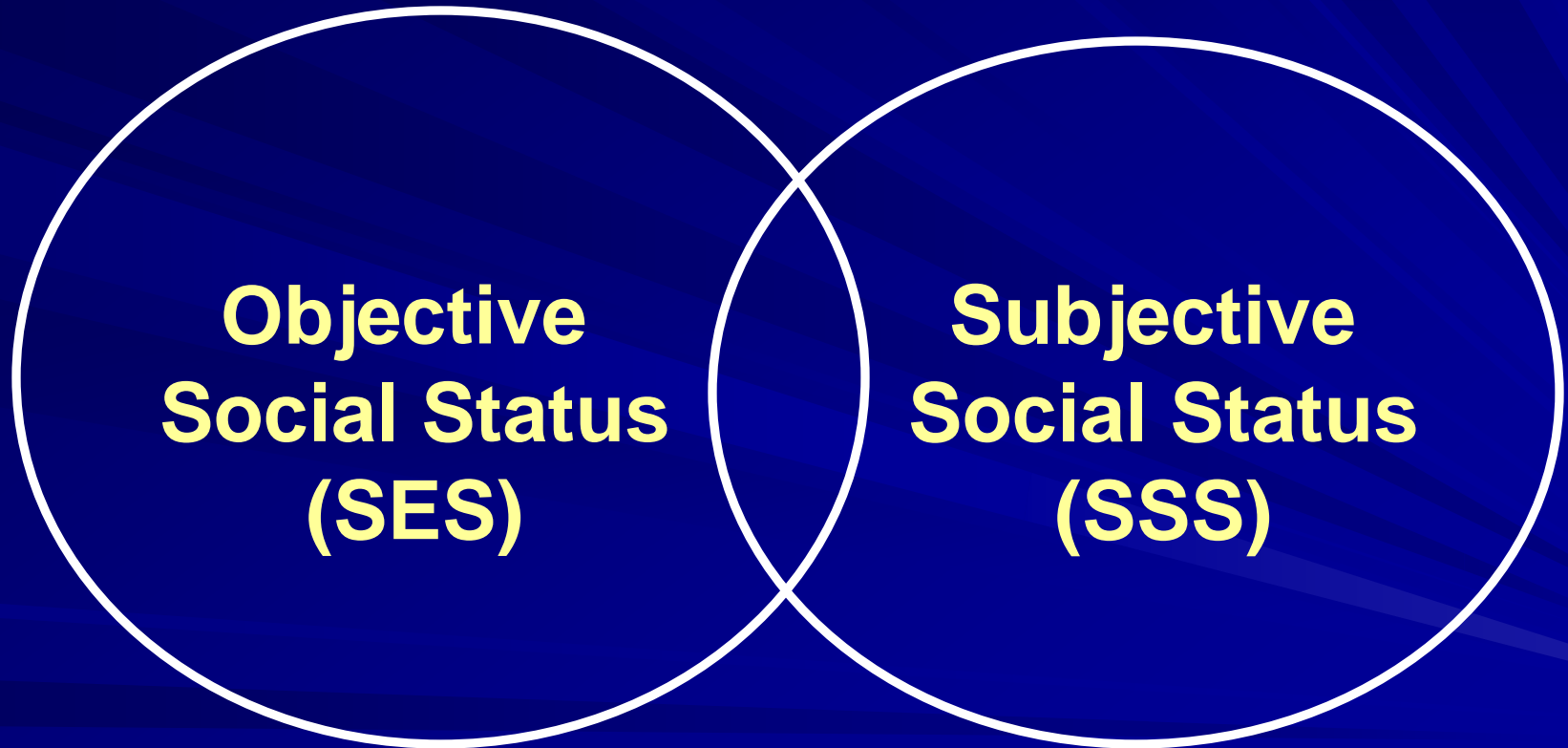


Childhood

Adolescence

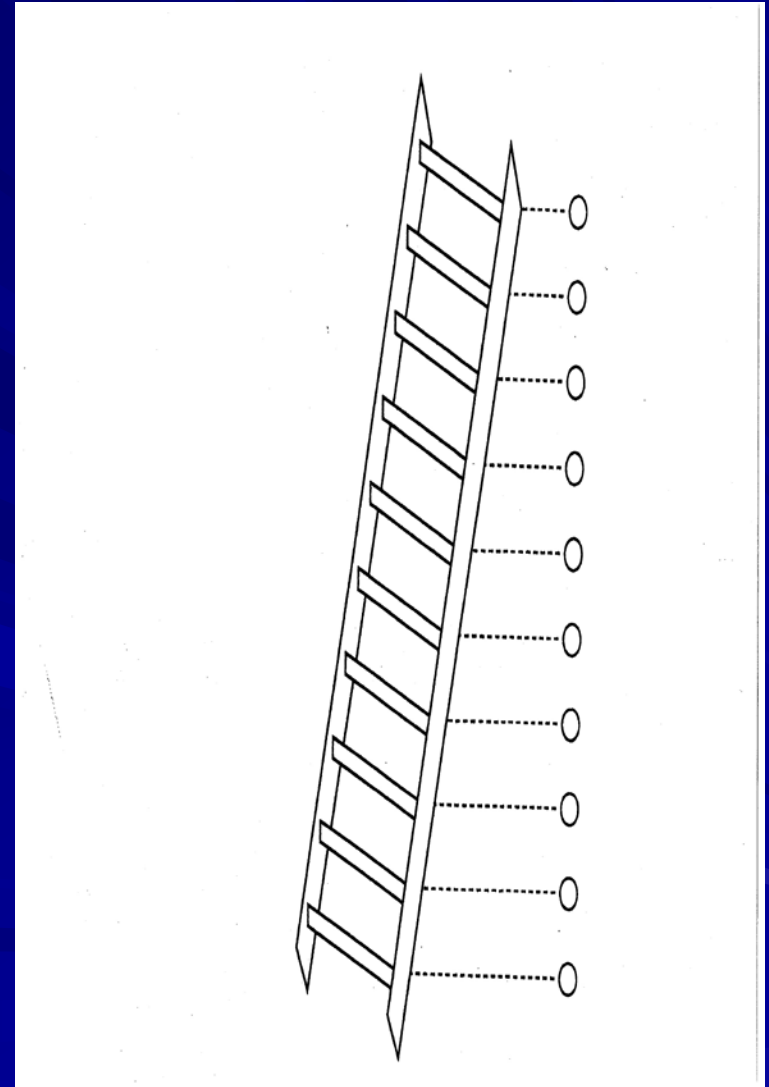
Adulthood

Conceptualization of Social Status



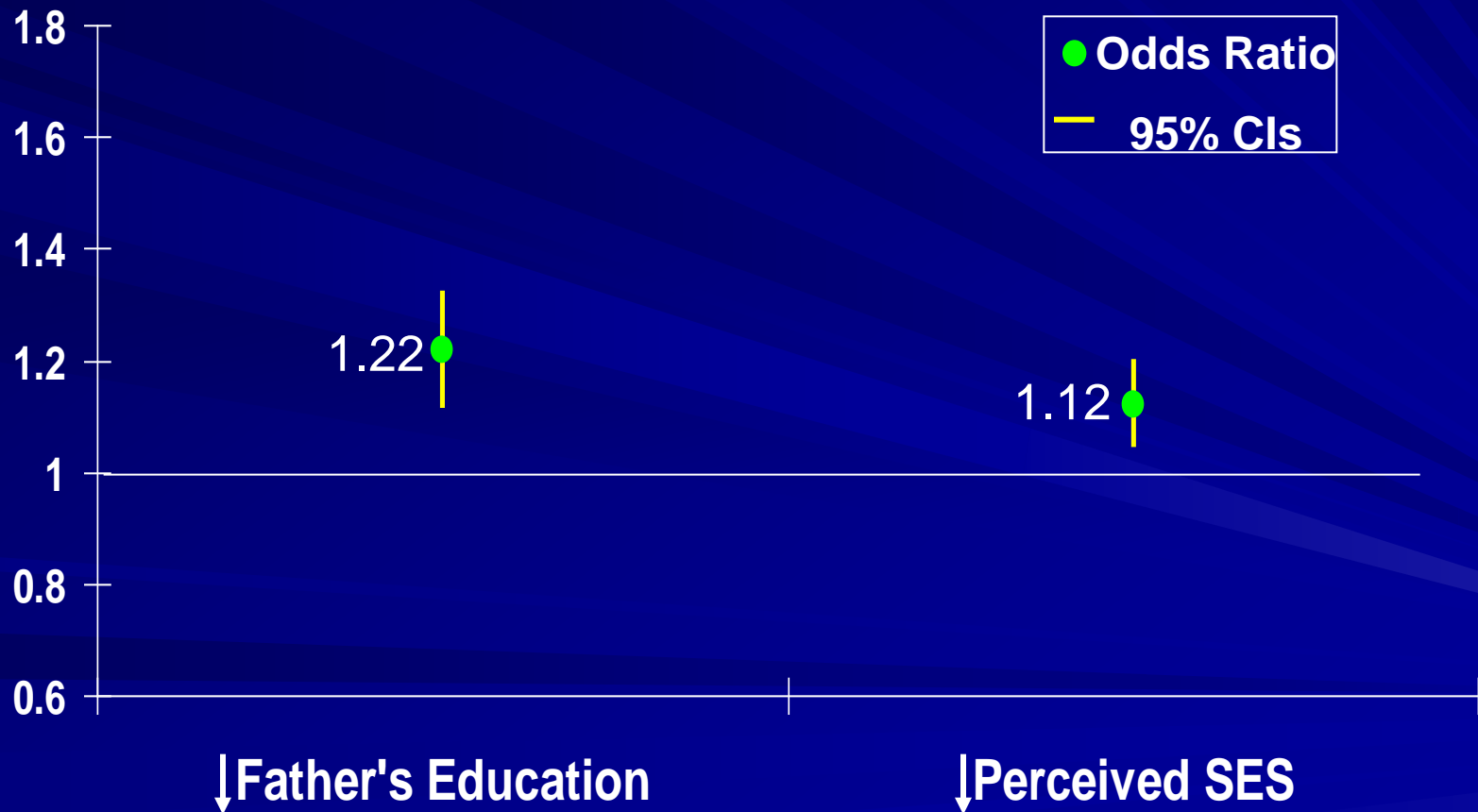
MacArthur SSS Scale – Youth Version

- 10pt self anchoring scale to measure subjective social status (SSS)
- One for perceived SES
- One for standing within the school community



Lower objective and subjective SES associated with increased odds of obesity in the GUTS Study

Prevalence of obesity = 6.1%



4th Annual INRICH Workshop

Health Psychology
2014, Vol. 33, No. 5, 433–447

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Subjective Socioeconomic Status and Adolescent Health: A Meta-Analysis

Elizabeth C. Quon and Jennifer J. McGrath
Concordia University

Objective: To comprehensively and quantitatively examine the association between subjective socioeconomic status (SES) and health outcomes during adolescence. *Methods:* Forty-four studies met criteria for inclusion in the meta-analysis. Information on study quality, demographics, subjective SES, health outcomes, and covariates were extracted from each study. Fisher's Z was selected as the common effect size metric across studies. Random-effect meta-analytic models were employed and fail-safe numbers were generated to address publication bias. *Results:* Overall, subjective SES was associated with health during adolescence (Fisher's $Z = .10$). The magnitude of the effect varied by type of health outcome, with larger