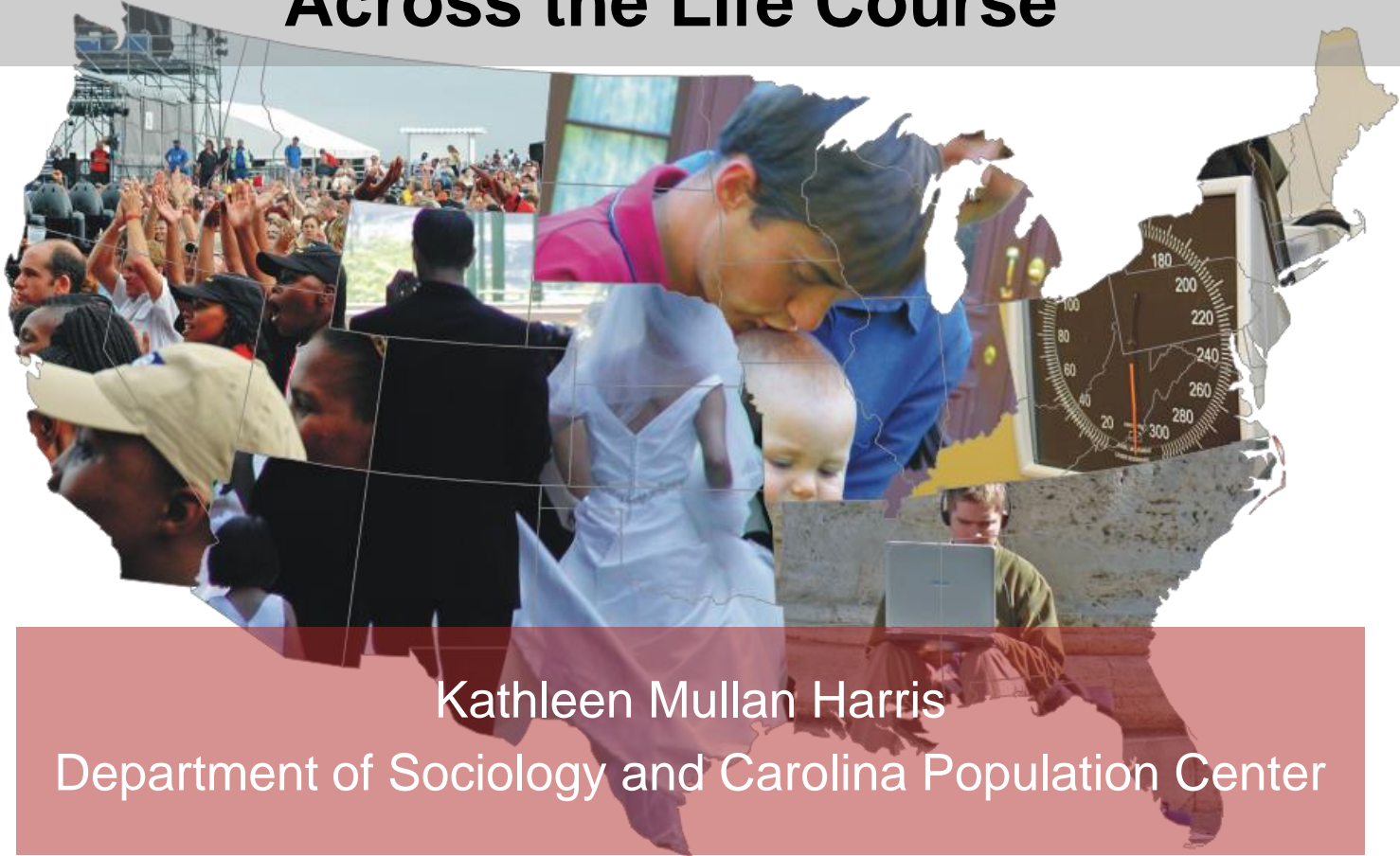




*Social, Behavioral, and Biological Linkages Across the Life Course*

# Social, Behavioral, and Biological Linkages Across the Life Course



Kathleen Mullan Harris

Department of Sociology and Carolina Population Center



**Add Health**

The National Longitudinal Study of Adolescent Health



**UNC**  
CAROLINA  
POPULATION  
CENTER



# Add Health, UNC, and me

- PhD in Demography from the University of Pennsylvania;
- Joined top-5 nationally ranked Sociology Department as Assistant Professor in 1990;
- Fellow, Carolina Population Center.
- Came up through the ranks at UNC:
  - Associate Professor in 1996; Full in 2000; Term Chair 2003; Endowed professorship in 2008.
  - Joined the Add Health team in 1992; Deputy Director of Add Health 1999; Director in 2004.
- President of the Population Association of America



