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Add Health  
Users Conference

National Institutes of Health  
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July 24-25, 2008

Abstracts





**Thursday, July 24, 2008**

**Plenary Session: Pushing the Scientific Envelope with Add Health**

**Add Health Wave IV Design and Data Collection Update**

*Kathleen Mullan Harris, University of North Carolina at Chapel Hill*

*Carolyn Tucker Halpern, University of North Carolina at Chapel Hill*

This presentation will provide an overview and update on Wave IV, including the design of Wave IV data collection, data collection protocols, and fieldwork progress. We will also present preliminary questionnaire and biomarker data and data quality results.

**Genetic Studies of Substance Use in Add Health: Progress and Pitfalls**

*John Hewitt, University of Colorado at Boulder*

*Brett Haberstick, Jeff M. Lessem, Christian J. Hopfer, Andrew Smolen, Marissa A. Ehringer,*

*David Timberlake, Matt McQueen, Susan Young and Jason Boardman, coauthors*

This paper will present an overview of our biometrical and molecular genetic studies of smoking, alcohol, and marijuana in the first three waves of Add Health. First, we will illustrate the utility of the genetic pairs sample for understanding the genetic and environmental contributions to developing substance use and dependence. Importantly, this dataset allows us to identify components of the addiction process that are most influenced by genetic factors. Second, we will illustrate the use of candidate gene association studies in advancing our understanding of the role that specific genes might play in the development of these behaviors. Third, we will examine some aspects of gene by environment interaction we have studied using the dataset. Finally, we will discuss some important methodological pitfalls and caveats in using the Add Health dataset for genetic association studies and studies of gene by environment interaction.

**Birds of a Feather, or Friend of a Friend? Statistical Models for Social Network Structure**

*Steven M Goodreau, University of Washington*

*James A. Kitts and Martina Morris, coauthors*

This paper uses newly developed statistical methods to examine the generative processes that give rise to systematic patterns in adolescent friendship networks. The methods incorporate both traditional demographic measures on individuals (age, sex, and race) and network measures for structural processes operating on individual, dyadic, and triadic levels. We apply the methods to the adolescent friendship networks for fifty-nine school groups in Add Health Wave I. We model friendship formation as a selection process constrained by individuals' sociality (propensity to make friends), selective mixing in dyads (friendships within race, grade, or sex categories are more likely), and closure in triads (a friend's friends are more likely to become friends), given local population composition. Whites and Blacks are the most consistently cohesive racial categories, and when Whites are in the minority, they display stronger selective mixing than do Blacks when Blacks are in the minority. Hispanics exhibit disassortative selective mixing under certain circumstances; in other cases they exhibit assortative mixing but lack the higher-order cohesion common in other groups. Grades are always highly cohesive, while females form triangles more than males. We conclude with a discussion of testing network model fit, and how network analysis may contribute to our understanding of sociodemographic processes.



## **Sexual Double Standards and Adolescent Peer Acceptance**

*Derek Kreager, Pennsylvania State University*

*Jeremy Staff, coauthor*

The belief that males and females are held to different standards of sexual conduct is pervasive in contemporary American society. According to the sexual double standard, males are rewarded and praised for premarital and heterosexual sexual contacts, while females are derogated and stigmatized for similar behaviors. Although widely held by the general public, research findings on the sexual double standard remain equivocal, with qualitative studies generally finding evidence of the double standard and attitudinal surveys and experimental designs showing mixed results. In this study, we extend prior research by directly measuring the social status of permissive youth. We use data collected from the National Longitudinal Study of Adolescent Health to relate adolescents' self-reported numbers of sexual partners to friendship nominations received from peers at school. Results suggest that a strong double standard exists in adolescence, such that greater numbers of sexual partners are positively related to male peer acceptance, but negatively related to female peer acceptance. Moreover, this pattern is moderated by students' socioeconomic status; disadvantaged males are most likely to gain status with increased sexual partners, while high-SES females are least likely to do so. Our results thus support the existence of an adolescent sexual double standard and suggest that sexual norms vary substantially by both gender and social class.

## **Breakout Session 1**

### **Paper Session: Biopsychosocial Contributors to Adolescent Obesity**

#### **Friendship Formation and Overweight in Adolescence**

*Elizabeth Vaquera, University of South Florida*

*Solveig Argeseanu Cunningham, coauthor*

Obesity in adolescence is increasingly prevalent, with 17.4% of Americans aged 12-19 being obese in 2004. Obesity early in life is of concern because it is associated with poorer physical health, as well as increased risk of obesity and chronic diseases in adulthood. The negative social and psychological ramifications of adolescent obesity may be as damaging as the physical health consequences, and include teasing, systematic discrimination, exclusion and chronic victimization. Friendships are a key part of the social, cognitive, and emotional development of youths. In this study, we examine whether weight is a criterion in friendship formation. There is limited evidence among younger children that obese children are less desired as friends. We explore this phenomenon further in the context of adolescence, testing three hypotheses. First, we examine reports of only best friendships, to test whether obese adolescents are less likely to have a best friend. Second, we examine the number of total friends reported, to test whether obese adolescents report fewer friends. Finally, we examine the number of times adolescents were selected by their schoolmates as friends, to test whether obese adolescents are less likely to be selected by others. Add Health is excellent for this research because it incorporates information both about weight status and friendships. This study will be expanded to explore the mechanisms further, linking friends to determine friendship reciprocity, measuring friendship closeness through activities done together, and tracking friendships over time.



### **Adolescent Obesity: Can Religiosity and Religious Affiliations Affect this Epidemic?**

*Bernice Dodor, Iowa State University*

*Mack Shelley and Cheryl Hausafus, coauthors*

Religion has been associated with good physical health and may represent a protective factor against overweight and obesity. This study explored religious affiliations, religiosity, individual attributes and family socio-economic status associations with body weight among African American and Caucasian adolescents in the United States. Data from Add Health (Wave II) was utilized for the study. The sample consisted of African American and Caucasian adolescents ages 14-18 years. Body mass index (BMI) was computed to assess overweight and obesity by age and gender. Structural equation modeling was used to analyze the relationships of these attributes and religiosity with adolescents' body weight. Some religious affiliations samples were relatively small and were not incorporated in the analysis. Results indicated that high levels of religiosity reduced the risk of obesity in adolescents affiliated with Baptist denomination, but increased the vulnerability for overweight among fundamentalist Protestants. Multiple group comparison regarding religiously committed African American and Caucasian adolescents, without controlling for religious affiliations, indicated that the influence of religiosity on adolescents' body weight is moderated by race. Among African American adolescents, religiosity was associated with increased risk of overweight; but reduced the risk of overweight among Caucasian adolescents.

### **The Relationship between Short Sleep Duration and Obesity in Adolescents**

*Christina Calamaro, Drexel University*

*Sun Hee Park, Thornton A. Mason, Carole Marcus, Terri E. Weaver, Alan Pack, and Sarah Ratcliffe, coauthors*

Introduction: Obesity is a major health problem because of increasing prevalence in all ages and related comorbidities. In adolescents, there are limited studies on relationship between obesity and sleep duration. The purpose of this study was to determine association between short sleep duration in adolescents and obesity.

Methods: Data was from Add Health, adolescents 12-18 years. Our study population (n=13,568) was from Wave I and Wave II. Weighted multiple logistic regression used to identify relationship between obesity at Wave II and sleep duration, having adjusted for skipping breakfast more than twice per week, race, gender, parental income, more than two hours of TV per day, and obesity at Wave I. Obesity defined as BMI  $\geq 85$ , 95th percentile for age-and-gender.

Results: Wave I, mean age was  $15.96 \pm 0.11$  yrs; mean sleep hours were  $7.91 \pm 0.04$ . The percentages of adolescents obese at Waves I and II were 10.6 and 11.2, respectively. Adjusted analyses suggest effect of shortened sleep duration in Wave I does not significantly predict obesity in Wave II ( $p < 0.218$ ). However, TV viewing more than two hours per day ( $p = 0.008$ ) and obesity ( $p < 0.001$ ) in Wave I were predictive of obesity in Wave II.

Conclusion: The environmental factor of increased television time was significantly associated with weight gain in these adolescents. Shortened sleep duration was not. Studies in younger children support shortened sleep duration as independently predictive of obesity. Further study is needed to determine whether shortened sleep may have differential effects on body mass index, depending on age.