effects observed for mental health outcomes, self-rated health, and general health symptoms; and nonsignificant effects observed for biomarkers of health and substance-use-related health behaviors. Of the measures of subjective SES employed in the reviewed studies, perception of financial constraints, was most strongly associated with adolescent health outcomes. Analysis of covariates indicated that inclusion of objective SES covariates did not affect the association between subjective SES and health. *Conclusions:* This meta-analysis has implications for the measurement of subjective SES in adolescents, for the conceptualization of subjective and objective SES, and for the pathways between SES and health in adolescents.

Keywords: subjective socioeconomic status, health outcomes, adolescence, meta-analysis

Implications from the 4th Annual Workshop Presentation/Health Psychology paper

- Perceived SES (PSES) may underlie the SES-health gradient
- PSES measures should be included in addition to traditional objective SES measures
- More longitudinal research is needed



Race, Ethnicity, and Socioeconomic Status in Research on Child Health

■ SES is multidimensional

- Income and Education are synonymous
- Income does not adequately represent wealth
 - Accumulated resources
- Measure choice should be hypothesis driven

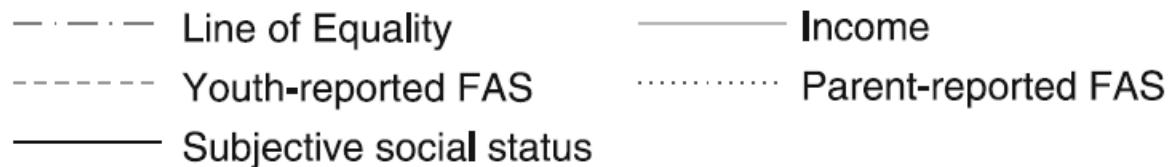
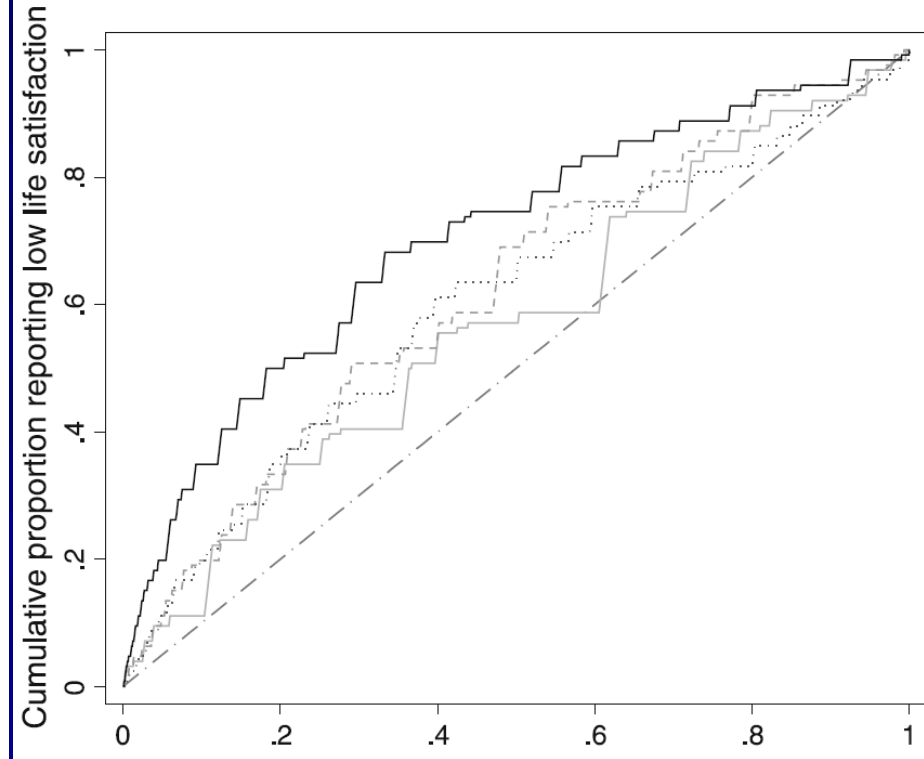
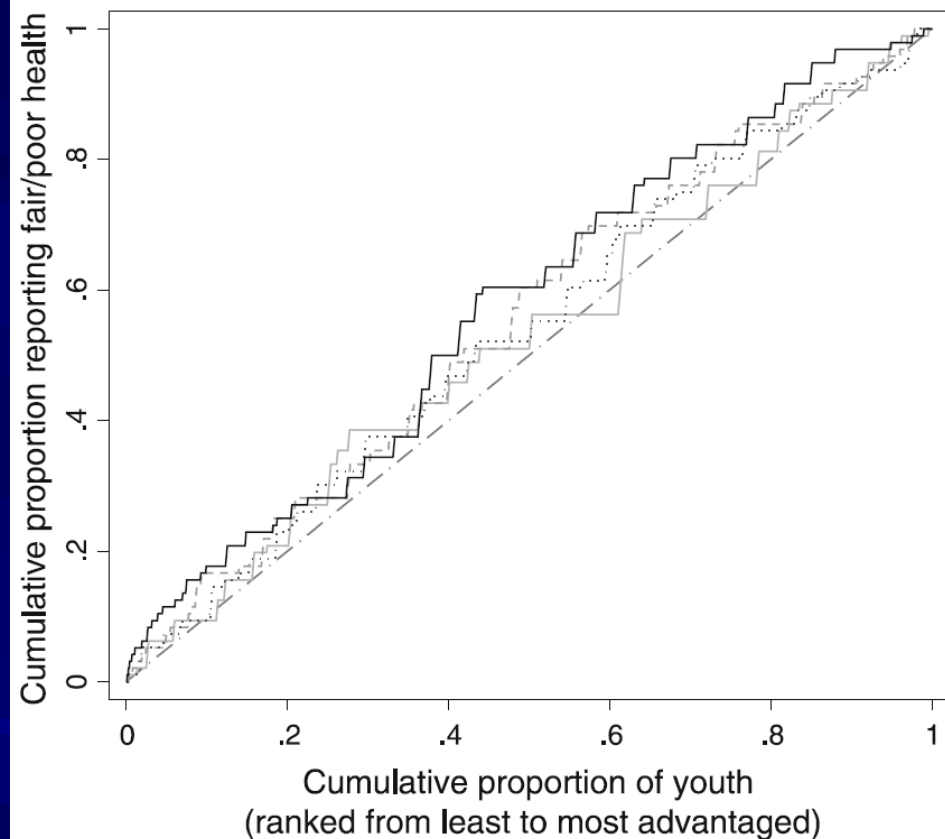
■ Importance of neighborhood/contextual SES