# Add Health

- Nationally representative study that explores the causes of health and health-related behaviors of adolescents and their outcomes in adulthood
- Developed in response to a congressional mandate to fund a study of adolescent health
- Over \$120 Million in total funding to UNC over 20 years
- Funded by the NICHD with co-funding from 23 other federal agencies



# Add Health Co-Funders

- National Institute of Child Health and Human Development
- National Cancer Institute
- National Center for Health Statistics, Centers for Disease Control and Prevention, DHHS
- National Center for Injury Prevention and Control, Centers for Disease Control and Prevention, DHHS
- National Center for Minority Health and Health Disparities
- National Institute of Allergy and Infectious Diseases
- National Institute of Deafness and Other Communication Disorders
- National Institute of General Medical Sciences
- National Institute of Mental Health
- National Institute of Nursing Research
- National Institute on Aging
- National Institute on Alcohol Abuse and Alcoholism
- National Institute on Drug Abuse
- National Science Foundation
- Office of AIDS Research, NIH
- Office of the Assistant Secretary for Planning and Evaluation, DHHS
- Office of Behavioral and Social Sciences Research, NIH
- Office of the Director, NIH
- Office of Minority Health, Centers for Disease Control and Prevention, DHHS
- Office of Minority Health, Office of Public Health and Science, DHHS
- Office of Population Affairs, DHHS
- Office of Research on Women's Health, NIH



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# Innovations in Add Health

- Directly measured social environments of youth and its impacts on health;
- Merged social, behavioral, biological, environmental, and genetic data to understand processes of health and development during early life course;
- Securely disseminated Add Health data to thousands of researchers around the world;
- Uncovering early life precursors of health and disease before biological, social and financial costs escalate;
- The first nationally representative, prospective study of health and aging that begins in early adolescence.



# Comment from NIH Review of Add Health Study

*“a ‘National Treasure’ for the . . . research community.  
The only major study to trace the broad spectrum of health issues  
over the early life course, in combination with the evolving  
human capital, family, and environmental situations of youth.”*

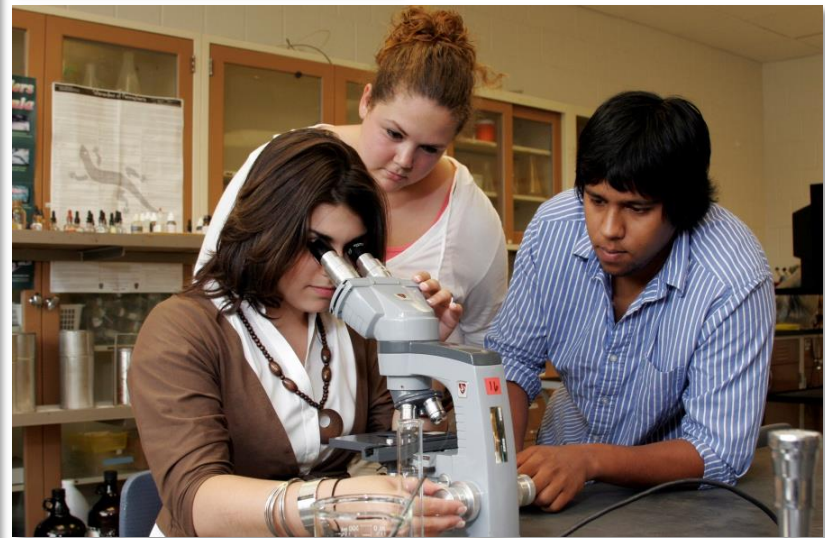
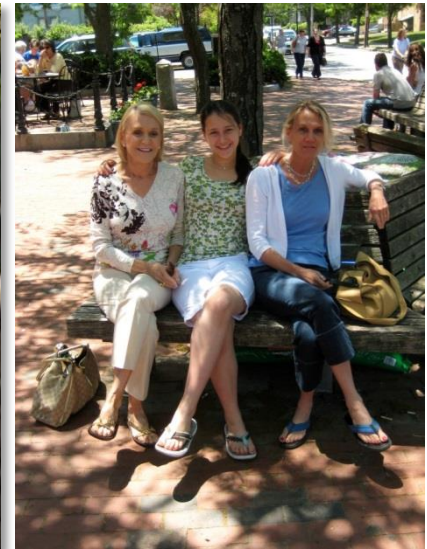
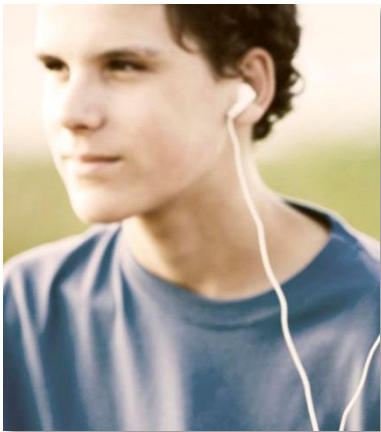


