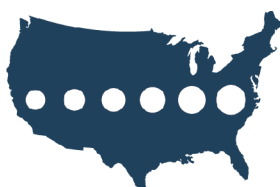


# 2024 Add Health Users Conference

June 17 – June 18, 2024

The Rizzo Center,  
Chapel Hill, North Carolina

**Abstracts**



# Add Health

The National Longitudinal Study of Adolescent to Adult Health

# Abstracts

## Breakout Session 1

### Methodology Session 1 : Structural Heterosexism (or Structural Stigma) on Sexual Minority Health Disparities Using Add Health Data

Kara Joyner, University of Texas at San Antonio,  
Wendy Manning, Bowling Green University,  
Krista Westrick-Payne, Bowling Green University,  
Lee Brady, Bowling Green University

This session will provide an overview of the database and methods that researchers can use to study the effects of structural heterosexism (or structural stigma) on sexual minority health disparities using the National Longitudinal Adolescent to Adult Health data. Toward this end, we have five broad aims. First, we will discuss the steps taken to produce our contextual database: how we showcased its public health relevance in grant applications, convened an advisory team to ensure we had the best measures, assembled a research team to curate various measures, and worked with the staff and director of Add Health to append and disseminate the contextual database. Second, we will discuss the content of the contextual heterosexism database we produced for Add Health that includes measures of social and legal climate relevant to sexual minorities at the tract, county, and state levels, highlighting key decision points in the development of this database. Third, we will present the codebook we created that not only describes our ancillary database but all the variables available in the Add Health ancillary database that can be used for measures of heterosexism and potential confounders. Fourth, we will address issues that researchers should consider when using the database. For instance, researchers may need to transform the data structure to explore the dimensionality of measures at different levels. They may also have to determine how to adjust for design effects using multi-level models. Finally, we will briefly discuss other databases that scholars are developing for the Add Health; these include a contextual heterosexism database for the SOGI-SES and Wave 6 samples and measures of other forms of structural discrimination (e.g., structural racism). This session is intended for conference participants who are interested in examining how structural discrimination is associated with health disparities and those who are interested in learning more about ancillary study proposals.

## Paper Session 1: Employment and the Labor Market

### 1.1 Investigating Life Trajectories from Education to Vocation: Decent Education to Decent Work with Add Health Dataset

Junsang Park, University of Florida  
Co-authors: Ryan D. Duffy, Dr. Anne Q. Zhou

For decades, the significance of educational and vocational experiences on individual well-being has been extensively studied, revealing that working environments rich in resources significantly enhance life satisfaction. Yet, such environments are less accessible to individuals facing economic hardships. Educational experiences emerge as a crucial mediator in this context, narrowing the divide between economic and societal marginalization and vocational achievement. This indicates that individuals facing economic barriers can secure positions in resourceful work environments, provided they achieve a higher or sufficient level of education. Despite broad recognition of these dynamics, there has been a noticeable lack of effort to synthesize these elements within a comprehensive theoretical framework. To bridge this gap, Duffy et al. (2022) advocated for the inclusion of Decent Education into the Psychology of Working Theory (PWT) as outlined by Duffy et al. (2016), positioning it as a mediating factor that links socioeconomic marginalization to the attainment of Decent Work. Decent Education encompasses an educational experience characterized by physical and psychological safety, equitable learning environments, a sense of belonging, quality instruction, and comprehensive post-school programs. Decent Work is defined by safe working conditions, adequate leisure, aligned values, fair compensation, and healthcare access. However, despite a conceptual examination of the Decent Education construct in 2022 and several qualitative studies, there remains a scarcity of empirical research on how Decent Education influences the pursuit of Decent Work across individuals' life spans. To address this, a data-driven, longitudinal study employing a robust dataset is essential. In the present study, we used existing Add Health variables to build Decent Education (e.g., school belongingness of adolescents and instruction quality in Parent questionnaire) and Decent Work (e.g., compensation and job satisfaction) constructs with the goal of providing empirical and longitudinal proof of Decent Education's role in facilitating Decent Work within the PWT framework. Our hypotheses are: 1) economic constraints significantly influence both Decent Education and Decent Work, 2) Decent Education significantly affects Decent Work, and 3) marginalized groups experience a more pronounced negative impact of economic constraints on both Decent Education and Decent Work. Employing data from Waves I, II, IV, and V of the Add Health dataset, we executed multigroup structural equation modeling (SEM) according to the PWT proposed model. Upon validating this model across the general population, we performed multigroup SEM analyses focusing on gender and racial subgroups to determine if gender or racial identity moderates the effects of economic constraints on Decent Education and Decent Work, as well as the impact of Decent Education on Decent Work. This study is distinguished by its pioneering empirical investigation into the relationship between socioeconomic marginalization, Decent Education, and Decent Work. Additionally, it presents opportunities to further explore the PWT using the Add Health dataset.

### 1.2 The Intersection of a Criminal Record

Logan Valenty, University of Missouri at St. Louis

Pager (2003) proposed that Black people with a criminal record are less likely to receive favorable treatment in the employment sector than White people with a criminal record. Furthermore, Black people without a criminal record are less likely to receive favorable treatment in the employment sector than White people with a criminal record. Using data from the National Longitudinal Study of Adolescent to Adult Health public-use sample, the logistic regression analysis predicted employment status in early adulthood at Wave III. The intersection of a criminal record and race created four groups: Black people with a criminal record, Black people without a criminal record, White people without a criminal record, and White people with a criminal record (reference group). The results found that Black people with a criminal record were less likely to be employed than White people with a criminal record ( $p < .001$ ). Also, Black people without a criminal record were less likely to be employed than White people with a criminal record ( $p < .001$ ). The findings are generalizable to the United States population.



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## 1.3 When Bad Jobs Take a Toll: Precarious Work and Allostatic Load in Young Adulthood

Wenxuan Huang, Johns Hopkins University

Co-authors: Wenxuan Huang, Feinian Chen, Jiao Yu

Background Precarious work is commonly understood as employment lacking temporal security, adequate payment, and social protection (Campbell, 2009). The uncertain state of the paid job represents a form of chronic stressor that cumulatively burdens the body systems, ultimately leading to adverse health outcomes (Benach et al., 2014). While research has established the link between precarious work and health in mid or later life (Wahrendorf et al., 2022), little is known about whether its effect manifests in young adulthood. Investigating the health consequences of precarious work during a life stage with low prevalence of major diseases necessitates appropriate health measures capable of capturing such work-stress pathway. Allostatic load (AL) reflects the wear and tear on the body at a subclinical level, serving as a proxy for assessing stress-related health consequences (Richardson et al., 2021). This study takes a person-centered approach to simultaneously measure multiple defining features of precarious work and examines its effect on AL using a nationally representative sample of young adults aged 24 to 32. Motivated by the discussion surrounding how gender inequality shapes the health impacts of precarious work (Menéndez et al., 2007), this study also tests whether precarious work exhibits gender-contingent effects on AL. Data and Methods Data and Sample. This study used data from Wave IV of the National Longitudinal Study of Adolescent to Adult Health (Add Health,  $n = 15,701$ ), which administered questions on labor market experience and collected extensive biomarkers. The analytic sample was restricted to respondents who reported having worked full-time ( $n = 15,460$ ) and had complete information on variables included in the analysis ( $n = 11,663$ ). Respondents who were currently pregnant and lacking valid sampling weights were excluded ( $n = 10,593$ ). Key Measures. Following the existing practice (Richardson et al., 2021), allostatic load (AL) was constructed from 10 biomarkers measured at Wave IV, yielding a composite score ranging from 0 to 10. Five precarious work indicators were included to represent the temporal (i.e., job change, job continuity, and occupation-based job insecurity), economic (i.e., personal earning), and social protection (i.e., employer-provided benefits) dimensions of paid work. Analytic Approach. The study employed cluster analysis to identify typical combination of the five precarious work indicators using the partitioning around the medoids algorithm. The resulting cluster membership was then included as the key predictor in the second phase of analysis. Negative binomial regression models were estimated to examine the association between precarious work and allostatic load and the analysis was stratified by gender. Preliminary Results Three typical work profiles were identified. The high-precarious cluster (24.9%) was characterized by low job stability, low payment, and lack of employer-provided benefits. Members of the low-precarious cluster (20.0%) had stable work, high payment and full coverage of employer-provided benefits. The medium-precarious cluster (53.1%) consisted of respondents falling between these two extremes. The negative binomial regression shows an AL gradient across three levels of precarious work, with the most precarious workers having the highest AL scores. However, this pattern was only held true for women when controlling for the covariates.

## 1.4 Transitions to Adulthood Among Disabled Native and Foreign-Born Adults

Paola Langer, University of California, Davis

Co-author: Evan Baughman

While health and socio-economic inequalities related to nativity and disability are documented, it remains unclear how these axes of stratification intersect to shape life trajectories. Our research examines the transitions into adulthood among foreign and native-born individuals who are disabled and non-disabled, focusing on high school completion, enrollment to college, and obtention of full-time employment. What is the association between disability and success in the transition to adulthood within and between nativity-groups? Our hypotheses are: H1: Foreign-born and native-born adults who are disabled are less likely to complete transitions to adulthood than their co-native non-disabled peers. H2: Nativity gaps in the completion of transitions to adulthood are larger among adults who are disabled than non-disabled. H3: Disability gaps in the completion of transitions to adulthood are larger among foreign-born than native-born adults. We use data from Waves I (1994) and V (2016-2018), including individuals who are over the age of 18 at Wave V who provide valid responses to variables included in the analysis across Waves I and V. Our key dependent variables measured in Wave V are high school completion (0= less than high school, 1= at least high school), productive engagement (respondent was either enrolled in post-secondary education or working at least 10 hours per week (else=0, yes to either=1)). Our key independent variables using Wave I data are nativity (0= U.S.-born, 1=foreign-born), and disability status (a positive response to either of the disability-type variables); physical disability (Either parent- or respondent- report of the respondent's experience in at least one of five categories: adolescents' functional limitations, self-perception of disability, degree of limitation, and blindness or deafness), and learning disability (a positive response to at least one of the questions asked to parent about the presence of specific learning disability or if adolescent receives any type of special education services). Control variables include age, gender, race/ethnicity, self-esteem, self-expectations of college, intellectual capacity, childhood family structure, parental education, and parental expectations of college (for their child). Binomial logistic regressions, adjusted by control variables and design and sample weights, will be used to estimate the association between physical disability status, types of disability, high school completion, and productive engagement. An interaction term between disability status, types, and nativity will be used to estimate whether disability and success in the transition to adulthood is differentially associated across nativity groups. We will calculate the predicted likelihood of high school completion and productive engagement for all four groups(H1), calculate predicted gaps in outcomes between foreign-born, relative to native-born within and between disability status and type(H2), and predict gaps in outcomes between disabled relative to non-disabled individuals within and between nativity groups(H3). We expect disability to disadvantage the educational and employment outcomes for foreign-born and native-born adults(H1), nativity gaps in educational and employment outcomes to be larger among adults who are disabled than those who are non-disabled(H2), and disability gaps in educational and employment outcomes to be larger among foreign-born adults than among native-born adults(H3).



## Paper Session 2: Biomarker Data

### 2.1 Cardiovascular, Immune, and Inflammatory Risk Factors for Cognitive Function in Young and Established Adulthood: The Add Health Study

Jennifer Momkus, University of North Carolina at Chapel Hill

Co-authors: Allison E. Aiello, Jennifer Momkus, Rebecca C. Stebbins, Yuan Zhang, Chantel Martin, Lauren Gaydosh, Taylor Hargrove, Y. Claire Yang, Kathleen Mullan Harris

**Introduction:** Studies examining cognitive functioning in young to early midlife adults are limited, especially in U.S. representative populations. We aim to explore the distribution of established risk factors and biomarkers associated with Alzheimer's Disease and Related Dementias (ADRD), and their relationships with cognitive function in two waves of the National Longitudinal Study of Adolescent to Adult Health for individuals aged 25 to 44.

**Methods:** Data comes from Waves IV-V of Add Health. In Wave IV, a subset of dried blood spots (N=5,019) were assayed for immune biomarkers including high-sensitivity CRP (hsCRP), interleukins (IL-6, IL-8, and IL-10), and tumor necrosis factor alpha (TNF- $\alpha$ ). In Wave V, venous blood samples (N=4,940) were assayed for immune biomarkers (hsCRP, IL-6, 10, 8, IL-1B, and TNF- $\alpha$ ) and neurodegenerative biomarkers (Neurofilament Light and total Tau). The Cardiovascular Risk Factors, Aging, and Incidence of Dementia (CAIDE) score was calculated as a weighted composite score based on known risk factors for dementia: age, education, biological sex, systolic blood pressure, body mass index, total cholesterol, and physical activity. Cognitive tasks were conducted during in-home interviews Waves IV (N=15,701) and V (N=1,702): immediate word recall, delayed word recall, and digit span backwards. Survey-weighted linear regressions were used to estimate the association between each biomarker and the CAIDE score with cognitive test scores in each wave. All models were adjusted for sex, race/ethnicity, and an indicator for recent inflammatory conditions. Biomarker models were also adjusted for age and education and CAIDE score models were also adjusted for early life SES.

**Results:** Variability in associations were evident across biomarkers of interest, cognitive domains, and life stages. At Wave IV, a higher CAIDE score was associated with lower cognitive test scores. In Wave V, the CAIDE score was not significantly associated with any cognitive function test, but some of the proinflammatory biomarkers were negatively associated with cognition. For example, higher IL-8 was associated with lower scores on all cognitive tests and IL-1 $\beta$  was negatively associated with word recall scores. Higher IL-6 was also associated with a decrease in the working memory score. Neurodegenerative biomarkers were associated with cognitive tests in Wave V. Higher levels of total Tau were associated with lower immediate recall scores ( $\hat{\beta}=-0.15$ , 95% CI: -0.25, -0.05) and a higher concentration of Neurofilament Light (NfL) was associated with lower working memory scores ( $\hat{\beta}=-0.11$ , 95% CI: -0.21, -0.001). Finally, a higher CAIDE score was associated with a higher average total Tau concentration ( $\hat{\beta}=0.05$ , 95% CI: 0.005, 0.09), but was not associated with NfL.