### **Factors Promoting and Inhibiting Dieting among Adolescents and Young Adults**

*Kim Manturuk, University of North Carolina at Chapel Hill*

Why do teenage girls diet? This is a far more complex question than it initially seems. Even the most obvious answer, to lose weight, is not always correct. Adolescent dieting is not solely about managing weight; it is a gendered social behavior that is associated with social status, peer esteem, and ego gratification among young women. In this paper, I examine dieting among adolescent girls and young



adults using data collected from the In-School and In-Home Add Health surveys, Waves I and III. I present a theoretical framework for understanding dieting and status that takes into account context-specific influences. From this framework, I present a series of models predicting dieting as an outcome related to school environment, sports participation, academic achievement, and female physical development during adolescence. I find that dieting is less common among adolescent girls who participate in sports, but more common among girls who have higher academic achievement. I also find that young women in college are more likely to diet than either college graduates or women who did not attend college. I discuss implications of these findings are directions for further research on the relationship between dieting and pathways to status within the school environment.

### **Paper Session: Youth Experiences and Substance Use**

#### **The Mediating Role of Weight Dissatisfaction in the Link between Early Pubertal Development and Adolescent Girls' Substance Use**

*Emily E. Tanner-Smith, Vanderbilt University*

Puberty is a key developmental transition during which adolescents begin to establish their identity in relation to peers, family, and society. One component of such identity formation, particularly for adolescent girls, is the changing body and associated shifts in body image and sense of self. Physical maturation during puberty brings bodily changes that others can easily identify (e.g., weight gain, breast growth) and thus plays an important role in how an adolescent interprets perceived reactions to her body. In contrast to boys, early developing girls may be at increased risk due to their status location within contemporary society that values thin pre-pubescent bodies. This study addresses the following research question: Does weight dissatisfaction mediate the relationship between early pubertal development and adolescent girls' substance use? Based on feminist social interactionist theories, it was predicted that adolescent girls who experienced puberty earlier than their peers would be at increased risk of substance use due to weight dissatisfaction associated with the early developing body. Data from Waves I, II, and III of the National Longitudinal Study of Adolescent Health are used to address these research questions. Contrary to expectations, results from structural equation models indicated that weight dissatisfaction failed to significantly mediate the relationship between pubertal development and adolescent girls' tobacco, alcohol, and marijuana use. It is concluded that more research is needed to investigate other social-contextual factors that explain the risk of substance use associated with adolescent girls' pubertal development.

#### **Friendship Networks and Trajectories of Adolescent Tobacco Use**

*Michael S. Pollard, RAND Corporation*

*Joan Tucker, Harold D. Green, David Kennedy, and Myong-Hyun Go, coauthors*

This study examines how friendship networks in adolescence are linked to tobacco use trajectories into young adulthood, using Add Health Waves I-III and the longitudinal friendship network data from two of the saturated schools. We test whether number of, and changes in, self-reported smoking friends are linked to longitudinal tobacco use. We add to the literature by further examining whether an individual's structural position (group member, liaison or isolate) in friendship networks, and changes in position are linked to longitudinal tobacco use. Trajectories of tobacco use (average number of cigarettes smoked per day) are first modeled on the entire longitudinal Add Health sample using semi-parametric longitudinal mixture models. Individuals are assigned to trajectory groups based on posterior probabilities of membership. Multinomial logit models of trajectory group membership are estimated, and include information on self-reported number of smoking friends and a range of controls. Friendship network structural characteristics at Waves I and II for two saturated schools are modeled using NEGOPY. Network structure information is added to the models to investigate the association between structural position and tobacco use. Preliminary results identify five trajectories of tobacco use and indicate that



exposure to smoking peers is positively associated with increasing and steady high use. Structural position is also significantly associated with trajectories of use (especially membership in a smoking group, followed by acting as a liaison connected to a smoking group). Finalized results will also examine trajectory membership as a function of changes in structural position.

### **Acculturation and Binge Drinking: Structural Influence of Friendship Networks on Mexican American Youth**

*Craig M. Martinez, Johns Hopkins University*

*Kathleen Roche, coauthor*

**Background:** Although acculturation is associated with binge drinking among Mexican American youth, little is known about potential mechanisms of this association. Drawing from peer influence research, the present study explores the mediating role of friendship networks in the association between acculturation and binge drinking among Mexican American youth.

**Methods:** Data for this study derive from Waves I and II of the National Longitudinal Study of Adolescent Health. The sample selected includes 677 9th-11th grade Mexican American respondents. The dependent variable is past year binge drinking at Wave II. The main independent variables include Spanish-speaking, nativity and attributes of friendship networks. Lagged ordered logistic regression analyses were used to predict changes in binge drinking at Wave II controlling for use at Wave I.

**Results:** Bivariate findings indicate lower levels of binge drinking are associated with Spanish-speaking, having female friends and friendship networks characterized by less alcohol use. Further, Spanish-speaking youth are more likely to have more racially homogenous and less alcohol-using friendship networks than English-speaking youth. Multivariate ordered logistic regression indicates that friendship networks characterized by greater density and less alcohol use are associated with lower levels of binge drinking. Spanish-speaking is no longer associated with binge drinking after including friendship variables. Further analyses will examine if friendship networks mediate associations between Spanish-speaking and binge drinking.

**Conclusions:** Characteristics of friendship networks may mediate associations between acculturation and binge drinking, which can be used to enhance efficacy of prevention programs targeting Mexican American youth.

### **Linking Adverse Childhood Experiences to Future Health: Abuse, Neglect, and Young Adult Substance Use**

*Jon M. Hussey, University of North Carolina at Chapel Hill*

*Denise Dion Halfors, coauthor*

Past research suggests that maltreated children are more likely to engage in health-threatening behaviors during adolescence and into adulthood, with important implications for their health across the life course. However, evidence from national general population samples is limited. This paper utilizes data from the National Longitudinal Study of Adolescent Health (Add Health) Wave I and Wave III In-Home interviews to model the relationship between self-reported childhood (i.e., prior to the 6th grade) physical assault, contact sexual abuse, and neglect and young adult substance use. Using logistic regression and controlling for socio-demographic characteristics, we estimate the association between child maltreatment and Wave III cigarette, alcohol, marijuana, cocaine, methamphetamine, and non-medical prescription drug use. Childhood maltreatment is consistently associated with young adult substance use, with particularly strong relationships observed for illicit and prescription drugs.





## Breakout Session 2

### Paper Session: Genetic Contributions to Complex Behaviors

#### Using “Genetic Lotteries” within Families to Examine the Causal Impact of Poor Health on Academic Achievement

*Jason Fletcher, Yale University*

One of the most robust relationships in the social sciences is the large positive correlation between health and education, but establishing a causal link remains a substantial challenge. This paper uses a combined instrumental variables/fixed effects approach that exploits differences in genetic inheritance among children within the same family to estimate the impact of several poor health conditions (including depression, ADHD, and obesity) on academic outcomes. To use this approach, we use the genetic marker information contained in the Add Health dataset combined with the rich longitudinal data. We present evidence of large impacts of poor mental health on academic achievement. Our estimates suggest that accounting for family fixed effects is important but these strategies cannot fully account for the endogeneity of poor health. Finally, our results demonstrate that the presence of comorbid conditions presents immense challenges for empirical studies that aim to estimate the impact of specific health conditions.

#### Testing for Measurement Invariance in Genetic Analyses of Smoking and Nicotine Dependence in Adolescence

*Hermine Maes, Virginia Commonwealth University*

*Donna Miles and Michael C. Neale, coauthors*

Understanding the contribution of genetic and environmental influences to the various stages of smoking initiation to more severe forms of smoking behavior (regular smoking, smoking persistence, nicotine dependence) is an important first step in finding specific etiological factors for smoking. Previously, we used an item response theory approach which allows for possible measurement invariance of the scale by sex and age. We examined the relationship between genetic and environmental risk factors for smoking initiation, regular smoking, and nicotine dependence in adult twins from the population-based Mid-Atlantic Twin Registry. Results showed that the significance of heterogeneity in genetic and environmental parameters changed as a function of accounting for sex differences in the measurement. We attempted to replicate these findings in data from adolescent twins collected as part of Add Health. Smoking behavior was assessed in female, male and opposite sex 18 to 25 year old adult twin pairs by questionnaire. Results indicated significant mean differences by sex (but not age) in the latent ‘nicotine dependence’ factor or thresholds, and sex differences in factor loadings of the nicotine dependence items (FTND) in addition to smoking initiation and regular smoking items. We test whether the heritability of the latent liability to nicotine dependence and the residual heritability on the individual items differs between male and female adolescents, allowing for differences in measurement parameters.