# Multiplying the Impact

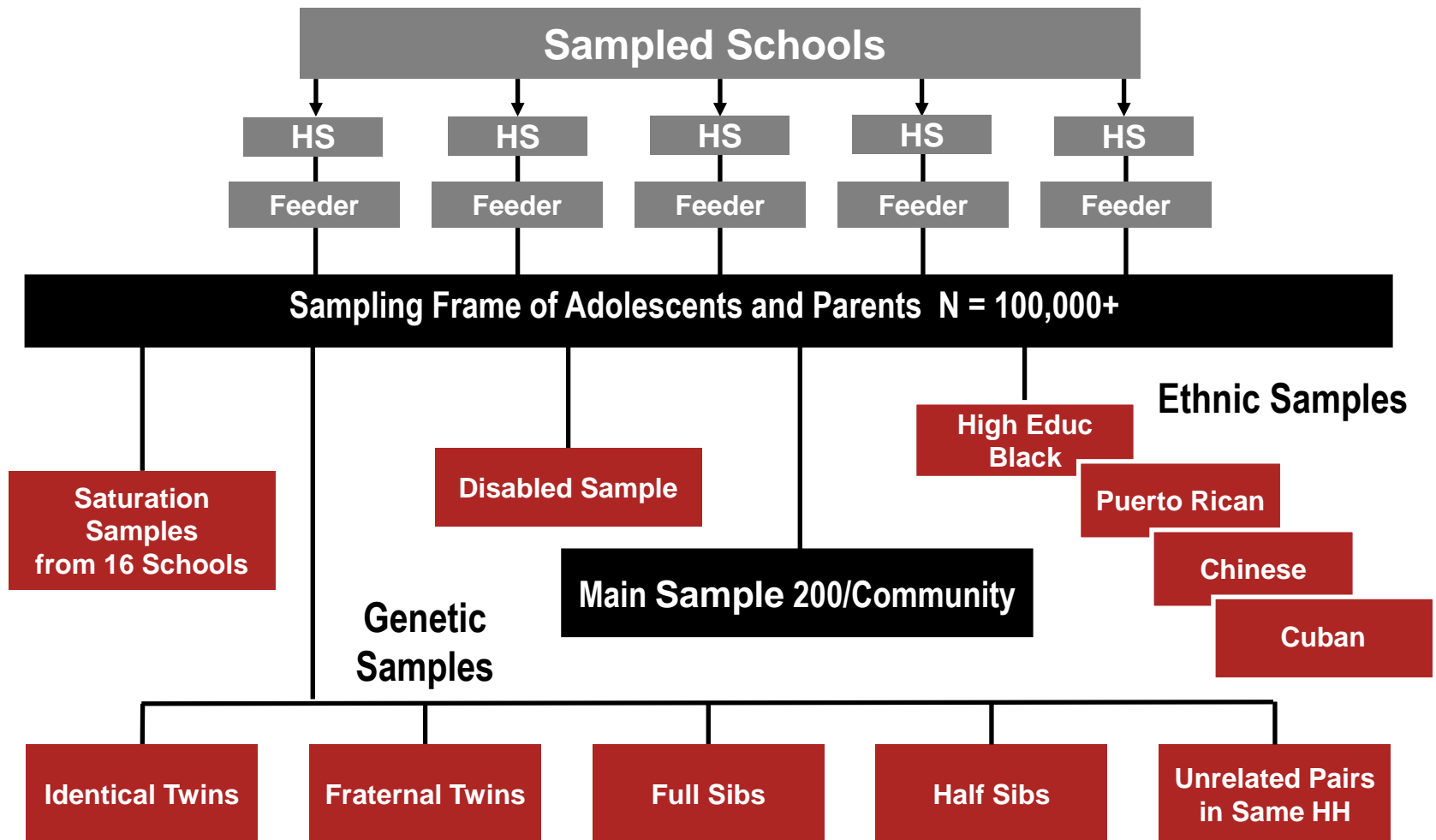
- Data made available to more than 10,000 investigators around the world for research;
- 650+ grants awarded to analyze data;
- >2,000 peer-reviewed publications that have appeared in over 350 different disciplinary journals;
- 20 books, 100 reports, and 75 book chapters based on Add Health data;
- 500+ doctoral dissertations and masters theses