■ PSES may more fully capture SES health effects

- Accounts for previous life experience, context, and perceptions of the future

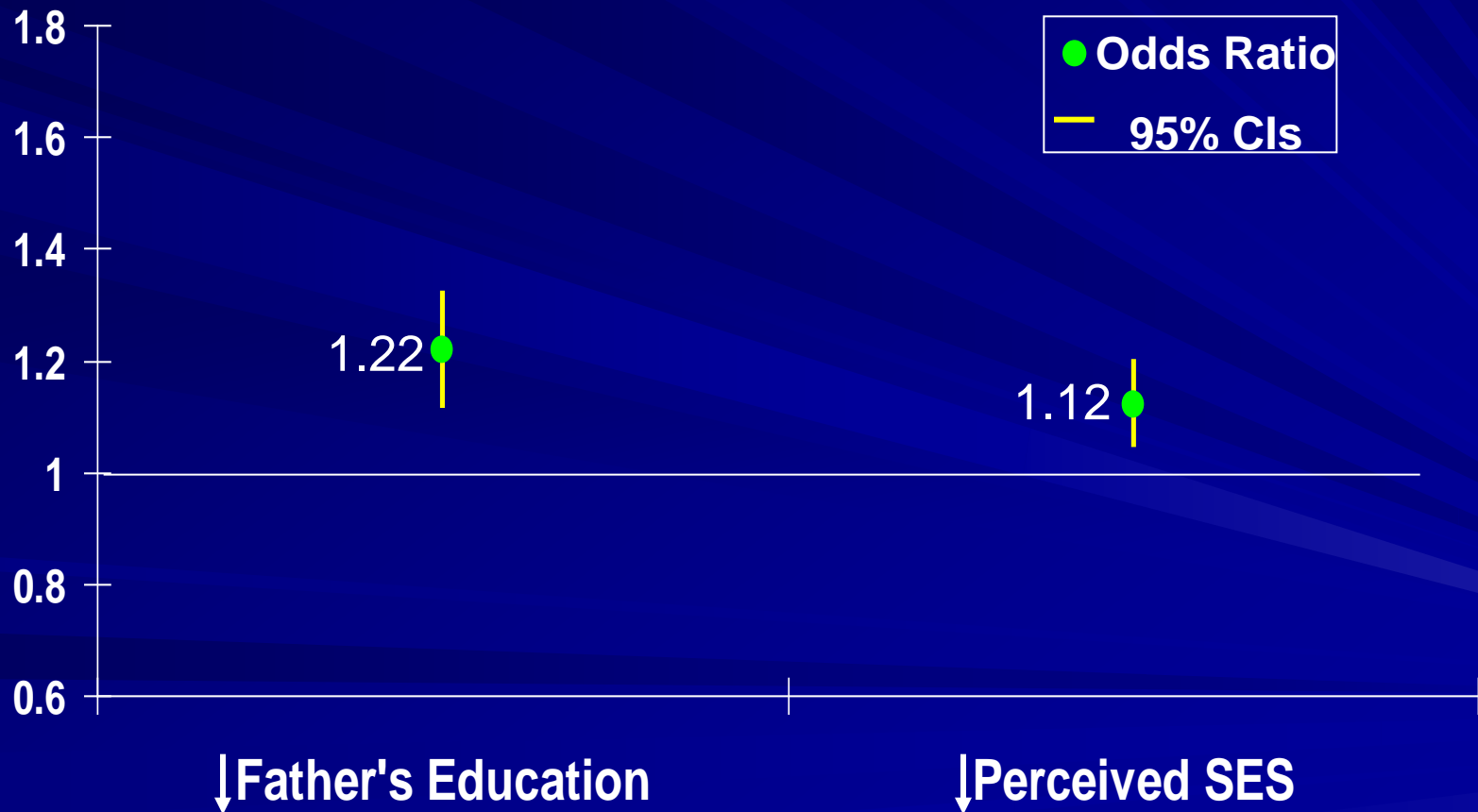
Patterns of Socioeconomic Inequality in Adolescent Health Differ According to the Measure of Socioeconomic Position

Elgar et al, Soc Indic Res, May 2015



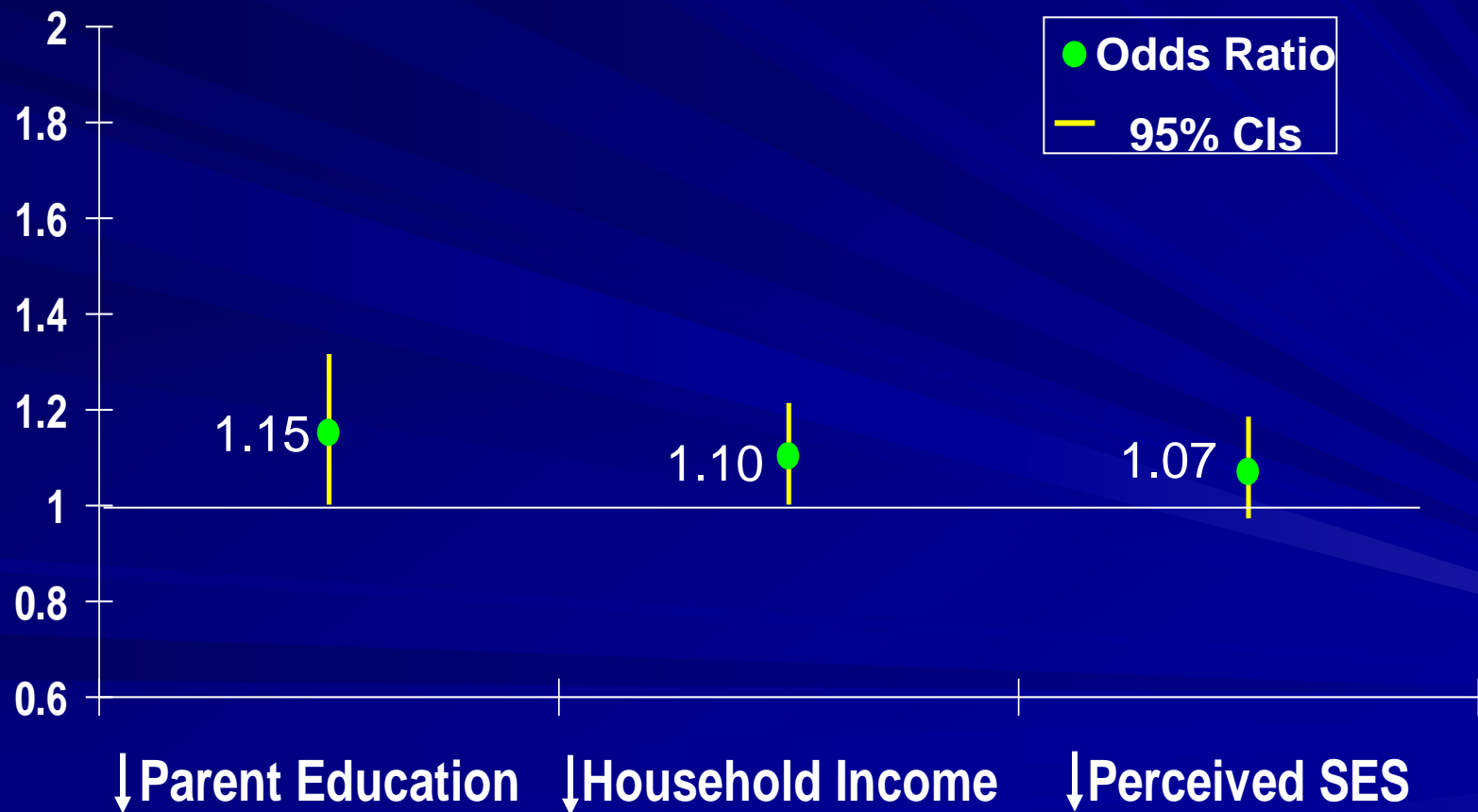
Lower objective and subjective SES associated with increased odds of obesity in the GUTS Study

