# GENDER, RACE/ETHNICITY, SEXUAL ORIENTATION AND STI/HIV RELATED RISK AMONG YOUNG U.S. ADULTS[1]

**Sanyu A Mojola and Bethany Everett**

**Abstract**

Few studies consider the impact of combinations of identities, in particular gender, race/ethnicity and sexual orientation on STI and HIV related risk. We develop nine analytical sub-groups based on gender (male/female), race/ethnicity (non-Hispanic white, non-Hispanic black, Hispanic) and sexual orientation (straight, mixed-oriented, gay). We then use survey data from 11,088 young adults from the 3rd and 4th wave of the National Longitudinal Study of Adolescent Health to examine 1) the distribution of STI/HIV related risk factors among race/ethnic-gender-sexual orientation subgroups, 2) the relative significance of these risk factors for the different sub-groups and 3) the pathways mediating these risk factors across the sub-groups. We find evidence for substantial STI and HIV-related risk among mixed oriented females, black males of all sexual orientations and gay identified males.

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[1] This research uses data from Add Health, a program project directed by Kathleen Mullan Harris and designed by J. Richard Udry, Peter S. Bearman, and Kathleen Mullan Harris at the University of North Carolina at Chapel Hill, and funded by grant P01-HD31921 from the Eunice Kennedy Shriver National Institute of Child Health and Human Development, with cooperative funding from 23 other federal agencies and foundations. Special acknowledgment is due Ronald R. Rindfuss and Barbara Entwisle for assistance in the original design. Information on how to obtain the Add Health data files is available on the Add Health website (http://www.cpc.unc.edu/addhealth). No direct support was received from grant P01-HD31921 for this analysis.

## RACE/ETHNICITY, GENDER, SEXUAL ORIENTATION AND STI/HIV RELATED RISK AMONG YOUNG U.S. ADULTS

### INTRODUCTION

Young people in the US continue to experience high risk of STI acquisition. The theory of intersectionality suggests that individuals inhabit multiple intersecting identities, and research suggests that these might have implications for health outcomes of individuals (McCall 2005, Young and Meyer 2005). Limited research examines how combinations of intersecting identities might provide protection from or place individuals at risk for STI or HIV acquisition. The recent release of a fourth wave of data from the National Longitudinal Study of Adolescent Health (Add Health) allows not only an examination of the particular combinations of identities that might provide protection, but also the combinations of identities that might produce risk. For example, African Americans, have been identified as being at disproportionate risk for STIs, and increased risk for HIV. Similarly, gay men have been identified as being particularly vulnerable to acquiring HIV. Additionally, women in general are more vulnerable to STI acquisition compared to men. An intersectional analysis, however, might enable us to consider, for example, the relative risk associated with being black, bisexual and female compared to being white straight and female.

### BACKGROUND

Women's disproportionate risk for STIs relative to men is now well established in the literature. They are bio-physiologically susceptible to STI and HIV acquisition compared to men (Abimiku and Gallo 1995, Bolan et al 1999, Zabin and Kiragu 1998). This risk seems even greater, however, when we consider the STI risk of women who are members of racial and ethnic minority groups. African American women are more likely to have higher rates of Chlamydia and Gonorrhea to women of other race/ethnic groups (Miller et al 2004). Further, these disparities in STI rates are established

during adolescence and early adulthood (Morris et al 2006, Fergus et al (2007). Previous studies have intersected race/ethnicity and gender to examine STI risk patterns (Halpern et al 2004). This paper builds on this research by including an additional dimension of analysis – sexual minority status among young US adults.

Taking account of sexual minority status is particularly important because of the implications for STI and HIV risk (Dariotis et al 2008). Hall et al (2007) found significant differences in HIV risk across men who have sex with men (MSMs) of different race/ethnic groups. Hispanic and Black MSM had HIV diagnosis rates 3 and 5 times higher than white MSM respectively. Contrary to assumptions that sexual minority women have little to no risk of STI acquisition, recent clinical based research suggests this is not the case. A primary reason for this is that even women who identify as gay have male sexual partners (Marazzo 2004, Koh et al 2005). Among female sexual minorities, bisexual women's risk is disproportionate. They not only report higher risk behavior compared to heterosexual women (Scheer et al 2002, Goodenow et al 2008), but they also have higher viral STI rates compared to lesbians (Tao 2008).