#### Genetic and Environmental Variation in the Initiation of Adolescent Drug Use

*Sarah E. Medland, Virginia Institute for Psychiatric and Behavioral Genetics*

*Michael C. Neale, coauthor*

Genetic influences have been found to influence the progression from drug initiation to abuse and dependence for a range of substances. However, relatively little is known about the initiation of poly-substance use. The aim of the present analyses was to examine the magnitude and structure of genetic and environmental influences underlying the covariation in the initiation of multiple substances. To this end we analyzed the Wave III initiation variables (for tobacco, alcohol, marijuana, cocaine and



prescription drugs) from the genetically informative samples (twins, full-siblings and half-siblings) using variance components analyses within a behavioral genetic framework. This type of analysis allows us to address questions such as to what extent can a common genetic influence explain the covariation between initiation of tobacco, alcohol, marijuana and cocaine. Results support the hypothesis that variation in the initiation of substance use across drugs is due to genetic and environmental influences that affect multiple drug types rather than substance specific factors. Strategies for extending these analyses to include data from friends and predictors such as sensation seeking and drug availability are discussed.

### **Gene x Environment Interactions and CVD Endophenotypes: Taking the Translational Step to CVD Prevalence and Incidence**

*Redford Williams, Duke University Medical Center  
Allison E. Ashley-Koch and Ilene C. Siegler, coauthors*

Identifying genetic variants that increase risk of developing major diseases that have a complex etiology is made difficult by the fact that there are many pathways to the final disease endpoints, with any given genetic variant accounting for a tiny amount of the disease incidence. One way to increase power to detect gene-disease associations is to evaluate effects of genes, acting via main effects or interactions with environmental exposures, on risk factors (endophenotypes) in the pathways to disease, because these endophenotypes are more proximal to the effects of the genes than the complex disease at the end of the pathway. Our research has focused on finding gene variants that affect expression of CVD endophenotypes, with the ultimate goal of showing that these same variants are also associated with CVD prevalence and incidence. We have used the Add Health sibling subset to document effects of 5HTTLPR genotype on several CVD endophenotypes, both psychological and physical. A major goal of our ongoing research will be to use the Add Health Wave IV data to show that genetic variants we have found associated with CVD endophenotypes in other samples – e.g., MAOA-uVNTR more active alleles with increased waist circumference in African American females, or 5HTTLPR L allele with increased blood pressure reactivity to mental stress – are also associated with the same or analogous endophenotypes in Add Health, as well as, for example, the prevalence and incidence of type II diabetes in African American females and hypertension and coronary heart disease in the entire sample.

### **Paper Session: Families and Parenting**

#### **Testing Socioeconomic Status as a Marker for Condition in the Trivers-Willard Hypothesis within the Human Context**

*Brandon Wagner, University of North Carolina at Chapel Hill*

How and why parents invest in their children is a central question in both social and biological research. As social scientists have sought to incorporate biological theory and methods, biological theories about parental investment have become interesting avenues for exploration. One such model is the Trivers-Willard Hypothesis, which lays out conditions under which parents will direct resources to either sons or daughters in order to maximize their potential number of grandchildren. While the hypothesis focused on physical condition of the parents and applied the logic to all animals, the authors suggested that, for humans, socioeconomic status is a marker for condition that determines resource allocation between sons and daughters. As researchers have sought to test whether the hypothesis holds true, there has been no investigation of whether socioeconomic status even fulfills the basic assumptions on which the model relies. Using data from the parent's questionnaire and multiple waves of the National Longitudinal Study of Adolescent Health, I test the assumptions of the Trivers-Willard Hypothesis application in humans, in particular that the sex of the child moderates the effect of parental investment on the number of that child's children. This project is able to leverage key strengths of the Add Health data. Data collection from parents and children at early time points allows estimation of different





dimensions of parental investment, and sexual history questions on follow-up surveys allow construction of estimates of number of children in a contraceptive-free environment, a problem inherent in previous research.

### **Adolescent Reports of Parental Characteristics**

*Heather Ridolfo, University of Maryland*

*Aaron Maitland, coauthor*

Socioeconomic status (SES) is considered to be a marker of physical health, and information regarding SES is frequently requested on national health surveys. However, attaining self-reports of this information is not always easily done, and researchers often must rely on proxy reporting. Questionnaires designed to collect information on adolescent health may be especially problematic. Adolescent surveys sometimes rely on children's reports of parental characteristics such as parents' education and occupation levels. However, there is disagreement in the literature about whether children are able to provide accurate assessments of these characteristics. Using data from Add Health, a nationally representative sample of adolescents and their parents, we assess the accuracy of children's proxy reports of mother's education and use of public assistance. Results show that accuracy of children's proxy reports is dependent upon child's race, age, and gender, as well as the closeness of the mother-child relationship.

### **Parenting, Time Use, and Adolescent Achievement among Black and White Families**

*Constance A. Lindsay, Northwestern University*

Using the ecological perspective, first developed by Bronfenbrenner (1979), I will consider the links between home and academic achievement as they are mediated through the way parents organize their children's out-of-school time. The ecological perspective puts family management into a general framework, which realizes that family interactions with children are influenced by the social context in which the family is located. This study explores the following research questions: 1) Does neighborhood context influence parenting? Are there racial differences in parenting, controlling for neighborhood characteristics? 2) If there are differences, how do these differences relate to achievement outcomes? 3) Are these relationships moderated by time use? 4) In order to explore the question of variation, I will look to see if there are differences between high SES and low SES Black parents in children's achievement. I exploit the fact the data I am using, the National Longitudinal Study of Adolescent Health, over-samples highly educated Black families. I find little support for time use as mediator between neighborhood and achievement. However, results indicate that contextual influences on parenting may be the missing link in the literature on racial differences in parenting practices and styles.

### **Soldier, Student, or Employee: Does Family Structure Matter for Post-high school Careers?**

*Naomi Spence, University of North Carolina at Chapel Hill*

*Kathryn A. Henderson and Glen H. Elder, Jr., coauthors*

Adolescents in non-intact families are more likely to join the military (Bachman et al. 2000; Elder et al. 2007; Goldscheider and Goldscheider 1998). However, research on the mechanisms through which earlier life family circumstances may lead to military service is limited. This paper seeks to understand the processes through which family structure in adolescence during adolescence influences young people in the transition to adulthood in terms of post-high school occupational choices, with particular emphasis on entry into the military. We use data from Waves I and III of the National Longitudinal Study of Adolescent Health (Add Health) and multinomial logistic regression analyses to compare the odds of entering the military with those of entering college or the workforce. We find that living in a single parent



household in adolescence is associated with increased odds of enlistment into the military relative to college. Yet this relationship is largely accounted for by variations in socioeconomic status and feelings of social isolation. Living with a stepparent or neither biological parent family more than doubles the likelihood of enlistment (relative to college). These effects are not accounted for by socioeconomic status, characteristics of parent-child relationships, or feelings of social isolation. We find no differences when comparing military enlistment and post-high school labor force participation. Although college enrollment certainly offers opportunities for socioeconomic advancement, military service may also provide a pathway out of disadvantage for adolescents from non-intact households.

### **Breakout Session 3**

#### **Paper Session: Education Track #1 – Immigration and Assimilation**

##### **Assimilated to College Education? Intergenerational and Inter-class Mobility of Second Immigrant Generation**

*Ping Chen, University of North Carolina at Chapel Hill*

Unlike previous studies that investigated academic achievement of immigrant descendants during childhood and adolescence, this study focuses on young adulthood and particularly assesses the likelihood of college education in terms of both intergenerational mobility and inter-class mobility, using this direct and crucial indicator to assess both short-term and long-term socioeconomic assimilation outcomes. I use new comprehensive data, the National Longitudinal Study of Adolescent Health, which provide unprecedented rich information on immigrant youth, ethnicity, and educational experience. My findings reveal that the second immigrant generation youth of almost all ethnic groups are doing better in escaping high school dropping-out and achieving high school graduation than their foreign-born parents. However, they do not universally achieve higher level in terms of college education over their parents. When the second immigrant generation youth are compared with their non-Hispanic third and higher-generation white peers of similar ages, stratification of college attendance are found across different ethnic groups. While Mexican Americans are much less likely to go on with college education, Cuban Americans and Asian Americans are more likely to continue with college education than their white counterparts. My results further show that disadvantaged groups lag behind in several key social factors, like parental human capital, family structure, and family size. When these factors are changed to take on typical values of non-Hispanic third and higher-generation white individuals, the probability of college attendance sharply increases and reaches a similar level or an even higher level than their white counterparts.

