

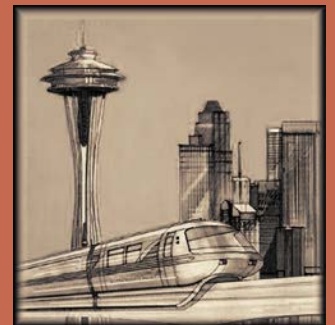


SCHOOL OF SOCIAL WORK  
UNIVERSITY *of* WASHINGTON

# AN EXAMINATION OF NEIGHBORHOOD CONTEXTS AND SUBSTANCE USE ACROSS THE LIFE COURSE

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Dissertation Research Colloquium  
University of Washington  
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THANK YOU...



Committee Members

Research Scientists at SDRG

School of Social Work

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# OVERVIEW OF TODAY'S TOPICS



- Empirical and Theoretical Background
- Seattle Social Development Project
- **PAPER 1:** Neighborhood, peer, and family factors associated with cigarette smoking and alcohol use from age 10 to 14
- **PAPER 2:** Neighborhood context and proximal risk factors for cigarette smoking, binge drinking, marijuana use, and polysubstance use at age 14
- **PAPER 3:** An examination of alcohol use disorder symptoms and neighborhood disorganization from age 21 to 39
- Overall Implications

# SUBSTANCE USE ACROSS THE LIFE COURSE



## **CIGARETTE SMOKING**

~480,000 annual deaths and more than 300 billion dollars of economic costs are attributed to the effects of smoking-related disease and disability

## **ALCOHOL USE**

~88,000 annual deaths attributable to alcohol-related causes and economic estimates of the alcohol-related costs of health care, mortality, and reduced worker productivity reached \$249 billion

## **MARIJUANA USE**

Direct health related costs are likely much smaller than for smoking or alcohol use. Research still in progress on this front but indirect costs may emanate from reduced education attainment, lost worker productivity, and accidental poisonings

# SUBSTANCE USE ACROSS THE LIFE COURSE



Preventing cigarette, alcohol and marijuana use among youth and abuse among adults can ***reduce risks for both short and long term harms***

- Substance abuse and dependence
- Unintentional physical injury to oneself or others
- Inhibition of normal cognitive development for adolescents
- Reduced educational attainment
- Lost worker productivity
- Interpersonal violence
- Mental health issues

Substance use and abuse leads to ***substantial amount of both direct and indirect societal costs*** across the life course

# THEORETICAL UNDERPINNINGS



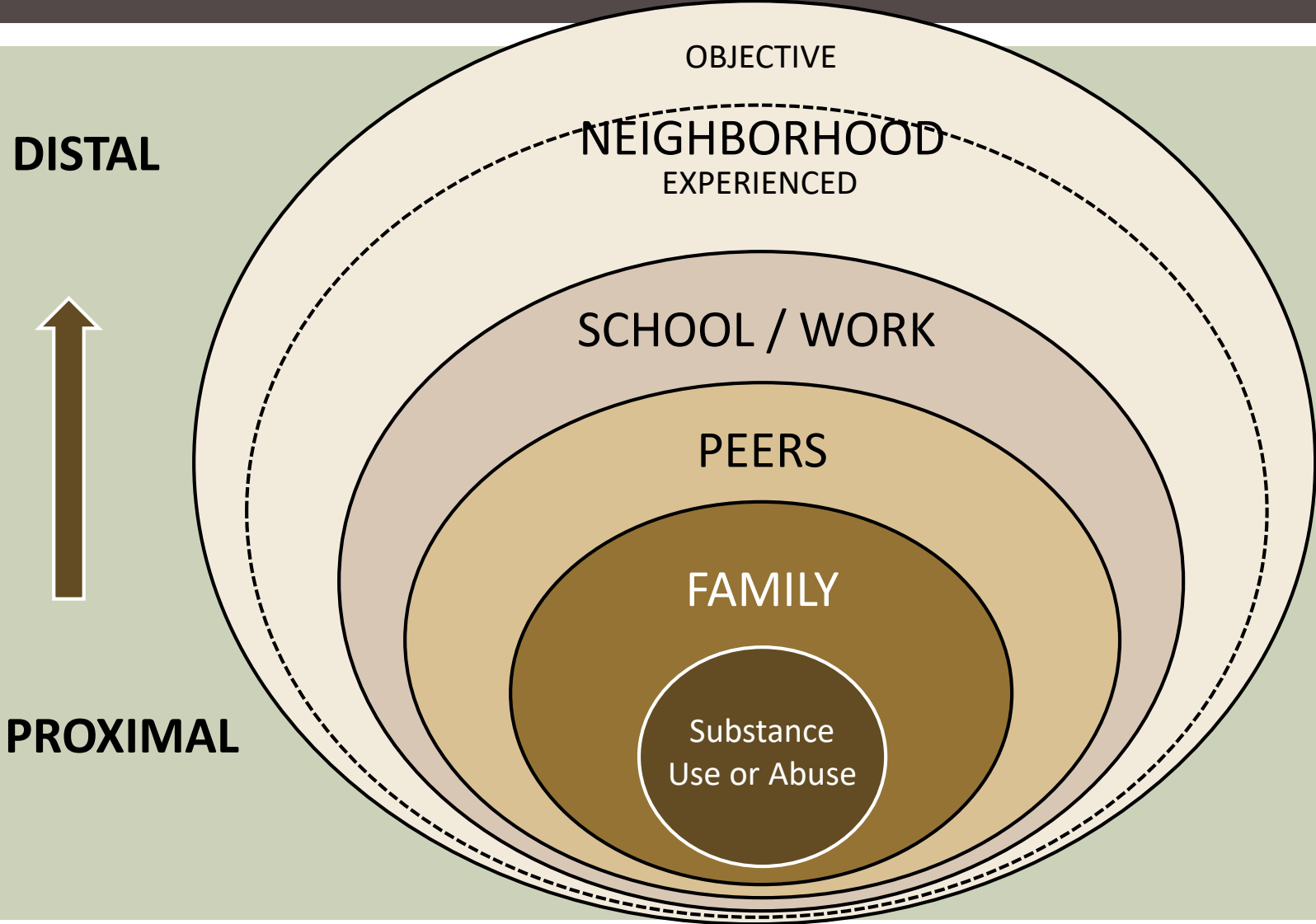
*Social ecological model:* tells us behavior is best understood as embedded within social contexts such as neighborhoods, schools / jobs, peer groups, and families

*Life course theory:* details the importance of examining relevant individual and contextual factors across different developmental periods

*Social development model:* a social ecological and life course theory that organizes empirical predictors from multiple ecological contexts (neighborhood, school, peer, and family) and individual characteristics into mechanisms through which risk and protective factors impact substance use and delinquency

***Social disorganization theory:*** recognizes of the importance of social processes at work within neighborhoods and posits that interactional social processes are an important mechanism by which neighborhoods impact individual-level health and behavior

# SOCIAL ECOLOGICAL MODEL OF SUBSTANCE USE OR ABUSE



# WHAT IS THE ROLE OF NEIGHBORHOOD CONTEXTS FOR SUBSTANCE USE OR ABUSE?

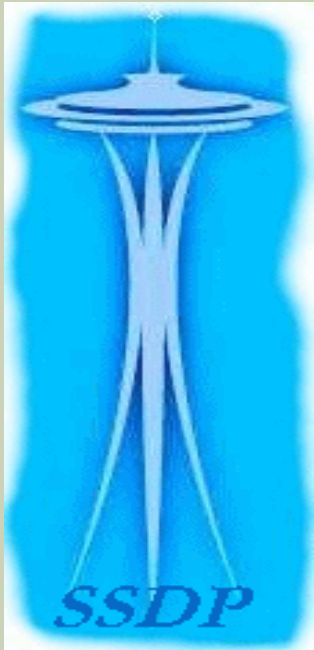


Systematic reviews have **highlighted inconsistent findings** across studies examining associations between neighborhood contexts and substance use or abuse. Inconsistencies may result from...

