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Extended Abstract

Young Adults' Relationship Histories and Current Risk of Sexually Transmitted Infections*

Yasamin Kusunoki, Ph.D., MPH[1] and Dawn M. Upchurch, Ph.D.[2]

[1] University of Michigan
Population Studies Center
Institute for Social Research
426 Thompson Street, Room 2214
Ann Arbor, MI 48106-1248
(kusunoki@umich.edu)

[2] University of California, Los Angeles
School of Public Health
Department of Community Health Sciences
650 Charles E. Young Drive South
Los Angeles, CA 90095-1772
(upchurch@ucla.edu)

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Introduction and Background

Advancing our understanding of the factors that contribute to persistent disparities in the reproductive health of adolescents and young adults is imperative to improving population health in the United States. The sexual and contraceptive decisions that are made during this life stage can have both short- and long-term consequences for the reproductive health of individuals and fundamentally shape the later life course. In the United States, rates of sexually transmitted infections (STIs) remain high. Almost half of the 19 million annual STI cases occur among youth ages 15-24 (Weinstock et al., 2004), with this age group experiencing the highest rates of chlamydia and gonorrhea (CDC, 2004). There is also considerable variation in their occurrence by gender and race/ethnicity, indicating disproportional burden of these outcomes. Women exhibit higher rates of chlamydia and gonorrhea than men, and blacks have the highest rates of chlamydia and gonorrhea, followed by Hispanics and whites (CDC, 2004).

Personal involvement in romantic and sexual relationships increases substantially during adolescence and young adulthood as does the significance of these relationships (Brown et al., 1999; Christopher, 2001; Collins, 2003). These relationships provide a salient context for psychological, social, and sexual development among youth (Coates, 1999; Connolly & Goldberg, 1999; Erikson, 1968; Feiring, 1999; Fischer et al., 1996; Leaper & Anderson, 1997;

Sullivan, 1953). Relationship patterns and behaviors learned during adolescence and young adulthood are influential for current and future reproductive health outcomes. Compared to older adults, adolescents and young adults are at higher risk for STIs because they are more likely to have multiple partners and short-term relationships, to engage in unprotected intercourse, to have high-risk partners, and to engage in greater sexual experimentation (Fergus et al., 2007; Finer et al., 1999; Miller et al., 1999; Santelli et al., 1998; Sonenstein et al., 1998). Therefore, it is important to explore the patterns of sexual relationships that individuals form during the early life course and the extent to which these relationship histories may place youth at risk of acquiring STIs and potentially explain gender and racial/ethnic disparities in STI rates.

This research will draw on key concepts of the life course perspective in order to better understand young adults' sexual relationship trajectories and the role that these cumulative patterns of experiences play in their risk of STIs. The life course perspective emphasizes the importance of the timing and ordering of events that shape individuals' social pathways and developmental trajectories across the lifespan (Elder, 1995; 1997). Individuals make choices that shape their life course conditional on their experiences and within the set of constraints and opportunities available to them. The timing of transitions within a trajectory affects the impact that these transitions will have on individuals' development and lives (Elder, 1995). The extent to which individual's timing and sequencing of transitions do not follow a prescribed normative pattern and the extent to which transitional events influence other transitions within and across trajectories may be consequential to the individual (Elder, 1995).

The primary objective of the current study is to investigate the extent to which patterns of relationship formation are associated with current risk of STIs among a population-based sample of young adults. Although there is a growing body of literature demonstrating the importance of romantic and sexual relationships for youth, research is still limited in terms of understanding the role of individuals' cumulative relationship experiences. We will first provide a detailed description of young adults' relationship histories. Second, we will examine the associations between a comprehensive set of individual-level characteristics and the presence of a STI. Age, gender, race/ethnicity, nativity status, religion/religiosity, family background, education, and socioeconomic status define individuals' placement within social strata, and structure social and sexual relationships. Then, we will investigate the additive and interactive effects of young adults' relationship histories, with a particular focus on the extent to which the variation in individuals' relationship histories may partially explain gender and racial/ethnic differences in STI risk.

Data

The data to be used for this analysis are from the National Longitudinal Study of Adolescent Health (Add Health), which is a survey designed to assess the health status of adolescents and young adults in the United States and to explore the causes of their health-related behaviors, with a focus on the multiple social and physical contexts in which they reside (Harris et al., 2003). These data are well suited for this particular investigation because they contain STI biomarker data and detailed relationship histories for each individual.