# Initial Goal:

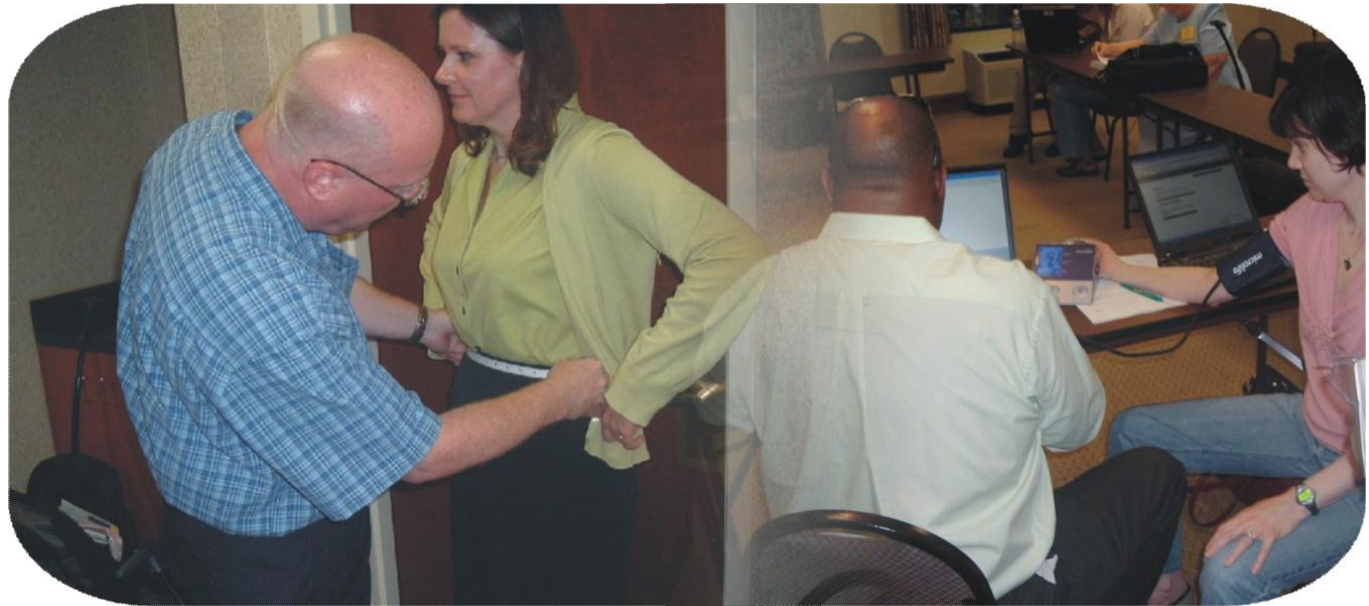
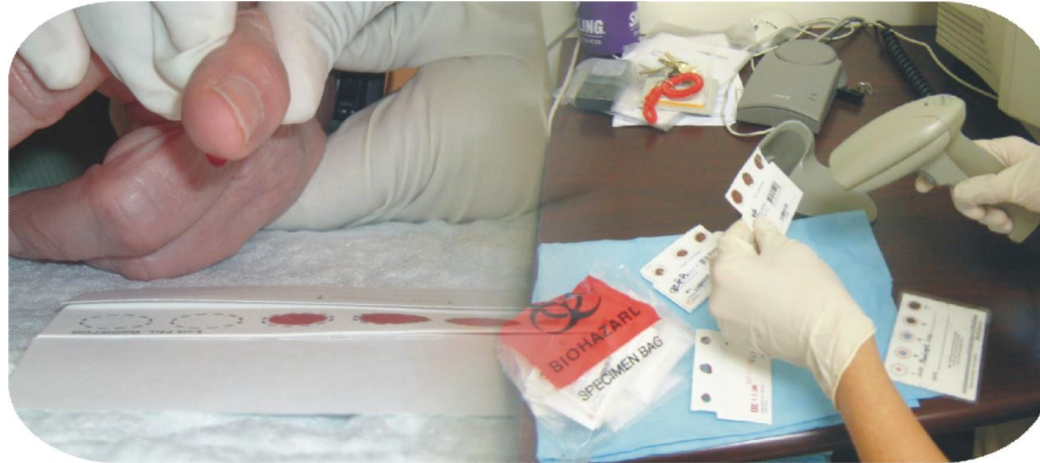
## Putting the Individual Into Context