**Conclusions:** Early adulthood and midlife may be the ideal periods to detect early indications of decline and initiate interventions. Some of these biomarkers and risk factors may aid in identifying those at higher risk earlier in the life course and provide information about U.S. population risk for ADRD in the next 20-40 years. Continued monitoring of the cohort will help elucidate the predictive capacity of these exposures over the life course.

### 2.2. Child maltreatment and young adult mental and cardiometabolic health: The moderating role of social support

Yongyong Xu, University of Florida

Co-author: Shanting Chen

Child maltreatment is commonly observed in the U.S., with over one-third of children reporting maltreatment experiences (Kim et al., 2017). Life-span developmental theories indicate that adverse childhood experiences have long-term effects on biological and psychological health (Halfon & Hochstein, 2002), accounting for heightened risk of anxiety, depression, and cardiometabolic issues (e.g., Kisely et al., 2022). However, not all children who experienced child maltreatment develop mental or physical health problems in adulthood (Cheung et al., 2017). According to risk and resilience theory (Fergus & Zimmerman, 2005), positive contextual resources, like social support, can act as protective factors. Social support is particularly pronounced during adolescence, a crucial developmental period when youth are highly influenced by their environments, including parents, friends, teachers, and other adults (Choo et al., 2017). While support from these figures can alleviate the detrimental effects of child maltreatment (Cheung et al., 2017), the effects may vary significantly (Shang et al., 2022). Yet, most studies have not distinguished among types of support or evaluated four types simultaneously. Additionally, the broad range of resources provided by diverse support agencies highlights the importance of exploring the effect of the variety of social support (Fingerman et al., 2020). Therefore, our study will explore the moderating roles of quality and variety of social support between child maltreatment experiences and young adult mental (i.e., depressive symptoms) and cardiometabolic health (i.e., metabolic syndrome). We hypothesized that both quality and variety of social support would mitigate the negative impacts of child maltreatment on adult health outcomes, with the expectation that the effects of support from teachers and other adults would be comparatively smaller.

The current study will use data from Wave 1 to 4 of the National Longitudinal Study of Adolescent to Adult Health. Child maltreatment was assessed retrospectively at Wave 3, including physical abuse, physical neglect, supervisory neglect, and sexual abuse. Depressive symptoms were assessed with 9 items at Wave 1 and 4. Metabolic syndrome count score will be calculated as the number of risk factors of 5 biomarkers at Wave 4 (i.e., blood pressure, waist circumference, high-density lipoprotein levels, glucose, BMI). Quality of social support was evaluated at Wave 1 and 2 using a single-item question for four types of social support: parents, friends, teachers, and other adults. Responses to each item will be recoded into binary measures (0 = no; 1 = yes) and then summed to create the variety of social support. Covariates will include age, race, parental education, and depressive symptoms at Wave 1.

First, we will examine the main effect of child maltreatment on depressive symptoms and metabolic syndrome in young adulthood. Second, interactions between child maltreatment and quality of social support from parents, friends, teachers, and other adults will be concurrently added to the main effect model. Third, a two-way interaction term between child maltreatment and variety of social support will be added to the main effect model. Adolescent's sex, age, race, nativity, and Wave 1 depressive symptom will be included as covariates in all models. This study would be valuable for creating targeted and effective interventions to mitigate the adverse impacts of child maltreatment.



## 2.3 Snoring and Systemic Inflammation Are Associated With Greater Likelihood of Depression Diagnosis

Drew Farr, University of Kentucky

Co-authors: Min-Woong Sohn, Jayani Jayawardhana

Research Question: Are self-reported total sleep time (TST) and sleep-related symptoms—including snoring, orthopnea, apnea, and difficulty sleeping—associated with depression and systemic inflammation, as measured by high-sensitivity c-reactive protein (hs-CRP)? Hypothesis: Fewer hours of self-reported TST and sleep-related symptoms will be associated with higher odds of having elevated CRP. High CRP will be associated with higher odds of having a diagnosis of depression. Data: The study utilized Wave V data from The National Longitudinal Study of Adolescent to Adult Health (Add Health), including from the following: Wave V Mixed-Mode Survey; Wave V Biomarkers, Measures of Inflammation and Immune Function; and Wave V Biomarkers, Medication Use. Primary analyses included participants who had a valid measurement of hs-CRP ( $n = 1581$ ). Participants were considered to have elevated CRP with an hs-CRP  $\geq 3$  mg/L according to the Centers for Disease Control / American Heart Association relative risk categories. Data preparation and analysis were completed using Stata 18.0. Analytic Approach: Multiple logistic regression was used to predict elevated hs-CRP and depression as functions of self-reported TST, the square of TST, snoring, orthopnea, apnea, and difficulty sleeping. Covariates in each of the models were those considered to be essential for a study of sleep, depression, and serum c-reactive protein, including demographic, socioeconomic and behavioral factors, comorbid medical conditions, a count of subclinical symptoms of inflammation (past 2 weeks), medications for the treatment of psychiatric illness, and medications known to interfere with sleep and/or hs-CRP. Results: Snoring was associated with higher odds of having elevated hs-CRP (OR = 1.37, 95% CI 1.12, 1.69). Elevated hs-CRP was, in turn, associated with higher odds of having a diagnosis of depression (OR = 1.55, 95% CI 1.02, 2.35). Self-reported difficulty sleeping was also associated with higher odds of having a depression diagnosis (1.34, 95% CI 1.16, 1.54), while total sleep time was associated with lower odds of having a diagnosis of depression (OR = 0.23 for each additional hour, 95% CI 0.08, 0.64). Conclusion: Snoring is associated with systemic inflammation, which may be a key pathway by which sleep dysfunction negatively impacts health. We also found that multiple measures of poor sleep are associated with higher odds of having a depression diagnosis. These results identify snoring as a key predictor of depression—and perhaps of inflammatory depression, a meaningful depression subtype with distinct treatment demands for optimal management. These results support the application of sleep-based interventions for non-pharmacological management of depression, particularly in patients with comorbid snoring and/or obstructive sleep apnea. Pharmacological treatments for inflammatory depression will also benefit from understanding its underlying risk factors, either for clinical trials of future psychiatric medications or by the application of existing anti-inflammatory drugs/biologics.

## 2.4 The Way to a Man's Heart (Disease): Associations of Male Gender Expressivity with Cardiovascular Disease Risk Awareness and Preventive Treatment in Men

Nathaniel Glasser, University of Chicago

Co-authors: Jacob C Jameson, Elbert S Huang, Ian M Kronish, Stacy Tessler Lindau, Monica Peek, Elizabeth L Tung, Harold A Pollack

Background: Male gender expressivity (MGE), which reflects prevailing sociocultural pressures around masculinity, has been associated with health behaviors. Yet, little is known about associations of MGE with cardiovascular disease (CVD) risk awareness and treatment (specifically related to hypertension, diabetes, and hyperlipidemia). We investigate associations of MGE with CVD risk awareness and treatment in men, hypothesizing that increased MGE is associated with decreased CVD awareness and treatment. Methods: We use data from male participants enrolled in Wave I (adolescents aged 12-18; 1994-1995) and followed longitudinally through Wave IV (young adults aged 24-32; 2008-2009) and Wave V (adults aged 33-43; 2016-2018), and included in biomarker data collection. Participants' MGE was quantified in adolescence and young adulthood using a validated measure. CVD risk awareness was assessed in adults by self-reported diagnoses of hypertension, diabetes, or hyperlipidemia among participants with elevated blood pressure, hemoglobin A1c, or non-HDL cholesterol, respectively. Treatment was measured by self-reported antihypertensive, hypoglycemic, or lipid-lowering medication use among participants reporting hypertension, diabetes, or hyperlipidemia diagnoses, respectively. Multivariable regression was used to model associations of adolescent and young adult MGE with adult CVD risk awareness and treatment adjusting for sociodemographic covariates. Marginal effects were calculated to obtain predicted probabilities.

Key Results: Among eligible participants, higher MGE was overall associated with lower CVD risk awareness and treatment, though with varying statistical significance at the  $p < 0.05$  level. For hypertension, higher young adult MGE was significantly associated with lower adult awareness of adult hypertension ( $p = 0.02$ ); adolescent and young adult MGE were significant predictors of 11% ( $p < 0.01$ ) and 7% ( $p = 0.01$ ) lower probabilities of adult hypertension treatment, respectively. In the case of diabetes, higher adolescent MGE predicted a 15% lower probability of adult diabetes awareness ( $p = 0.02$ ); higher young adult MGE predicted a 10% lower probability of adult diabetes treatment ( $p = 0.04$ ). For hyperlipidemia, adolescent and young adult MGE were not significantly associated with disease awareness and treatment. Conclusions: MGE may be an overlooked factor influencing preventable CVD morbidity and mortality through associations with decreased hypertension and diabetes awareness and treatment.

## Methodology Session 2: Multilevel Manifestations of Structural Racism across the Life Course: Approaches and Implications for Health and Aging

Taylor Hargrove, University of North Carolina at Chapel Hill

Abstract currently not available





## Paper Session 3: Reproductive and Sexual Behavior

### 3.1 Parenthood and Mental Health among U.S. Women: Heterogeneity Across Social Groups and Household Composition

Anne Flanagan, University of North Carolina at Chapel Hill

Co-author: Robert A. Hummer

Parenting in the United States is characterized by both immense challenges and important rewards. Such a mix of factors is associated with the psychological well-being of parents, particularly mothers. Some previous studies describe the distinct stressors of motherhood including the concept of "intensive mothering" which is a societal expectation that defines "good mothers" as selfless caregivers above all else. This ideology can negatively impact psychological wellness by creating an expectation that mothers must fully invest all forms of labor into childrearing at the expense of their own well-being. On the other hand, some studies point to a "mothering advantage" with respect to psychological wellbeing, suggesting that those who are mothers may have better wellbeing than women who are not parents due to the social support and positive identity associated with being a parent. Yet other studies suggest that demographic and contextual factors such as race, educational level, and family structure (e.g., marital status, the age(s) of children, and the age at first birth) are all important factors for understanding the relationship between parenthood and women's psychological wellbeing. Given the complexities and uncertainties in the literature on parenthood and psychological wellbeing, this paper addresses two important questions. First, is parenthood among U.S. women associated with better or worse mental health in comparison to those who are not parents? Using data from Waves I and V of the National Longitudinal Study of Adolescent to Adult Health (Add Health), we assess this question with nationally representative data among women aged 33-44, with an average age of 38. As such, the analysis covers a large portion of the childbearing age range, while also having enough women (22%) who are not parents to this point in their lives. Second, does the relationship between parenthood and psychological wellbeing differ across racial and ethnic groups? This part of the paper recognizes the strong potential of heterogeneity in the relationship between parenthood and psychological wellbeing among U.S. women. Our preliminary results suggest that motherhood status is associated with psychological wellbeing as measured by a five-item Center for Epidemiologic Studies Depression Scale (CES-D). Participants who identify as mothers report lower depressive symptoms compared to non-mothers, indicating better mental health. However, these overall results are contingent by racial/ethnic identity. While white mothers exhibit lower CES-D scores compared to white non-mothers, the opposite is true for Black mothers. Indeed, Black mothers report higher average CES-D scores than their non-mother counterparts. In addition, Asian-identifying women, regardless of motherhood status, report significantly lower CES-D scores as well compared with White women who are parents. This preliminary evidence suggests a need for further analysis within racial/ethnic group membership as well as investigation into the number and age of children as potential factors mediating the association between parenthood and psychological wellbeing.

### 3.2 Unveiling Factors Shaping Contraceptive Use Among Adults in the US - Findings from the Add Health Study

Kajol Dahal, East Tennessee State University

Co-authors: Kajol Dahal, Achala Ghimire, Haleigh Ball, Ignacio Garcia, Sitasnu Dahal, Trisha Schuver, Johnathan Tremblay, McKenzie Dooley, Manik Ahuja

Introduction: Contraceptive use among adult populations in the United States remains an underexplored area of research compared to studies focused on adolescents. The factors influencing contraceptive practices (either for the prevention of pregnancy or STIs) in adults may differ significantly from those affecting adolescents; thus, there is a critical need to investigate these factors comprehensively. This study aims to address this gap by examining the determinants of contraceptive use among adults in the United States using data from the Add Health Study. Specifically, we hypothesized that partner violence and reproductive intentions would be inversely associated with contraception use, whereas other factors such as demographic, socio-economic, and interpersonal variables would be positively associated with contraceptive use among adults in the United States. Methodology: We conducted a cross-sectional analysis using the Wave V dataset from the Add Health Study. This dataset focused on 3,552 participants aged between 32 and 42, encompassing both males and females who are sexually active and eligible for contraceptive use. Participants who did not use contraception and those who provided a legitimate skip response to the contraceptive use question were excluded. Our analytical approach involves descriptive, bivariate, and multivariate analyses to discern patterns and associations between contraceptive use (coded "always" and "sometimes" as yes and "never" as no) and key variables. These variables include age, sex, gender, race, born in US, education, partner status, region, religion, work type, income, socioeconomic ladder, insurance coverage, hepatitis B or C diagnosis, healthcare facility visited, partner violence, reproductive intentions, and multiple partners. Results: The prevalence of contraceptive use was found to be 39% among adults in the US. Age, gender, education, living with partner, religion, socio-economic ladder, insurance, and partner violence were associated with the use of contraception in our bivariate analysis. The multivariate logistic regression revealed that age exerts a significant influence, with increase in age, the odds of contraceptive use decreased by 8% (AOR: 0.92; 95% CI: 0.87-0.97). Furthermore, homosexual, or bisexual individuals displayed lower odds of contraceptive utilization compared to heterosexual counterparts (AOR: 0.66; 95% CI: 0.48-0.90). Education emerges as a pivotal factor, with lower educational attainment significantly associated with reduced contraceptive uptake. Notably, individuals not cohabiting with partners demonstrate higher odds of contraceptive use (AOR: 2.20; 95% CI: 1.49-3.24) compared to the individuals living with their partners underscoring the role of living arrangements in reproductive decision-making. Additionally, partner violence victimization emerges as a significant negative correlation (AOR: 0.69; 95% CI: 0.50-0.96). Whereas reproductive intention was not associated with contraceptive use. Conclusion: Contraceptive use was significantly associated with age, gender, education, living with partner and partner violence. This study underscores the multifaceted nature of contraceptive decision-making among adults in the United States, highlighting the importance of demographic, socio-economic, and relational factors in shaping contraceptive behaviors. Further research is warranted to explore the nuanced dynamics influencing contraceptive practices.