Prevalence of obesity = 6.1%

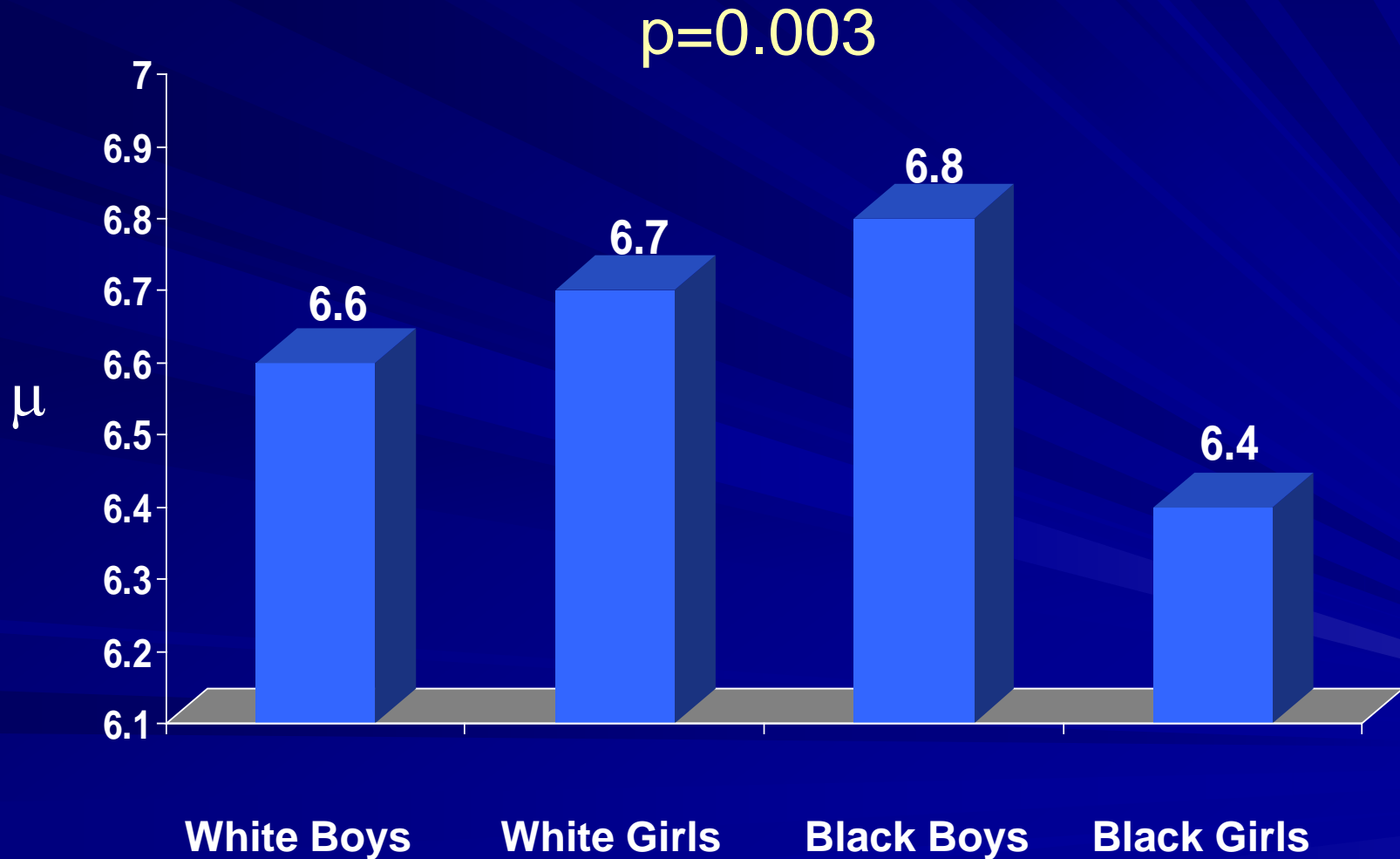


Perceived SES not significant in the PSD Study, a more diverse cohort

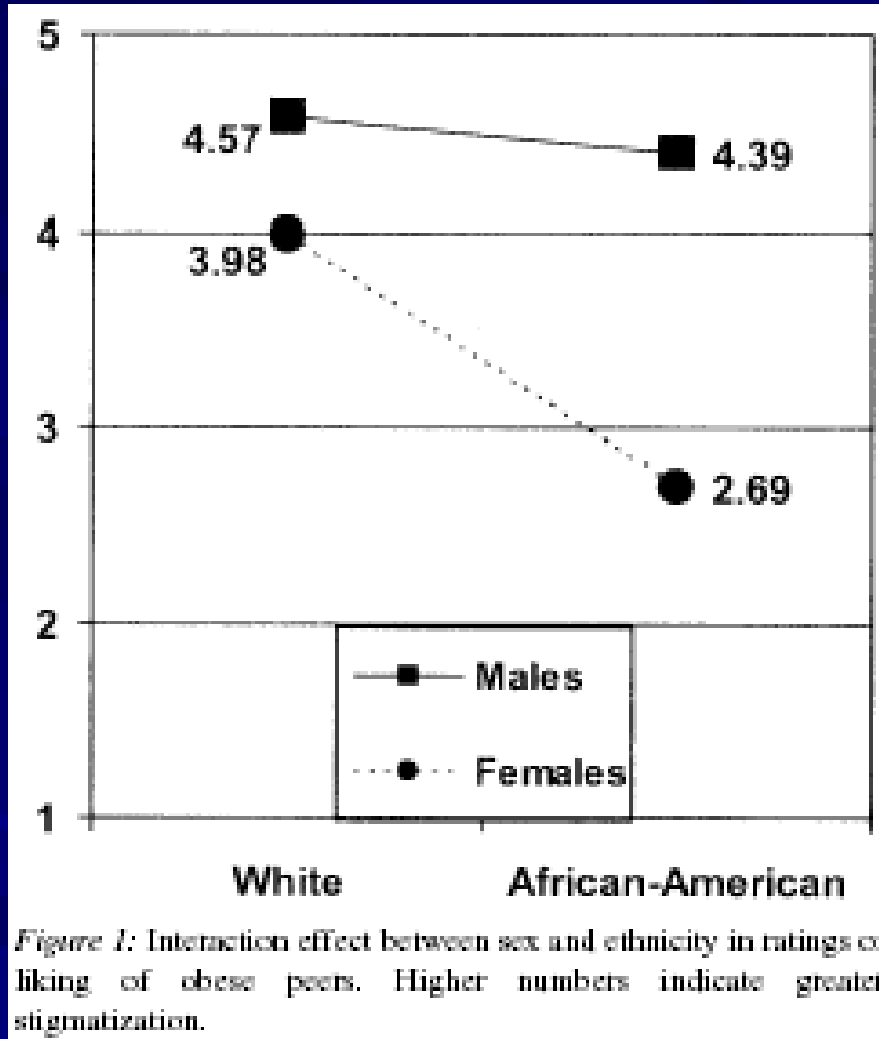
Prevalence of obesity = 20.2%



Gender/Racial Differences in Perceived SES