It is important to examine the extent to which these findings are evident using a nationally representative survey of adolescents and young adults, and to be able to compare risk across gender, race/ethnicity as well as sexual minority youth. Add Health allows the examination of all three of these axes, and allows an intersectional examination of groups which might be at particular risk or are particularly protected. This paper focuses on three key questions:

1) What is the distribution of STI related risk factors across race/ethnic-gender-sexual orientation groups?

2) How significant are these factors across race/ethnic-gender-sexual orientation groups?
3) What are the pathways mediating STI risk across race/ethnic-gender-sexual orientation groups?

## STUDY DATA AND METHODS

### Data

The data for this study come from Waves III and IV of the National Longitudinal Study of Adolescent Health (Add Health). Add Health is a nationally representative, longitudinal survey that began in 1994. The initial sample was drawn from 80 high schools and 52 middle schools throughout the United States. Since 1994, respondents have been surveyed up to four times. Wave III, which was collected between 2001-2002 had a response rate of 77.4 %, and Wave IV collected between 2007-2008, located 92.5% of the original sample and interviewed 80.3% of the eligible respondents. Our sample consists of non-Hispanic white, non-Hispanic black, and Hispanic identified respondents who were interviewed at Waves I, III, and IV. We further restrict our sample to respondents who have had at least one sexual partner by wave IV and exclude persons who answer the question of sexual orientation at Wave IV "don't know," or refused to answer the question. Our final sample size has 11,088 respondents, with 6,062 females and 5,026 males.

### Measures.

*Sexual orientation* is derived from a question that asks respondents at Wave IV to "please choose the description that best fits how you think about yourself: 100 % heterosexual (straight); mostly heterosexual (straight), but somewhat attracted to people of your own sex; bisexual—that is,

attracted to men and women equally; mostly homosexual (gay), but somewhat attracted to people of the opposite sex; and 100 % homosexual (gay). A key limitation of this measure is that the question assumes that a collapsibility between identity (e.g. gay) and attraction/orientation (e.g. bisexual). Previous research suggests that there is not always a correlation between sexual identity and sexual behavior (Young and Meyer 2005, Savin-Williams and Ream 2007). In order to have adequate sample sizes to produce stable standard errors and perform multivariate analyses, we collapse respondents who report a mostly straight or bisexual identity into a single group labeled "mixed-oriented." (In separate analyses, not shown, while mostly straight significantly differed from 100% straight respondents, they did not significantly different from bisexual respondents). We also collapse mostly gay and 100 % gay identified respondents into a single group. (Preliminary analyses suggested that mostly gay respondents did not significantly differ from 100% gay identified respondents in STI risk behaviors or self-reported STI rates). We create nine sexual orientation-race/ethnic subgroups for the analysis. (See Table 1). The small sample sizes among gay identified females and males, as well as mixed sex oriented males mean that findings from these groups should be interpreted with caution.

We examine several well-established STI and HIV related risk behaviors including number of partners, incarceration (Aral et al 2008), forced sex (Smith and Ford 2010, Latka et al ), IV drug use (Latka et al 2001, Plitt et al 2005), condom use, and commercial sex (Plitt et al 2005), as well as self-reported STI diagnosis.

For measures on *number of partners ever and before age 18* in Table 1 and 2, we draw on Wave IV questions which ask respondents "considering all types of sexual activity, with how many male

partners have you ever had sex?" and "considering all types of sexual activity, with how many female partners have you ever had sex?" Wave IV also asks respondents to identify how many male and female respondents they have ever had sex with before the age of 18. The measure of "total number of partners" used in multivariate analyses in Tables 3 and 4 is the sum of the total number of male and female partners respondents reported ever having sex with.

*Incarceration* captures whether respondents report at Wave III and/or Wave IV if they "have ever spent time in a jail, prison, juvenile detention center or other correctional facility." Unfortunately, the survey response item groups together all correctional facility settings, therefore we are unable to distinguish between higher and lower security level settings. Aral et al (2008) and Rucker and Johnson (2006) suggest that incarceration is a critical environment for the acquisition of HIV because of IV drug use (sharing needles) and high risk sexual behavior (principally, unprotected anal sex).