##### **Peer Effects on Academic Performance among and between Immigrant and Non-immigrant Ethnic Groups**

*Mikhail Pyatigorsky, Boston University*

This paper will examine how the prevalence of a student's own ethnicity, language, or country of origin group in the student's school and social network affects that student's academic outcomes. The analysis will focus on groups which include significant populations of both foreign and U.S. born individuals, such as Asians and Hispanics. This will allow us to do two things: 1) analyze how the strength and direction of peer effects varies with the degree of acculturation, and 2) examine the interactions between immigrant and non-immigrant students of the same ethnicity or country of origin. The analysis will utilize Wave I, II, and III Add Health data, Contextual data, and the AHAA Education data. Academic achievement variables will include English, Math and Science GPA (at the time of Wave I and II surveys), enrollment in remedial, regular, honors or AP English and other courses in high school, high school graduation, and college enrollment. The main explanatory variables of interest will be the composition of students'



schools and social networks. Other controls will include students' and parents' demographic variables, school and neighborhood characteristics, and students' "ability," as measured by the Add Health Picture Vocabulary Test scores. We will present data on the degree of segregation of students' social networks along ethnic, language and country of origin lines. We will also present preliminary results on the relationship between network and school composition and academic achievement.

### **The School Careers of Immigrant Children in France and in the United States**

*Brinbaum Yael, CMH – IREDU*

This paper aims at comparing the educations of immigrant children in France and in the U.S. The objective is to analyze the schooling process from aspirations to educational attainment and to shape the patterns of educational inequality in both countries. The comparison is focused on children from two groups: North Africans in France and Mexicans in the U.S. (compared to French born families and White third generation). After a description of their schooling careers, we will look for mechanisms and factors explaining those outcomes, including migration/ethnicity, family and social background, child characteristics, and school factors as educational aspirations. Two longitudinal datasets are used: the National Educational Panel of the French Ministry of Education and Add Health data. Both datasets cover the same period and allow the follow-up of the children over their whole school career in secondary education. In Add Health, we use mainly the home questionnaires in Waves I and III as the AHAA component. Preliminary results show that immigrant families have high aspirations in both contexts: North Africans express higher aspirations than native French with similar background. There are fewer differences between Mexicans' children and White third generation. Second generation children encounter more difficulties in schools. They are more likely to repeat a year, to drop out and less likely to graduate from high school, but most of the disadvantages are related to their social background. Educational aspirations are a predictor of schooling careers. Finally, we'll investigate how those results can be explained by the educational system itself.

### **The Moderating Influence of School Context on Emotional-Behavioral Adjustment among Immigrant and Non-immigrant Adolescents**

*Katholiki Georgiades, McMaster University*

*Michael H. Boyle, coauthor*

**Objective:** To examine the moderating influence of school context on the association between student immigrant status and emotional-behavioral adjustment.

**Method:** Data for analyses come from the In-School Survey of the National Longitudinal Study of Adolescent Health (Add Health). The sample includes 141 schools and 62,756 adolescents. Two dependent variables are examined: depression ( $\alpha=0.88$ ) and problem behavior ( $\alpha=0.82$ ). We address the study objective using multilevel modeling and hypothesize large school-to-school variation in the association between student immigrant status and emotional-behavioral adjustment with divergent influences of school immigrant density accounting for this variation. Random regression coefficients (slopes) and the cross-level interaction of school immigrant density by student immigrant status are used to examine the modifying effects of school context.

**Results:** Preliminary results indicate large and statistically significant school-to-school variability in the association between student immigrant status and problem behavior (random slopes 95% CI: -4.07 to 3.38). Explaining 30% of this school-to-school variability is a cross-level interaction between school immigrant density and student immigrant status: among immigrant students, there is a negative association between immigrant density and problem behavior; among non-immigrant students, there is no association. School belongingness exhibits a negative association with problem behavior, accounts for an additional 21% in the random slopes and reduces the cross-level interaction by 15%. The pattern of findings for depression is similar to those for problem behavior.

**Paper Session: Romantic Relationships****Gender and Relationship Status Differences in the Agreement Level of Partner Violence among Heterosexual Couples***HarmoniJoie Noel, University of Nebraska-Lincoln*

Using four outcome measures of violence (physical threats, physical violence, sexual violence, and injuries) from the Romantic Partners Add Health data, I plan to analyze reports from each partner about their own perpetration and victimization of violence to determine whether men and women agree or disagree about the violence in their relationship. Disagreement occurs, for example, when one partner reports experiencing more violence than the other partner reports perpetrating. I hypothesize that men will under-report physical and sexual violence perpetration. In contrast, women will over-report the physical violence and under-report the sexual violence they inflict on their partners. I will also investigate whether differences in agreement vary by relationship status (i.e. dating, cohabitating, married). I expect disagreement to be higher among dating couples compared to cohabitating or married couples. To investigate the level and direction of disagreement between men and women about violence in their relationship I will perform a series of cross tabulation analyses, chance-corrected kappa statistics, and lower and upper bounds of violence similar to previous research. Analyses will be run separately for dating, cohabitating, and married couples. Finally, I plan to run analyses first including all couples and then only violent couples because there tends to be more agreement about the nonoccurrence of violence, which can inflate agreement measures of partner violence. I expect to have these analyses done for the July conference.

**Adolescent Romantic Relationships and Substance Abuse: a Multi-level Analysis***Lisa McConnell Lewis, Indiana University**Matt Aalsma and Yan Tong, coauthors*

**Objective:** The purpose of this analysis is to examine the longitudinal association between supportive romantic relationships (i.e., reciprocated romantic partners at Wave I) and substance abuse in adolescents.

**Methods:** Participants were 534 individuals (267 dyads) from Waves I, II and III of Add Health. Included within the 267 dyads were 80 dyads who stayed in the same relationship in Waves I and II. The Actor Partner Interaction Model (APIM) was used to predict future substance use. Model fit was based on change in AIC.

**Results:** Predictors include Wave I individual and romantic partner substance use (alcohol, tobacco, marijuana), gender and age. Additional derived measures from Wave I, based on APIM, included dissimilarity (Male – Female behavior; higher absolute scores indicate greater dissimilarity) and dyad interaction (Male x Female behavior; higher scores indicate greater dyad behavior). As expected, individual effects significantly predicted Wave III alcohol use (beta =.53), tobacco use (beta =.71) and marijuana use (beta =.39). Dyad effects were significant with alcohol use (beta =.27) and partner effects were noted with tobacco use (beta =.10), indicating that partner behavior at Wave I predicted Wave III behavior.

**CONCLUSIONS:** In this study, we noted the importance of dyads in the prediction of alcohol and tobacco use but not marijuana use. This may suggest that the decision to smoke may be more an individual decision-making process as opposed to the choice to use alcohol which may be more impacted by social process within the adolescent.



### **A Longitudinal Investigation of Exophily: The Effects of Parenting, Context, and Education**

*Jacob Jantzer, Southern Illinois University, Carbondale*

I will address three major questions. The first addresses the influence of parental social control over racial exophily. Researchers have made inferences about the effects of primary group intervention on romantic relationships, but were constrained by data limitations to indirectly measure parenting behaviors and were unable to track those effects across the child's life course. I will determine what effects parental social control, geographic distance from parents, and life course position have on the selection of extraracial romantic partners. In doing so, I will also situate relationship formation in the participants' social contexts. Second, the causal ordering of interracial relationship formation has remained unclear. Measurement has typically tapped the selection of marriage partners among adults rather than tracking the behavior of adolescent partners in nonmarital relationships. Researchers have been unable to determine how partner preferences change or remain the same over the life course. Add Health's research design will significantly increase the understanding of the effects of life course position on patterns of partner selection. Finally, the positive effect of education on exophily is poorly understood. Verbal ability, associated with education, remains unexamined as a predictor for exophily, but has significant predictive power for a number of social variables. This suggests the possibility that the educational effects may in fact be the result of increased verbal ability. Using the Add Health Picture Vocabulary Test, I will further investigate whether the education effect is truly an effect of education, or a proxy for another factor.