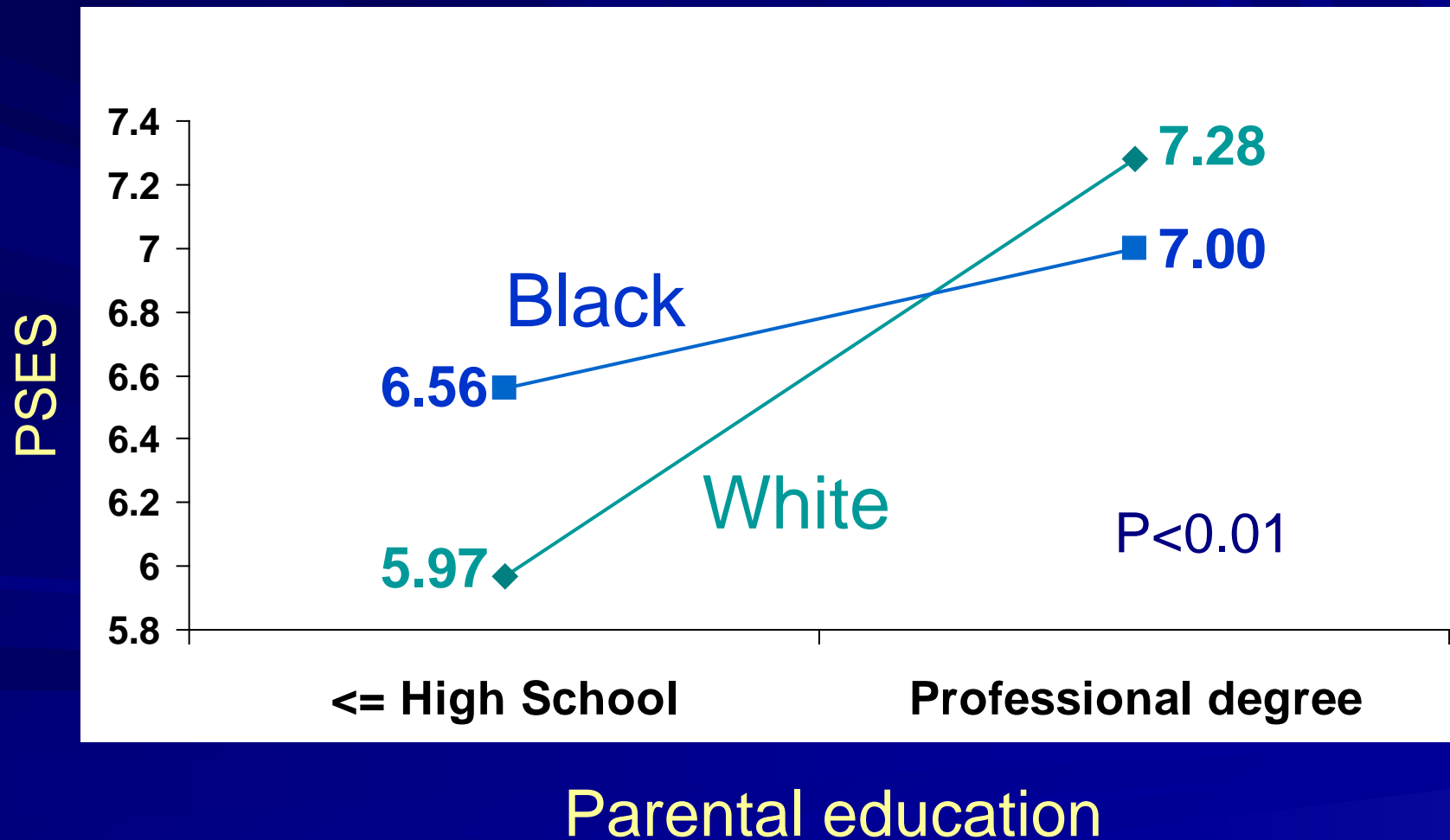


Cultural Norms and Stigma

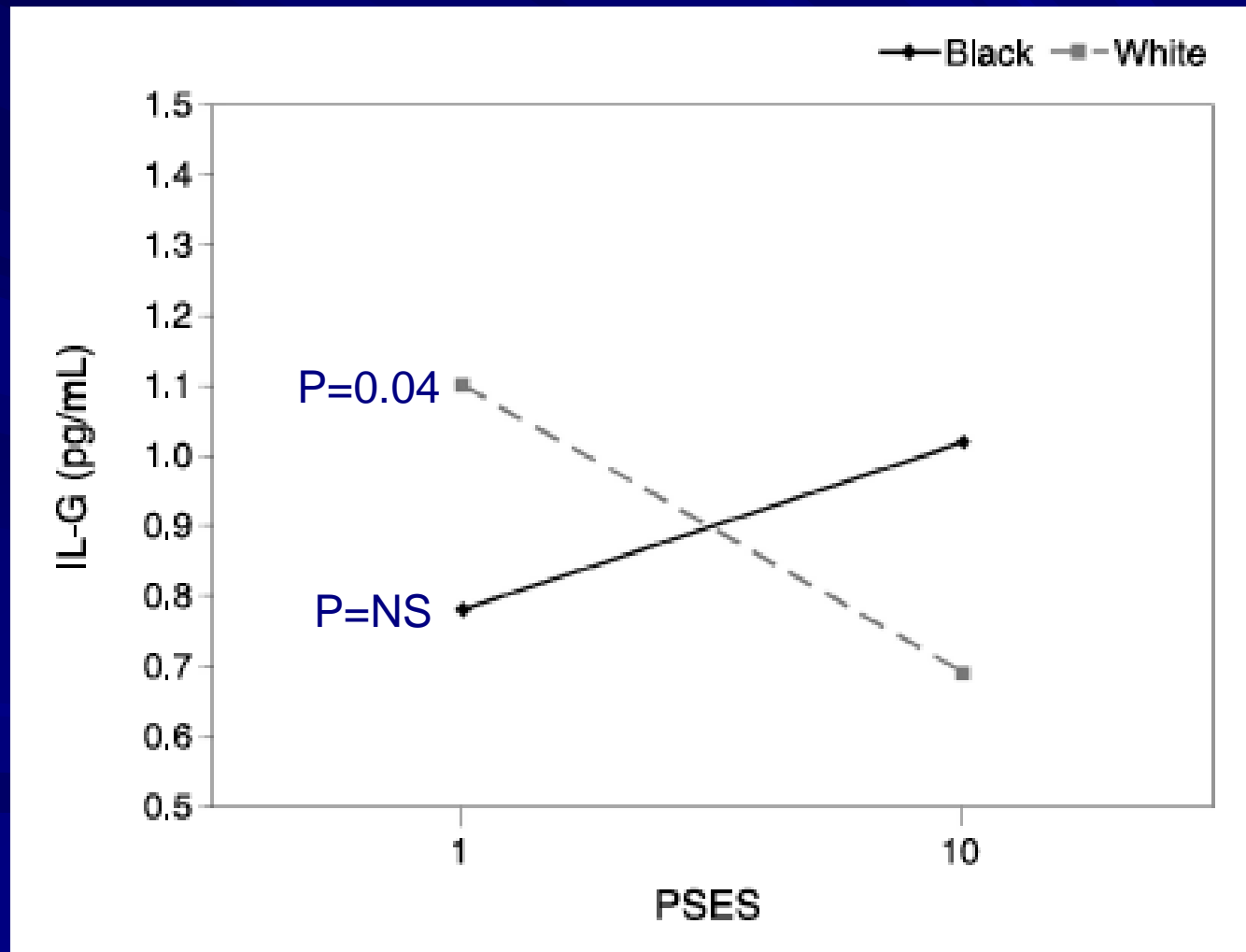


- N=193 white and 32 African-American students
- Ranked 6 figures
 - Healthy, Obese, Wheelchair, Crutches, Missing Hand, Facial Disfigurement
- Low = better ranking