## Paper Session 4: Aging Trajectories

### 4.1 Long-term Impacts of Civic Engagement during Emerging Adulthood: A Nationally-Representative Study

Martie Thompson, *Appalachian State University*

Co-authors: Matthew Hudson-Flege, Kayla Hancock

**Purpose:** We examined if civic engagement during emerging adulthood positively impacted a broad array of outcomes in middle adulthood, and if associations varied based on race, gender, age, and urban-rural status. **Design:** Prospective design used to determine if civic engagement during emerging adulthood (M age = 21.81) predicted outcomes 15 years later.

**Setting:** Restricted data from the National Longitudinal Study of Adolescent to Adult Health. **Subjects:** Wave 1 participants who completed surveys 7 years (77% follow-up rate), 14 years (80% follow-up rate), and 22 years later (follow-up rate 72%) and who had valid sampling weight to ensure national representativeness (n = 9,349). **Measures:** Predictor - civic engagement; **Outcomes-** mental health, substance use, criminal behaviors, and healthy behavior. **Analysis:** Linear regression using MPLUS 7.2. **Results:** Civic engagement predicted lower levels of depressive symptoms (b = -1.05, SE = .28), criminal behaviors (b = -0.47, SE = .12), and substance use (b = -0.66, SE = .13), and higher levels of healthy behaviors (b = 1.26, SE = .19), after controlling for demographics, family, peer, neighborhood, and school-related background variables. **Moderation analyses** revealed that civic engagement benefited females and white participants more. **Conclusion:** Civic engagement during emerging adulthood has a positive impact on a broad array of outcomes in middle adulthood. **Implications and future research recommendations** will be discussed.

### 4.2 Risk Factors And Trajectories Of Highly Dependent Adult Children (Failure To Launch): An Add Health Study

Uri Berger, *Yale University*

Co-authors: Wendy K. Silverman, Eli R. Lebowitz

The risk factors and trajectories of 'failure to launch' (i.e., adult children who are highly dependent on their parents while not in employment or higher education) are unknown. In the present study, we first identified adults (N=484,592; after applying weights; N=402 without weights) with likely 'failure to launch' (FTL) in waves 3 and 4 (ages 18-32) of the National Longitudinal Study of Adolescent to Adult Health (Add Health). We then examined the cohorts' reports at wave 1 (ages 12-18) to identify adolescent risk factors associated with increased likelihood of later FTL. We also examined the trajectory of FTL by testing whether individuals identified with FTL at one time point were still not functioning independently (e.g., being unemployed) at later time points. As adolescents, adults who later had FTL had elevated mental health problems, FTL-typical behaviors, social functioning deficits, and academic difficulties. Adults with FTL also reached physical puberty later than adults without FTL. FTL at ages 18-32 predicted poorer functioning 6-13 years later. Findings show that FTL is a chronic phenomenon with risk factors identifiable in adolescence.

### 4.3 Examining the Association between Child Maltreatment Type & Physical Activity in Adulthood

Jamani Garner, *Georgia State University*

Co-authors: Claire A. Spears, Manderley Recinos, Shannon Self-Brown

Over 600,000 children are classified by Child Protective Services as victims of child maltreatment (CM) annually, though this is considered a significant underestimate given many cases go unreported. Child maltreatment can include several types of abuse by a parent or caregiver, including emotional, physical, and sexual. Those victimized by CM are at greater risk for negative life course trajectories and outcomes, including poor academic performance, psychological disorders, obesity, and physical health conditions in adulthood. Obesity and other poor health outcomes are exacerbated when multiple types of CM are experienced, the frequency of CM experiences is higher, and CM is more severe. While research supports CM as a risk factor for morbidity, less is known about how specific types of CM influence protective factors for obesity and physical health, including physical activity (PA). The purpose of the present study is to determine whether differential associations exist between types of CM (emotional, physical, and sexual abuse) and PA levels. We hypothesized that each abuse type would be negatively associated with PA levels, and further, that polyvictimization would have a stronger, negative association with PA than single abuse types or no abuse. The present study used nationally representative data from Wave IV of the National Longitudinal Study of Adolescent & Adult Health, which included 15,702 adults ages 24-32 years old. Dichotomous CM measures were created from three retrospective questions related to experiences of CM prior to participants' 18th birthday. Seven questions related to PAs within the past seven days were averaged to create a PA frequency variable ranging from 0-7. A weighted least squares regression was used to examine all associations while controlling for sex and total household income (n = 13,579). Results revealed a significant overall model (F (6, 13572) = 49.72. R<sup>2</sup> = .022, p < .001). After controlling for covariates, emotional abuse (B = -.038, p = .021) predicted lower levels of PA as hypothesized. However, sexual abuse (B = .109, p = .005) unexpectedly predicted higher PA. This relationship may be explained, in part, by factors related to body image disturbance, a documented outcome among victims of sexual abuse. Neither polyvictimization nor physical abuse were significant predictors of PA. The present results suggest that victims of emotional and sexual abuse may benefit from guidance related to engagement in appropriate levels of PA. While unknown mediators or moderators may exist in the relationship between CM and PA, additional research is needed to determine the underlying mechanisms, as well as to inform interventions aimed at improving the life course trajectories of CM victims

### 4.4 Midlife Health in Britain and the US: A comparison of Two Nationally Representative Cohorts

Iliya Gutin, *University of Texas at Austin*

Co-authors: Charis Bridger Staaz, Andrea Tilstra, Laura Gimeno, Bettina Moltrecht, Dario Moreno-Agostino, Vanessa Moulton, Martina K. Narayanan, Jennifer B. Dowd, Lauren Gaydosh, George B. Ploubidis

**Background:** Older adults in the United States (US) have worse health and wider socioeconomic inequalities in health compared to Britain. Less is known about how health in the two countries compares in midlife, a time of emerging health decline, including inequalities in health.

**Methods:** We compare measures of smoking status, alcohol consumption, obesity, self-rated health, cholesterol, blood pressure, and glycated hemoglobin using population-weighted modified Poisson regression in the 1970 British Cohort Study (BCS70) in Britain (N= 9,665) and the National Longitudinal Study of Adolescent to Adult Health (Add Health) in the US (N=12,297), when cohort members were aged 34-46 and 33-43, respectively. We test whether associations vary by early- and mid-life socioeconomic position. **Findings:** US adults had higher levels of obesity, high blood pressure and high cholesterol. Prevalence of poor self-rated health, heavy drinking, and smoking was worse in Britain. We found smaller



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socioeconomic inequalities in midlife health in Britain compared to the US. For some outcomes (e.g., smoking), the most socioeconomically advantaged group in the US was healthier than the equivalent group in Britain. For other outcomes (hypertension and cholesterol), the most advantaged US group fared equal to or worse than the most disadvantaged groups in Britain. Interpretation: US adults have worse cardiometabolic health than British counterparts, even in early midlife. The smaller socioeconomic inequalities and better overall health in Britain may reflect differences in access to health care, welfare systems, or other environmental risk factors.

## Breakout Session 3

### Methodology Session 3: Analyzing Add Health Data

*Carlyn Graham, University of North Carolina at Chapel Hill*

*Robert A. Hummer, Director, Add Health, University of North Carolina at Chapel Hill*

*Fatima Touma, University of North Carolina at Chapel Hill*

*Reed DeAngelis, Duke University*

This session focuses on best practices in finding particular variables and conducting statistically appropriate analysis in Add Health, which is not always straightforward given the complex design of the study. Examples of effective ways to search for variables and how to conduct complex analyses will be featured.

## Paper Session 5: Nutrition and Socioeconomic Status

### 5.1 Food Access and Chronic Disease Risk among Original Residents of Gentrifying Neighborhoods in the United States

*Sarah Halvorson-Fried, University of North Carolina at Chapel Hill*

*Co-authors: Natalicio H. Serrano, Todd M. Jensen, Lindsey Smith Taillie, Marissa G. Hall, Kurt M. Ribisl*

**Background:** Gentrification, a neighborhood transformation process of economic investment and sociocultural change, may affect the health of original residents via several unique pathways. Although availability of health-enhancing resources such as green space and food retail may increase as neighborhoods gentrify, individuals who move from gentrifying neighborhoods, potentially due to displacement, cannot access these resources. In addition, residents who stay in gentrifying neighborhoods may not experience health benefits from neighborhood improvements due to sociocultural displacement or higher housing costs. However, existing evidence about gentrification and health is limited by lack of longitudinal data. Studies to date mainly use cross-sectional or repeated cross-sectional designs, creating selection bias because 1) new residents are included in analyses and 2) residents who stay in gentrifying neighborhoods may have more resources than those who move. Research following both movers and stayers during the gentrification process is needed to understand impacts on health and health equity. Further, gentrification's association with health may differ by racialization and rurality due to pre-existing inequities, but these differences are underexplored. **Research Questions:** To address these important gaps, we will leverage the nationally representative, longitudinal design of Add Health. Research questions include: 1) To what extent is gentrification associated with changes in food access? 2) To what extent is gentrification associated with metabolic health biomarkers, and what mechanisms may explain these? 3) How do associations differ by residential mobility (i.e., for movers vs. stayers), exposure to systemic racism, and urbanicity? **Hypotheses:** We hypothesize that among movers, gentrification will be associated with decreased access to some types of food retail (grocery stores, specialty stores) and increased access to others (convenience stores, warehouse clubs, dollar stores, and fast food outlets), while among stayers, gentrification will be associated with increased access to all store types. For both movers and stayers, we hypothesize that gentrification will be associated with increases in metabolic risk biomarkers via a decrease in the Modified Retail Food Environment Index (mRFEI) and increases in fast food consumption, food insecurity, housing insecurity, discrimination, and stress. **Data and Analytic Approach:** We will use Add Health contextual, survey, and biomarker data from Waves 3 and 4, as well as linked data measuring gentrification, food retail, and racialized economic segregation, for participants who lived in low to middle-income census tracts in Wave 3 and low to middle-income households in adolescence ( $n \sim 2,500$ ). Aim 1 will examine gentrification's association with changes in food retail access from Wave 3 to 4 using linear regression with interaction terms for wave and exposure, and explore moderation via stratified models. Aim 2 will examine mediating pathways between gentrification and metabolic health biomarkers (metabolic syndrome, waist circumference) using structural equation modeling, and assess moderation with multiple-group comparison analysis. Related to this work, gentrification and retail access measures will be linked to Add Health for use by the broader research community. Future research can use linked data to examine associations between gentrification, retail access, and additional outcomes.

### 5.2 Eating Disorder Spillover: The Impact of Eating Disorders on Financial Success in Early Adulthood

*Meredith Riley, University of North Carolina at Chapel Hill*

Eating disorders are health conditions characterized by harmful behaviors centering on the quantity and type of food ingested. Research links eating disorders to declining physical and mental health, but less studied is the effect of eating disorders on an individual's financial success. Eating disorder treatment involves expensive visits to clinicians, therapists, and nutritionists, and beyond professional and formal treatment, people with eating disorders may struggle with spending, budgeting, and saving money in their day-to-day lives. There has been little sociological interest in the causal link between eating disorders and financial success or achievement later in life, yet this remains an important question for the study of population health and social stratification. Using data from the National Longitudinal Study of Adolescent to Adult Health (Add Health), I employ structural equation modeling to show how the presence of an eating disorder in young adulthood has a lasting, negative effect on future socioeconomic status, as measured by educational achievement, personal income, and wealth accumulation. I treat eating disorders as a latent concept measured by four behavioral indicators: dieting, fasting, bingeing, and supplement use. This study is a first attempt to capture the effect of eating disorders on future financial achievement, and my findings speak to the capacity of eating disorders to spill over into all realms of a person's life, disadvantaging them for years to come.



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## 5.3 Influence of Early-Life Socioeconomic Status and Neighborhood Conditions on Opportunity Youth Status in the U.S.

*Joseph Jaiyeola, University of Texas at San Antonio*

Despite the expanding educational and employment opportunities in developed countries, a sizeable number of young adults aged 16-24 are neither enrolled in school nor employed "opportunity youth" in the United States. There is limited knowledge regarding the complexities of inequalities among young adults. Using restricted data from the Wave I and III of the National Longitudinal Study of Adolescent to Adult Health (Add Health), this study examines the influence of early-life socioeconomic status and neighborhood conditions on the likelihood of being an opportunity youth. Additionally, this study investigates whether the impact of early-life socioeconomic status on opportunity youth status varies by neighborhood conditions. The results based on a binomial regression model indicate that early-life socioeconomic status (OR = 0.70;  $p < 0.001$ ) and neighborhood conditions (OR = 1.58;  $p < 0.001$ ) is a significant factor in determining the likelihood of being an opportunity youth. Interestingly, the findings further suggest that the effect of early-life socioeconomic status does not significantly differ by neighborhood conditions. Overall, this study underscores the significance of early life factors in shaping the likelihood of young adults becoming opportunity youths. By addressing the underlying mechanisms driving inequality, policymakers can implement effective measures to support young adults' educational and employment trajectories and foster a more equitable society.

## 5.4 How Does the Food Choice Autonomy During the Grades of 7 to 12 Influence or Contribute to the Body Mass Index of Individuals?