1. insufficient **family level SES controls** (papers 1, 2, & 3)
2. challenges assessing **neighborhoods over time** (papers 1 & 3)
3. lack of consideration of **proximal risk factors** for substance use or abuse (papers 1, 2, & 3) or consideration of proximal factors as **mechanisms** by which neighborhoods may influence behavior (papers 1 & 3)
4. different neighborhood characteristics may be **differentially associated** with different substances (papers 1 & 2)



# SEATTLE SOCIAL DEVELOPMENT PROJECT (SSDP)



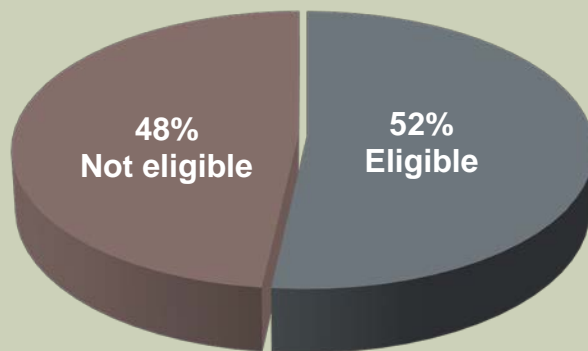
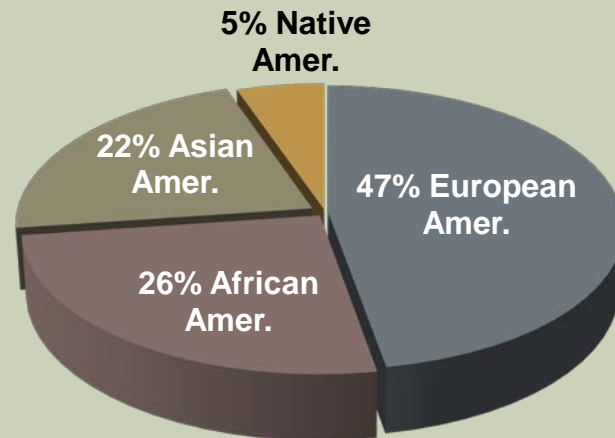
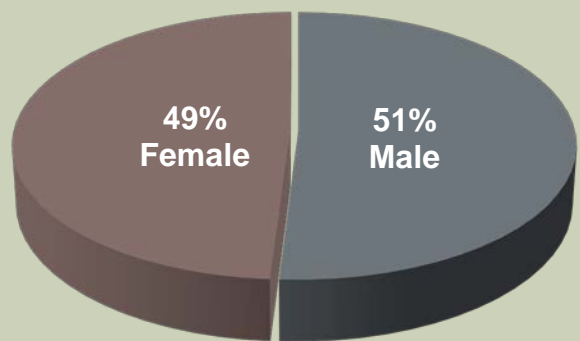
PIs: J. David Hawkins, Karl G. Hill, Jennifer A. Bailey, Rick Kosterman

A theory-driven, longitudinal study of the etiology of prosocial and antisocial behaviors

In 1985, 18 Seattle elementary schools were identified that overrepresented high-crime neighborhoods

808 (77%) 5<sup>th</sup> grade students and their parents consented to the longitudinal study

# SSDP SAMPLE DIVERSITY

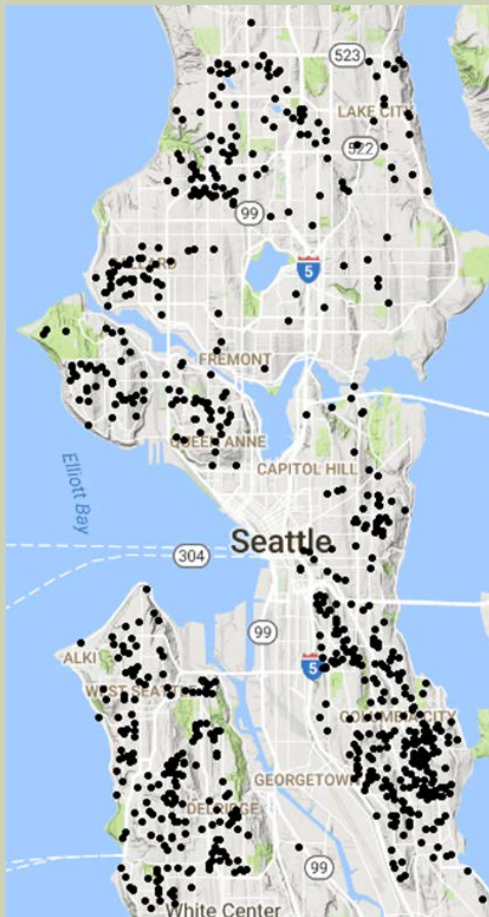


Eligible for free or reduced lunch in grade 5, 6 or 7

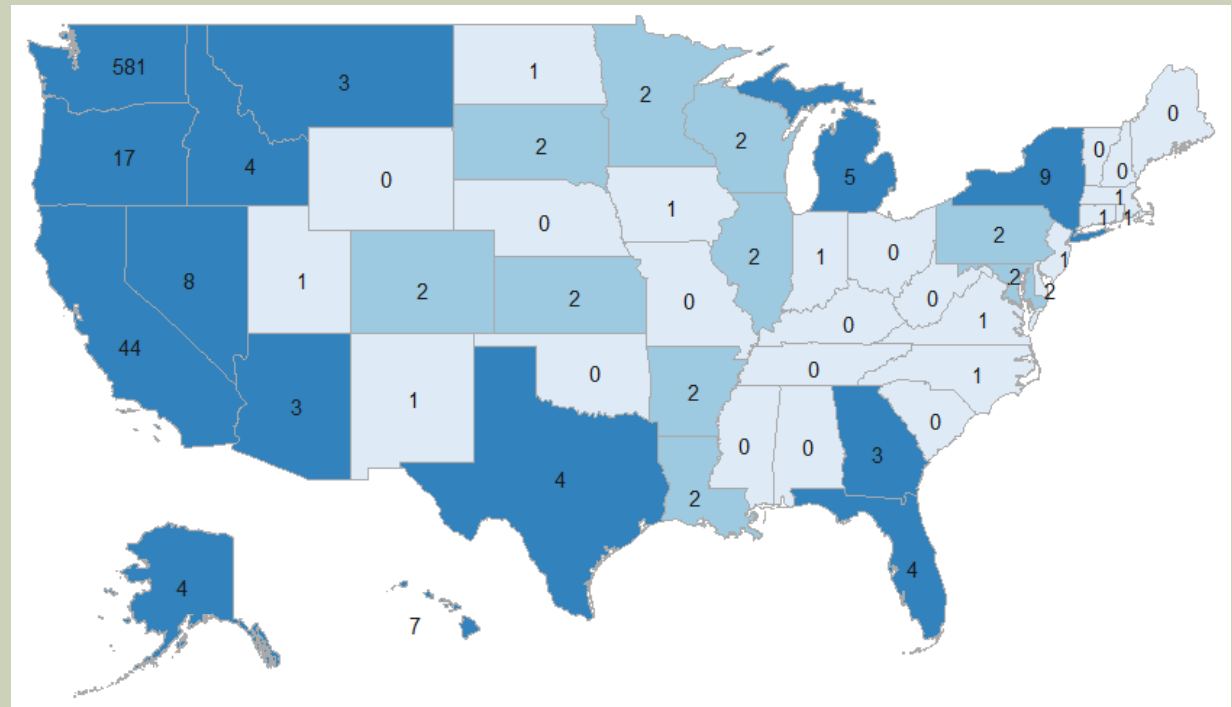
# WHERE DID THEY LIVE?