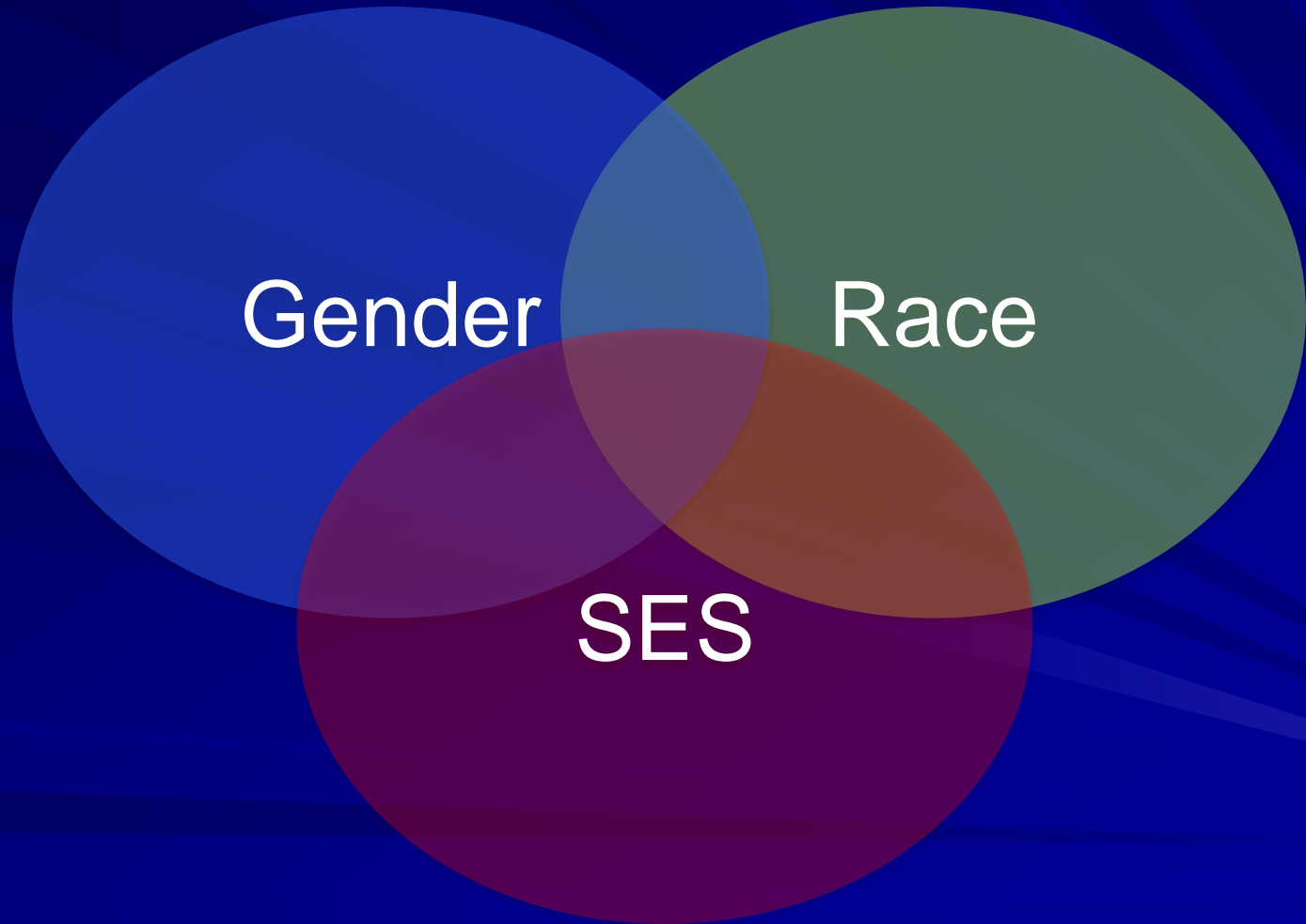
Parental education less salient for non-Hispanic black youth in determining Perceived SES



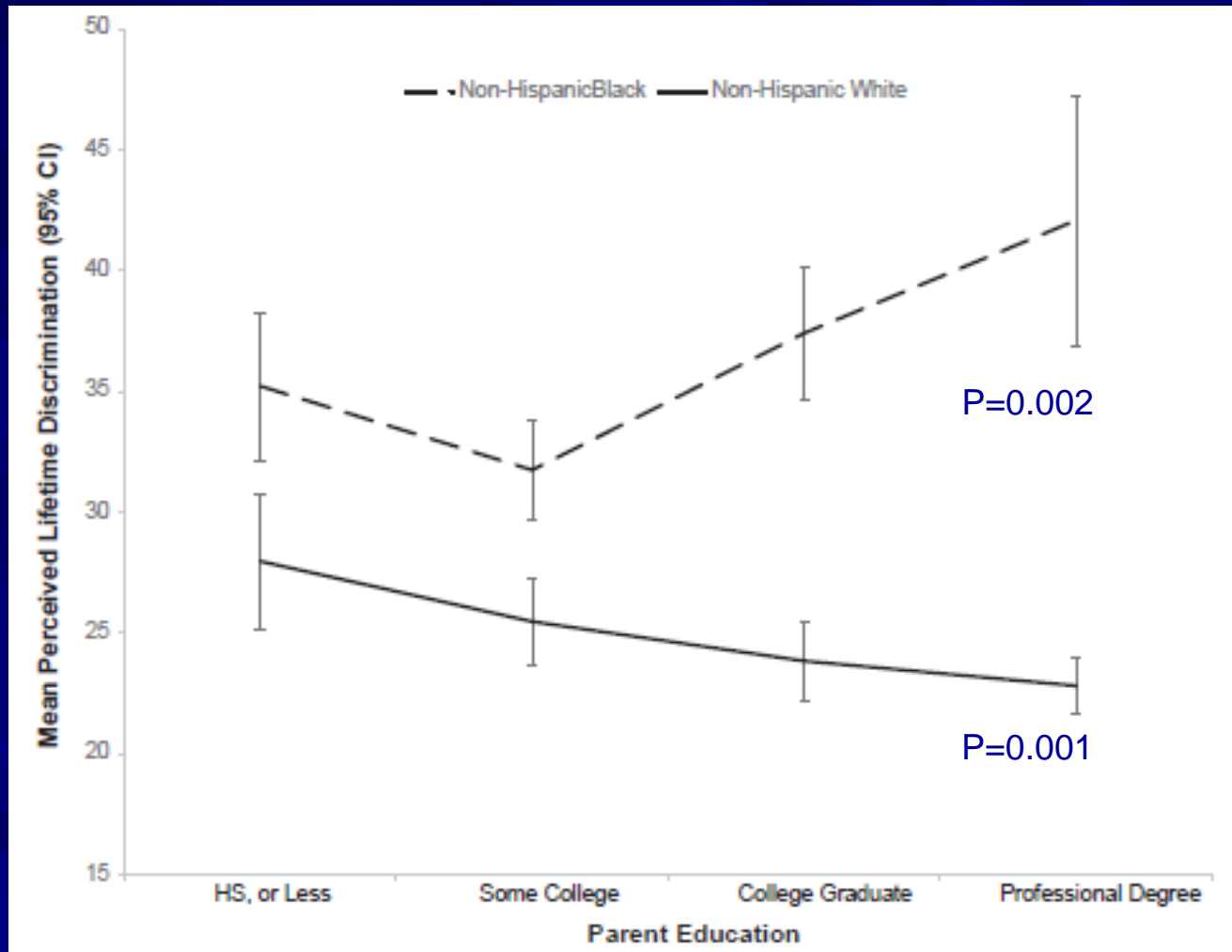
PSES Associated with Lower IL-6 only for White Youth