*Haotian Zheng, New York University*

*Co-author: Muntasir Masum*

**Introduction:** Previous research has demonstrated a significant relationship between income and body mass index (BMI). Income has an inverse relationship with BMI. Not only is income a factor, but food choice also plays a crucial role in BMI. The ability to form healthy food behavior is a possible component of food choice, and it varies among individuals based on their autonomy in making food choices during childhood. This research aims to investigate how childhood autonomy influences an individual's BMI throughout their life. Additionally, childhood household income will be used as the baseline income for the effect measure modifiers to account for and illustrate any differences in the effect based on baseline income levels. **Methods:** This research used public-use data from waves I, IV, and V retrieved from the National Longitudinal Study of Adolescent to Adult Health, with a sample size of 3,713. The outcome variable is the time-varying BMI, with the main exposure being time-invariant food autonomy during childhood (baseline). To account for covariates, we included sociodemographic and parental characteristics, such as time-varying factors: participant's education status, age, household income, and time-invariant factors: such as parent's baseline and sports activity frequency, race, and gender. Additionally, household income from the first wave is used as an effect measure modifier, dividing the sample into three groups: low-income (less than \$75,000 household income), mid-income (between \$75,000 and \$100,000), and high-income (more than \$100,000). We used generalized estimating equations (GEE) to examine if autonomy's impact on BMI varied across different income groups. **Results:** Among the participants, 17.5% ( $n = 652$ ) had no food autonomy, while the remaining 82.5% ( $n = 3061$ ) were able to choose food freely. Groups of people who had food autonomy showed a slightly higher mean BMI across the three waves: 0.5 in Wave I, 0.1 in Wave IV, and 0.1 in Wave V. Preliminary results indicate that among individuals in the low-income group at baseline, those with food autonomy had a BMI 1.6 units higher than those without food autonomy. However, no statistically significant relationship was found in the mid and high-income groups. We also expect to identify the trajectories of BMI in mid-income and high-income upon identifying more potential covariates. **Conclusion:** Food autonomy affects people's BMI if they are in the low-income group. Controlling for numerous time-varying variables from adolescence (Wave I) to early midlife (Wave V) resulted in attrition and a reduction in our sample size. We plan to use the restricted-use Add Health data to access the full nationally representative sample. Future research will explore groups beyond low-income individuals to determine whether the lack of statistically significant findings stems from overlooked covariates or if there truly is no association.

## 5.5 Informed Metabolic Network Analysis Implicates Disrupted Energy Metabolism in Young Adults From Low Socioeconomic Backgrounds

*Ravi Sudharshan, University of Zurich*

*Co-authors: Brandt Levitt, Kathleen Mullan Harris, Michael J. Shanahan*

Emerging research documents the significant association between socioeconomic status (SES) and indicators of metabolic health: for example, higher SES is associated with improved metabolic control, reduced incidence of diabetes complications, and improved cardiovascular health. In fact, a considerable body of evidence suggests a link between socioeconomic disparities and risk of metabolic syndrome (MetS), a cluster of physiological and biochemical disorders that includes elevated fasting glucose, high blood pressure, dyslipidemia, and abdominal obesity. These interrelated components are partially responsible for an increased risk of type 2 diabetes, cardiovascular diseases and all-cause mortality. Metabolic pathways are also altered in SES – associated chronic conditions and aging. This relationship is mediated by social and behavioral factors suggesting that SES is a crucial determinant of metabolic health outcomes. Tailored interventions addressing these disparities and their mechanisms are thus essential for enhancing metabolic health across different socioeconomic groups. Despite this progress, the mechanisms by which socioeconomic gradients disrupt one or more of the connected human pathologies of MetS remain poorly understood. In this study, we address these drawbacks by investigating the changes in the global genome scale metabolic network in humans as a consequence of socioeconomic inequalities. We leverage transcriptomic data from 4,543 young adults in the transcriptomic subsample of the National Longitudinal Study of Adolescent to Adult Health (Add Health). The data are derived from the largest nationally-representative study of young adults, who are ostensibly healthy but at-risk for later health challenges. First, the analytic strategy analyzes genes whose expression varied significantly by the early adulthood socioeconomic composite score using a linear model analysis. Second, we project the magnitude of change of the SES – differentially expressed genes (SES – DEG) onto Recon3D, a human genome-scale metabolic model (GEM) that can help uncover the molecular basis of the metabolic perturbations. Additionally, we incorporate SES – differential serum creatine, glucose, and triglyceride concentrations, into the same framework. Lastly, we infer steady – state differential metabolic flux profiles to analyze the altered physiology using constraint-based modelling (CBM) approaches and optimization principles that maximizes the consistency of the predicted flux profiles and the observed differential gene expression and differential metabolite concentrations. Our analysis revealed a repression of the cellular carbohydrate and energy metabolism in adults with low socioeconomic positions, particularly in metabolic flux profiles in the glycolysis, citric acid cycle and oxidative phosphorylation. Besides the cellular energetic crisis, our results further showed disruptions in the amino acid and lipid



## Paper Session 6: Racial Discrimination and Health Disparities

### 6.1 Uncovering Health Disparities Across Generation Status: Assets and Debt Among the U.S. Black Diaspora

*Athena Owirodo, University of North Carolina at Chapel Hill*

Health advantages exist among immigrants compared to their native-born counterparts. However, previous studies reveal that the original immigrant health advantage starts to decline with advancements in the generational clock (i.e. children of immigrants). In this study, I explore the (1) heterogeneity in self-rated health, mental health, and allostatic load outcomes among U.S. Black young adults of varying generation statuses, and (2) how components of wealth, in the form of assets and debt, operate through generation status to act as a protective factor or risk on health outcomes. I review literature around health selection among Black immigrants, as well as the racial wealth gap in the United States. Using Wave I and Wave IV data from Add Health, I conduct a subpopulation analysis focused on examining health outcomes differences and its associations between household assets and debt at Wave IV via ordinary least squares regression and a mediation analysis. Preliminary analyses reveal that generation status is associated with self-rated health, and the components of wealth operate as potential mediators explaining self-rated health and mental health differences. Overall, this paper contributes to the literature about health advantage among immigrant populations, and the role that components of wealth play in the life course trajectories of health outcomes.

### 6.2 Colorism, Immigrant Generation, and Health Outcomes Among Asian Americans

*Alexandra Ro, University of North Carolina at Chapel Hill*

This study aims to address three questions. First, what is the role of colorism in the health outcomes of Asian Americans? Second, how does the skin tone-health relationship differ by immigrant generational status? Third, do perceived stress, discrimination, and SES further mediate these skin color differences in health? Given the extensive diversity of the Asian American population and relatively limited scope of current research on how gradients in health outcomes by skin color may exist and function, it is imperative to consider such salient factors when studying one of the fastest-growing racial groups in the U.S. Using a biosocial approach, this study will be the first to document skin tone heterogeneity in health status for this demographic group and integrate a combination of objective and self-reported measures of health from a nationally representative, longitudinal dataset. The main hypothesis is that darker skin color will be associated with worse health among Asian Americans during young adulthood, and this association will vary by immigrant generational status. The pathway between skin tone and health outcomes among different immigrant generations is expected to be mediated by perceived stress, perceived discrimination, and SES. Data: My analyses include in-home survey and biomarker data from Waves I-IV of the National Longitudinal Study of Adolescent Health. The analytic sample includes all respondents who self-identified as Asian American, have valid cross-sectional weights and measures of skin color, and participated in Waves I, III, and IV of the study (N=904). Research plan: The main independent variable is interview-ascribed skin color at Wave III. The dependent variables are self-rated health, depressive symptoms, and hypertension at Wave IV. The mediators are perceived stress and discrimination at Wave IV and SES, which include parents' educational attainment at Wave I, household income at Wave IV, health insurance coverage at Wave IV, and marital status at Wave IV. Relevant demographic controls include age and sex assigned at birth at Wave IV, national origin at Wave III, receipt of government assistance at Wave I, and immigrant generational status across Waves I-III. The primary goal is to identify the association between health in mid-adulthood and skin color among Asian young adults and evaluate its variation by generational status. I test three models using OLS and logistic regression: one to study the association between skin color and each health outcome with the addition of controls, another to model the same relationships but within the analytic sample stratified by immigrant generational status, and a third to include the mediators in an iterative manner. Expected results: Preliminary analyses indicate significant gradients in health by skin tone, and these differences vary by immigrant generational status. This suggests that individuals with darker skin tones may be more greatly exposed to harmful stressors and increase the likelihood of worse health outcomes. I expect that Asian Americans with darker skin tone and of later immigrant generations will also experience more stress and discrimination and have lower SES than their counterparts with lighter skin tone, leading to the former group having worse health overall.

### 6.3 Skin Color Stratification in the Multiracial Community

*Arinala Randrianasolo, Pennsylvania State University*

Skin color is one of the first available pieces of information that one can consume about an individual, along with other physical features like height and hair color. Research has shown that there is considerable inequality within the black community based on variation in skin color (Monk 2014). This stratification extends to health as skin color has been found to be predictive of experiencing discrimination, which are predictive of health outcomes (Hargrove 2019; Perreira, Wassink, and Harris 2019). While this question has been researched within the black population, another population that might experience similar skin tone stratification is the multiracial population. Does the multiracial population experience stratification in health based on skin color? Although deemed a racial category, the multiracial category is an extremely diverse group of individuals with a vast number of combination of races and as a result, a vast number of skin colors. Such heterogeneity can be difficult and still requires attention with several calls for more research on the health outcomes of the multiracial population given their growing interest and importance (Goldstein and Morning 2000; Sandefur, Campbell, and Eggerling-Boeck 2004; Song 2021). My sample will come from the National Longitudinal Study of Adolescent to Adult Health (Add Health). Based on Wave I reporting, 997 respondents reported being multiracial. For this study, I will use self-rated health and Body Mass Index (BMI) as a measure of physical health, which are all available at Waves III, IV, and V and have been tested in other populations to show stratification via skin color. Self-rated health will be dichotomized while BMI will be used as a categorical variable. For my independent variable, I will use interviewer perceived skin color measured at Wave III with the measures being white, light brown, medium brown, dark brown, and black. My analytical plan is to test the relationship between each health outcome and skin color to see if the health measures are stratified by skin color. I will control for individual level characteristics (ex. age, sex, citizenship, etc.), household level characteristics (ex. household socioeconomic status), and other contextual factors. I plan to use each of the waves as a different stage of the life course with Wave III as young adulthood, and Waves IV and V as different stages of adulthood. Treating each wave as a life stage will allow me to see any changes in the relationship over the life course. I hypothesize that those with darker skin color will have worse self-rated health and have worse BMI.



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## 6.4 Demographic Differences in Glomerular Filtration Rate Estimation Equations in Add Health Wave V

Mary Roberts, Pennsylvania State University

Co-author: Jonathan Daw

Compared to White Americans, persons of color report disproportionately high rates of end-stage renal disease. Specifically, Black Americans are four times more likely to experience end-stage renal disease. To assess kidney function, physicians use estimated glomerular filtration rates (eGFR) measure of the levels of creatinine and/or cystatin C in the body. All equations for eGFR account for the patient's age and sex, and until 2021 the eGFR-Creatinine equation also used race. The use of a race multiplier in the eGFR equations has been shown to overestimate kidney function in Black patients, which has implications for public health and clinical decision-making. The National Institute of Diabetes and Digestive and Kidney Diseases (NIDDK), has released a new equation for eGFR using only age and sex. This paper has two goals, 1) construct new measures of eGFR using the 2021 NIDDK eGFR equation in the Add Health Wave V data, and 2) assess differences in eGFR measures by race/ethnicity, sex, and level of education using ordinary least squares regression. The preliminary analyses indicate that for the Add Health constructed measure of eGFR using creatinine with the race multiplier, being male is associated with significantly lower eGFR (coef. = -2.71, p-value <.01). Compared to NH-Whites, NH-Blacks (7.97), NH-Others (4.65), and Hispanics (4.09) have significantly higher eGFR levels (p-value<.01). Compared to those with less than a high school education, having some college or technical school (-2.14, p-value <.05), a bachelor's degree (-3.71, p-value<.01), or greater than a bachelor's degree (-2.94, p-value <.01) is associated with significantly lower eGFR. Using the NIDDK equation being male is associated with significantly lower eGFR (-1.85, p-value <.01). Compared to NH-Whites, NH-Blacks have significantly lower eGFR (-6.68, p-value<.01), and NH-Others (2.00), and Hispanics (3.30) have significantly higher eGFR levels (p-value<.01). Compared to those with less than a high school education, having a bachelor's degree (-3.18, p-value<.01), or greater than a bachelor's degree (-2.47) is associated with significantly lower eGFR (p-value<.05). Additionally, using the Add Health combined creatinine and cystatin C eGFR measure, being male is associated with significantly lower eGFR (-1.54, p-value <.01). Compared to NH-Whites, NH-Blacks (6.60), NH-Others (5.93), and Hispanics (5.34) have significantly higher eGFR levels (p-value<.01). Compared to those with less than a high school education, having a bachelor's degree (3.78), or greater than a bachelor's degree (4.58) is associated with significantly higher eGFR levels (p-value <.01). Finally, using the new combined NIDDK measure, being male is associated with significantly higher eGFR (2.35, p-value <.01). Compared to NH-Whites, NH-Blacks have significantly lower eGFR (-1.43, p-value<.01), and NH-Others (4.31), and Hispanics (4.81) have significantly higher eGFR levels (p-value<.01). Compared to those with less than a high school education, having a bachelor's degree (4.27), or greater than a bachelor's degree (5.03) is associated with significantly higher eGFR (p-value<.01). The change in the direction of the association between race and eGFR when using the new NIDDK equations is significant. This shows that the black-white gap in eGFR among Add Health respondents may be larger than the previous equations may indicate.

## Breakout Session 4

### Methodology Session 4 Contextual Factors Relevant for External Causes of Death: Policy, Availability, and Population Health

Lauren Gaydosh, University of North Carolina at Chapel Hill

Iliya Gutin, University of Texas at Austin

Mortality among working-age adults in the United States has been increasing over the last several decades, with deaths from suicide, drug overdose, and alcohol-related liver disease playing a significant role. In this session, we will provide an overview of newly available contextual ancillary data that are relevant for external causes of death, or what have been called the "deaths of despair". This includes information on spatial proximity on the "supply" side of this issue, including firearms dealers and alcohol outlets, as well as treatment, such as substance use treatment programs and mental health programs. The data also include measures relevant to social integration, health behaviors, and population health. Finally, we share preliminary findings regarding the relationship between measures of contextual despair and individual risk behaviors.