*Forced sex* is a dichotomous measure derived from two survey items in Wave IV that ask respondents if they have "ever been forced, in a non-physical way, to have any type of sexual activity against your will? For example, through verbal pressure, threats of harm or by being given alcohol or drugs" and "have you ever been physically forced to have any type of sexual activity against your will?" These two questions specifically exclude experiences with a parent or adult caregiver. Respondents who report either non-physical or physical sexual coercion are coded as yes (1) and those who do not are coded as no (0, referent).

*Intravenous (IV) drug use* is a dichotomous measure that captures whether respondents have ever used IV drugs. The measure is derived from survey items from both Waves III and IV that ask respondents "have you ever injected (shot up with a needle) an illegal drug, such as heroin or

cocaine?" Respondents are coded as yes (1) if they report at either wave of the survey having injected an illegal drug and no (0, referent), if they have not.

*Condom use* is a dummy variable that measures whether respondents report having used a condom (male or female) in the last 12 months. Respondents are coded as yes (1) if they have used a condom, or no (0), if they have not. This measure has a number of limitations. Chiefly, it does not provide a precise measure of safe sex (e.g. condom use at last sex). Second, people in monogamous relationships where perceived STI risk is low may use alternative methods of birth control. Unfortunately this is the only measure available in Wave IV measuring condom use. Because Wave IV of the Add Health survey only asks respondents about condom use in the last 12 months, an additional variable was created for respondents who did not report a sexual relationship in the last year, and therefore were not asked this question. Thus this measure captures the percent of respondents who did not have a sexual relationship in the last 12 months.

*Having given or received money for sex* is a dichotomous measure that captures whether respondents have ever engaged in commercial sex. We draw on items in Wave III that ask respondents if they have "ever had sex with someone who paid you to do so" and if they have "ever paid someone to have sex with you." In Wave IV, respondents are asked "in the last 12 months, how many times have you paid someone to have sex with you or has someone paid you to have sex with them?" Respondents who answer yes to either survey item in Wave III, or reported having at least one commercial sex interaction in the last 12 months at Wave IV were coded as yes (1), and those who never report a commercial sex interaction in either survey are coded as no (0, referent).

*Self-reported STI diagnosis* are derived from questions at both Waves III and IV that ask respondents if they have "ever been told by a doctor, nurse, or other health professional that you had any of the

following sexually transmitted diseases? Select all the diseases you have had." Respondents are then asked to report if they had ever been diagnosed with Chlamydia; trichomoniasis; syphilis; genital herpes; genital warts; hepatitis B (HBV); human papilloma virus (HPV;, pelvic inflammatory disease (PID); cervicitis or mucopurulent cervicitis (MPC); urethritis; vaginitis; HIV infection or AIDS; or "any other sexually transmitted disease." We use a dichotomous measure for multivariate analysis that captures whether respondents selected any of these STIs at Wave III of the survey, as well as either wave III or IV of the survey.

*Controls*.

We control for age and education. Because sexual identity and behavior can be unstable as youth transition to adulthood (Diamond 2000, Savin-Williams and Ream 2007), we control for whether respondents changed their reported sexual orientation between Waves III and IV.

**Analyses**

We present descriptive statistics for females and males in Tables 1 and 2 respectively, by race/ethnicity and sexual orientation sub-groups. We then present results of logistic and linear regression in Tables 3 and 4. In Table 3, we regress race/ethnic-sexual identity subgroups on STI diagnoses and STI risk behaviors. In Table 4, we examine the mediating effect of each STI risk behavior on STI diagnosis. We use logistic regressions to examine all STI risk behaviors and self-reported STI diagnoses, except for the analysis of total number of partners for which we use linear regression (results presented as betas). All analyses are conducted in Stata 9.2 and use the "svy" commands, which account for Add Health's complex sampling frame.

**RESULTS**

1) ***What is the distribution of STI and HIV related risk factors across race/ethnic-gender-sexual orientation groups?***

Females

Table 1 illustrates substantial variations in both STI risk behaviors and self-reported STI diagnoses among females by race/ethnic-sexual orientation subgroups.