# Sampling Structure



# Bridging Biomedical and Social Sciences



# Longitudinal Data in Add Health

Adolescence



Adulthood

Wave I  
(12-18)

Wave II  
(13-19)

Wave III  
(18-26)

Wave IV  
(24-32)

## Social environmental data:

school

family

romantic rel

neighborhood

community

peer

school

family

romantic rel

neighborhood

community

peer

college

family

romantic rel

neighborhood

community

peer

college

family

romantic rel

neighborhood

community

## Biological data:

Biological resemblance to siblings in household on 3,000 pairs

height

weight

BMI

height

weight

BMI

height,

weight, BMI

STD test results

HIV test results

DNA

ht, wt, BMI

waist

BP, pulse

markers of CVD,

stress, diabetes

DNA

GWAS



# Major Findings

- **Importance of social connections for health and well-being across the life course;**
- Transition from adolescence into early adulthood is a vulnerable period for health that sets trajectories into adulthood;
- Mapping the obesity epidemic;
- Gene—environment interplay in health and behavior;
- Young adult health at risk;




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# Health During the Transition to Adulthood

- 
- Depression
  - Suicidal thoughts
  - Self-reported poor health

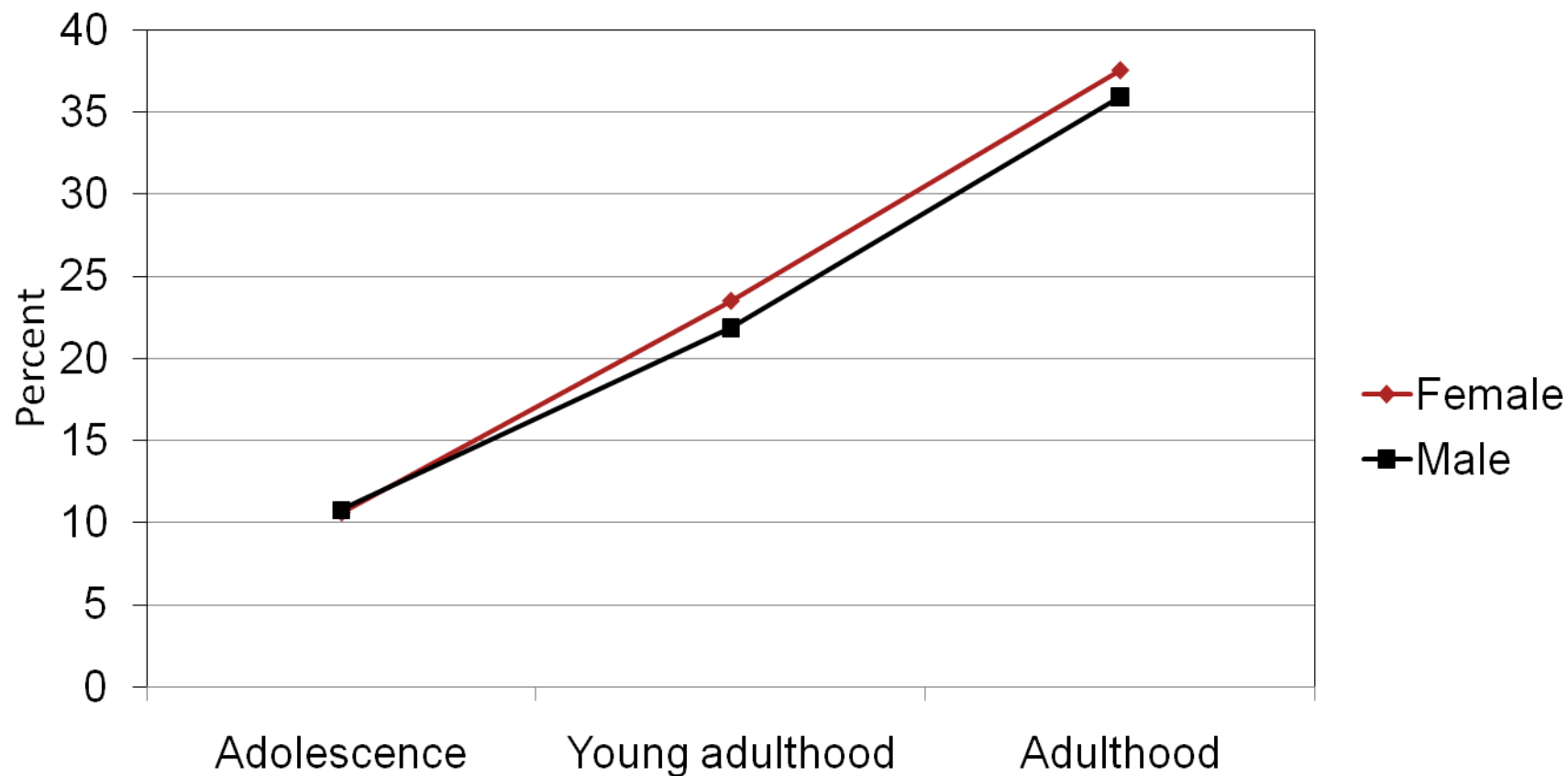
- 
- Obesity
  - No physical activity
  - No breakfast
  - Eating fast food
  - No health insurance
  - No annual check-up
  - No dental check-up
  - Foregone care
  - Asthma
  - STDs
  - Smoking
  - Marijuana use
  - Hard drug use
  - Binge drinking