## Paper Session 7: Sexual Orientation and Gender Identity (SOGI) SES Data

### 7.1 Intergenerational Transfers of Money and Time among Sexual Minorities in the United States: Insights from the SOGI-SES Study

Stephanie Hernandez, Drexel University

Co-authors: Lucas C. Stewart, Kerith J. Conron, Carolyn T. Halpern

Prior literature has established the relationship between wealth and health in the United States, where wealth accumulation is associated with better health outcomes, particularly for non-Hispanic White Americans. Intergenerational transfers of money account for approximately 20% of personal wealth and the intergenerational transfer of time, specifically in the form of grandparenting, is associated with parents spending more time in the paid labor force and spending less money on childcare. Given persistent health disparities among sexual minorities, the strong association between socioeconomic status and health, and the protective effect of wealth accumulation on health, this study aims to document the pattern of intergenerational transfer of money and time among sexual minorities in the United States. Data for the study come from the Sexual



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Orientation/Gender Identity, Socioeconomic Status, and Health across the Life Course Study (SOGI-SES), an Add Health ancillary study conducted from 2020-2021 (n=2,614). Respondents were categorized into four sexual orientation groups: (1) straight, (2) gay or lesbian, (3) bisexual, and (4) "other sexual minority" (OSM). Intergenerational transfers of money were operationalized using responses to questions about receiving financial support (e.g., money, loan, or gifts) for education, home purchase, and other major expenses (i.e., car, wedding, starting a business, adoption/fertility costs, medical expenses, living expenses, other significant financial support). Respondents were also asked if they ever needed or wanted financial support for each of the major expense categories. Intergenerational transfers of time were assessed based on responses to questions about time and frequency parents spent helping respondents and time and frequency respondents spent helping their parents. An additional question was included about the number of parents that could easily visit the respondent. Preliminary results suggest significant differences in intergenerational transfers of money and time among sexual minorities. Gay/lesbian, bisexual, and OSMs were more likely to receive free or low rent compared to straight respondents. Additionally, gay/lesbian respondents were less likely to receive support for other major expenses, while OSMs were more likely to receive support compared to straight respondents. Furthermore, gay/lesbian, bisexual, and OSMs were less likely to receive financial support for wedding and adoption/fertility expenses but more likely to receive support for car expenses compared to straight respondents. Finally, compared to straight respondents, gay/lesbian, bisexual, and OSMs were more likely to need or want financial support for education, home, car, living, and other expenses. Gay/lesbian and OSMs were less likely to want or need financial support for wedding expenses compared to straight respondents. Regarding transfers of time, gay/lesbian and bisexual respondents were less likely to report that their parents spent time helping them or that they spent time helping their parents compared to straight respondents. Finally, gay/lesbian, bisexual, and OSMs were more likely to report having no parents who could visit them easily compared to their straight counterparts. These findings shed light on the nuanced patterns of intergenerational transfers of money and time among sexual minorities, providing valuable insights into potential contributors to persistent health disparities in this population.

## 7.2 Implications of Sexual Orientation Response Choices in Population-Based Health Survey

Nicole Kahn, University of Washington, Seattle

Co-authors: Carolyn T. Halpern, Dana Burshell, Stephanie M. Hernandez, Kerith J. Conron

Background: Lesbian, gay, and bisexual (LGB) populations have been shown to experience significantly poorer health outcomes relative to non-LGB people, particularly related to mental health. Research also shows that those who do not identify with traditional LGB labels may represent an "invisible" sexual minority population that experiences health outcomes that are more like other sexual minorities. It is therefore important to understand the strengths and limitations of current measures of sexual orientation to inform health policy and service planning to meet the needs of the broad sexual minority population. Objectives: 1) To describe and compare responses to two different survey items designed to measure sexual orientation. 2) To understand how variation in responses to these items are associated with mental health outcomes. Hypotheses: 1) The sexual orientation item that measured sexuality by approximating a continuum would identify more sexual minority respondents compared to the item that uses a narrower set of specific identity labels. 2) Those who self-identified as heterosexual/straight on one item and as a sexual minority on the other item would exhibit similar mental health outcomes compared to those who were categorized as sexual minorities on both measures. Methods: Data were from the National Longitudinal Study of Adolescent to Adult Health (Add Health) SOGI-SES study (2020-2021). All respondents were asked two survey questions that measured sexual orientation. One of these items was the Add Health question, which has been asked of all Add Health respondents from Wave III in 2001 on and defines sexuality approximating a continuum. The other item was the National Health Interview Survey (NHIS) question, which was developed at the National Center for Health Statistics to measure sexual orientation identity. These two items were used to construct two additional variables, "Missed by Add Health" and "Missed by NHIS," which categorized those respondents who self-identified as heterosexual/straight on one item and as a sexual minority on the other item. Analyses included Adjusted Wald tests to compare the proportions of respondents who were 1) categorized as heterosexual/straight and sexual minorities using each item, and 2) diagnosed with depression or anxiety/panic disorder. Results: The sample included 2,576 respondents. The Add Health question identified over twice as many sexual minority respondents as the NHIS question (14.2% vs. 6.7%). Less than 0.1% of respondents were identified as missed sexual minorities by Add Health, while 7.5% of respondents were identified as missed sexual minorities by NHIS. Those who were missed by the NHIS question, primarily "mostly heterosexuals," had mental health outcomes that were more like those who were consistently classified as sexual minorities versus those consistently classified as heterosexual/straight. Discussion: Results illustrate how current measures of sexual orientation used in national-level surveys may underestimate the sexual minority population and sexual orientation-related health disparities. As a result, more research focused on understanding who is identified through various measures of sexual orientation may help not only to identify those who could benefit from targeted services and supports, but also to inform efforts to measure sexual orientation in population health surveys.

## 7.3 Sexual Orientation, Gender, and Wealth in the SOGI-SES Add Health Ancillary Study Sample

Kerith Conron, UCLA

Co-authors: Lucas C. Stewart, Stephanie Hernandez, Carolyn T. Halpern

Higher rates of poverty have been widely documented among sexual and gender minorities (SGM) relative to cisgender, heterosexual adults. However, analyses of economic well-being for SGM people have yet to examine wealth due to gaps in the public data collection systems. Understanding how assets and debts are distributed in the population is critical to forecasting the needs of various social groups as they age. Wealth, defined as the difference between cumulative assets and cumulative debts, also serves as a buffer against emerging threats (e.g., COVID-19 pandemic, wildfires, floods) that disrupt the economy and usual activities of daily living. Using data collected on the SOGI-SES survey in 2021-2022, this study presents information about wealth by sexual orientation and gender among 2,614 adults sampled from the Add Health cohort. Details about specific assets and debts will also be presented. Findings will be discussed in relation to underlying causes of differences in wealth and potential strategies to address observed inequities. During wave 3 (2001-2002), most (68%) respondents had private insurance, while 22.5% were uninsured and 7.2% had Medicaid coverage. However, when we account for sex and sexual orientation, we find notable disparities. For example, males were more likely to be uninsured than females (25.7% v. 21.1%), while bisexual females reported even greater uninsurance (29.2%). Similarly, only 2.1% of individuals who identified at that time as gay or lesbian reported Medicaid coverage. This was a lower level of Medicaid coverage than that reported by either bisexual (7.5%) or heterosexual individuals (7.3%). This trend persisted in wave 4 (2007-2008). In wave 5 (2018), while gay or lesbian individuals and heterosexual individuals reported similar levels of Medicaid coverage (7.2%, 9.9%), bisexual





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respondents still had the greatest level of Medicaid coverage (20.4%). At the time of the SOGI-SES survey (2020-2021), we find that, although non-heterosexual individuals report greater rates of depression relative to heterosexual respondents, these disparities vary across insurance status. For example, bisexual individuals without insurance report the greatest incidence of depression (85.7%). Preliminary analyses indicate that having insurance, relative to being uninsured, reduces the likelihood of being diagnosed with depression across all groups, though the effect is largest for bisexual individuals. These results indicate that further analyses of health insurance coverage among LGBTQ+ populations are critical to understanding and preventing health disparities.

## 7.5 Exploring Factors influencing Parenting Desire Among LGBTQ+ Individuals in the United States

Zabryna Lynn Balen, University of North Carolina at Chapel Hill

Co-authors: Stephanie M. Hernandez, Carolyn T. Halpern

LGBTQ+ people face unique social, political, and economic barriers in their journey towards parenthood compared to non-LGBTQ+ people. However, little is known about what factors influence LGBTQ+ peoples' parenting desires and how this compares to non-LGBTQ+ people. This research explores whether factors such as sociodemographic characteristics, socioeconomic characteristics, family structure, and minority stress influence the desire to grow families among LGBTQ+ people in the United States using a sample of 2,224 participants from the Sexual Orientation/Gender Identity, Socioeconomic Status, and Health across the Life Course (SOGI-SES) ancillary Add Health study. In contrast to previous literature on parenting intentions of lesbian and gay individuals, our results showed higher reports of parenting desire among LGBTQ+ respondents than non-LGBTQ+ respondents. We found that 3 in 4 LGBTQ+ people want to have children but are not achieving that goal. Further, we found that partnership status and number of children may help explain the relationship between parenting desire and LGBTQ+ identity. Additional analyses revealed that single LGBTQ+ respondents were 2.7 times and partnered, not-married LGBTQ+ folks were 3.5 times more likely to want to grow their families compared to married LGBTQ+ respondents. Our research suggests LGBTQ+ people want to have families but may not have the resources or support to do so. Further research is needed to understand factors and barriers influencing parenting desire among LGBTQ+ people and identify potential points of intervention.

## Paper Session 8: Mortality and Aging

### 8.1 Adolescents' Perceived Survival Expectations as a Predictor of Premature Mortality

Carlyn Graham, University of North Carolina at Chapel Hill

Co-authors: Carolyn T. Halpern, Robert A. Hummer

Prior studies using Add Health data have examined whether the Wave I measure of adolescents' perception of the likelihood they will survive to age 35 is associated with young adulthood (Waves III & IV) mental and physical health indicators, risk behaviors, and socioeconomic status (Kim and Kim 2020; Nguyen et al. 2012a, 2012b). Findings from these studies show that lower adolescent expectation of survival to age 35 is strongly associated with suicidality and increased substance use (Nguyen et al. 2012a), higher cardiovascular disease risk (Kim and Kim 2020), and lower socioeconomic status attainment (Nguyen et al. 2012b). However, research has yet to investigate whether adolescent perceived survival expectations are predictive of mortality. Employing Cox proportional hazard models, we use the most recently collected data on the vital status (December 2021) of Wave I Add Health participants to estimate whether adolescents' perceived likelihood of survival to age 35 predicts premature all-cause mortality. We then consider whether variation exists by adolescent stage by stratifying our analyses into subgroups of participants who were in young adolescence (ages 11-14), middle adolescence (ages 15-17), and late adolescence (ages 18-21) at the time of the Wave I interview. Prior to adjusting for controls, in the overall sample, respondents who perceived they had a 50% chance or less of survival to age 35 had a significantly higher risk of mortality than respondents who were almost certain they would survive to age 35. The inclusion of Wave I mental and physical health indicators and risky behaviors attenuated this risk to statistical nonsignificance. However, results varied by adolescent stage. Specifically, while perceived survival to age 35 was not a significant predictor of mortality among the young and middle adolescence subgroups with and without controls, among the late adolescence subgroup, individuals who perceived they had a 50% chance or less of survival to age 35 had a significantly higher risk of mortality even net of a wide array of Wave I mortality risk factors (e.g., family socioeconomic status, neighborhood disadvantage, physical and mental health indicators, exposure to violence, and risk behaviors). This is the first study, to our knowledge, that demonstrates that adolescents' survival expectations are predictive of premature mortality, specifically during late adolescence. We discuss results in the context of adolescence as a critical period in the life course for the development of health and risky behaviors as well as social and economic life course trajectories.

### 8.2 Adolescent Socioeconomic Disadvantage and Cause-Specific Mortality Through Early Midlife

Sylvie Tuder, University of North Carolina at Chapel Hill

Co-authors: Carlyn Graham, Robert A. Hummer

Despite increased attention to rising mortality among adolescents and young adults in the United States, the early-life determinants of premature mortality remain to be better understood. We investigate the relationship between adolescent socioeconomic disadvantage and mortality using Waves I and V of Add Health. We measure adolescent social disadvantage using a summative index of 22 measures of socioeconomic deprivation during Wave I at the neighborhood, school, and household levels. For each measure, a binary variable was created where 1 = most disadvantaged quartile. We sum the binary indicators into the adolescent disadvantage index (ADI). Neighborhood measures are from Wave I tract-level data linked to respondent addresses. Household measures are from the Wave I parent data. School measures are from the in-school, school administrator, and Waves I and II school desegregation datasets. We standardize the ADI such that coefficients reflect associations with a one-standard deviation increase. We use Cox proportional hazard (CPH) models to examine the relationship between the ADI and all-cause mortality. We also perform comparative risk (CR) models by broad cause-of-death groupings (cardiometabolic; all other internal; accidental poisonings and drug overdoses; all other external) to explore cause-specific relationships. We adjust for W1 self-reported race, sex, heavy drinking, heavy smoking, drug use, subjective survival probability, fair/poor self-rated health, and clinical depression. To preserve mortality observations, we perform multiple imputation on missing observations for the key exposures and covariates. Descriptive statistics are from pre-imputation data. We present pooled and fully-adjusted model results using 20 imputed datasets and W1 sample weights. Participants were



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average age 15.19 (SE 0.03) years at W1 interview. There were 592 deaths, with a weighted cumulative hazard of 3.4% (SE 0.3%). The average age at death was 32.60 (SE 1.1). Decedents were more likely to be Non-Hispanic White males than were survivors through 2021. Individuals who died from internal causes showed higher levels of ADI (7.69, SE 0.66) than those who died from external causes (6.80, SE 0.51) and those who survived through 2021 (6.66, SE 0.07). Fifteen percent of deaths were from cardiometabolic causes (SE 2.9%); 21% (SE 0.32%) were from other internal causes; 18% (SE 3.0%) were from accidental poisonings; 11% (SE 2.7%) were from suicides; 5.9% were from homicides (SE 1.8%); and 29% were from other causes (SE 5%). CPH models show that a one SD increase in the ADI is associated with increased risk of all-cause mortality (HR = 1.16,  $p = 0.018$ ). Being male (HR = 1.80,  $p < 0.001$ ), fair/poor SRH (HR = 1.50,  $p = 0.015$ ), heavy smoking (HR = 1.63,  $p = 0.001$ ), and high subjective probability of being killed before 21 years (HR = 1.92,  $p = 0.015$ ) are also associated with increased mortality hazard. Cause-specific CR models show positive associations for non-cardiometabolic internal causes (HR = 1.27,  $p = 0.07$ ) and homicides (HR = 1.47,  $p = 0.052$ ), but for cardiometabolic causes, suicides, accidental poisonings, or other external causes. This study adds to a body of evidence showing the need for decisive, lasting, and holistic early life policy interventions. Alleviating socioeconomic deprivation at the neighborhood, household, and school levels during the transition to adulthood may prove lifesaving.