## AGE 10



## AGE 33



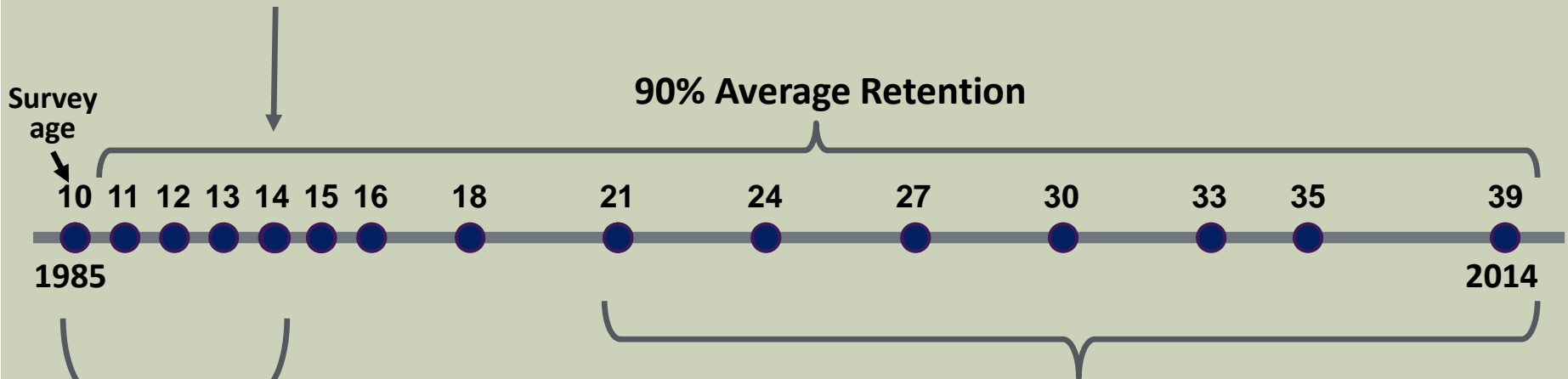
~79% still lived in WA at age 33

38 States + 9 Countries: Canada, Germany, China, Thailand, Netherlands, Brazil, Hong Kong, Japan

# WHEN DID THEY LIVE THERE? LONGITUDINAL ASSESSMENT FROM 1985 TO 2014



**PAPER 2:** Neighborhood contexts and proximal risk factors for cigarette smoking, binge drinking, marijuana use, and polysubstance use at age 14 (N=766)



**PAPER 3:** An examination of alcohol use disorder symptoms and neighborhood disorganization from age 21 to 39 (N=790)

**PAPER 1:** Neighborhood, peer, and family factors associated with cigarette smoking and alcohol use from age 10 to 14 (N=808)

# NEIGHBORHOOD CONTEXTS AND SUBSTANCE USE ACROSS THE LIFE COURSE



**PAPER 1:** Neighborhood, peer, and family factors associated with cigarette smoking and alcohol use from age 10 to 14

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## PAPER 1 RESEARCH QUESTIONS



**Are time varying measures of neighborhood, peer, and family factors associated with cigarette smoking and alcohol use from age 10 to 14?**

**Are peer or family factors a mechanism connecting neighborhood factors and youth smoking or alcohol use?**

# PAST MONTH CIGARETTE SMOKING AND ALCOHOL USE



## Past Month Cigarette Smoking (0-3)

- none
- less than 1 / day
- 1-5 / day
- 10+ / day

AGE	10	11	12	14
M	.08	.12	.16	.35
SD	.37	.41	.51	.85

## Past Month Alcohol Use (0-3)

- none
- 1-2 times
- 3-5 times
- 6+ times

AGE	10	11	12	14
M	.23	.24	.27	.41
SD	.52	.54	.59	.79

# TIME VARYING NEIGHBORHOOD MEASURES



***Principal Component Analysis*** summarized 10 block group level variables from the 1990 census

## ■ **Residential Stability**

- Percent of owner-occupied homes
- individuals living in the same residence for 5+ years

## ■ **Neighborhood Disadvantage**

- Percent of adults without high school diploma
- individuals receiving public assistance
- families living in poverty
- males and females in labor force and unemployed
- single-parent, female-headed households
- youth ages 11-17
- number of racial groups with 10% or more representation



# TIME VARYING PEER & FAMILY FACTORS

## TIME FIXED COVARIATES



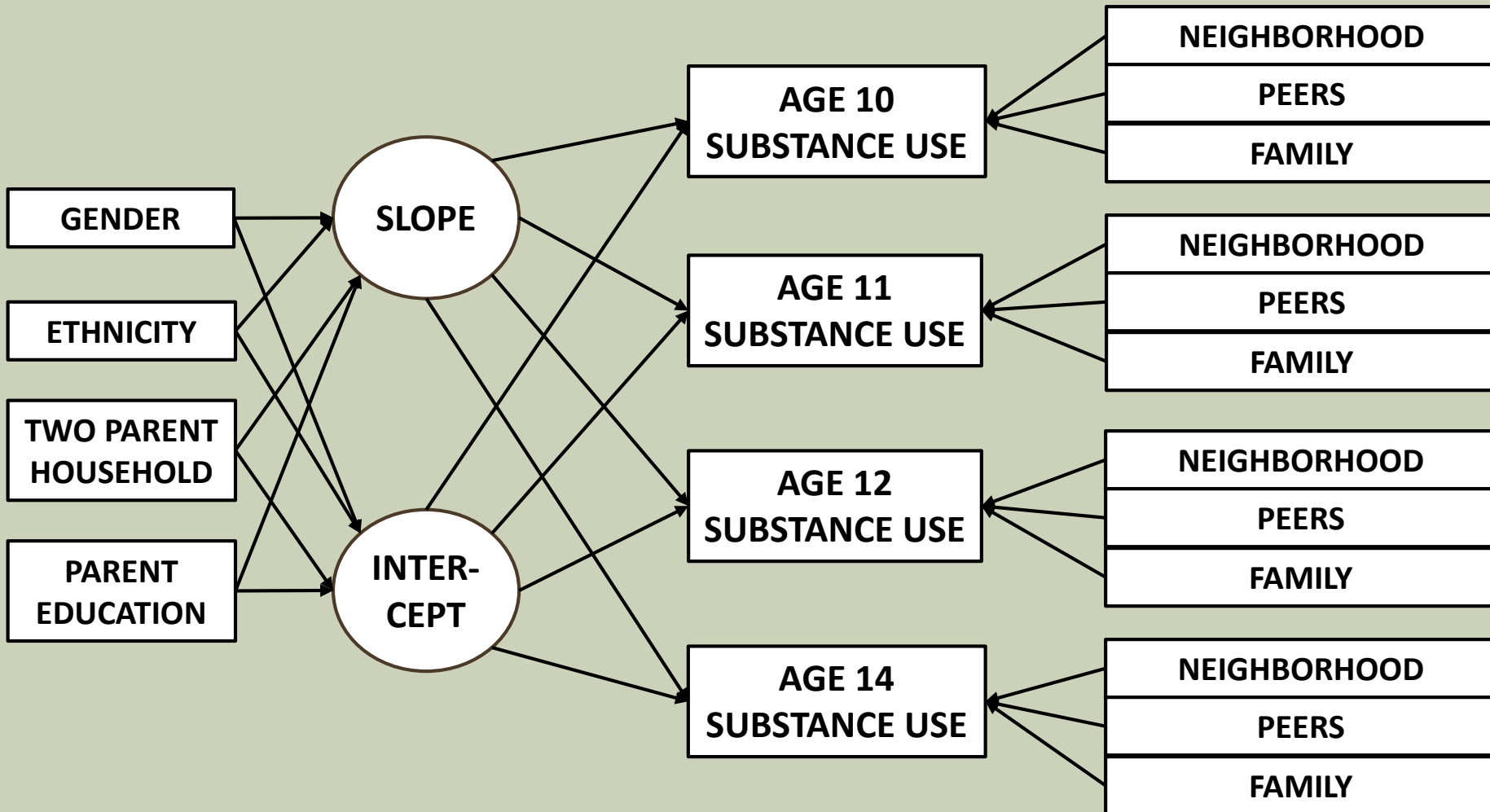
### Time Varying Covariates

- Deviant Peer Affiliations
  - 3 best friends get in trouble, use alcohol w/out parents knowing
- Family Income
  - less than \$5000 annually to over \$40000
- Low Family Functioning
  - Low bonding, high conflict, poor management, low prosocial involvement
- Family Smoking Environment
  - sibling use, parent norms
- Family Alcohol Use Environment
  - parent and sibling use, parent norms