### **Scripting Relationships: An Analysis of Gender, Religion, and Abstinence**

*Katherine Castiello Jones, University of Massachusetts - Amherst*

Both Evangelical Christianity and the abstinence movement share a strong focus on sexuality, marriage and the family. The public discourses of Evangelical Christianity and the abstinence movement include discourses of gender which are linked to traditional gender role ideologies in the family and romantic relationships. At the same time, Evangelical Christianity and the abstinence movement hold males and females to a single chaste standard in terms of sexual behavior. Will these traditional gender role ideologies lead to wider variations between the male and female relationship scripts? Or will the similar messages of chastity in dating and sexual behavior lead to more similar scripts for males and females? This research uses rank-ordered logistic regression to explore how the contexts of gender, religion and the abstinence movement shape adolescent relationship scripts. Scripting theory is used to draw connections between these socio-cultural contexts and individual ideals in romantic relationships. This study draws from Wave I of Add Health and uses the Ideal Romantic Relationship variables to construct an ideal relationship script. Despite the highly gendered ideologies of Evangelicals and the abstinence movement, being affiliated with them leads males and females to hold more similar relationship scripts. Though abstinence pledges are closely affiliated with Evangelical denominations, affiliation with the abstinence movement is linked to a different script than the one held by Evangelical teenagers.



Friday, July 25, 2008

**Breakout Session 4****Paper Session: Sexuality: Contributors to Risk and Well-being****The Correlates and Consequences of Incongruence in Parents' and Teens' Reports of Teens' Sexual Activity***Stephanie Mollborn, University of Colorado at Boulder**Bethany Everett, coauthor*

Our study examines predictors and consequences of disagreement between parents' and teens' reports of teens' sexual experience. We test rival hypotheses. Hypothesis 1A: Accurate parental knowledge of teens' sexual activity reduces sexual risk behaviors because it allows parents to provide information and support appropriate to the adolescent's situation. Hypothesis 1B: Parental expectations of sexual inexperience, whether accurate or not, reduce sexual risk behaviors because teenagers will be motivated to meet these expectations by abstaining from risky sexual behaviors. Similarly, parental overestimation of teens' sexual experience may increase risks of negative outcomes. We employ multivariate analyses accounting for complex survey design and use In-Home interviews from Wave I and II. Incongruence is measured by comparing teens' and parents' reports of vaginal intercourse. We analyze subsequent sexual behaviors between Waves, including vaginal intercourse, condom use, contraception, sex while drinking, sex while on drugs, sex outside a relationship, STI diagnosis, and, for girls, pregnancy. Many controls are included. Results show that parents' attitudes about teenage sex, communication about sex and contraception, and teens' characteristics all influence accurate knowledge. Condom use, contraception, and sex while drinking were not associated with parental overestimation or underestimation of teens' sexual experience. Vaginal intercourse, sex while using drugs, sex outside a relationship, STI diagnosis, and pregnancy were predicted by one or both types of incongruence. Parental overestimation increases risk across several outcomes, while underestimation decreases risk. Our findings suggest that parental expectations have important effects on adolescents' behaviors and sometimes outweigh the potential benefits of accurate knowledge.

**Runaway Behavior and Female Sexual Onset: Findings from the National Longitudinal Study of Adolescent Health***Lisa Thrane, Wichita State University**Xiaojin Chen, coauthor*

**Problem:** The purpose of this study is to examine whether runaway behavior will have main effects on sexual onset, or if bonds to family and school and psychological resources will mute its influence.

**Methods:** The sample consisted of 4,629 adolescent females from the Add Health study. A longitudinal analysis with logistic regression was applied to test if runaway behavior, deviant activity, psychological characteristics, school bonding, dating, and family factors increased the risk of sexual onset.

**Results:** Findings indicate that runaway behavior increased the odds of first sex by 1.79. Alcohol use elevated the risk by over 2 times ( $\text{Exp}(B) = 2.18$ ) with delinquency having little impact ( $\text{Exp}(B) = 1.09$ ). There was no proof that poor mental health (e.g., depressive symptoms and low self-esteem) increased the likelihood of first intercourse. Being involved in a romantic relationship increased the odds of first sex by at least 2 ½ times. The degree of autonomy and conflict with parents did not have main effects. There was no support that mental well-being and familial and school bonding mediated or moderated the effects of episodic runaway behavior on first sexual intercourse.





## **The Dynamic Relationships between Sexual Minority Status and Health: a Longitudinal Analysis**

*Bethany Everett, University of Colorado at Boulder*

An emerging field of research suggests that sexual minority teens have increased risks associated with barriers to health care, risky health behaviors, and poor health outcomes. Much of this research, however, has neglected to examine how different indicators of sexual orientation function independently and co-currently to exacerbate or mitigate health behaviors and outcomes across the transition from adolescence to early adulthood. In order to examine the dynamic relationship between sexual orientation and health behaviors, health care access, and health outcomes during this time period, this paper uses Waves I and III of the Add Health data (N=14,322). Specifically, I examine how changes in sex of persons reported ever being attracted to, sex of persons reported being in a romantic relationship with, and self reported sexual identity relate to changes in self reports of diet and exercise, BMI, tobacco and alcohol use, access and reported barriers to health care, victimization and violence, and mental health outcomes. Preliminary results suggest that for many individuals, change in reports of sexual orientation, in either direction, are associated with worse outcomes on the variables listed above, whereas maintaining consistent reports are not associated with increases in risk. These results suggest that examining sexual development longitudinally may be essential for understanding the risks associated with sexual minority status and developing strategies to support sexual minority teens.

## **Positive Sexual Health and Psychological Well-being**

*Adena Galinsky, Johns Hopkins University*

*Freya Sonenstein, coauthor*

**Background:** Common sexual health discourse assumes the importance of pleasure, as well as connections between sexual and other kinds of well-being, but these relationships have not yet been empirically validated by population studies.

**Objectives:** To examine the association between sexual pleasure and psychological well-being.

**Methods:** This study uses Wave III data. The sample consists of those respondents still in a relationship with their most recent sexual partner at Wave III, whose relationships are heterosexual and of 3 or more months duration, and who had at least one type of oral sex (N=5726 receiving and N=5384 performing). We will estimate ordered logistic regression models, regressing how much the respondent likes each kind of oral sex with their partner (very much, somewhat, neither likes nor dislikes, dislikes somewhat, dislikes very much) on the self-esteem score (scale from Daniels & Leaper, 2006;  $\alpha=0.78$ ) and on the life satisfaction indicator (very dissatisfied, neither satisfied nor dissatisfied, satisfied, very satisfied), controlling for individual and relationship characteristics.

**Preliminary Results:** Initial analyses show a positive relationship between life satisfaction and pleasure from receiving and giving oral sex among men but not among women. Also, a positive relationship between self esteem and liking oral-performing sex is evident among both men and women. In contrast, the relationship between self esteem and liking oral-receiving sex is only seen among women. Relationship quality partially mediates these relationships, while frequency of sex modifies these relationships.

**Paper Session: Identity, Agency, and Self-control****An Examination of the Reciprocal Effects of Self-esteem and Delinquency: Does Gender Matter?**

*Omolola A. Adedokun, Purdue University*  
*Timothy J. Owens, coauthor*

Using data from Waves I and II of the Add Health dataset, this study examines the reciprocal relationship between self-esteem and delinquency with a specific comparison of how the relationships differ by gender. The hypotheses were: (1) the reciprocal effects of self-esteem and delinquency would be significant and negative in both directions thus forming a mutually reinforcing cycle, (2) the reciprocal effects would be stronger for boys than for girls, and (3) self-esteem would be a weaker predictor of delinquency than delinquency is of self-esteem. Three types of variables were used: (1) variables of key interest, i.e., self-esteem and delinquency, (2) instrumental variables that are expected to exercise direct effects on one of a pair of reciprocally affected variables but not on the other, and (3) control variables (e.g., race). To test the hypotheses and to legitimately make direct gender comparisons of the structural parameters, we employed a multigroup ("stacked") full-information maximum-likelihood structural equation model of boys and girls via Amos 7.0. Contrary to our predictions, the results revealed no mutually reinforcing countervailing cycle for self-esteem and delinquency, nor, obviously, was the cycle stronger for boys than for girls as predicted. The results are thus mixed. On one hand, our expectation that the effect of self-esteem on delinquency would be significant and negative was not confirmed for either gender. On the other hand, and according to our prediction, the effect of delinquency on self-esteem was negative and significant for boys. Further, the boys' and girls' parameters were not significantly different from each other.