Social Disadvantage



Race/ethnicity, Discrimination and Parent Education



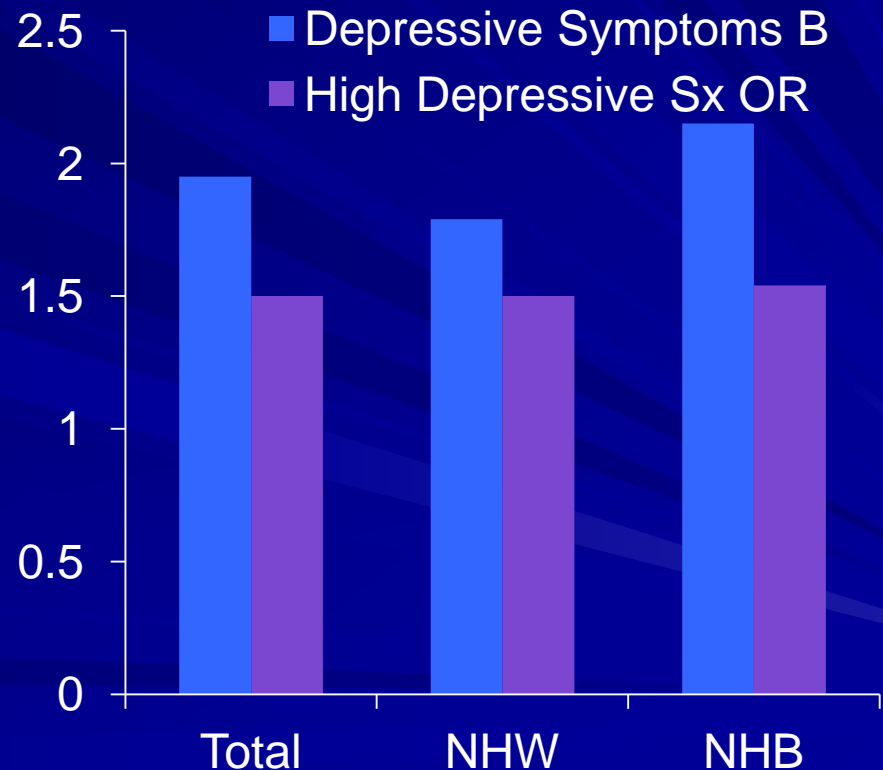
How do these factors influence adolescent depressive symptoms?

- Perceived discrimination is a strong risk factor for depression among both non-Hispanic black and white young adults

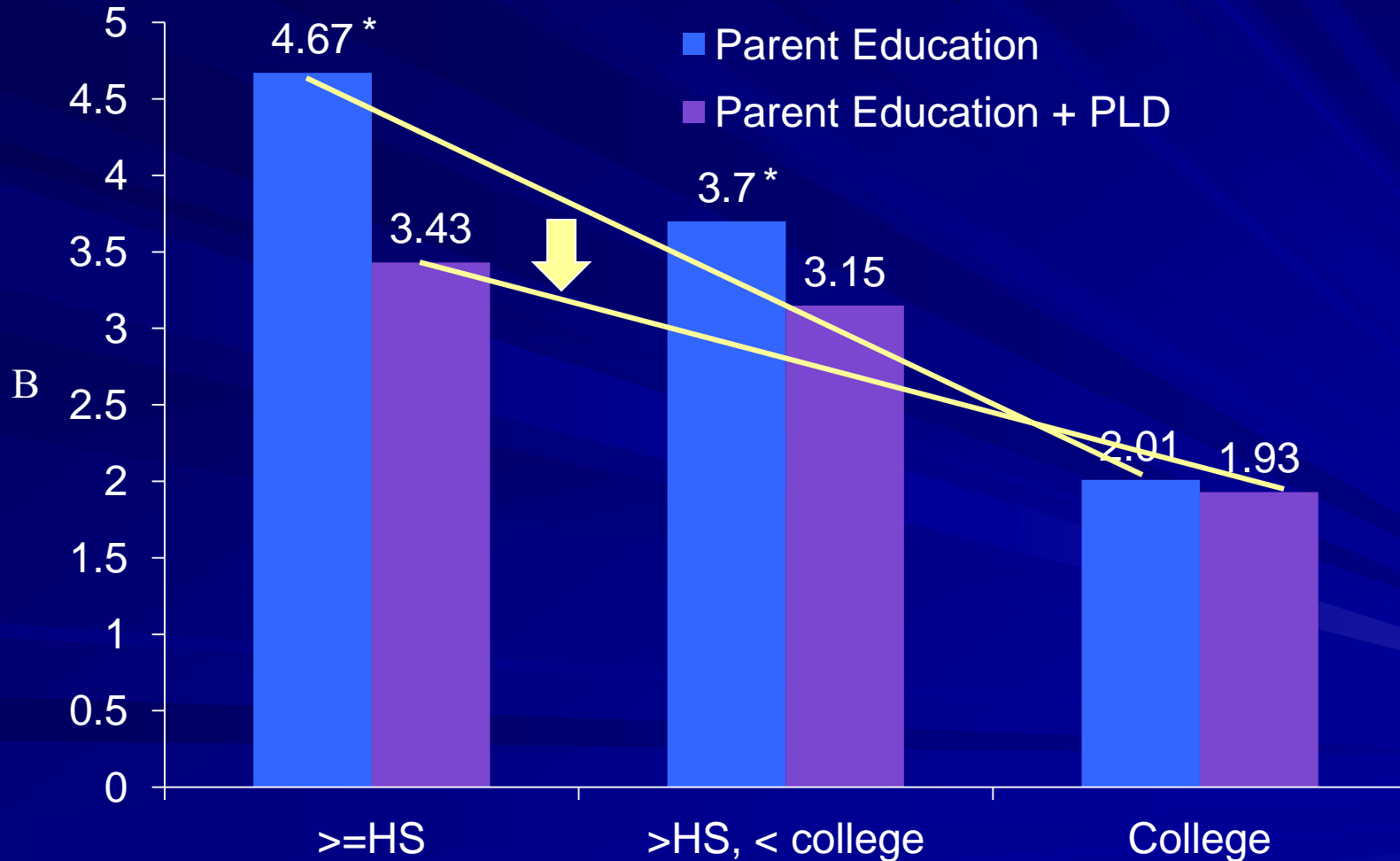
- Independent of SES
- Magnitude of effect similar

- Higher parent education, but not household income, protective against depression

