

Understanding the Consequences of Adolescent Sex in Behavioral Context

Extended Abstract

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Abstract

Previous research has shown a negative relationship between adolescent sexual activity and outcomes such as self-esteem, depression, and academic achievement. Recent studies, however, suggest that detrimental effects associated with sexual activity among adolescents are conditional on the social context in which the behavior occurs and the meanings youth ascribe to sexual behavior. We add to this literature by considering the configuration of behaviors in which adolescent sex occurs as a marker of the social meaning of sexual intercourse. This paper explores how sexual intercourse, co-occurring with different configurations of adolescent behavior, is related to academic attainment (GPA), mental health (depression), and school problems. Using the National Longitudinal Study of Adolescent, and Latent Class Analysis (LCA), our preliminary results show that behavior profiles account for part of the heterogeneity of sexual activity consequences. This evidence supports the hypothesis that sexual activity has different meanings and implications among adolescents.

Introduction

Adolescent sex has obvious consequences for physical health, but as an emotional and social activity, sex may negatively affect other dimensions of wellbeing such as mental health and educational attainment. Recent studies have shown that the effect of sex on adolescents' wellbeing seems likely shaped by its meaning and context (Meier 2007; McCarthy and Casey 2008; McCarthy and Grodsky 2011). Sex is a physical behavior endowed with widely varying social meanings. Intercourse may embody an assertion of maturity, masculinity or femininity, or power in some instances, and reflect an act of deviance in others. The act of sex is also endowed with meaning as a marker of relationship intensity and/or love; it is part of a normative process of romantic expression and reinforcement. What role sex plays in the symbolic lives of adolescents, and what bearing it has on other outcomes, depends heavily on the meaning the act has for youth. Moreover, the meaning of the act at the aggregate level can be partially explicated by the co-occurrence (or absence) of other behaviors.

This paper uses two steps to explore the behavioral context in which youth engage in intercourse, as well as the potentially variable consequences that intercourse has on various outcomes. First, we identify

latent groups of adolescents based on their patterns of deviant behavior, including substance use, physical altercations and petty crime. These different constellations of adolescent behavior reflect different ideal types. The modal type likely has modest probabilities of engaging in at least some of these behaviors (especially alcohol and tobacco use), while more deviant types engage in all of these behaviors with relatively high probabilities. Next, we estimate the conditional relationship between sexual intercourse and adolescent outcomes as a function of ideal types. Consistent with our hypothesis, we find that differences by sexual activity on adolescent outcomes is contingent on the constellation of behaviors with which sex co-occurs and, by extension, the social meaning of sex for adolescents.

Background

Adolescence is a period of intense social and emotional development during which young people shift attachment from parents to peers and romantic partners, further develop their individual identity, and make choices that have immediate and long term consequences for education, work and health trajectories. The initiation of intimate and sexual relationships is an integral part of adolescent social development. About half of all 15-19 year olds in the U.S. have had sex at least once: 6% of youth report sex before age 13, while 33% of 9th graders and 63% of 12th graders report having had sex (Eaton et al. 2012).

A number of scholars have emphasized the detriments of sexual activity among adolescents for outcomes such as self-esteem, depression, relationships with parents and others, academic achievement, and crime. Jessor (1987), for instance, hypothesizes that a desire for unconventionality encourages youth involvement in a range of age-inappropriate behaviors, including sexual activity. According to Jessor's Problem-Behavior Theory, sexual activity and other problem behaviors (e.g., minor crime) are manifestations of a single phenomenon. Jessor recognizes, however, the symbolic meaning of behaviors and the variety of psychosocial functions they can fulfill for adolescents.