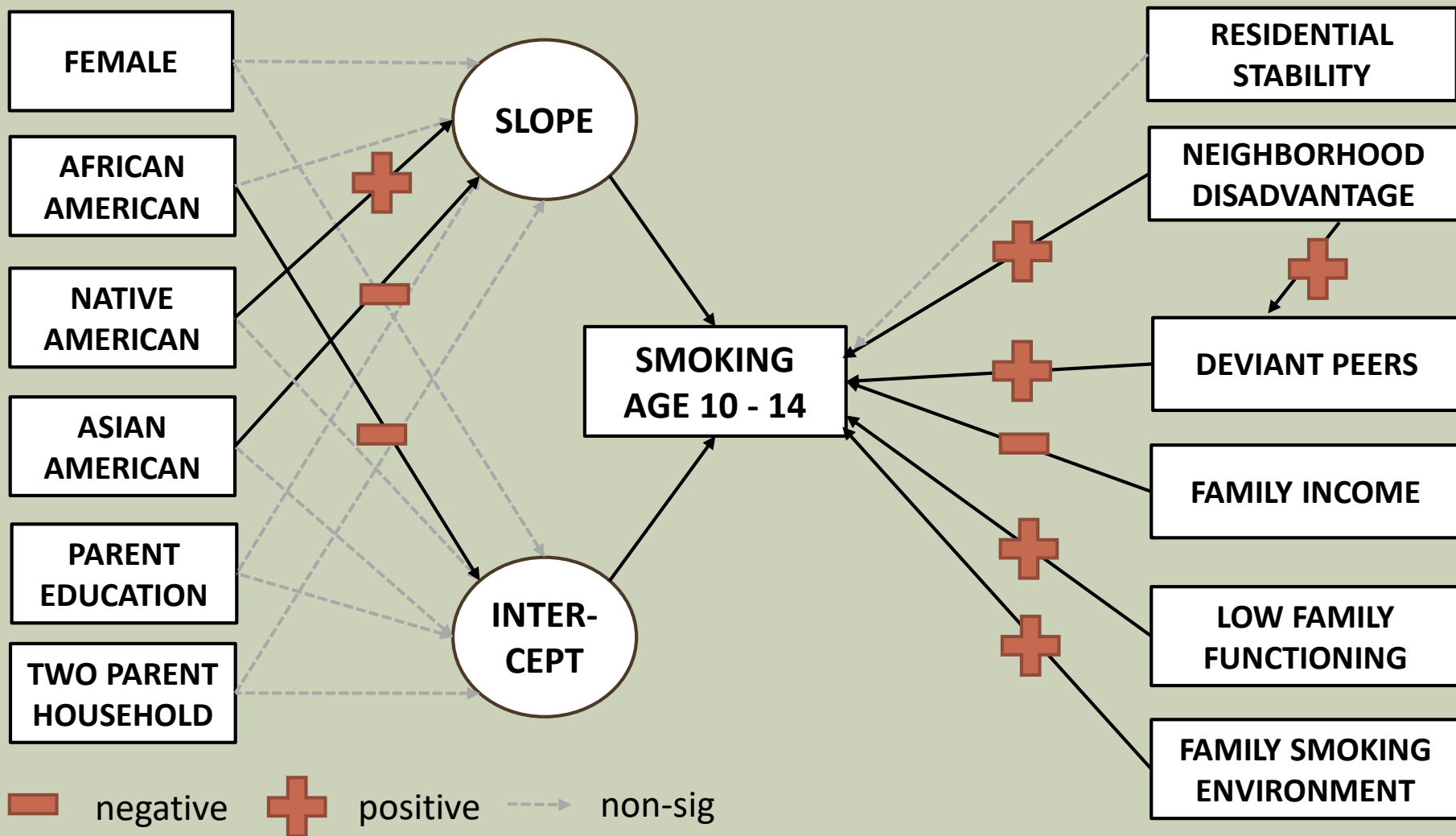
### Time Fixed Covariates

- Two Parent Household (0 - 1)
- Parent College Education (0 - 1)
- Gender
- Race/Ethnicity