The original sampling frame for Add Health consisted of 80 high schools, with additional "feeder schools" (e.g., junior high school) for each high school identified also being sampled. The school student roster constituted the student-level sampling frame. From that listing, a baseline sample was drawn consisting of a core sample and several oversamples. The core sample is a probability sample of size 12,105 that is nationally representative of students enrolled in grades 7 through 12 during the 1994-95 academic year. With the oversamples, the Wave I sample is 20,745. The Wave II was conducted in 1996 and the sample is all adolescents interviewed at Wave I, except for the deletion of 12th graders and one of the oversamples. The Wave II sample size is 14,738. In 2001 and 2002, Wave I respondents, now young adults (ages 18-27), were reinterviewed. The Wave III sample size is 15,197.

The current study will primarily utilize data collected during the Wave III interview because the STI status of each respondent, as measured by bioassay, was only collected at the time of the Wave III interview. Biomarker data is preferable to self-report measures available in most population-based samples because of the asymptomaticity of some STIs and response bias due to social desirability, misremembering, misunderstanding, and lack of knowledge. Chlamydia (*Chlamydia trachomatis*), gonorrhea (*Neiserria gonorrhoeae*), and trichomoniasis (*Trichomonas vaginalis*) were measured using laboratory tests of biomarker specimens provided by respondents. We will examine each STI separately and also investigate co-occurrence of STIs as well as any STI. At Wave III, respondents were also asked questions about romantic and/or sexual relationships that they had been involved in since the Wave I interview.[1] For each relationship identified at Wave III, respondents reported detailed information regarding both partner and relationship characteristics. Individuals' relationship histories will be developed based on this information. We will also include a comprehensive set of individual-level sociodemographic characteristics collected during the Wave I and Wave III in-home interviews, including age, gender, race/ethnicity, nativity status, religion/religiosity, family background, education, and socioeconomic status. We will limit the analysis to never-married, heterosexual young adults with STI biomarker data and detailed relationship information.

Analytic Strategy

We will first provide a detailed description of young adults' sexual relationships and the ways in which these sexual relationships unfold over the early life course. We will create measures that summarize individuals' sexual relationship histories in a variety of ways by using composite measures of relationship-specific characteristics. In other words, these summary variables will be created across each individual's set of relationships. We will then utilize logistic and multinomial regression techniques to investigate the associations between individuals' sociodemographic characteristics and relationship histories and the presence of each STI, the co-occurrence of STIs, and any STI.

[1] The relationship data collected in Waves I and II differ substantially from that of Wave III.

Preliminary Findings

Preliminary descriptive analysis has been conducted for a subsample of young adults who had identified having had at least one heterosexual nonmarital relationship that involved sexual activity and occurred between the Wave I and Wave III interviews.

Table 1 presents the weighted distributions of a select set of characteristics among the Wave III respondents who are part of the preliminary analytic sample and the characteristics of their sexual relationships. The preliminary analytic sample includes 9,203 individuals and 26,948 relationships (average number of relationships per individuals is 2.91).

The average age of respondents at Wave III was 21.8 years. The sample of respondents was about evenly distributed between men and women. Over two thirds of respondents were white, followed by blacks, Hispanic, and Asian. Almost four percent were foreign born. Over half of respondents identified as Protestant at the Wave I interview, one-quarter identified as Catholic, and almost 13 percent stated that they did not have a religious affiliation. The remaining respondents identified as Non-Christian or some other religion. Over half of respondents had lived with both biological parents at the Wave I interview and one-quarter lived with their biological mother only; the remainder lived in stepfamilies, with their biological father only, or in "other" situations. Among respondents who had lived with a mother during adolescence, maternal education as of the Wave I interview date was about 13.2 years and among those who had lived with a father, paternal education as of the Wave I interview date was 13.5 years (both equivalent to some college). The mean 1994 household income of respondents was about $44,000 (median was about $37,000).