### 8.3 Partisan Prescriptions: The Political Polarization of Health Outcomes

Neil O'Brian, University of Oregon

Overview: An existing scholarship shows that the political polarization is eroding the health of U.S. Democracy. This paper documents two interwoven trends showing that political polarization is eroding the physical health of the U.S. as well. First, using the Add health survey, we find that by wave 5 (2016-18), political predispositions become increasingly predictive of vital status and well-being (e.g., blood pressure, A1C levels). Liberals are healthier and living longer. This ideological divide is especially strong among people of color. We find this is largely driven by unhealthy people who became more conservative over the 2010s. Second, we conduct a novel survey of chronically ill people in the United States and find that those on the political right adhere and trust their own personal doctors at lower levels. Furthermore, we find that political predispositions are a remarkably strong predictor of whether chronically ill individuals believe their medications are effective and take them as prescribed. This has potentially stark consequences: conservatives are experiencing declining health outcomes and are (increasingly) distrustful of the people and technology that is best suited for ameliorating the problem. Data Used: This project uses the bio-marker data from the Wave 4 & 5 Add health survey as well as the surveillance file of vital status. The key outcome variables are the biomarkers (available in wave 4 & 5) for body-mass-index, lipids, cardiovascular health, Glucose and A1C levels, and body-mass-index. The key predictors of interest are ideological self-identification asked in Wave 4 & 5. Hypotheses & Analytic Approach: Researchers have shown that, when aggregated at the county level, mortality rates (both all cause and then specific causes) have increasingly correlated with county vote choice; more Democratic counties were living longer. We wondered whether this persisted at the individual level. We pursued Add health data with the following question in mind: do political attitudes predict mortality and health outcomes? We employ regression analysis of both wave 4 and 5 (both as cross-sections and longitudinally) to understand the relationship between health and political predispositions.

### 8.4 Adverse Childhood Experiences and Premature Mortality: Effect Modification by Social Support

Kiran Thapa, University of Georgia, Athens

Co-authors: Janani Rajbhandari-Thapa, Ye Shen, Emily Anne Vall, José F Cordero

Research questions: Is exposure to adverse childhood experiences (ACEs) associated with increased risk of all-cause mortality through young adulthood? Does childhood social support modify all-cause mortality risk associated with ACEs? Add Health data used: Wave V Surveillance File, Wave I Core File Key variables: Outcome: All-cause mortality Exposure: Adverse childhood experiences (death of a biological parent, parental divorce, substance use in the household, suicide attempt by a family member, emotional neglect, and exposure to community violence). Each item was summed to represent cumulative exposure to ACEs and then categorized into 0, 1, and  $\geq 2$  ACEs. Effect measure modifier: Social support (ten items that asked the perceived level of support from parents, family, and school with responses on a Likert scale; example statement: You are satisfied with your relationship with your mother/father). Response to each item was re-coded into binary variable and summed to create a social support index. Those falling below the median were categorized as the low social support group. Analytic approach: Multivariable Cox proportional hazards (PH) models were used to estimate hazard ratios (HRs) for the risk of mortality associated with 1 and  $\geq 2$  ACEs compared to the 0 ACEs group, overall and stratified by levels of social support. Multiplicative effect modification was tested using an interaction term between ACEs and social support in the Cox PH model.

Results: Exposure to  $\geq 2$  ACEs was significantly associated with a higher risk of death through young adulthood  $\leq 43$  years (HR: 1.51 [95% CI: 1.02, 2.23];  $p=0.039$ ). In the analyses stratified by social support, the exposure to  $\geq 2$  ACEs was significantly associated with higher risk of death in the low social support group only (HR: 1.78 [95% CI: 1.15, 2.77];  $p=0.009$ ). Conclusions: Exposure to  $\geq 2$  ACEs, in the absence of inadequate social support, significantly reduced survival during young adulthood in the US. Promoting social support interventions in addition to efforts to prevent ACEs could be effective strategies to prevent premature deaths among young adults.

## Breakout Session 5

### Methodology Session 5: Add Health Wave V Biological Data and Vital Events

Eric Whitsel, University of North Carolina at Chapel Hill

This methodology session will cover three areas:

- (1) methods used to collect Wave V biological data, biospecimens, and biomarkers;
- (2) their monitoring and quality control; and
- (3) surveillance of deaths since cohort inception, including their identification, review, classification, and adjudication.



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## Paper Session 9: Mental Health

### 9.1 Assessment of the Role of Employment in the Relationship Between Community Violence Exposure and Mental Health

Valerie Valezuela, *UT Health Houston*

Co-authors: Valerie Valenzuela, Alexander Testa, Shannon Guillot-Wright

The current study investigates the relationship between exposure to community violence, employment, and mental health over the life-course. Specifically, this analysis aims to address whether (1) community violence exposure associated with higher self-reported depressive symptoms and perceived anxiety, and (2) whether employment status serves as a protective factor that mediates the relationship between violence exposure and mental health. To test this relationship, we use data from the Waves I through V of the National Longitudinal Study of Adolescent to Adult Health. These relationships are examined using structural equation modeling (SEM) to determine direct effects of community violence on mental health, and indirect effects due to employment. Findings from this research can contribute to the understanding of long-term consequences of community violence exposure and health and wellbeing, and the critical, but overlooked role of employment in mitigating harmful health sequela stemming from violence exposure over the life course.

### 9.2 Age Patterns and Predictors of Cannabis Initiation among U.S. Youth: A Discrete-Time Survival Analysis

Jennifer Traver, *University of Wisconsin-Milwaukee and University of North Carolina at Chapel Hill*

Co-authors: Ai Bo, Alejandro Martinez, Daniel Bauer, Trenette Clark Goings, Jennifer Traver

Cannabis has increasingly replaced alcohol and cigarettes as the first substance use among adolescents. Understanding cannabis initiation and its predictors among diverse U.S. youth is critical to informing the timing and priority of prevention efforts for youth subgroups. In this study, we examined (1) age patterns and predictors of cannabis initiation among adolescents and emerging adults in eight distinct monoracial and biracial groups (i.e., White, Black, Native American, Asian American, White-Hispanic, Biracial White-Native, Biracial White-Black, and Biracial White-Asian), and (2) whether the effects of peer substance use, family support, parental control, and religiosity on cannabis initiation varied by age, racialized group/ethnicity, and sex. In-home interview data from the Add Health study ( $n = 12,941$  adolescents, 50% male, mean age of 15.5 at baseline) were used. We used discrete-time survival analysis within logistic regression to estimate the probability (or hazard) of cannabis initiation as a function of age, racialized group, sex, religiosity, and parental and peer factors. We specified two models, both allowed for a curvilinear effect of age to capture the peak in the hazard of initiation during adolescence. The first model examined initiation curve variations by racialized group and included age, age squared, racialized group, and its interactions with age and age squared. The second model was expanded to include control variables (religious status, family structure, Social Origins Score, household smoking status, parental alcohol use, sex) and key predictors of cannabis initiation (peer substance use, religiosity, family support, and parental control and their potential interactions with racialized group, sex, age, and age squared). All analyses accounted for Add Health's complex survey design. We found a quadratic trend in cannabis initiation probability during adolescence and emerging adulthood with the peak initiation probability around age 16. The initiation patterns varied among racialized groups, with biracial youth showing a closer trend to White youth than their racially minoritized monoracial peers. Specifically, we found elevated risks for initiation among biracial White-Black and White-Asian youth compared to both of their monoracial peers. Native American youth had higher risks in cannabis initiation than both White and Biracial White-Native youth. Further, our study found age-varying effects for peer substance use, religiosity, and parental control. The influences of peer substance use and religiosity were strongest around age 16, coinciding with the peak initiation risk. The effects of peer substance use and parental control on cannabis initiation also varied across racialized groups. Notably, biracial White-Black and biracial White-Asian adolescents' cannabis initiation appeared to be more susceptible to peer influence compared to their monoracial counterparts. Parental control displayed protective effects for specific groups (biracial White-Black, Native American, and Hispanic youth), particularly around ages 18 to 19, while having adverse influences for most other groups. Our findings emphasize the importance of early cannabis prevention efforts for at-risk groups such as biracial White-Black, biracial White-Asian, and Native American youth. Tailoring program components based on both age and racialized group is also essential for effective prevention strategies.

### 9.3 Inflammation Mediates the Relationship Between Sleep and Depression

Drew Farr, *University of Kentucky*

Co-authors: Xin Ma, Min-Woong Sohn, Jayani Jayawardhana

Research Question: Does inflammation mediate the relationship between sleep and depression? Hypothesis: Systemic inflammation will partially mediate the relationship between subjective sleep quality and depression: sleep will have a negative association with depression (direct path); and sleep will have a negative association with inflammation while inflammation will have a positive association with depression (indirect pathway). Data: The study utilized data from The National Longitudinal Study of Adolescent to Adult Health (Add Health), including measures of sleep and depression from the Wave V Mixed-Mode Survey and measures of inflammation and immune function from the Wave V Biomarkers study. Data preparation and analysis were completed using Stata 18.0 and Mplus Version 8.10. Analytic Approach: Latent variable path analysis (structural equation modeling) was performed to evaluate a model with sleep, inflammation, and depression as latent constructs measured by two factors each, respectively: sleep hours and snoring; a count of infectious and inflammatory diseases from the past 4 weeks and a count of subclinical symptoms of inflammation from the past 2 weeks; depression symptoms and passive suicidal ideation. The structural and measurement models were both identifiable with model fit statistics that support a strong fit between the data and the proposed model: CFI (0.997), TLI (0.993), RMSEA (0.014), SRMR (0.011). A chi-square test for model fit ( $p=0.234$ ) indicated that the covariance matrix generated from the model was statistically no different from the population covariance matrix. Results: All three proposed relationships between sleep, inflammation, and depression in the structural model were statistically significant. An increase in sleep by one standard deviation (SD) was associated with a decrease of 0.245 SD in depression through the direct pathway ( $p<0.001$ ) and a decrease of 0.171 SD in inflammation ( $p=0.042$ ). An increase in inflammation by one SD was associated with an increase of 0.217 SD in depression ( $p<0.001$ ). All factor loadings in the proposed measurement model were consistent with expectations about the direction and relative contributions of the factors on their respective latent constructs. Conclusion: The results support the theoretical expectations of the proposed model, demonstrating that sleep has both direct and indirect effects on depression, with systemic inflammation partially mediating the relationship between sleep and depression.



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## 9.4 Predictors of Gambling Participation in Young Adult Survivors of Child Sexual Abuse: Evidence from the National Longitudinal Study of Adolescent to Adult Health (Add Health)

Hung-Peng Lin, University of Washington, Seattle

Co-authors: Juliann Lin Verdugo, Jon Conte

**Background and Purpose:** Accumulating addictive or compulsive behaviors compound the quality of life in survivors of child sexual abuse (CSA), such as alcoholism, substance misuse, disordered eating behavior, compulsive sexual behavior, and problematic gambling. Such behaviors often co-occur with emotional and mental distresses. Generalized Theory of Addiction (Jacobs, 1986) posits that addictive gambling behaviors can arise from a deep sense of inadequacy developed following traumatic childhood experiences. Further, persistent and recurrent problematic gambling can lead to a clinical impairment of Gambling Disorder. Given the onset of addictive behaviors most prevalent in adolescence or young adulthood, this study examines: 1) the sociodemographic characteristics of young adult survivors of CSA with gambling participation behavior; and 2) the predictors associated with gambling participation in this population. This study fills the research void in the financial well-being of CSA survivors. **Methods:** Study data were abstracted from the Wave 4 of the National Longitudinal Study of Adolescent to Adult Health (Add Health) (N = 14,800). Using Binomial Logistic Regression Model to estimate odds ratios of gambling participation, we included gender, socioeconomic status (personal earnings before taxes), educational attainment, and living arrangement as covariates; and intra-familial CSA, extra-familial CSA and clinical proxies of the traumatic repercussions of CSA (i.e. anxiety/panic, depression, and PTSD diagnoses) as independent variables. We then used several analytical strategies to produce the model with the best goodness of fit. First, we conduct a stepwise regression analysis procedure to compare the models that predict the odds of gambling participation. Second, we ran ANOVA, AIC, and BIC analyses to test models that better predict the odds of gambling participation. Subsequently, we did a Likelihood Ratio test to specify the best predictive model. **Results:** About 5.6% of young adults (n=828) reported child sexual abuse history, 72.7% of whom ever participating in gambling. In these subsample of young adults with gambling participation, their current mean age was 29 (S.D.=1.7; R=26-32); 74.5% were female and 25.4% male; 85.6% of them lived with someone else and 10.5% alone; slightly more than a third (35.7%) completed some college, 21.6% high school degree, and 10.5% some high school; and their mean salary before taxes was \$24,895 (s.d.=23,237; R=0-150,000). The Binomial Logistic Regression analyses indicated the model that included sex, income, extra-familial CSA victimization, anxiety and PTSD can best predict gambling participation. Specifically, income (OR= 3.69, p<.01), extra-familial CSA (OR= 0.16), and anxiety (OR= 0.23, p<.05) were positively associated with gambling participation. Female (reference: male; OR= -0.47, p<.001) and PTSD diagnosis (reference: no diagnosis; OR= -0.35, p<.1) were negatively associated with gambling participation. **Conclusions and Implications:** Our findings highlight the connection between the financial well-being and mental health among young adult survivors of CSA. CSA survivor support services should screen and intervene in trauma-induced financial behaviors (e.g. compulsive spending, gambling). Particularly, male young adults with extra-familial CSA history, higher income level and anxiety symptoms are the vulnerable population of gambling participation.