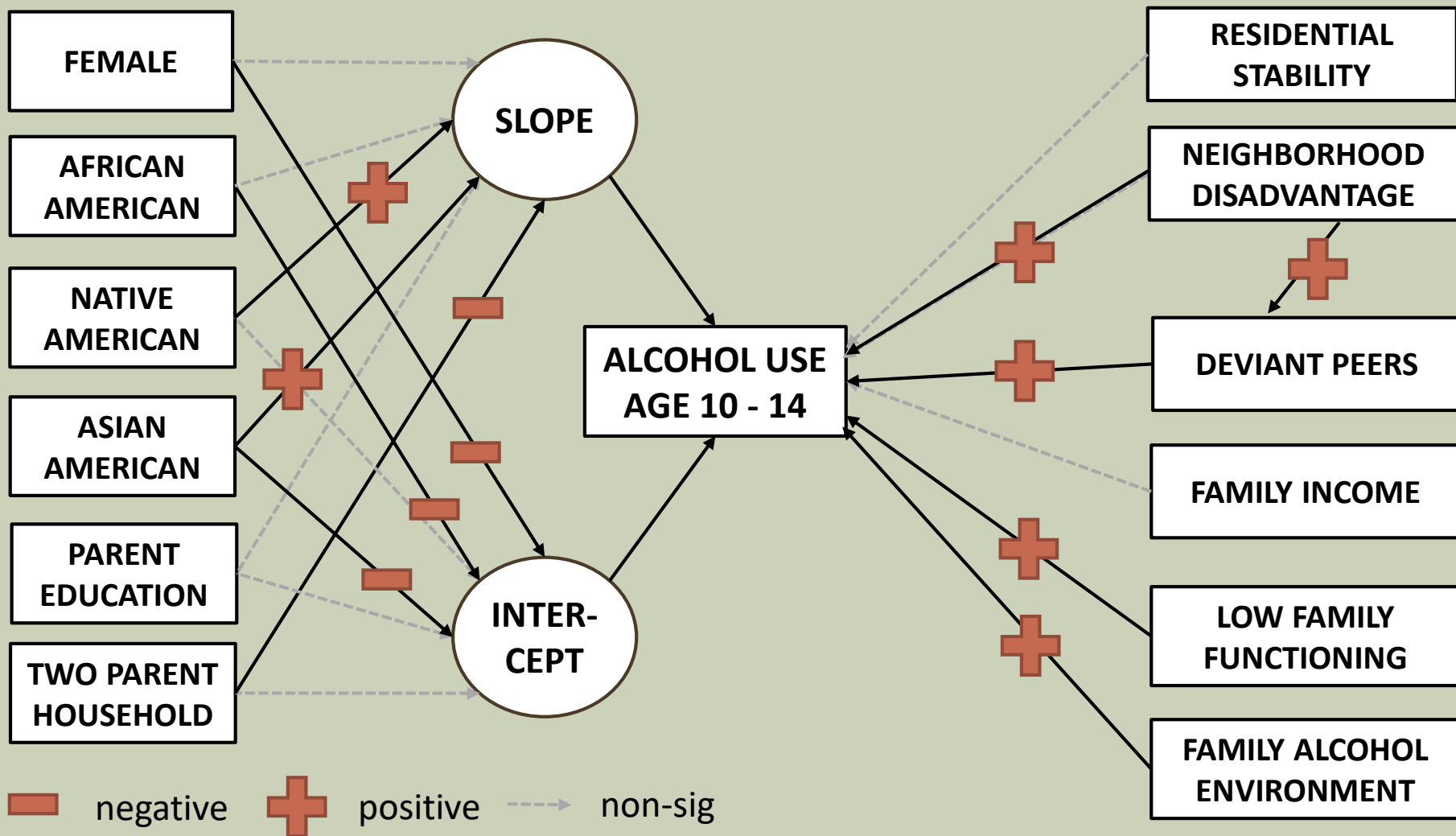
# LATENT GROWTH CURVES FOR CIGARETTE SMOKING AND ALCOHOL USE FROM AGE 10 TO 14



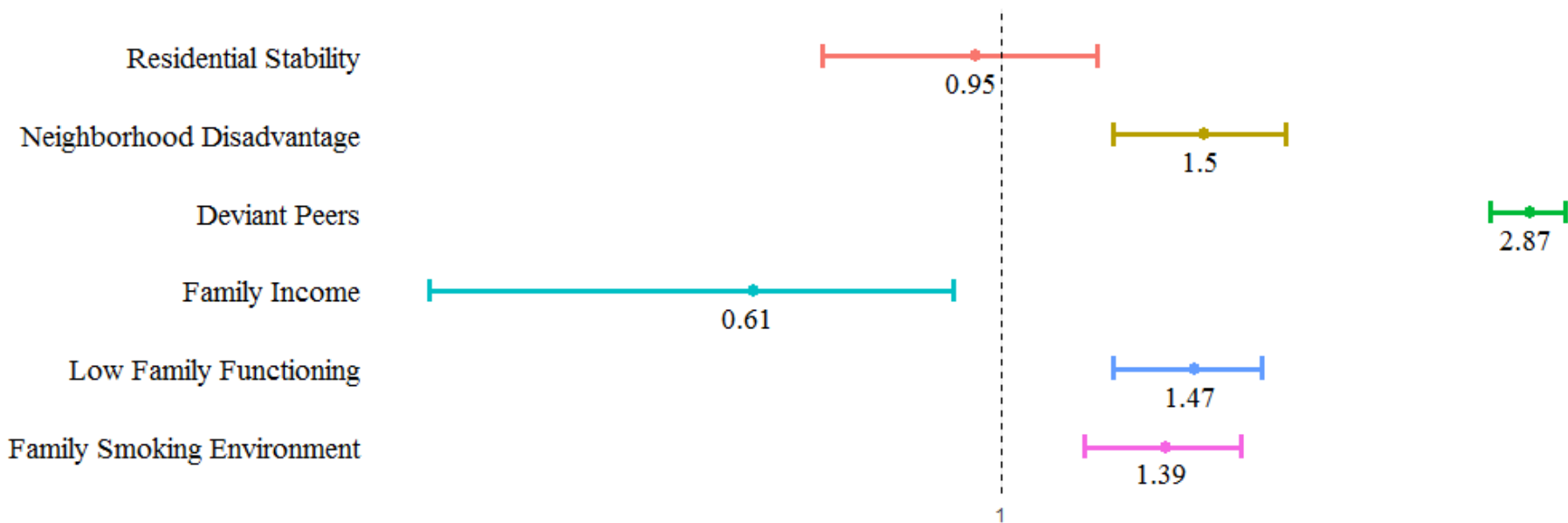
# LATENT GROWTH CURVE FOR CIGARETTE SMOKING FROM AGE 10 TO 14



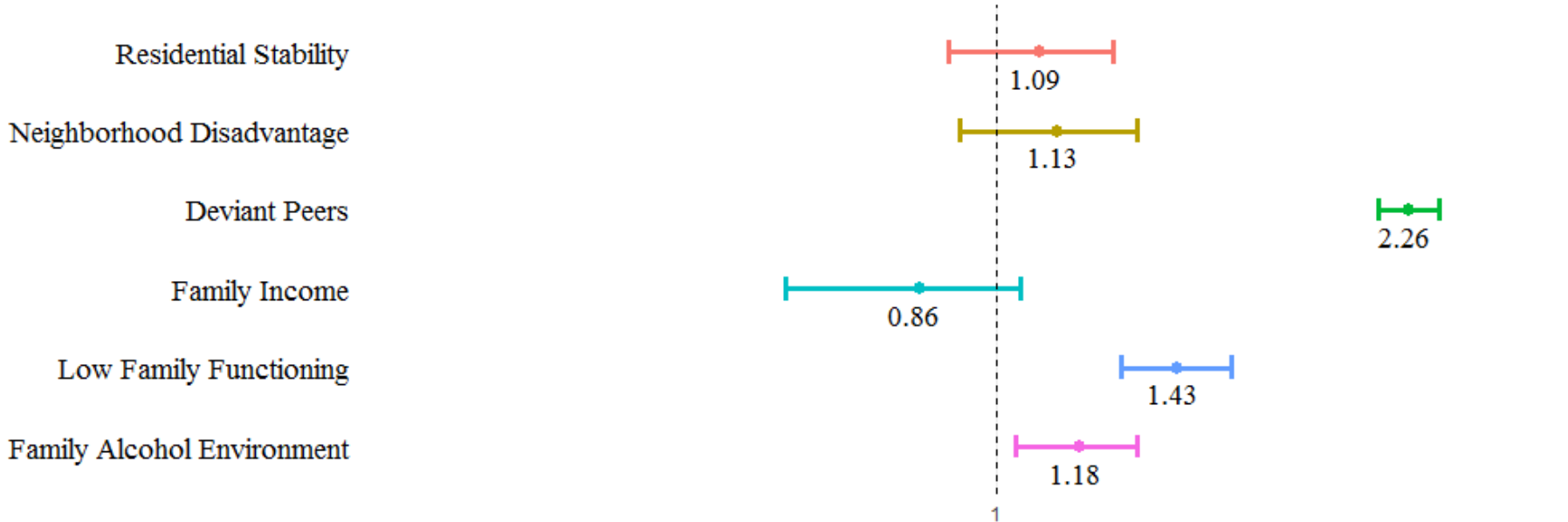
# LATENT GROWTH CURVE FOR ALCOHOL USE FROM AGE 10 TO 14



### Odds Ratios & 95% CI for Past Month Smoking



### Odds Ratios & 95% CI for Past Month Alcohol Use



## PAPER 1 FINDINGS



Adolescents in ***disadvantaged neighborhoods*** were at increased risk for ***cigarette smoking and alcohol use*** from grade 5 to 9

***Neighborhood and family SES*** are particularly relevant for the etiology of early smoking

***Deviant peer affiliations***, but not family functioning, ***mediated associations*** between neighborhood disadvantage and both smoking and alcohol use

# NEIGHBORHOOD CONTEXTS AND SUBSTANCE USE ACROSS THE LIFE COURSE



**PAPER 1:** Neighborhood, peer, and family factors associated with cigarette smoking and alcohol use from age 10 to 14

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## PAPER 2 RESEARCH QUESTIONS