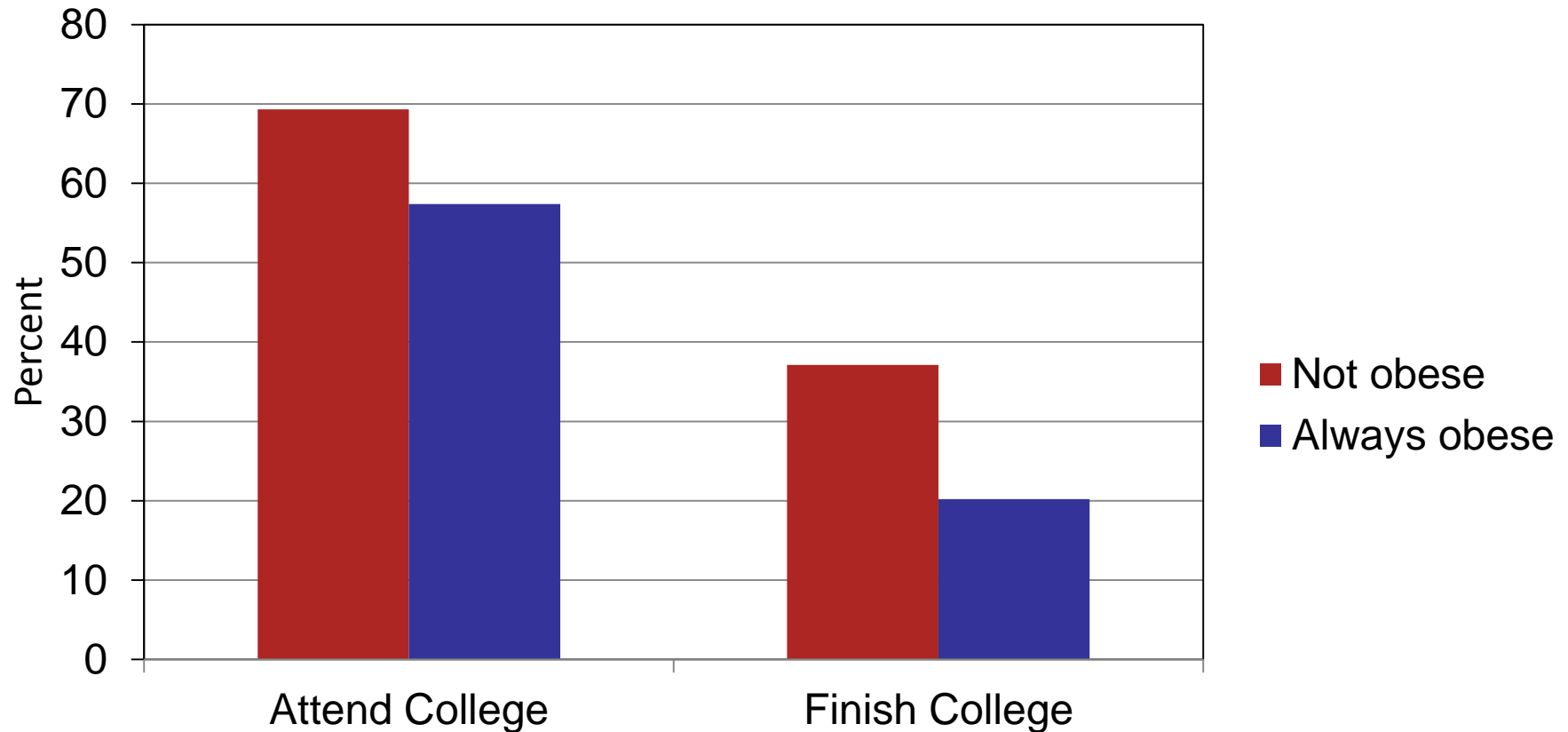
# Major Findings

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- Young adult health at risk;

## Obesity from adolescence into adulthood



# Obesity trajectories from adolescence to young adulthood associated with Educational Outcomes

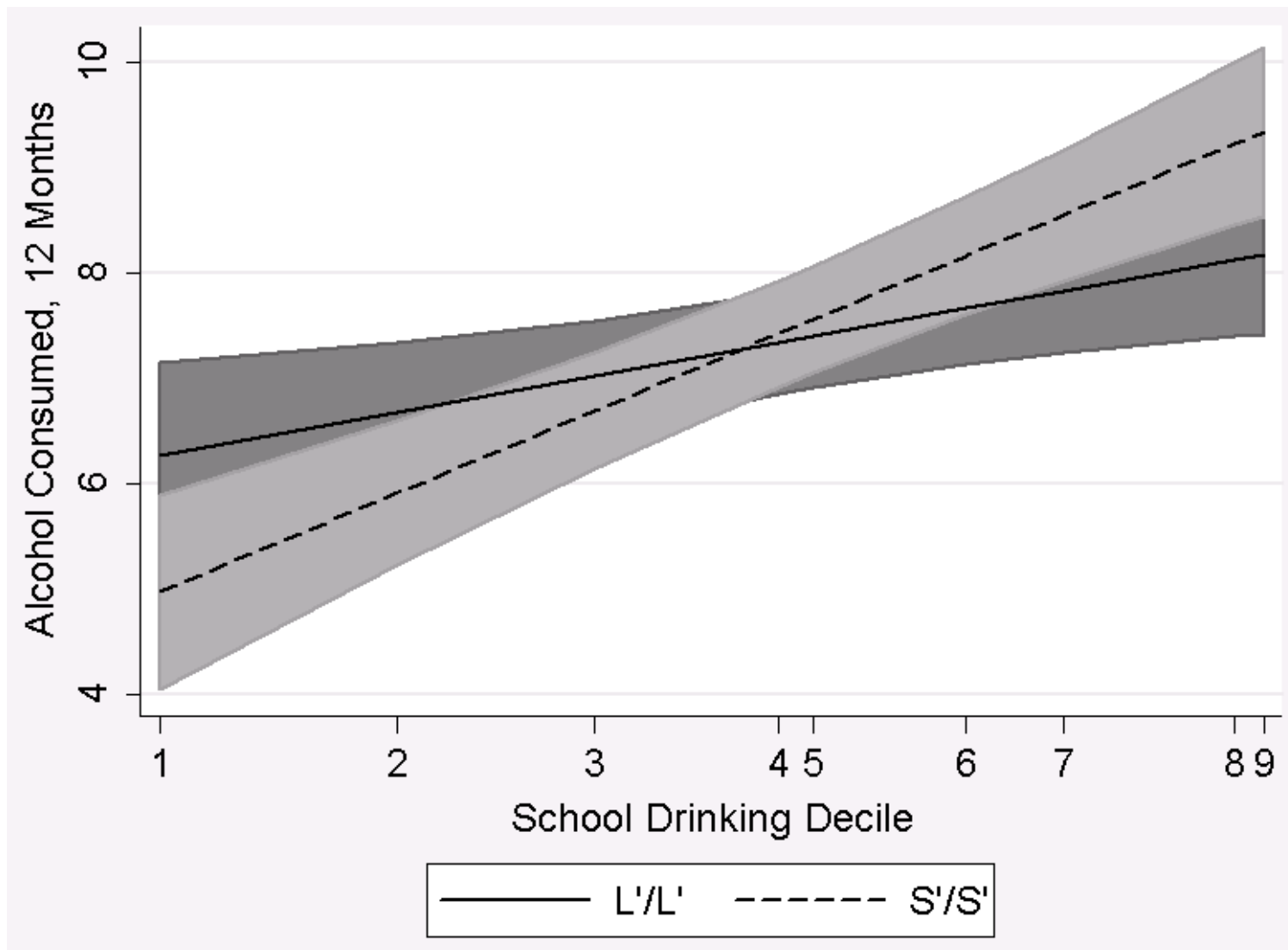




# Major Findings

- Importance of social connections for health and well-being across the life course;
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- Mapping the obesity epidemic;
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- Young adult health at risk;