The majority of the sexual relationships identified by these youth were described as exclusively dating, followed by relationships described as sexual only, cohabiting, frequently but not exclusively dating, and dating once in a while. About ten percent of relationships involved the respondent knowing the partner for a day or less before first engaging in sexual intercourse, over one-quarter involved the respondent knowing the partner for more than a month but less than six months, and over 20 percent involved the respondent knowing the partner for a year or more before first sex. Less than one-quarter of relationships lasted a month or less, almost half lasted more than a month but less than or equal to a year, and more than one-quarter lasted for more than a year. Sex occurred on only one occasion for about 20 percent of relationships. Among relationships in which sex occurred on more than one occasion, the majority involved sex about one time per week, followed by relationships in which sex occurred four to seven times per week, two times per week, three times per week, and eight or more times per week. Almost one-quarter of relationships involved a partner who was three or more years older and about seven percent of relationships involved a partner who was three or more years younger. About 20 percent of relationships were interracial.

We have substantial experience and expertise working with the Wave III Add Health relationship data (Kusunoki & Upchurch, 2006). In this work, we explored several summary measures describing young adults' sexual relationship histories and found that there were noteworthy differences in the types of relationships youth formed by their gender and race/ethnicity. We

will include the most appropriate versions of these summary measures, as well as explore others, in the final paper to be presented at the PAA conference.

We also have substantial experience using the Wave III Add Health biomarker data (Mason et al., 2005). In this work, we found that about 5 percent of sexually active young adults with biomarker test results tested positive for chlamydia, about 0.5 percent tested positive for gonorrhea, about 2.5 percent tested positive for trichomoniasis, and about 0.6 percent tested positive for more than one STI. We found higher STI incidence among women, blacks, and among those who are younger, and of lower SES. We also found higher STI rates among black and Hispanic women and among black men, but lower rates among white and Hispanic men, when compared to white women. The effects of these sociodemographic characteristics remained even after accounting for differences in number of total sexual partners.

The objective of the current study is to include more detailed measures of sexual risk that are relationship-specific. For instance, we hypothesize that the risk involved in having multiple partners as a result of serial monogamy is likely different than the risk involved in having concurrent sexual partnerships. This would suggest the need for including more detailed information than simply the number of sexual partners an individual has had. It is also important to include information on the characteristics of partners as well as the nature and content of these sexual relationships. We expect that including more nuanced measures of young adults' relationship histories will more accurately capture young adults' sexual risk and will explain some of the differences in STI risk by sociodemographic characteristics.

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Table 1. Weighted Descriptive Statistics of Select Characteristics among Young Adults (N=9,203) and their Nonmarital Sexual Relationships (26,948), Add Health, Wave III (2001-2002)

Characteristics	Percentage or Mean
Individual-specific characteristics	
Age at Wave III (years)	21.81
Gender	
Male	49.9
Female	50.1
Race/ethnicity	
Non-Hispanic White	69.7
Non-Hispanic Black	16.1
Hispanic	10.8
Non-Hispanic Other	3.4
Nativity status	
US born	96.1
Foreign born	3.9
Religious denomination as of Wave I	
No religious affiliation	13.4
Catholic	25.4
Protestant	56.3
Non-Christian	1.9
Other	3.0
Family structure as of Wave I	
Both biological parents	56.0
Biological mother/stepfather	8.2
Biological father/stepmother	1.9
Biological mother only	24.8
Biological father only	3.8
Other family situations	5.3
Parental education as of Wave I	
Mother's education	13.20
Father's education	13.48
Household income as of Wave I	$44,291

Table continued on next page

Table 1. Continued

Characteristics	Percentage or Mean
Relationship-specific characteristics	
Relationship type	
Only having sex	24.0
Dating once in a while	7.9
Frequently but not exclusively dating	11.7
Exclusively dating	37.4
Cohabiting	19.0
Time knew partner before first sex	
≤ 1 day	9.9
2-7 days	9.3
1-2 weeks	9.7
2-4 weeks	12.1
1-5 months	25.3
6 months-1 year	11.8
≥ 1 year	21.9
Duration of sexual relationship	
≤ 1 month	23.3
2-4 months	21.6
5-12 months	25.0
13-27 months	14.5
≥ 28 months	15.6
Frequency of sexual activity	
Had sex once	20.3
≤ 1 time per week	23.6
2 times per week	11.9
3 times per week	11.6
4-7 times per week	22.2
≥ 8 times per week	10.4
Age difference	
Partner ≥ 3 years older	24.4
Partner within 2 years	68.8
Partner ≥ 3 years younger	6.8
Racial/ethnic difference	
Partner same race/ethnicity	80.1
Partner different race/ethnicity	19.9