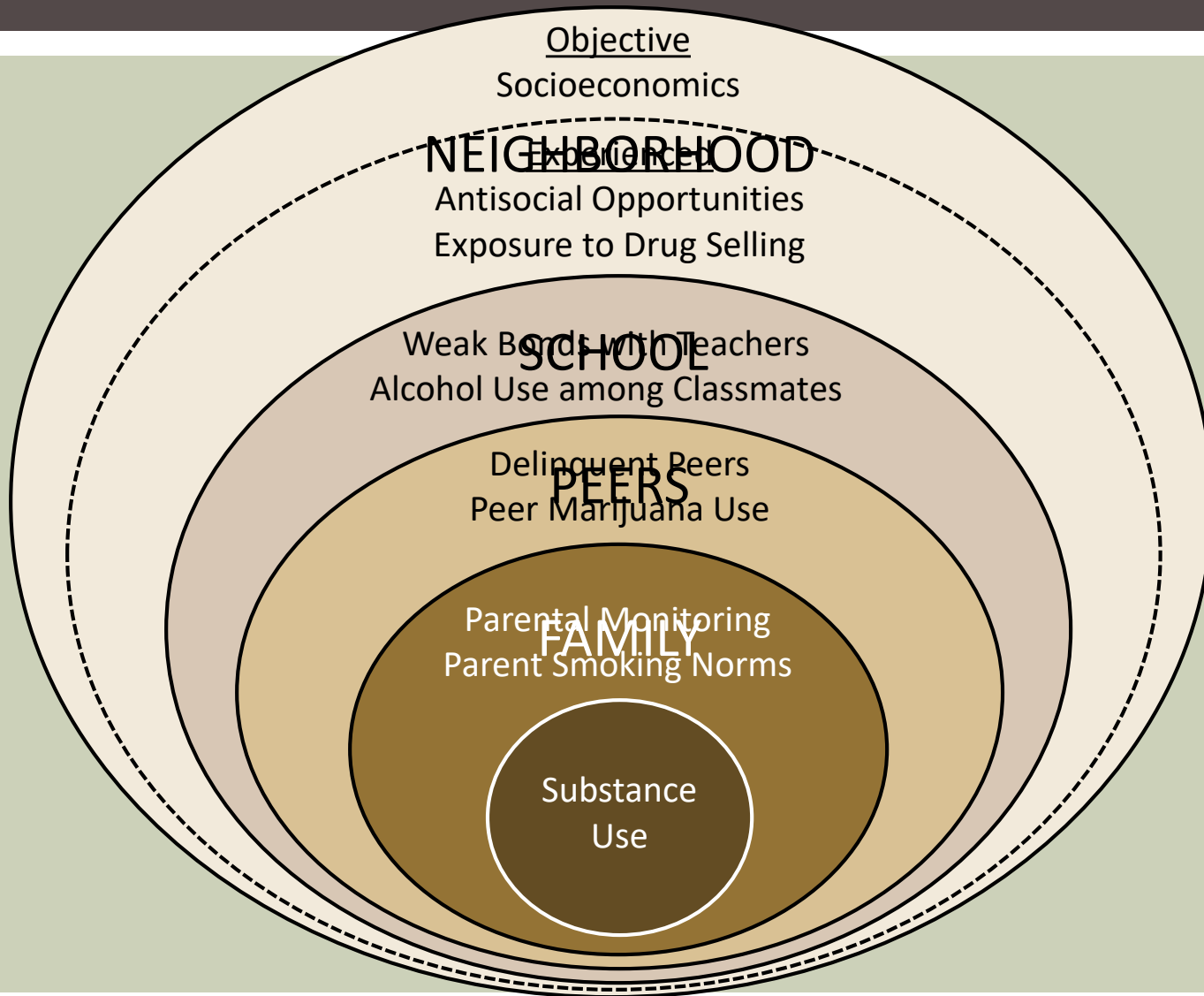


**Are objective measures of neighborhood disadvantage and residential stability associated with adolescent substance use?**

**Are these associations attenuated by more proximal risk factors for substance use?**



# SOCIAL ECOLOGICAL MODEL OF SUBSTANCE USE



# ANY PAST MONTH CIGARETTE SMOKING, BINGE DRINKING, MARIJUANA USE, & POLYSUBSTANCE USE



Substance	M (or %)	SD	Question
Cigarette Smoking	18%	-	How many times have you smoked cigarettes in the past month?
Binge Drinking	8%	-	Think back over the last month. How many times have you had 5 or more drinks in a row?
Marijuana Use	9%	-	How many times have you smoked marijuana in the past month?
Polysubstance Use	.33	.68	Sum of above questions
1 substance only	14%	-	
2 substances	6%	-	
3 substances	2%	-	

# GENERAL & SPECIFIC ENVIRONMENTAL RISK FACTORS



- **Neighborhood General:** antisocial opportunities, low bonding, low prosocial involvement and opportunities
- **Neighborhood Substance Specific:** drug selling in neighborhood, number of adults who get drunk or use drugs
- **School General:** low prosocial opportunities, involvement, rewards, bonding
- **School Substance Specific:** % of students using alcohol or marijuana
- **Peer General:** antisocial friends, antisocial opportunities
- **Peer Substance Specific:** friends using alcohol & marijuana
- **Family General:** Low bonding, high conflict, poor management, low prosocial involvement
- **Family Substance Specific:** parent & sibling cigarette, alcohol, and drug use, parental norms regarding substance use

# SOCIODEMOGRAPHIC FACTORS & CONTROLS



**Two Parent Household (0 - 1)**

**Parental College Education (0 - 1)**

**Family Income (1 - 7)**

- less than \$5000 annually to over \$40000

**Family Housing Instability (1 - 5)**

- # of homes lived in since kindergarten

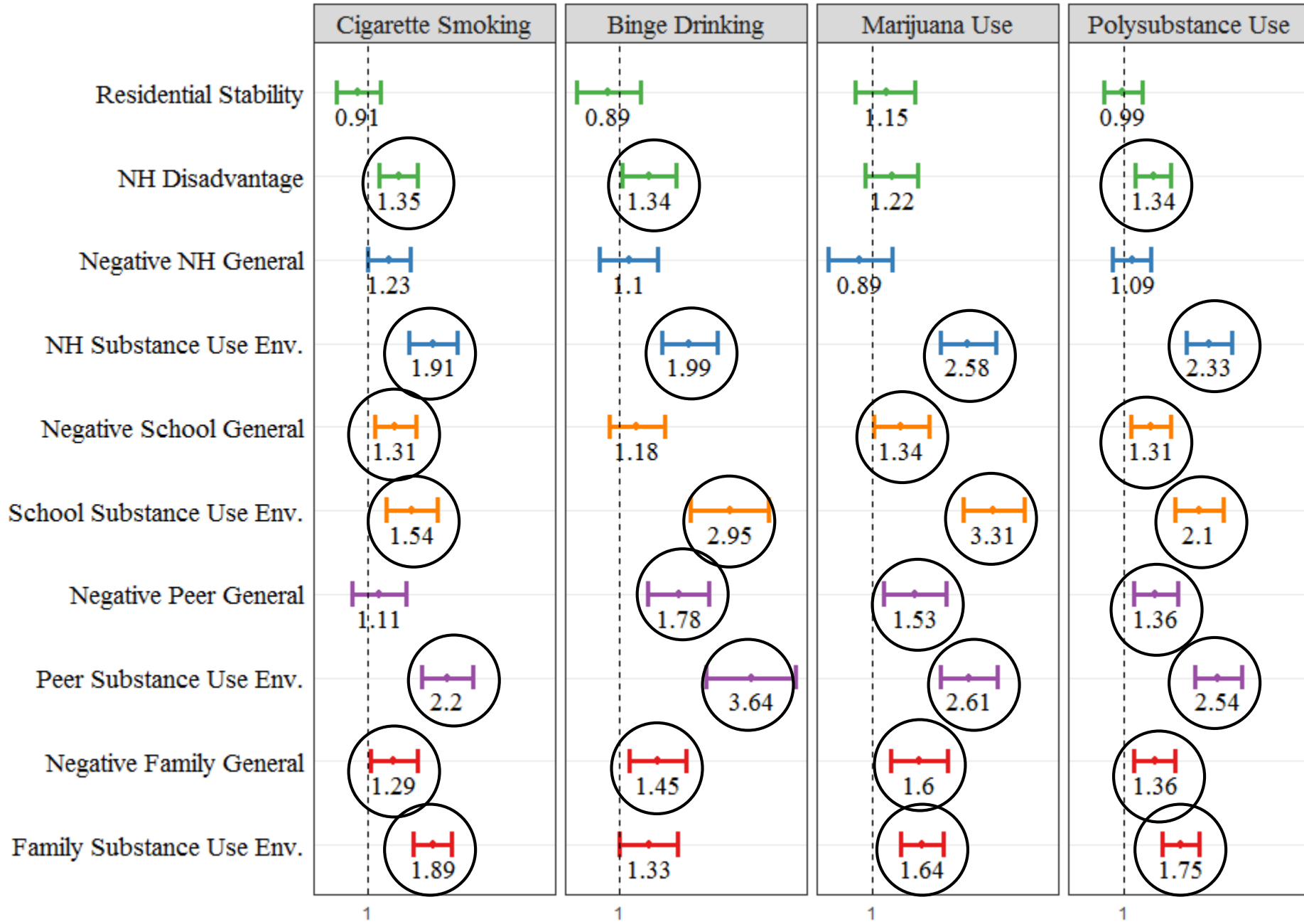
**Gender**

**Ethnicity**

**Substance Use Ever at Grade 5 (0 - 3)**

- Have you ever smoked a cigarette, drank alcohol, smoked marijuana?