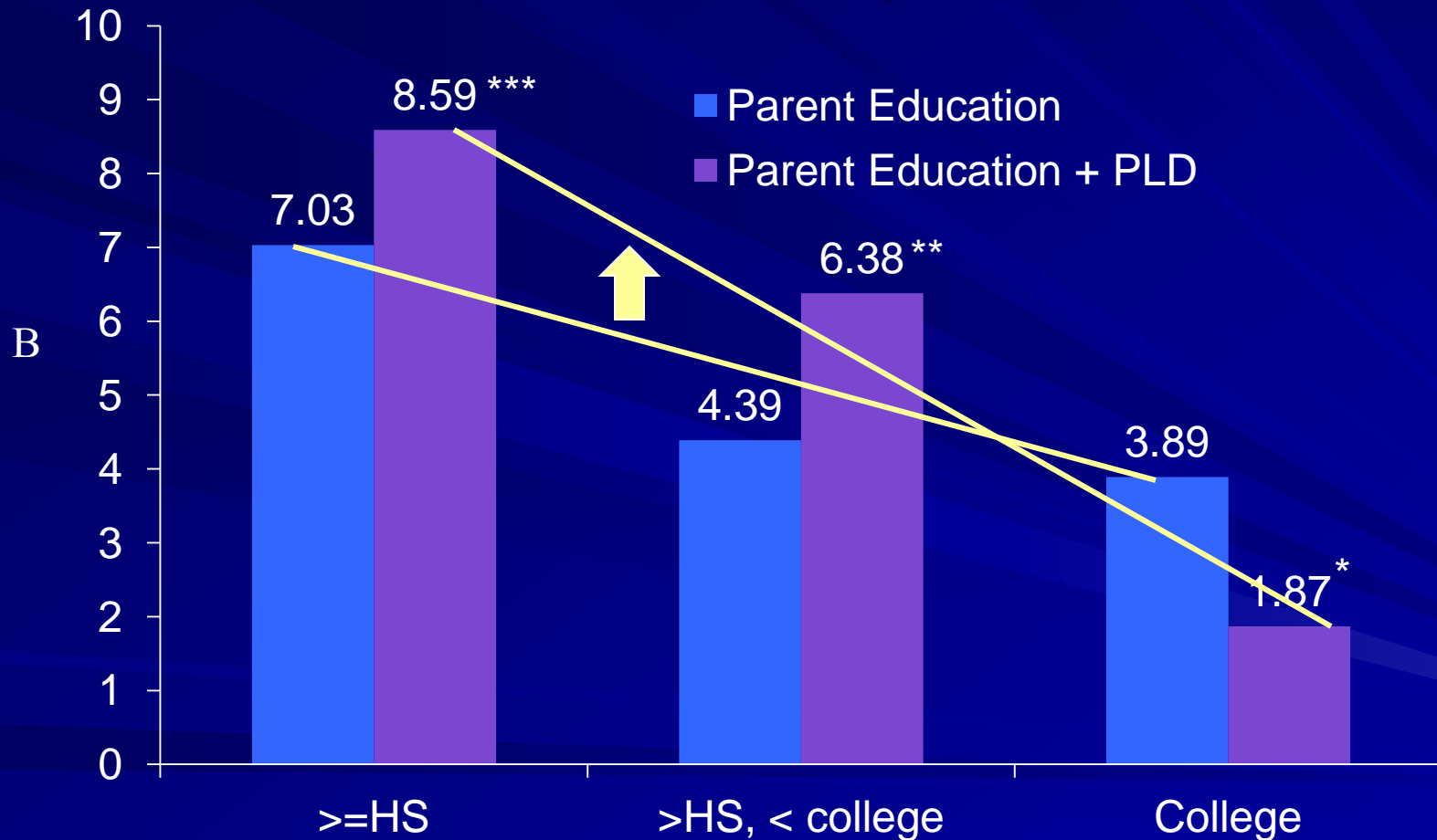
- Relationship differed by race



Non – Hispanic Whites: Mediation of PE effects on Depressive Symptoms by PLD



Non-Hispanic Blacks: Adjusting for PLD Uncovers PE Gradient in Depressive Symptoms



Education is protective for non-Hispanic white youth but is a double edged sword for non-Hispanic black youth

Among non-Hispanic blacks, high perceived discrimination overwhelms the protective effect of high parent education on depression

- Leads to “diminishing returns” of higher PE for blacks

Nagging Questions

- Are PSES and SSS the same thing?
 - Required to change language by reviewers
- SSS measures
 - Ladders
 - MacArthur SSS scale (2001)
 - 10 rungs but NO numbers and not drawn to perspective
 - Trait specific (Sweeting et al 2011, Sweeting and Hunt 2014)
 - “popular” , “ powerful” , “ respected” , “ attractive or stylish” and “ trouble-maker” “SSS-peer,” “SSS-scholastic,” SSS-sports”
 - Derivative scales that claim to be the MacArthur SSS Scale
 - Finch et al Psych Addictive Behav 2013

Nagging Questions

- Does a 4 = a 4 = a 4?
 - In Bogalusa and New York City and Boise
 - In New York and London and Stockholm?
- Is a 4 on a 1-10 scale the same as a 4 on a 0-10 scale?
- In other words—as we stretch and shrink the latent hierarchies youth are measuring against, does this matter?

How does this influence what we do about inequality?

Nagging Questions

- Likert scale versus visual analog scale
 - Are these the same?
 - Meta-analysis found similar effects sizes and concluded that the relationship to health did not differ significantly by measure
 - May be true numerically but not meaningfully
- What happens when we equate SSS with social class identification?
 - Piko and Fitzpatrick , 2007
 - “How would you rate your family's socioeconomic status?’ The answer categories included: (i) lower; (ii) lower-middle; (iii) middle; (iv) upper-middle; and (v) upper class.”

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Definitions of Health

- World Health Organization Constitution (1946)
 - a state of complete physical, mental and social well-being and not merely the absence of disease or infirmity

- Kuh et al. Chronic Disease Epidemiology (1997)
 - The accumulation of biological resources, inherited and acquired during earlier stages of life which determine current health and future health potential, including resilience to future environmental insults.

Definitions of Health

- Halfon and Hochstein Lifecourse Health Development (2002)
 - A conceptual approach explaining how individual and population health develops and how developmental trajectories are determined by interactions between biological and environmental factors during the lifetime
- National Research Council and Institute of Medicine (2004)
 - First definition of CHILD HEALTH
 - the extent to which individual children or groups of children are able or enabled to (a) develop and realize their potential, (b) satisfy their needs, and (c) develop the capacities that allow them to interact successfully with their biological, physical, and social environments.

Nagging Questions

What is

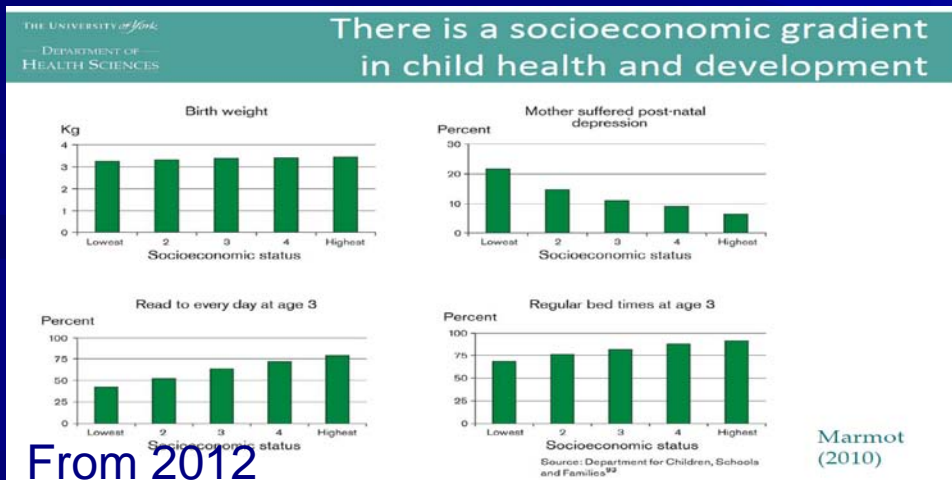
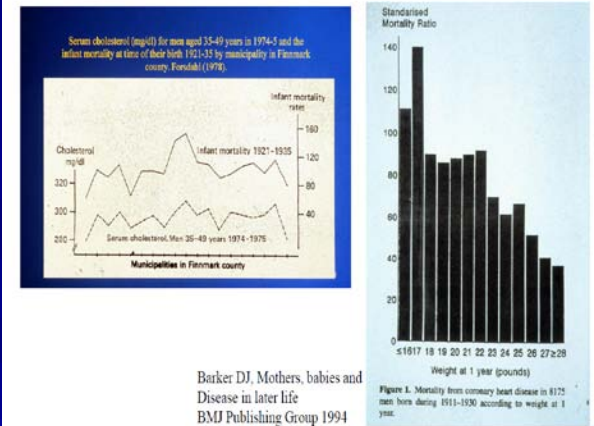
Child Health?

And how do we
measure it?

Representations of Health in Recent INRICH Workshop Presentations



From 2014 Infant health and adult health



From 2012

NCS HMN Lifecourse Health Sciences Workgroup

Foundational Questions

- What is the major challenge impeding advances in health measurement?
- How can we promote measurement strategies in longitudinal research studies that will allow for the investigation of new discoveries and hypotheses, rather than relying on only what is currently known?

NCS HMN Lifecourse Health Sciences Workgroup

**Need new, non-linear,
recursive health models as
well as accompanying
measurement and analytic
models and methods**

“Sometimes, what can be measured, does not count; and what counts can not be measured.”

-adapted from Albert Einstein