Evidence of adolescent sex as an expression of a problem behavior syndrome has been relatively controversial. Le Blanc (2012), for instance, points out that over the last 40 years the vast majority of criminologists have accepted the proposition that all types of deviant behaviors are part of a common latent construct. Le Blanc and Bouthillier (2003) proposed and tested the idea that the construct of deviant behavior is a hierarchical domain of behaviors. They show the unidimensional and multidimensional nature of general deviance with 45 behaviors (sexual activity included), nine types subsumed under four forms of deviance, and a global construct of general deviance. McCarthy and Casey (2008), in contrast, reject the syndrome of problem behavior hypothesis, after concluding that a model that separates sexual activity from substance use and crime, fits significantly better than a model based on a single latent construct.

While sex can be part of a syndrome of problem behaviors, we argue that this need not always be the case. In fact, the proportion of U.S. youth who report involvement in illegal behavior or are clinically depressed is far smaller than the share engaged in sexual activity, presenting an empirical case against sex as exclusively a problem behavior. For example, in the National Longitudinal Study of Adolescent (Add Health), fewer than 10% of adolescents surveyed in 1994 report using hard drugs, committing a serious theft, selling drugs, or being depressed, while about 40% report engaging in sexual intercourse.

We argue that adolescent sexual activity is not always an expression of a behavioral syndrome; it can also be an outcome of a particular developmental path that is not necessarily detrimental, and perhaps

may be completely normative, for adolescents. The constellation of behaviors with which sexual activity co-occurs can help explain the magnitude of the effects of sex on adolescent wellbeing. Recent studies have demonstrated variability in the effects of sexual activity on deviant behaviors (McCarthy and Casey 2008), mental health (Meier 2007), and educational attainment (McCarthy and Grodsky 2011), suggesting that it is not the physical act of intercourse that leads adolescents to become depressed, engage in risky behaviors or stop attending classes; instead, it is the individual and social meaning of the act that determines the magnitude of the adverse effects of sex, if any, on adolescent wellbeing. While these past projects have considered the relational context in which sex occurs, we take a step back to evaluate the behavioral context of sex; that is, the degree to which sexual intercourse may mean different things depending on the set of behaviors with which it occurs. We measure the social meaning of intercourse indirectly through the identification of latent groups based on behaviors.

Data and Methods

We use the National Longitudinal Study of Adolescent Health (Add Health), a nationally representative survey of U.S. students in grades 7-12 during the 1993-1994 academic year. At wave I, data were collected from respondents as well as from parents and school administrators. Respondents were asked questions covering a wide array of topics including demographics, neighborhood characteristics, sexual behavior, family dynamics, delinquency, and health. Three follow-up interviews have been conducted, the first of which occurred approximately one year after the initial data collection. The current study primarily utilizes data from waves 1 and 2, when respondents were between 12 and 21 years old. Since many of the problem behaviors, as well as sex, are age graded (i.e., considered by society as appropriate only for those who have reached a certain age or age-related status, if at all, and inappropriate for those younger), we include only the first two waves.

Our analytic strategy consists of three general steps:

1. Using Wave 1 of Add Health and Latent Class Analysis (LCA), we identify latent groups of adolescents based on several problem behaviors. So far, and after exploring several LCA solutions with different variables, we decided to include eight dichotomous variables in our model: tobacco, alcohol, and marijuana use before 13, cocaine and other drug use, acting unruly, fighting and shoplifting. Based on goodness of fit indices and the interpretability of our latent class models (Collins and Lanza 2010), we propose a four class solution.

This analytical strategy represents the core of our theoretical claim: the meaning of sex, and therefore its consequences on outcomes, depends on the constellation of behaviors in which it occurs. All constellations (latent classes) could have some students engaging in sex, making sex a poor means to identify those classes. In other words, we argue that sex is not *a priori* a maker of behavioral problems, as we could say about substance use and minor delinquency.

2. We explore how socio-demographic variables predict membership in the latent classes with multinomial models.
3. Finally, we use our best class latent solution to predict outcomes including grade point average (GPA), depression, and school problems, in Wave 1 and 2. We seek to examine the relationship between sexual behavior, GPA, depression, and school problems, in the context of one's own behavior

profile. Controlling for Wave 1 outcome measures allows us to account for part of the unobserved person-level variation (Johnson 2005).