**The Development of Adult Identity: Cross-race Similarities and Differences**

*Janel Benson, University of North Carolina at Chapel Hill*  
*Glen H. Elder, Jr., coauthor*

Studies show that young adult age identity development differs by race/ethnicity, with African Americans having earlier and Asian Americans later identity development than their same-aged white peers. We do not know, however, what these identities mean developmentally for these different groups of youth, particularly in regard to psychosocial maturation. To address this gap, we integrate sociological and psychological approaches to examine identity as a multi-dimensional construct composed of both subjective age and psychosocial maturation. Employing Wave III data, we used cluster analytic techniques to create four age identity profiles from several indicators of subjective age and psychosocial maturation. Next, we examine racial/ethnic differences in age identity profiles, and then we used a nested multinomial regression technique to investigate whether adolescent pubertal development, psychological maladjustment, and family context (all measured at Wave I) mediate these racial differences. We find Asian Americans are more likely than their white peers to have identity profiles characterized by low social age and maturation, and these differences can be explained in part by adolescent pubertal development and family context. In addition, we find that White youth are more likely to have late adult identities than their African American counterparts, and these differences are attenuated by psychological maladjustment and completely explained by adolescent family context. Finally, white youth are more likely than their African American peers to have pseudo-adult identities marked by high age identity and low social maturation, and our results show that psychological maladjustment accounts for some of this effect.



### **Social Structure and the Person in a Lived Life: Agency and the Life Course**

*Steven Hitlin, University of Iowa*

*J. Scott Brown and Glen H. Elder, Jr., coauthors*

Theoretical debates over the nature of structure vs. agency curiously tend to omit the relevant social psychological models that might help resolve this false antimony. We build on the traditions of social structure and personality by introducing an agency-focused derivation, the social structure and the person perspective (SSiP), intended to allow for a conception of the social actor across domains. In addition to using the common notion of self-efficacy, our model of perceived agency includes a measure of perceived optimism, a way to capture actors' temporally-embedded, subjective interpretation of their own life chances. This situates a measure of perceived agency within theoretical and life course treatments of the topic, and offers an empirical anchor for capturing important aspects of the person; second-order, reflexive beliefs about one's capacities (self-efficacy) and the extent that it is worthwhile to apply them (optimism). Using a nationally representative dataset, we illustrate the longitudinal utility of this conceptualization across three domains during an important transition in the American life course: health, academic performance, and minor deviance.

### **Causal Effects of Self-control on Later Life**

*Hongbo Wang, University of Chicago*

*Angela Lee Duckworth, James J. Heckman, and Sergio Urzua, coauthors*

As part of a large project, our research addresses the causal role of self-control, both independently and in interaction with other non-cognitive and cognitive capacities, for an individual's economic, social, and health outcomes. Such outcomes encompass high school graduation, college attendance, wages, employment, mental and physical health, morbidity, delinquency, and crime. We bridge psychological scholarship on cognitive ability and other capacities with state-of-the-art econometric techniques. Our improvements over the existing literature include more careful measurement of self-control. In addition, building on methodologies recently developed by Heckman and his colleagues (2006, 2003, 2004), the current study makes efforts to tackle an array of challenges in addressing causal role of non-cognitive and cognitive skills for later outcomes, such as fallibility of measures of ability (e.g., test scores and personality scales), joint (reverse) causality between such measures and schooling, and endogeneity of schooling. Following Heckman et al's (2006) previous work, we ask a fundamental question: Can variations in a wide variety of outcomes be explained by a common, low-dimensional vector of cognitive ability and non-cognitive abilities related to self-control? The study draws on data from Waves I, II, and III of Add Health, including the latest educational module (AHAA). Among other things, our analysis will take advantage of rich information on personality traits and the longitudinality of the Add Health data. We plan to present our up-to-date results in July, with an emphasis on mental and physical health outcomes.

## **Breakout Session 5**

### **Paper Session: Education Track #2 – Extracurricular Activity, Mental Health, and Academic Achievement**

#### **Extracurricular Activity Participation and Hispanic Adolescents' Pathways to College**

*Ingrid Nelson, Stanford University*

This study draws on Add Health to look beyond the school day and examine extracurricular participation in Hispanic adolescents' pathways to college. Hispanic youth are the fastest growing segment of the United States population, yet their academic attainment trails behind other groups. Because youth spend only 25% of their waking hours on school work, non-school hours have great potential to engender the



skills necessary for building pathways to higher education. This study explores the relationship between participation in school-sponsored extracurriculars and years of post-secondary education, controlling for work experience, family income, and race/ethnicity (using Wave I In-School, Wave I In-Home Parent, and Wave III In-Home Questionnaires). As students are rarely randomly assigned to extracurricular activities, selection bias will be taken into account statistically. Preliminary ANOVA analyses reveal that Hispanic students participate in significantly fewer extracurricular activities and complete fewer years of higher education than all other groups ( $F=24.71, p<.000$ ). Regression modeling illustrates the extent of the relationship between type of extracurricular participation (Sports, Music, Other) and years of education, while controlling for family income and race (adjusted  $R^2=.12$ ). Adolescents who participated in Other activities (non-sport or music) average nearly a full year more of post-secondary education than those who did not; extracurricular participation is more influential than any other factor including race and family income. These findings suggest that benefits of extracurricular participation continue long after activities have ended and regardless of race or socioeconomic status.

### **Are School Activities Racializing? Measuring Meaning Structures in School**

*Sara Skiles, University of Notre Dame*

*Michael Strand, coauthor*

This project explores the effect of race on school culture by examining participation patterns by race in extracurricular activities. We expect that students familiarize themselves with the meaning structure of school culture in part by observing how extracurricular participation is patterned. We hypothesize that the composition of this culture leads students to self-select into or out of activities, and that these choices make the meaning of those activities durable. What can we know about the composition of school culture by examining the meanings embedded in extracurricular organizations? To answer this question we use Add Health data (Wave I In-School Questionnaire) to analyze the extracurricular participation patterns of racially-mixed schools. We use multi-dimensional scaling to illustrate student racial and ethnic identification with different types of extracurricular activities. This allows us to discover how extracurricular school activities are dually defined by the racial composition of students who engage in them and vice-versa. Based on this empirical analysis, we attempt to uncover the informal logic of the possibly racialized nature of school culture in order to better understand the cultural frameworks students use to construct and maintain symbolic boundaries in schools. This project is part of a larger study that examines the possible association between racialized school culture and students' educational aspirations.

### **Adolescent Early Death Perception vs. Life Expectancy as Predictors of Behavioral and Life Outcomes in Young Adulthood**

*Naomi N. Duke, University of Minnesota*

*Sandra L. Pettingell, Carol L. Skay, and Iris W. Borowsky, coauthors*

**Objective:** The purpose of this study was to describe the relationship between adolescent early death perception and behavioral and life outcomes in young adulthood.

**Methods:** Data are from Waves I, II and III of the In-Home interviews from the National Longitudinal Study of Adolescent Health. The sample for this study included 7202 young adults aged 18-26 years. Linear and logistic regression models were used to determine the predictive ability of adolescent early death perception (Waves I and II) on health risk, individual development, and health fitness behaviors in young adulthood (Wave III).

**Results:** Perceived risk of premature death in adolescence was linked to loss of health and productivity on multiple levels in young adulthood, including increased report of fight-related injury in the previous 12 months, increased depressive symptomatology, lower self-esteem and life satisfaction, lower likelihood of having achieved a high school diploma/GED, less likelihood of current employment, school attendance, and/or military service, and poor problem solving. Youth demonstrating persistent early death perception



(Waves I and II) exhibited the most severe compromise in adult outcomes, while youth maintaining life optimism fared best. Youth endorsing alternating views on life expectancy exhibited outcomes significantly limiting their prospects for future adult survival.