# ODDS RATIOS & 95% CONFIDENCE INTERVALS FROM LOGISTIC & ORDINAL REGRESSIONS FOR DOMAIN SPECIFIC MODELS



# ODDS RATIOS & 95% CONFIDENCE INTERVALS FROM LOGISTIC & ORDINAL REGRESSIONS FOR FULLY CONTROLLED MODELS



## PAPER 2 FINDINGS



Adolescents in ***disadvantaged neighborhoods*** were at increased risk for ***cigarette smoking, binge drinking and polysubstance use***

Neighborhood disadvantage ***not related to marijuana use***

***Substance-use specific features*** of neighborhoods, schools, families, and ***especially peers*** are important risk factors for adolescent substance use

# NEIGHBORHOOD CONTEXTS AND SUBSTANCE USE ACROSS THE LIFE COURSE



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## PAPER 3 RESEARCH QUESTIONS



**Is neighborhood disorganization associated with alcohol use disorder (AUD) symptoms from age 21 to 39?**

**Is anxiety or depression a mechanism connecting neighborhood disorganization and AUD symptoms?**

# ALCOHOL USE DISORDER SYMPTOMS



DSM-IV criteria are indicated by 11 questions on *recurrent problems* caused by alcohol across these domains:

- family or friends
- law enforcement (disorderly, DUI)
- school / employment
- physical / mental health
- withdrawal resulting directly from alcohol use
- repeated failed attempts to reduce or stop usage

AGE	21	24	27	30	33	39
M	1.25	1.09	.91	.80	.78	.55
SD	1.81	1.76	1.84	1.73	1.86	1.55

# NEIGHBORHOOD DISORGANIZATION TIME VARYING



Mean Scale of 8 Questions

Does / do \_\_\_\_\_ describe your neighborhood?

- *drug dealing or crime*
- *shootings or knifings*
- *empty or abandoned buildings*
- *undesirable neighbors*
- *fight*s
- *gangs*
- *graffiti*

Response options: (1) Not at all, (2) Not much, (3) Pretty much, (4) A lot

- I *feel safe* in my neighborhood

Response options: (1) YES!, (2) Yes, (3) No, (4) NO!

AGE	21	24	27	30	33	39
M	1.66	1.61	1.57	1.56	1.58	1.64
SD	.59	.57	.56	.55	.61	.60



# TIME VARYING & TIME FIXED COVARIATES

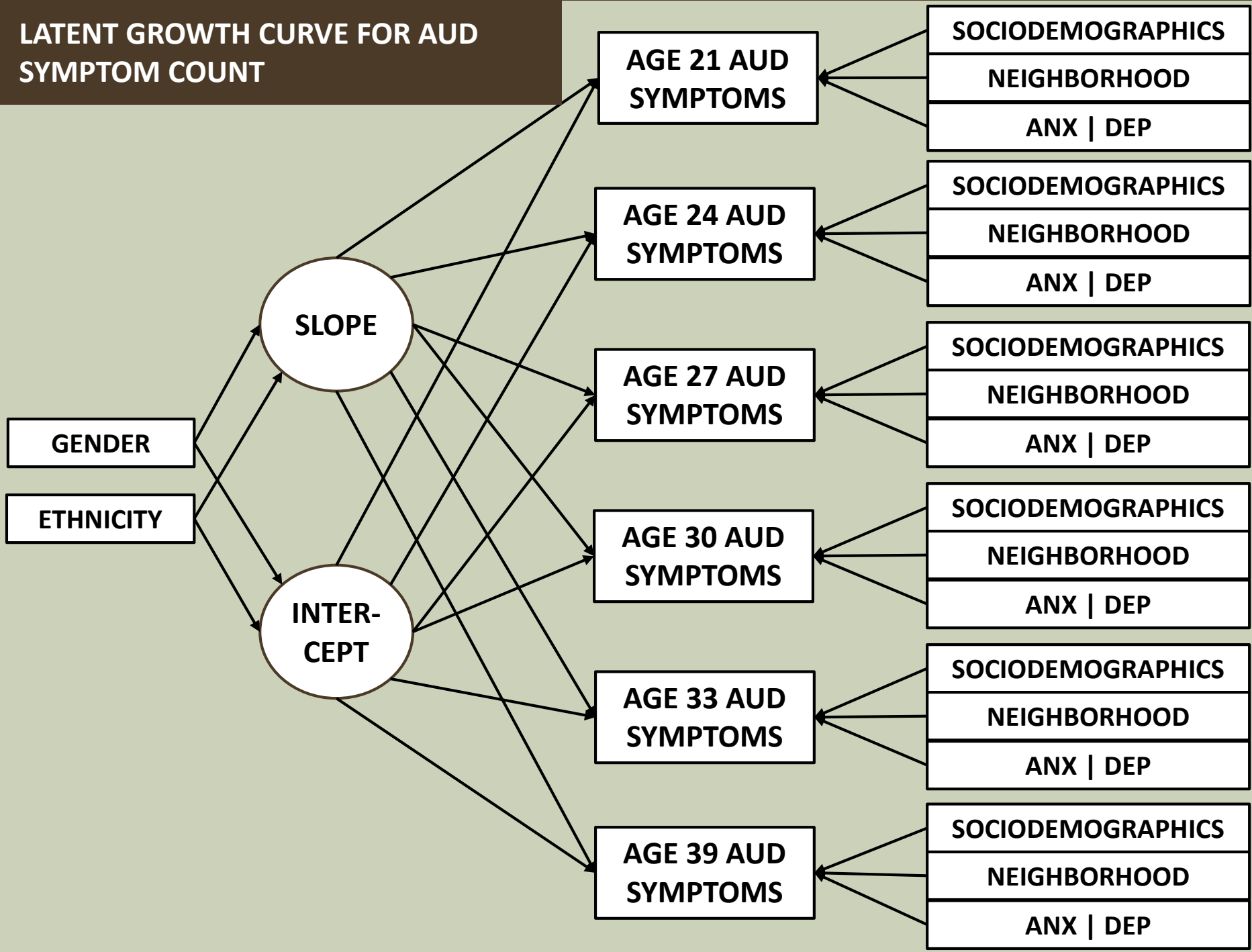
## Time Varying Covariates

- Educational Attainment
  - 0 = less than high school, 1 = high school grad or GED, 2 = college grad
- Marital Status
  - 0 = not married, 1 = married
- Household Income
  - 6 categories from less than \$20000 to great than \$100000
- Parenthood
  - 0 = not acting as a parent, 1 = acting as a parent
- Anxiety or Depression
  - 0 = neither indicated, 1 = either indicated
  - DSM-IV measures of generalized anxiety disorder or major depressive episode