## 9.5 Sexual Orientation and Mental Health Trajectories from Early to Mid-Life

Zhiyong Lin, University of Texas at San Antonio

Co-authors: Kara Joyner, Wendy D. Manning

An abundance of research indicates that members of sexual minority groups face a heightened risk of mental distress and related conditions. While disparities in static health levels are well-documented, there is a gap in our knowledge regarding sexual orientation-based differences in mental health trajectories over time. By incorporating perspectives from minority stress and the life course, we aim to investigate whether and how sexual orientation-based disparities in mental health vary with age. The persistent inequality hypothesis posits that intracohort stratification remains constant as the cohort ages, suggesting that sexual orientation disparities in mental health will persist steadily with age. Conversely, the cumulative disadvantage hypothesis suggests that stressful experiences may accumulate over time, leading to stress proliferation and consequently widening mental health inequalities over the life course.

We will test these competing hypotheses by analyzing a longitudinal sample of straight, bisexual, and lesbian/gay individuals from adolescence to early midlife, comparing their mental health trajectories based on sexual orientation. The data for this study were obtained from the National Longitudinal Study of Adolescent to Adult Health (Add Health). Our study focused on 16,270 individuals who provided valid responses on all variables of interest at Waves I and III-V, resulting in a total of 48,815 person-year observations. The dependent variable, depressive symptoms, was assessed with three items that were consistently asked across the Add Health interview waves: "you could not shake off the blues, even with help from your family and your friends"; "you were depressed" and "you were sad". The sum of non-missing values across all domains constituted each individual's depressive symptoms (0-9). The main independent variables were sexual orientation, age, and gender. Sexual orientation was assessed by attraction to females and males, leading to three categories: straight, lesbian/gay, and bisexual. This indicator was asked at all Add Health interview waves. We will conduct sensitivity analyses based on other measures of sexual orientation, such as sexual identity, but it is only asked at waves III-V. We employ growth curve models to analyze mental health trajectories by sexual orientation from adolescence to early midlife. The analysis begins with a model of depressive symptoms using age as the time metric, incorporating the interaction of sexual orientation with age to explore differences in the rate of change across sexual orientations. We will present findings from growth curve models examining differences in depression levels by sexual orientation and how these trajectories change with age, considering various covariates. Our results will highlight significant mental health disparities among sexual minority individuals across all life stages. The differentials in depressive symptoms between lesbian/gay and straight individuals appear to remain consistent over time. Moreover, we observe a notable interaction effect between being bisexual and age, indicating that bisexual individuals not only face higher depression levels compared to straight peers throughout early to mid-life but also experience an increasing disparity over time. Given gender differences in reporting mental health, we will present findings separately for men and women.





## Paper Session 10: Immigrants and Health Disparities

### 10.1 Pre-migration Sociocultural Trauma and Current Well-Being of Immigrant Families

Tatiana Glebova, Alliant International University

Co-author: Suzanne Bartle-Haring

Glebova & Knudson-Martin (2023) define sociocultural trauma as “historical events and ongoing injustice, either large or small scale, that had a destructive impact on people’s lives and well-being or societal structures and organization” (p. 4). Social Safety Theory (Slavic, 2020) asserts that threats to social safety across all systems of human ecology are critical components of psychological stressors that impact mental and physical health. For many families of immigrants, social safety is jeopardized in the home country, during migration, and in the host country where they are exposed to discrimination, poverty and various legal challenges. The purpose of this project is to investigate associations between pre-migration sociocultural trauma, current social stressors, individual and relational wellbeing using the ADDHealth dataset. At Wave 1, participants were asked whether they were born in the US, and if not what country they were born in and how long they have lived in the country. There were 1837 participants who were born outside of the US who reported their country of origin, 3687 participants who reported that their mother was born outside of the US, and 2951 participants who reported their father was born outside the US, thus there are both 1st generation and 2nd generation immigrants in the sample. Our plan is to investigate an effect of parents’ country of origin on their own and offspring’s health (both mental and physical) across time. We will also use the neighborhood/community variables that include urbanicity, percent of people in the area living in poverty, percent of people living in the area who are minority (Black/African American or Hispanic), and other characteristics that will provide a way to understand the context in which these immigrant families are living that may buffer against the premigration sociocultural trauma or exacerbate it. The variables of interest include: - Pre-migration trauma/ “Country-of-Origin Index” (using a scoring system developed by the authors): (3) Extreme (mass violence+ economic hardship+ political repressions); (2) Medium (economic hardship+ political repressions); (1) Low (economic hardship). - Current social stressors: “neighborhood/community” indicators. - Offspring data (ADDHealth Participants): general health, depressive symptoms, missing work/school due to mental issues, receiving counseling all over time through wave 5, academic performance while in school, school engagement while in school, and perception of safety in school while in school. - Parent data: general health, marital status, education, employment, perception of neighborhood quality, income/poverty, parent-child relationship satisfaction. The Country-of-Origin Index scores will be used in a multilevel model to determine differences among participants from countries with varying sociocultural trauma. At the first level of the model, will be the adolescents physical or mental health scores overtime with adolescent gender, 1st or 2nd generation immigration status, and parent variables as covariates and the school variables, and contextual variables as time varying covariates (in the case of moving to a new school or moving to a new community). At the second level, will be the Country-of-Origin score. If parents come from different countries, then two scores will be used.

### 10.2 Examining Health and Context Among Immigrants

Fatima Touma, University of North Carolina at Chapel Hill

Upon arrival to the United States, immigrants’ health is generally better than that of their U.S.-born counterparts. Yet, previous research has found that this health advantage may diminish with increased time and generations in the United States. This decline in immigrants’ health may not unfold in the same way for all immigrant groups, possibly due to differential exposure to structural discrimination. In this study, I examine within-group heterogeneity in the health of immigrants across state-level structural xenophobia contexts. Structural xenophobia refers to the ways in which laws, policies, social institutions, and social norms combine to exclude immigrants from and prevent their incorporation into the host society. A state-level measure of structural xenophobia may help capture the context in which immigrants live their everyday life. Much of the current research examining immigrant health compares foreign-born and U.S.-born adults and does not consider if context may intensify or buffer the relationship between immigrant characteristics and health outcomes. While those studies are insightful, it is possible that we are overlooking how varied and intersecting identities within immigrant groups may be differentially impacted by structural xenophobia. In this study, I go beyond defining immigrants simply as individuals who are foreign-born, and instead consider clusters of individual characteristics, including skin tone, language skills, education, etc., which together make up immigrant archetypes.

This approach is important because exposure to structural xenophobia could vary based on how well individuals fit the characteristics typically associated with immigrants, which may lead to differential health outcomes. Specifically, my research questions are: Are certain immigrant archetypes more closely associated with negative or positive health outcomes? Does the structural xenophobia context intensify or buffer the relationship between immigrant archetypes and health outcomes? Using data from The National Longitudinal Study of Adolescent to Adult Health (Add Health) Wave V and a structural equations modeling (SEM) framework, I examine the relationship between immigrant archetypes, structural xenophobia, and health. Specifically, I build a measurement model of immigrant archetypes using confirmatory factor analysis, where immigrant archetype is treated as an unobserved latent variable measured by various characteristics (e.g., race-ethnicity, education, skin tone, etc.). I also build and test a multidimensional measurement model of the structural xenophobia context, drawing on the rich contextual data available in Add Health. Finally, I include an interaction between structural xenophobia and immigrant archetype to examine the possible moderation context may have on the relationship between the immigrant archetype and health outcomes. My preliminary descriptive analysis shows variation in the education, household income, religious affiliation, skin tone, and occupations of Add Health Wave V immigrant respondents, highlighting the heterogeneity found within the immigrant group. In my next steps, I plan to build and test the SEM models described earlier. With the results of this study, I will be contributing to our understanding of how individual characteristics and state-level contextual factors shape population health patterns.



## 10.3 Transitions to Adulthood: A Comparative Analysis of Mexican-Origin Populations in the United States and Mexico

Fatima Frausto, University of Texas at San Antonio

Co-authors: Rene Zenteno, Emilio Parrado

We use the fifth wave (2016-2018) of the Add Health survey and the Mexican Retrospective Demographic Survey (referred to by its Spanish acronym EDER) conducted in 2017 to examine the similarities and differences in the transition to adulthood of the Mexican-origin population in the United States and Mexico. The availability of the EDER data represents an excellent opportunity to examine how the United States experience shapes the timing and sequence of school-work-marriage-parenthood transitions and the influence of early socioeconomic conditions on these transition patterns for three fundamental reasons. First, the EDER collected retrospective histories of major life course events, such as migration, schooling, employment, marriage, and fertility, from independent samples of men and women 20 to 54 years of age in 2017. An EDER sub-sample of 5,206 cases matches the Add-Health data's birth cohort. Second, the Mexican American population of the Add-Health survey has been shaped by a large influx of immigration from Mexico: about half of them were either born in Mexico (19%) or born in the US to immigrant parents (32%). Third, the comparative perspective allows us to examine the adaptation process of acculturation regarding family transitions of the Mexican American population by simultaneously comparing transition patterns with the non-Hispanic white population in the United States and the population in Mexico. Our research will try to answer the following questions: 1. How do the timing and sequence of school-work-marriage-parenthood transitions differ between Mexican-origin individuals in the United States and Mexico? 2. To what extent do early socioeconomic conditions in both countries differentially influence the timing and sequence of life transitions among the Mexican-origin population in the United States and Mexico? 3. How do immigrant status and gender influence the life course trajectories among Mexican-origin individuals in the United States, as compared to those in Mexico? The Add-Health and EDER surveys allow us to examine family transitions up to age 35 of the population born from 1976 to 1982. The surveys show that Mexican American participants in the Wave V survey were slightly younger on average (37.4 years old) than those in the EDER survey (38.9 years old). It's also worth noting that there is more male representation in the Add-Health survey (51.5%) compared to the EDER survey (43.6%), which can be partly explained by the significant outflow of Mexican men from this cohort to the United States. The remarkable differences in the access to education between the Mexican-origin population in the United States and those in México are relevant to our life course approach. About six in ten Mexicans never attended high school (61.8%), compared with 10.3% of Mexican Americans in the U.S. The Mexican-origin population in the U.S. is four times more likely to have finished high school than those in Mexico—89.7% vs. 20.4%, respectively. Data on fertility shows a mean number of children ever-born of the Mexican-origin population in the Add-Health survey of 1.6 children compared to an average of 2.2 in the same population cohort in Mexico. We will estimate separate discrete-time event-history models of moving from school to first-time full employment, marriage, and parenthood for men and women.

## 10.4 Impact of Economic Precarity and Labor Union Membership on Household Income and Mental Health of Immigrant and Native-Born Families in the United States

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Co-author: Carmel Salhi

**Introduction:** Research on immigrant mental health often focuses on social determinants of health and similar frameworks which identify risk factors. However, structural approaches to understanding socioeconomic challenges to health remain limited. As migration to the US increases, adopting a structural framework is critical for comprehending the challenges to migrant health at a population level. **Research gap:** There is substantial literature examining the importance of employment to immigrants' health. However, the study of economic precarity and unionization as they relate to health remains understudied, especially among immigrant families. To our knowledge, there is one systematic review of unions and health published in 2021, with none of the included studies focusing on immigrant populations. Hence, economic precarity and the effects of unions remains a crucial research gap limiting our understanding of how employment affects immigrants' health. **Objective:** This study aims to explore how economic precarity and unionization affect the well-being of immigrant childrens' upward mobility into adulthood, specifically focusing on household income and childrens' mental health. **Methodology:** Utilizing the National Longitudinal Study of Adolescents to Adult Health (Add Health) data, we will analyze Waves 1, 4 and 5, including the supplemental contextual data from "The Opportunity Atlas: Mapping the Childhood Roots of Social Mobility." We will include membership in labor unions at Wave 1 to understand its potential mitigating effects on the negative impact of economic precarity, which may be particularly salient for immigrant families. Utilizing county-level mean household income rank (KFR) from contextual data across waves will allow us to distinguish employment precarity from overall economic conditions, including the degree to which unionization mitigated any disparity. This variable includes stratification by native and non-native born mothers as well as across race and gender. Additionally, for our economic precarity measure, utilizing the parent questionnaire in Wave 1, we utilize the ability to pay bills. Finally, we measure mental health scores through the modified CES-D-9 scale as standardized by wave. **Our analytic plan** has three goals: 1) running univariate and bivariate analysis to understand crude relationship and patterns found in our data, 2) looking at unionization and economic precarity as associated to household income, 3) and analyzing how those exposures are related to child's mental health across waves. For goals two and three, we aim to stratify our analysis by native and non-natives population. **Expected Outcomes:** We hypothesize and predict economic precarity will worsen household income, and have a direct effect on a child's mental health, while unions will have a protective effect. We also hypothesize that economic precarity will be worse for non-native populations, revealing greater mental health burden on children of immigrants. **Conclusion:** By exploring the association between economic precarity, union membership, and social mobility outcomes across native and non-native populations, this study seeks to contribute to an intersectional understanding of structural determinants shaping immigrant health in the United States.