Conclusions: Adolescent perceived risk for premature death portends poor outcomes in young adulthood. Findings support incorporating screening questions on adolescents' perceived risk for early death into psychosocial assessments and interviews. Potential impact points to improve the life prospects of youth expressing vulnerability to premature death are identified.

### **The Effect of Mental Health in Adolescence on Educational Attainment: School and Neighborhood Factors**

*Jennifer Humensky, University of Chicago*

Objectives: To examine whether mental health problems in adolescence lead to decreased educational attainment, and whether this relationship is heterogeneous across schools and across neighborhoods.

Population: Students interviewed in Waves I and III of the National Longitudinal Study of Adolescent Health (Add Health), a nationally representative survey of students in grades 7-12 at Wave I (1994-95). Wave III follow-up was conducted in 2001-02.

Methods: Mixed models with fixed effects, random intercepts and random coefficients on mental health variables (also known as two-level cross-classified hierarchical models) will be used.

Results: Mental health problems in adolescence were associated with fewer years of schooling completed by Wave III. Statistically significant random intercepts indicate that educational attainment varies across schools and across neighborhoods, after controlling for observable school and neighborhood characteristics. The statistically significant random slope on mental health variables indicates that the relationship between adolescent mental health and subsequent educational attainment also varies across schools and across neighborhoods.

Conclusions: The findings from this study indicate that some schools and neighborhoods are associated with better outcomes for troubled adolescents. This could ultimately lead to the design of targeted interventions for adolescents, particularly as schools can be an entry point for mental health treatment.

### **Paper Session: Friendship Networks and their Contributions to Adolescent Health and Risk-taking**

#### **Change and Stability in Friendship Networks**

*Jennifer Flashman, UCLA*

In this paper, I use network analysis to model the relationship between friendship network characteristics, structure, and change. I show how an individual's race, parental education, and academic achievement affect friendship network change and how differences in these characteristics between individuals predict change, net of the structural characteristics of the network. This analysis uses data from the high schools in the Add Health saturated sample of schools. Because all students in these 10 schools were followed up across waves and asked to nominate their in-school friends, I can track their friendship networks across time using the In-School, Wave I In-Home, and Wave II In-Home surveys. I use the AHAA transcript data to capture students' academic achievement. Academic achievement is observed across students' high school careers, allowing me to model the relationship between friendship network change and change in academic achievement. I model network change using an actor oriented Markov chain model. This model is carried out at the school level, for each of the 10 high schools included in the saturated sample. School level results are then combined in a meta-analysis to describe the general relationship between individual characteristics, network characteristics, and network change. Through this analysis, I show 1) how homophily in friendship networks affects network change, 2) whether similarity in race is more important to network change than similarity in socioeconomic background or



academic achievement, and 3) how individual academic achievement responds to the compositional change in a network's academic achievement.

### **Schoolmates, Peer Effects, and Adolescent Weight Status**

*Francesco Renna, University of Akron*

*Irina Grafova and Nidhi Thakur, coauthors*

The goal of this study is to analyze the impact of peer pressure from schoolmates on the weight status of adolescents. The study of these social interactions is important because the impact of any school based program aiming at reducing the prevalence of obesity among teenagers may be amplified by peer pressure (Social multiplier). This study utilizes Wave I, II, and III of the Add Health dataset. We construct two alternative measures of a peer group: (1) the average BMI of students who are in the same school and in the same school-year as a respondent adolescent, and (2) the average BMI of students who are in the same school but one year above the respondent adolescent. Previous studies have shown that peer measure at the school level is less likely to be subject to the contextual effects and the bi-directionality of the peer relationship. However, students in the same school could share similar unobserved characteristics that can also affect the body weight (correlated effect). We address this issue by pooling the data from three Waves to obtain school fixed effects estimators. Since the BMI is not age neutral, we compute the BMI percentiles using the 2000 Centers for Disease Control and Prevention BMI-for-age charts. We run the regressions separately by gender and we control for individual characteristics (race, ethnicity, and age), behavioral choices (drinking, smoking, and exercising), and family background (family income, parents' obesity status, maternal education, and maternal employment).

### **Identification and Estimation of Social Interaction-based Models: a Changes-in-Changes Approach with an Application to Adolescent Substance Use**

*Muzhe Yang, University of California, Berkeley*

It is acknowledged that teenage behaviors and their health outcomes will not be well understood without considering social interactions during this rapid transition period. Finding a strong correlation in behavior among peers cannot justify the existence of peer effects. The impact of friends on an individual's behavior will be confounded by their mutual influences, individual's self-selection into peer groups and peer's shared unobserved environmental factors. To isolate peer effects from other factors, I adopt a linear-in-means modeling strategy which rests upon a spatial autoregressive model. This distinguishes my study from current empirical studies on social interactions, most of which are based on linear-in-expectations models. Using Add Health, I identify and estimate peer effects of adolescents' health-related behaviors: substance use through difference-in-differences (DID), using time-differencing to exclude individual "fixed effect" and treatment-control-differencing to exclude peer group level unobserved heterogeneities. To accommodate possible behaviors of sorting into treatment (the group with higher expected gain receiving the treatment), I estimate such heterogeneous treatment effects based on changes-in-changes (CIC), a generalized version of DID. This strategy allows for identifying not only peer effects, but also the treatment effect corresponding to a hypothetical policy intervention of removing a drug-user friend from his or her own peer group. Identification of these two parameters ultimately leads to constructing a "social multiplier," which bears rich policy implication, especially seen from an economic perspective.





### **The Mediating Effect of Delinquent Friendship Networks on the Relationship between Self-esteem and Delinquent Behaviors in Adolescence**

*Coretta J. Mallery, George Washington University*

This study examined the mediating effects of delinquent friendship networks on the relationship between self-esteem and delinquency in young adolescents, using the data from the National Longitudinal Study of Adolescent Health. This research expanded on previous research conducted by DuBois and Silverthorn (2004) by incorporating a comprehensive measure of friendship network delinquency. Principles of Social Learning Theory were also incorporated to explain why it is important to include a peer context in delinquency research. Additionally, this study included race and gender as moderator variables. Findings indicated that delinquent peer associations were significantly related to respondent delinquency in the White, male, and female participants. This relationship was not significant for African American participants suggesting an area for future research.

## **Breakout Session 6**

### **Paper Session: Fertility, Marriage and Reproductive Health**

#### **Are Attitudes Predictive of Non-marital Childbearing? Teenagers' Attitudes toward Non-marital Childbearing and their Relationship to Non-marital Childbearing**

*Amy Lucas, University of North Carolina at Chapel Hill*

This study makes a unique contribution to the literature on single motherhood by assessing whether favorable attitudes toward single motherhood in adolescence are associated with subsequent childbearing behavior with the use of national data from Wave I and Wave III of Add Health. This study employs a longitudinal design, which allows it to link attitudes to behavior over time. Findings indicate important differences in single motherhood attitudes by race and ethnicity, family SES, family structure, religiosity, and future educational expectations. Controlling for theoretical mechanisms known to be associated with single motherhood, including culture (race and religiosity), opportunity costs (educational expectations and SES), and socialization and supervision (family structure), favorable attitudes toward teenage motherhood remain significantly related to the probability of becoming a single mother in early adulthood. Attitudes, therefore, have an impact beyond the theoretical and commonly measured influences upon single motherhood. This independent effect of attitudes is discussed in the paper.

#### **The Causal Effects of Nonresident Father Involvement on Multiple Partner Fertility among Young Adults**

*Ronald B. Mincy, Columbia University*

*Eva Haldane, coauthor*

Utilizing Waves I, II and III of the National Longitudinal Study of Adolescent Health (Add Health), we will estimate the causal impact of non-resident father's involvement on the fertility of their young adult children. Specifically we are interested to know if non-resident father involvement at Wave II affects the probability that an adult son or daughter will have children with multiple partners when the son or daughter reaches their early 20s. We will measure all the pre-treatment (father involvement) variables using the Wave I Parent and Adolescent In-Home Interviews. Father involvement will be measured using the Wave II Adolescent In-Home Interview. Our outcome variable, if the child has children with multiple partners, will be measured using the Wave III In-Home Interview. We will use propensity scores to estimate causal relationships between our measures of father involvement on our measure of multiple partner fertility. Controlling for pre-treatment conditions that affect both the probability that youth are assigned to the treatment group and the outcome (giving birth to children from multiple partners), we will



obtain unbiased estimates of the effects of non-resident father involvement on their child's multiple partner fertility. We will examine the sensitivity of our results to alternate measures of father involvement, including authoritative parenting, warmth, quality of visits and closeness.