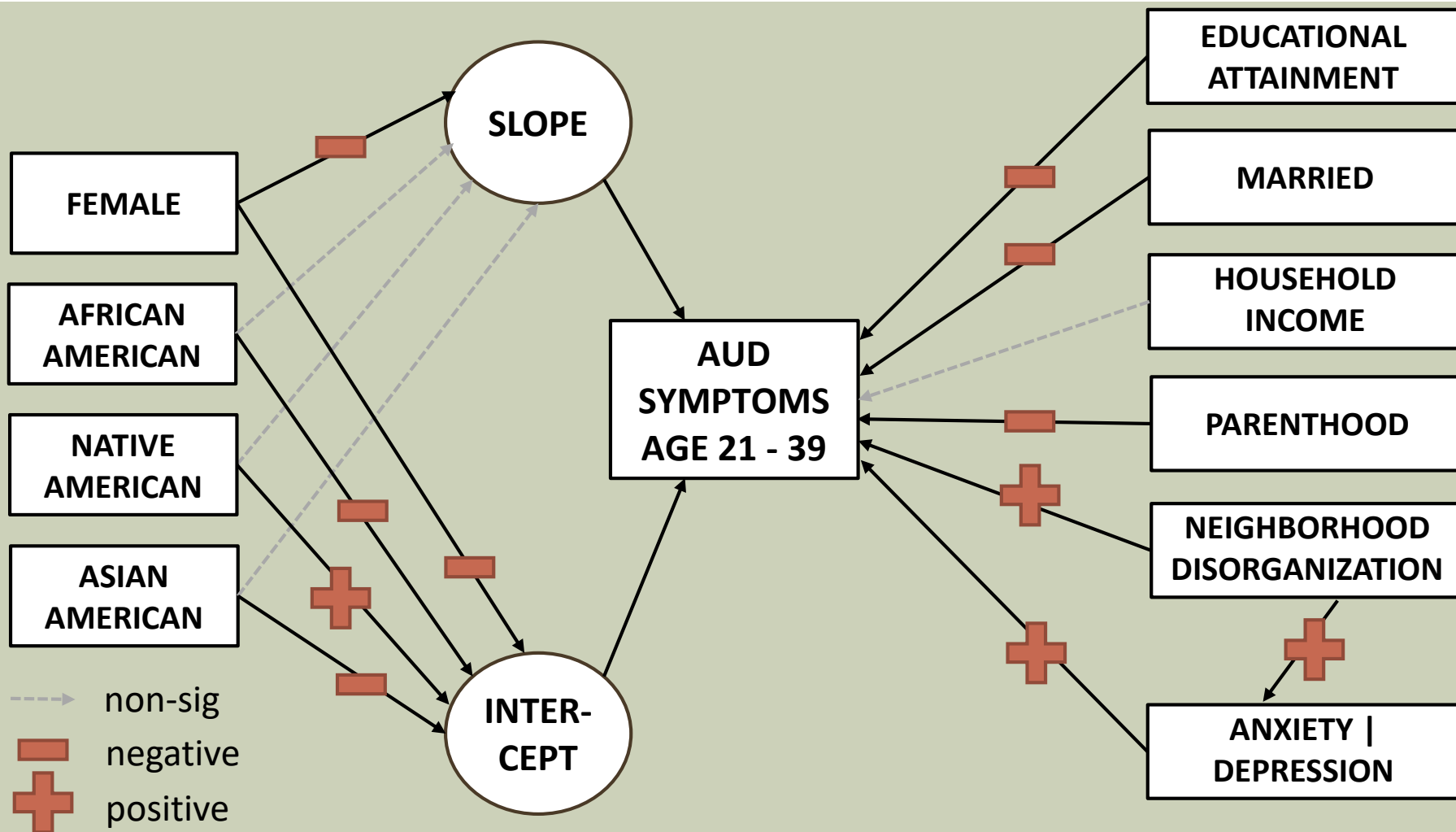
## Time Fixed Covariates

- Gender
- Race/Ethnicity

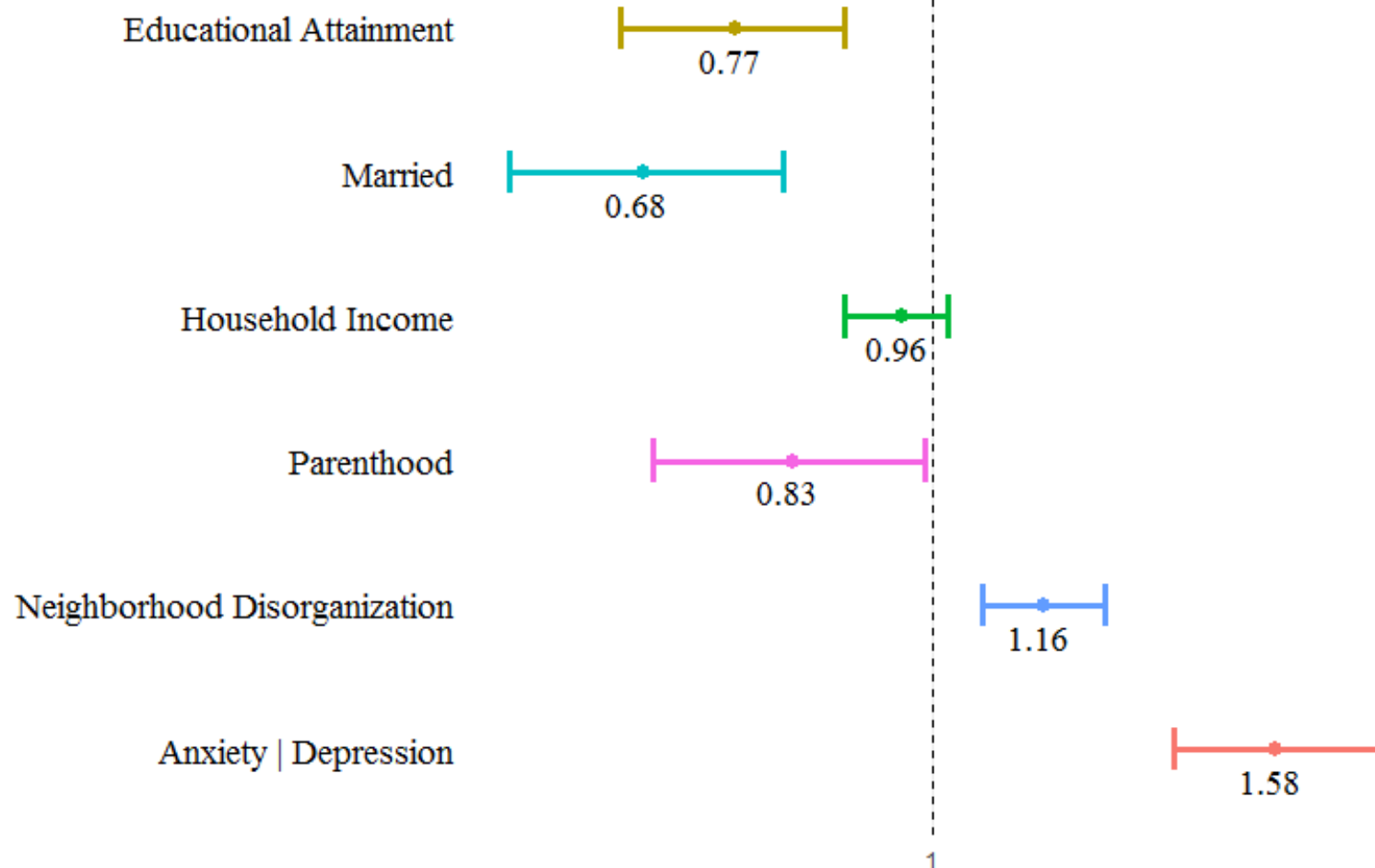
# LATENT GROWTH CURVE FOR AUD SYMPTOM COUNT



# LATENT GROWTH CURVE FOR AUD SYMPTOM COUNT



# COUNT RATIOS & 95% CI FOR AUD SYMPTOMS



## PAPER 3 FINDINGS



Adults in *disorganized neighborhoods* were at increased risk for higher AUD symptoms over time

*Anxiety or depression* partially mediated the association between neighborhood disorganization and AUD symptoms over time



## OVERALL IMPLICATIONS



Neighborhoods are ***uniquely important*** because they ***contribute directly*** to substance use and abuse across the life course

Neighborhoods also ***contribute indirectly through peers during adolescence and mental health in adulthood*** - but not through family functioning during adolescence

Further understanding of the ***mechanisms by which neighborhoods transmit risk*** for substance use and abuse is needed

Supporting the ***economic health of individuals and families and improving neighborhoods*** may help alleviate the burden of disease and disability associated with substance use and abuse



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## QUESTIONS OR COMMENTS:

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