## Alcohol Consumption by *5HTTLPR*



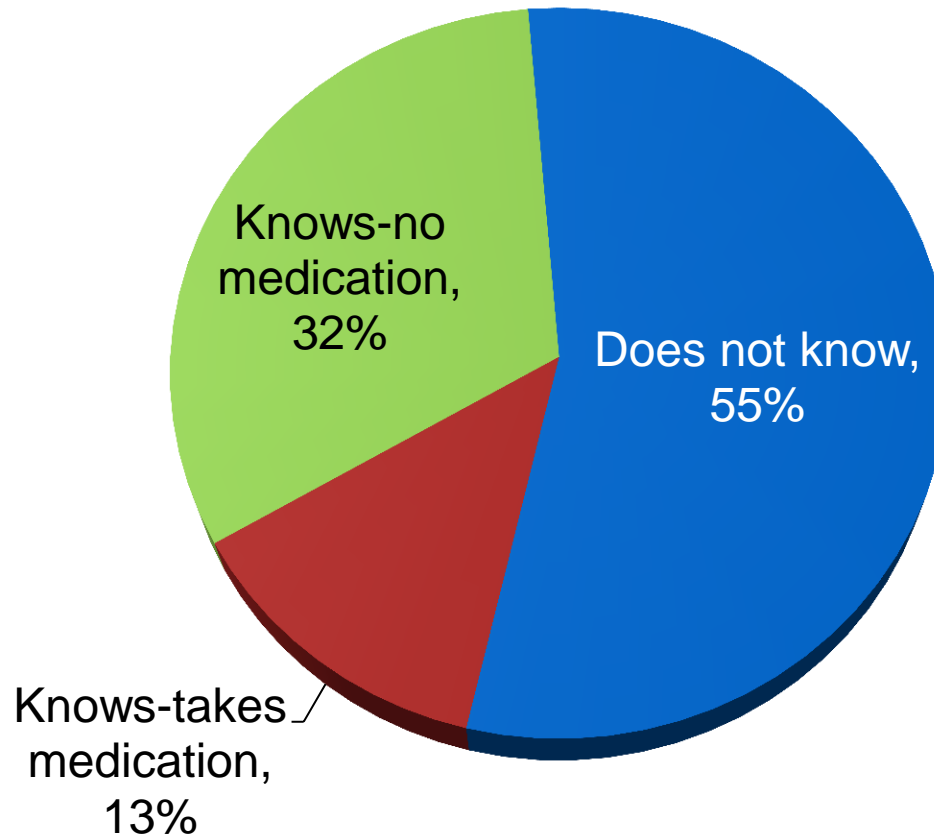


# Major Findings

- Importance of social connections for health and well-being across the life course;
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- Mapping the obesity epidemic;
- Gene—environment interplay in health and behavior;
- **Young adult health at risk;**

**Add Health uncovered a hidden epidemic of hypertension among young adults: 26% of adults aged 24-32 have hypertension (SBP $\geq$ 140 or DBP $\geq$ 90); and most don't know it.**

**Among young adults with hypertension**





# Vision for Add Health Future

- Wave V funded to re-interview cohort as they move through their 30s.
- Building Add Health into an intergenerational study
  - Follow up parents of Add Health respondents 2015 (funded by NIA);
  - Follow up the 20,000+ children of Add Health respondents;
  - Collect parallel social, behavioral, biological, genetic, environmental data on 3 generations;
  - First nationally representative study of 3 generations.



# Mounting a Study such as Add Health

- Carolina Population Center
  - Provided the multi- and inter-disciplinary environment for the design and research of Add Health;
  - Only research center in the nation or the world that could spawn a study such as Add Health.
- UNC
  - Add Health co-investigators come from multiple disciplines across UNC campus--sociology, public health, biostatistics, cardiology, economics, epidemiology, genetics, nutrition...
  - Provides the support, mentoring, resources to develop junior scholar careers.