Brandt Levitt, University of North Carolina at Chapel Hill

Abstract currently not available

## Paper Session 11: Education and School Effects

### 11.1 A Prospective Study Examining Teacher Unfairness, Educational Attainment, and Mental and Cardiometabolic Health in Adulthood

Stephanie Koning, University of Florida

Co-authors: Shanting Chen, Stephanie Koning, Jacob Aronoff, Jessica Polos, Phoebe Lam, Taylor Hargrove, Thomas McDade

Adolescents spend a substantial amount of time learning and socializing at school. Therefore, the social climate of school plays an important role in shaping their short- and long-term development (Huang, 2020). Students' perceptions of unfair treatment by their teachers are commonly embedded in school environments and can contribute to a negative social climate. Research has found that teacher unfairness can provoke emotional turmoil (e.g., anger, frustration) and increase somatic problems (Chen & Cui, 2020; Gini et al., 2018). However, the ways in which teacher unfairness may get "under-the-skin" to shape health across the life course is relatively unknown. Therefore, the current study examines whether the perception of unfair treatment by teachers in adolescence influences mental (i.e., depressive symptoms) and cardiometabolic health (metabolic syndrome) 13 years later in adulthood. Method. We use data from Wave 1 and 4 of the National Longitudinal Study of Adolescent to Adult Health, a nationally representative sample of adolescents and adults. Teacher unfairness was assessed at Wave 1 with the item, "Teachers at my school treat students unfairly" with a scale ranging from 1 (strongly disagree) to 5 (strongly agree). Depressive symptoms were assessed with 5 items (e.g., I felt depressed) at Wave 1 and 4. Self-reported health was assessed using one item ("In general, how is your health?") at Wave 1 and 4. Metabolic syndrome count score was calculated as the number of risk factors of 5 biomarkers at Wave 4 (e.g., blood pressure, waist circumference, high-density lipoprotein levels, glucose, BMI). Educational attainment was measured at Wave 4 with a scale ranging from 8th grade or less (1) to master's degree (9). Results. Multilevel mediation analyses showed that adolescents' own perceptions of teacher unfairness were linked to lower educational attainment at Wave 4, which, in turn, was linked to higher depressive symptoms and metabolic syndrome at Wave 4. Discussion. Taking a life course perspective, findings suggest that individual perceptions of unfair teacher treatment can undermine an individual's educational attainment in adulthood, which, in turn, contributes to depressive symptoms and has an "under-the-skin" effect, taking a toll on the physical body and manifesting as increased metabolic syndromes.

### 11.2 Impacts of School Structural Racism on the School-to-Prison Pipeline

Emily Hutchens, University of North Carolina at Chapel Hill

Background: Exclusionary school discipline, such as suspension and expulsion, can set students on a trajectory of poor behavioral, psychosocial, and mental health outcomes both in adolescence and early adulthood. One phenomenon that has been theoretically proposed, but for which quantitative analysis on a national scale is limited, is the School-to-Prison Pipeline, which describes the greater likelihood of students who experience exclusionary school discipline to be arrested during young adulthood. Research demonstrates that Black adolescents experience both exclusionary discipline and arrest at a higher rate than White adolescents, but the mechanisms that underlie this process are understudied. Notably, due to the limited availability of measures of structural racism in schools and communities, research investigating the potential role of school-based structural racism in this phenomenon is sparse. Methods: Using the National Longitudinal Study of Adolescent to Adult Health, we utilize novel indices of school structural racism to characterize the influence of school environments on the association between exclusionary discipline and arrest, depending on student race. These indices consider both within-school structural racism, indicated by the difference in opportunities, resources, and punishments available to Black at White students who attend the same school, as well as between-school structural racism, which indicates similar differences between school settings, thus recognize the sociohistorical processes which funnel Black students into lower-resourced schools. We will use a moderation analysis wherein the association between exclusionary discipline and arrest during early adulthood is moderated by the level of within- and between-school structural racism. These analyses will be stratified by interviewer-reported race among Black and White students in the Add Health dataset. Expected Results: We propose that school structural racism will moderate the association between exclusionary discipline and arrest during early adulthood for Black but not for White students, such that Black students will experience a stronger association with increasing structural racism and White students will experience a null effect, regardless of the level of structural racism. Conclusion: This work is novel in its consideration of socio-historical processes that form, fund, and segregate schools and student outcomes, helping to fill the gaps in our understanding of the School-to-Prison Pipeline phenomenon. By distinguishing among within- and between-school structural racism effects, this work has implications for school disciplinary policy, funding, segregation practices, and resource allocation at the school, district, and national levels.

### 11.3 Nature or Nurture? The Effects of Twin Testosterone Transfer (TTT) on Females' Schooling and Earnings: Evidence from Longitudinal Data

Majlinda Joxhe, University of Bologna

As commonly described in human biology, the Prenatal Testosterone Transfer (PTT) plays an important role in the development of male genitalia and the formation of brain structures in fetuses. Female twins who share their fetal life with a male twin are exposed to more testosterone compared to monozygotic female twins. This suggests that PTT might lead to differences in inherent "abilities" between females with opposite-sex



# Abstracts

twins, which could potentially impact their IQ and performance. This paper compares female twins to female-male twins employing longitudinal data from the Add Health Survey and using the twin testosterone transfer (TTT) as an identification strategy. By considering individual, family, school, and neighbourhood information, I demonstrate that the overall effects of TTT on the school performance of opposite-sex female twins are not statistically significant. However, I do find significant effects of TTT on the likelihood of completing high school and college. Additionally, I show that TTT may reduce the long-term earnings of females, thereby potentially contributing to the negative impact on the gender wage gap.

## 11.4 Mapping STEM-Peer Communities in High School: A Network Analysis of STEM Course Taking and Educational Pathways

Wenrui Huang, Johns Hopkins University

Co-author: Lingxin Hao

Adolescent peer groups in schools, formed around shared subjects like STEM, significantly impact students' future education and career paths. These groups are essential for understanding student success and potential in the STEM workforce. Past research has focused on within-school course taking and peer group structures, leaving a gap in our understanding of how these structures extend across schools to influence long-term educational and occupational outcomes. This study investigates the formation and impact of peer communities that arise from course-taking patterns among a nationally representative sample of high school students. It specifically focuses on how these patterns influence academic performance in STEM subjects and post-graduate outcomes such as college attendance and choosing a STEM major. Prior studies using Add Health data have investigated aspects such as social networks, course taking and educational trajectories. Yet, this study is pioneering to apply network community detection techniques to the AHAA dataset nationwide, linking high school course-taking patterns with subsequent educational outcomes, which have seldom been studied with the Add Health data. Our study utilizes the Adolescent Health and Academic Achievement (AHAA) data from the Add Health longitudinal study which gathered full high school transcripts for 12,241 students in wave 3. It also connects with wave 4 data to track post-high school outcomes. By refining the analytical sample to 11,968 students, the study conducts a network analysis on the student-course network, capturing longitudinal course-taking behaviors throughout high school. We identified distinct clusters of students with shared course-taking behaviors and academic achievements, termed STEM-peer communities. The analysis uncovers a notable association between students' membership in these communities and their academic success, as evidenced by higher GPAs in math and science, and a greater likelihood of college attendance and selecting a STEM major. A key contribution of this research is the development of a conceptual model that captures the complexities of student-course relationships during the high-school stage across different school environments, thereby offering a holistic view of the high-school stage in the educational context at the national scale and pioneering methodological advancements. The result of this study provides empirical evidence to affirm the critical role that STEM-peer communities play and their potential influence on students' academic trajectories and preparedness for the STEM labor market. This work opens avenues for further research to build on these foundational findings to further explore and harness the power of STEM-peer communities in the high-school stage. A key contribution of this research is the development of a conceptual model that captures the complexities of student-course relationships during the high-school stage across different school environments, thereby offering a holistic view of the high-school stage in the educational context at the national scale and pioneering methodological advancements. The result of this study provides empirical evidence to affirm the critical role that STEM-peer communities play and their potential influence on students' academic trajectories and preparedness for the STEM labor market. This work opens avenues for further research to build on these foundational findings to further explore and harness the power of STEM-peer communities in the high-school stage.

## Paper Session 12: Substance Use

### 12.1 Prevalence and Correlates of Substance Use Among Biracial and Monoracial Adolescents

Jennifer Traver, University of North Carolina at Chapel Hill

Co-authors: Trenette C. Goings, Daniel J. Bauer

Cannabis has increasingly replaced alcohol and cigarettes as the first substance use among adolescents. Understanding cannabis initiation and its predictors among diverse U.S. youth is critical to informing the timing and priority of prevention efforts for youth subgroups. In this study, we examined (1) age patterns and predictors of cannabis initiation among adolescents and emerging adults in eight distinct monoracial and biracial groups (i.e., White, Black, Native American, Asian American, White-Hispanic, Biracial White-Native, Biracial White-Black, and Biracial White-Asian), and (2) whether the effects of peer substance use, family support, parental control, and religiosity on cannabis initiation varied by age, racialized group/ethnicity, and sex. In-home interview data from the Add Health study ( $n = 12,941$  adolescents, 50% male, mean age of 15.5 at baseline) were used. We used discrete-time survival analysis within logistic regression to estimate the probability (or hazard) of cannabis initiation as a function of age, racialized group, sex, religiosity, and parental and peer factors. We specified two models, both allowed for a curvilinear effect of age to capture the peak in the hazard of initiation during adolescence. The first model examined initiation curve variations by racialized group and included age, age squared, racialized group, and its interactions with age and age squared. The second model was expanded to include control variables (religious status, family structure, Social Origins Score, household smoking status, parental alcohol use, sex) and key predictors of cannabis initiation (peer substance use, religiosity, family support, and parental control and their potential interactions with racialized group, sex, age, and age squared). All analyses accounted for Add Health's complex survey design. We found a quadratic trend in cannabis initiation probability during adolescence and emerging adulthood with the peak initiation probability around age 16. The initiation patterns varied among racialized groups, with biracial youth showing a closer trend to White youth than their racially minoritized monoracial peers. Specifically, we found elevated risks for initiation among biracial White-Black and White-Asian youth compared to both of their monoracial peers. Native American youth had higher risks in cannabis initiation than both White and Biracial White-Native youth. Further, our study found age-varying effects for peer substance use, religiosity, and parental control. The influences of peer substance use and religiosity were strongest around age 16, coinciding with the peak initiation risk. The effects of peer substance use and parental control on cannabis initiation also varied across racialized groups. Notably, biracial White-Black and biracial White-Asian adolescents' cannabis initiation appeared to be more susceptible to peer influence compared to their monoracial counterparts. Parental control displayed protective effects for specific groups (biracial White-Black, Native American, and Hispanic youth), particularly around ages 18 to 19, while having adverse influences for most other groups. Our findings emphasize the importance of early cannabis prevention efforts for at-risk groups such as biracial White-Black, biracial White-Asian, and Native American youth. Tailoring program components based on both age and racialized group is also essential for effective prevention Strategies



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## 12.2 Describing Mischievous Respondents Using Forty Years of Panel Data

*Dona Gonzalo, University of Texas at Austin*

In their 2001 study on adoption, Miller et al. noted there were a few inaccurate responses, particular on the self-administered questionnaire given to students at school. Subsequently, Fan et al. (2006) explored this issue further and found additional inconsistencies in two more questions, and that their group of mischievous respondents was also more likely to misreport information such as age and height. Based on these findings, they concluded some of the youngsters may have been lying on purpose (“jokesters”). These studies fostered a discussion about the usefulness of Add Health for research on small populations, given the outsized consequences of mistaken responses for understanding real populations. In particular, Savin-Williams and Joyner (2014) question the use of Add Health for studying sexual minorities given these findings and analyses of their own. Some researchers (e.g., Katz-Wise & Calzo, 2014) criticized the work done by Savin-Williams & Joyner (2014) as insufficiently thorough and unjustified. Others (e.g., Fish & Russell, 2018) took it a step further and showed that the “jokesters” flagged by Fan et al. are no more likely than other people to have changed their minds about their sexual orientation between the first and third wave of the survey. Identifying the three groups created by Fan et al., we consider the relation between each inaccurate answer and related demographics of the respondents. For example, logistic regression models controlling for age and sex reveal that those who answered untruthfully about being adopted or not born in the U.S show correlations to key characteristics (table 1). Using triangulation on wave I, and key correlations between waves I, III, IV, and V, we expect to shed light on two issues. First, were these students really joking. Second, if they were joking, was it across the board.

## 12.3 The Investigation of the Effects of Adolescent Substance Use on Socioeconomic Outcomes During Adulthood

*Bedis Elkamel, University of Central Florida*

*Co-author: Joy D. Scheidell*

Adolescence is a crucial point in life where choices, behaviors, and environmental influences can significantly shape future outcomes. This research investigates the increasing concerns surrounding adolescent substance use, intensified by the pandemic, and examines its long-term effects on socioeconomic status (SES) in adulthood. Substance use during adolescence has been shown to have significant long-term physiological impacts, as the brain is still developing at this age. Additionally, many short- and long-term effects are associated with substance use, such as impacts on academics, physical and emotional well-being, and social life. Several studies have been conducted to explore the relationship between substance use and SES, however, there is little research that investigates how an earlier age of first substance use will affect SES-related factors in adulthood using a nationally representative sample and a comprehensive range of substances. These shortcomings are addressed by utilizing data from Wave I and Wave V of the nationally representative data from the National Longitudinal Study of Adolescent to Adult Health (Add Health) dataset. This research explores the relationship between early initiation of substance use and subsequent SES-related outcomes during adulthood through a comprehensive longitudinal analysis. Substance use is defined through survey questions addressing the age of initial exposure, while SES in adulthood is assessed through objective indicators (household income, personal income, combined assets, educational attainment, poverty indicators) and the subjective MacArthur Scale of Subjective Social Status. We hypothesize that an earlier exposure to substances will have stronger associations with SES during adulthood. An in-depth statistical analysis will be conducted to examine whether the hypothesis is supported. Data exploration will involve summary statistics, visualization, and identification of relationships between variables. Subsequent regression models will be created, considering significance levels and correlations. Logistic regression will be applied for binary outcomes to address the research objectives. The insights from this analysis will be incredibly beneficial to the local community as they have the potential to benefit adolescents; it can inform intervention strategies, public health policies, and result in the formation of other initiatives to mitigate potential consequences. Understanding the relationship between these variables is essential in crafting targeted and effective measures to support the well-being of adolescents and, by extension, the broader society.

## 12.4 Fathers and Delinquency

*Nate Juda, University of Mississippi*

The purpose of this study was to examine the relationship between delinquent activity in young adolescent male subjects living in three household structures: (1) traditional family with a biological mother and father in the home (2) a stepfamily with a biological mother and stepfather in the home, and (3) single mother households. Using data collected from Add Health’s longitudinal survey W1 (n = 2,799, aged ages 11-17), findings suggests that the presence of a father figure during adolescence is likely to have protective effects for males in curbing delinquent behavior. Conversely, findings found single mother households to be significantly and positively associated with delinquent behavior in adolescent males. The presence of a stepfather was negatively associated with delinquent behavior, but not to a significant degree, suggesting an alternative to a biological father in the home may mitigate negative consequences associated with paternal absence.