### **Assortative Mating for Weight and Attractiveness among Dating, Cohabiting, and Married Young Adults**

*Julie H. Carmalt, Cornell University*

I use Add Health couples data to estimate patterns of assortative mating for body weight and physical attractiveness among dating, cohabiting, and married young adult couples. This study is the first (to my knowledge) to use log-linear models to examine assortative mating for weight and attractiveness. Most previous studies rely on interspousal correlations which provide little information about actual partnering patterns, such as the share of obese persons who marry healthy weight persons. Log-linear models (quasi-independence, symmetry, crossing parameters) detect patterns of association while controlling for male-female partner differences in the marginal distributions of weight or physical attractiveness and union status. Weight is cross-classified for women and men using BMI: underweight, healthy weight, overweight, and obese. Physical attractiveness is cross-classified as: very unattractive, unattractive, about average, attractive, and very attractive. Several hypotheses are tested. First, weight and attractiveness homogamy will account for much of the association in the data. Second, asymmetry in the data will reflect the importance of physical attractiveness for women. Third, individuals at the extremes of the distributions of weight and attractiveness will be less likely to interpartner than individuals located more centrally in the distributions. Finally, relationships will be less selective in terms of weight and attractiveness as unions progress toward marriage through a "winnowing" process. Results suggest men "marry up" in physical attractiveness and obese individuals experience the greatest social distance from others. Results are consistent with the matching hypothesis and provide some support for the winnowing hypothesis.

### **Early Marriage Timing of Young Adults: The Dynamics of Culture and Economics in the Social Context**

*Yingchun Ji, University of North Carolina at Chapel Hill*

This research synthesizes the economic rational choice approach, the psychological reasoned action approach and the sociological social norm perspective. It examines how youths' potential market value and their social norm of marriage expectation interact with each other to structure their decision-making to move to the early marriage. This research finds that youth with better potential market value postpone entering into marriage and that youths with the social norm of higher marriage expectation move to the early marriage faster. Having equivalent potential market value, youths with the social norm of higher marriage expectation move faster to the early marriage. Furthermore, youths' social norm of marriage expectation is modified by economic and norm factors at both the school level and the neighborhood level.

### **Risky Adolescent Relationships and Reproductive Health in Young Adulthood**

*Suzanne Ryan, Child Trends*

*Jennifer Manlove, Mindy Scott, and Erin Schelar, coauthors*

Our study tests the hypothesis that teens who engage in risky sexual behaviors in adolescence are at risk for more negative reproductive health outcomes when they transition to adulthood. Specifically, we explore which particular dimensions of risky adolescent relationships are most predictive of STI and unintended pregnancy risk in young adult relationships. We also test whether the associations differ by gender. We use data from all Waves of Add Health, with information on adolescent relationships drawn



from Waves I and II, and young adult outcomes measured in Wave III. STI risk is assessed via two outcome measures: 1) whether respondents ever tested positive for chlamydia, gonorrhea, and/or trichomoniasis, and 2) the number of sexual partners respondents had in the previous year. Unintended pregnancy measures whether respondents ever reported a pregnancy that was unwanted and/or mistimed (versus intended). We use logistic regressions to analyze the two dichotomous outcomes and OLS to analyze the continuous outcome for number of partners. Our critical independent variables capture 10 dimensions of risk in adolescent sexual relationships: 1) multiple partners; 2) young age at first sex; 3) older partner; 4) partner asymmetries; 5) non-romantic partner; 6) one-night stand; 7) non-monogamous relationship; 8) no discussion of contraception/STDs with partner before sex; 9) inconsistent or no contraceptive use; and 10) forced to have sex (females only). We explore the influence of each individual component of risk, as well as create an overall index of risk that groups multiple dimensions together.

### **Paper Session: Pathways in Young Adulthood**

#### **Investigating Factors Mediating the Effect of Adolescents' Extracurricular Activity Participation on Young Adult Success**

*Tucker Brown, Austin Peay State University*

This study employs a life course approach to investigate factors that mediate the role of participation in school-based extracurricular activities as a compensatory source of social capital for adolescents, particularly those reared in non-traditional families. The analyses focus on the impact of mediating factors of participation and its subsequent effects on early adult outcomes. Using Waves I, II, and III from the Add Health data, four young adult outcomes are examined: high school completion, college attendance, civic involvement, and drug use. Findings illustrate that the protective effect of adolescent extracurricular activity participation is dependent on both the outcome in question and the activity itself. Interestingly, adolescent extracurricular activities are no more important for children from alternative family structures. However, benefits of participation are still evident from this examination, even when controlling for measures of social capital. Survey analysis techniques which control for the complex sampling design in Add Health are used.

#### **Examining "Race Effects" in Transitions to Early Adulthood**

*Sarah K. Bruch, University of Wisconsin, Madison*

Although race remains an important social division, much of our knowledge concerning why and how this social division matters is limited. Much of social science research includes race as a predictor of outcomes in multivariate regression analyses and findings of a "racial effect" are common. However, this practice may provide an inadequate and possibly inaccurate portrait of how race matters. We test several theories of how race matters using path analysis, which allows us to decompose the total race effect and account for both direct and indirect effects of race, providing insight into the social processes that make race a salient predictor of outcomes. The primary emphasis will be on the estimation of the indirect effects of race, the pathways through which race comes to matter. We examine the role of family background and practices, child specific, school and neighborhood characteristics to predict several early adulthood outcomes, with specific attention to whether or not these factors act as mediators of the "race effect". We focus on six outcomes in three domains: education (educational success defined as currently attending school or completed college, and receipt of a high school diploma); economic (economic hardship and receipt of means-tested government assistance); and work-related (currently working for pay, and currently idle, which is defined as not working, attending school, or in the active military). The Add Health data this paper utilizes are the In-Home Surveys from Waves I, II, and III: Contextual, School Administrator, General School, and In-School Survey data.



### **Military Service as a Bridge to Opportunity: The Path to Voluntary Enlistment**

*Lin Wang, UNC-CH*

*Glen H. Elder, Jr., coauthor*

Military service from World War II to the present has provided educational benefits which define a path to greater opportunity. The Volunteer Armed Forces today offer veterans both educational and training benefits as an incentive for military service. Using data from the National Longitudinal Study of Adolescent Health, this research investigates factors that channel young people toward military service. We hypothesize that young people enter the military service for different reasons. We find that socioeconomic status, cognitive capability, and high school academic performance differentiate military enlistees with college experience from those without. Respondents who have been to college by Wave III are likely to have above average capability. Among the college goers, those from disadvantaged socioeconomic backgrounds are more likely to join the military, perhaps because they seek financial support to go to college. On the other hand, respondents who have not attended college by wave III are likely to come from socioeconomically disadvantaged backgrounds or to have engaged in delinquent behaviors in the past. Military service offers a new start and training opportunities for future career development.

### **The Mental Health of Vulnerable Youth and Their Transition to Adulthood: Examining the Role of the Child Welfare, Juvenile Justice, and Runaway/Homeless Systems**

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Youth who have been in foster care, have had contact with the juvenile justice system, or have runaway or been homeless, all have an elevated likelihood of experiencing mental health problems; yet supporting their successful transition to adulthood is particularly difficult due to the lack of coordination across the systems serving these three groups. This study assesses the relationships among service system contact, mental health, and the transition to adulthood by examining three groups of youth: 1) those with contact with the juvenile justice or social service systems; 2) those at risk for contact; and 3) those at low risk for having contact with any service system. We used latent class analysis to categorize adolescents according to patterns of mental health. Multinomial multivariate regression models were used to examine predictor variables in Waves I and II of Add Health that influenced adolescents' classification in each profile. Regression models examined young adult outcomes at Wave III. The analyses of the mental health variables resulted in 5 profiles: 1) Non-troubled youth; 2) Depressed youth; 3) Depressed and Delinquent youth; 4) Alcohol Interference youth; and 5) Troubled youth. Analyses indicate that youth who had contact with a service system were more likely to be in a profile characterized by mental health issues than youth that did not have contact with a service system. Additional regression models demonstrate that youth who had contact with a service system also have more difficulty during the transition to adulthood (i.e. disconnection, personal income, debt, and sexual partners).