Preliminary Results

We present our preliminary results from the analysis of Wave 1 of Add Health, corresponding to the analytic strategies identification of latent classes and prediction of outcomes using latent classes. In Table 1, we show the conditional items probabilities of the variables used to define latent classes, their distribution, and the proportion of each variable in the sample (in parenthesis). It is easy to identify two distinct groups: Class 1 and Class 4. Class 1 is characterized by the lowest conditional probabilities for all the variables, with the highest probabilities on acting unruly (though still lower than corresponding probabilities in the other classes). Class 4, in contrast, is characterized by relatively large conditional probabilities for all the variables, despite low levels of homogeneity regarding shoplifting and marijuana use (i.e., conditional probabilities closer to .5). There are also two intermediate classes. Class 2 suggests some propensity to act unruly and violently, and shoplifting. Class 3, in turn, seems to be defined by early substance use (tobacco and alcohol), and acting unruly. These results suggest variability of the patterns in which problem behaviors occur among adolescents.

In Figure 1, we present coefficients and 95% confidence intervals from random-intercept models to predict three outcomes using Wave 1: GPA, depression, and school problems. We include the following predictors: gender, age, race, and parent education, class membership (defined by modal assignment), and sexual intercourse. As expected, class's dummies have always negative coefficients on outcomes. They follow a gradient from lower to higher involvement in problem behaviors, although not always statistically different. Sexual activity has also significant negative coefficients on outcomes, although lower in absolute terms than class's coefficients, except for GPA and the contrast between Class 1 and 2. Interestingly, the interactions between class membership and sex are positive for GPA and negative for depression (all statistically significant except for Class 2 and 3 on depression), and larger in absolute terms among those in classes with more problem behavior involvement.

These analyses support the idea that the consequences of sex on adolescent outcomes are contingent on the constellation of behaviors with which sex co-occurs and, by extension, the social meaning of sex for adolescents. Among those in which sexual activity appears to be associated with problem behaviors (interactions), sexual activity shows a positive association with GPA and a negative one with depression, but the latter is not able to offset the detrimental coefficient of sexual activity. A possible explanation for these results is that among those with serious problem behaviors, sexual activity exerts a protective effect through emotional bonds (i.e., positive effect of attachment). Conversely, among those with few problem behaviors (class 1, the reference group), sex may stand out as non-normative and therefore, impacts more negatively GPA and depression.

Our next steps include to test our models using different outcomes such as school attachment, college aspirations, and self-stem. We also plan to explore new definitions of our latent classes using different sets of behaviors as indicators (e.g., to include more serious delinquency, current substance use), and to extend our preliminary cross-sectional models using longitudinal data so that to account for unobserved person-level variation. This will allow us to examine if the consequences of sexual activity are consistent across outcomes and different constellations of behaviors, and partially controlling for omitted covariates using lagged dependent variables.

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Tables and Figures

Table 1: Latent Class Analysis, Item-response Probabilities, (Add Health Wave 1, N=15,501)

	Class 1 (.59)	Class 2 (.26)	Class 3 (.10)	Class 4 (.06)
Tobacco<13 (.23)	0.086	0.169	0.781	0.657
Alcohol<13 (.18)	0.040	0.138	0.679	0.607
Marijuana<13 (.08)	0.008	0.027	0.289	0.568
Cocaine (.04)	0.002	0.010	0.003	0.573
Other drugs (.09)	0.011	0.076	0.117	0.859
Acting unruly (.48)	0.281	0.747	0.668	0.725
Fighting (.30)	0.130	0.529	0.423	0.592
Shoplifting (.23)	0.055	0.503	0.392	0.577

Note: Item-response probabilities > .5 in bold to facilitate interpretation

Figure 1: Coefficients, Random-intercept Models (Add Health Wave 1, N=15,501)