**Insert Table 1 here**

Overall, mixed-oriented women have the highest average number of male partners across all race/ethnic groups. Compared to the mean of 9.7 for the total female population, mixed-oriented whites and blacks report a lifetime average of 18.2 and 18.4 total male partners respectively, while Hispanics report 14.3 male partners. This trend emerges early across all race/ethnic groups. Before age 18, mixed oriented females report an average number of male partners roughly twice as high as straight identified respondents. The largest race/ethnic differences emerge among gay identified women. While white and black women report having similar numbers of female partners ever (12.5 and 11.4 respectively), Hispanic women report 3.5. As in prior literature, the data illustrates that many gay identified women have also engaged in sex with men. While white and Hispanic gay identified women had similar numbers of male partners (5.6 and 5.0 respectively), black gay identified women had an average of 8.7 male partners ever.

Almost 8% of females reported being incarcerated. The highest rates of incarceration in the sub-groups were among gay white women (21%), and mixed oriented black women (16.8%). About a quarter (24.3%) of females reported ever being forced to engage in sex. White mixed oriented

(40.5%) and gay (42.5%) women reported the highest rates of forced sex, while straight black (17.9%) and Hispanic (16.8) women reported the lowest rates.

Among women who were sexually active in the last year, just 41% reported using a condom over that period. Black women reported higher prevalence rates of condom use (51%) than both white (38%) and Hispanic (43%) women, and within all race/ethnic groups, mixed-sex oriented women report the highest condom use prevalence rates.

Only 1.1% of the total female population report IV drug use. However, gay-identified white (7.8%) and Hispanic (6.7%) women have substantially higher rates of IV drug use. Blacks are at virtually no risk of HIV acquisition through IV drug use. However, they report the highest rates of giving and/or receiving money for sex (8.4%), with the highest rates among mixed sex (15.9%) and gay (10.6%) women. This compares to 2.6% among women in the total population, and averages of 1.33% and 2.3% among whites and Hispanics overall.

Taken together, the distribution of risk factors are suggestive of a higher risk profile among sexual minority women. Mixed-oriented and gay women report higher levels of sexual partners, commercial sex, incarceration, IV drug use and forced sex compared to straight women. However, it is also clear from the data that risk factors vary substantially when race/ethnicity is considered. Hispanic and black women respectively report the lowest and highest levels of sexual partners and commercial sex, while white women report the highest levels of forced sex.

Given the uneven distribution of risk factors among women, it follows that STI diagnosis also varies substantially. While by wave III at an average age of 21, 15% of the female population reported

having being diagnosed with an STI, in Wave IV, at an average age of 28, the percentage more than doubled to 37% of the population. White and Hispanic female rates of self-reported STIs do not statistically differ, but non-Hispanic black women have significantly higher rates of STI diagnosis at both Waves III (28.4%) and IV (59.5%). Among all race/ethnic groups, mixed oriented women report the highest levels of self-reported STI diagnosis in both Waves III and IV; 74.2% of blacks, 51.4% of Hispanics and 46% of whites reported an STI diagnosis by Wave IV. Gay women across all race/ethnic groups reported the lowest STI diagnoses at Wave IV, with white women reporting the lowest rates (12.6%).

Males

Table 2 illustrates substantial differences among male respondents compared to females.

**Insert Table 2 here**

Before the age of 18, white and Hispanic men report similar numbers of female partners (3.3 and 3.7 respectively), while black men report a slightly higher number (4.9). The largest contrast across race/ethnic groups, however, is among gay identified men's reports of male partnerships. Gay blacks report an average (10.96) three times greater than whites (2.56) and Hispanics (3.14) before age 18. Unlike females, mixed-oriented white and black males report the lowest total number of partners before age 18. However, gay identified males across all race/ethnic groups report the highest total number of partners with blacks reporting the highest number of male partners (34.6) and whites the lowest (24.6). Unlike females, gay males report less than 1 opposite sex partner. Straight males report almost twice the number of opposite sex partners, compared to females, with whites reporting 15.1 female partners, blacks reporting 22.9, and Hispanics reporting 17.1.

The average prevalence rate of incarceration for males is 24%. Among Hispanics and whites, mixed oriented males report the highest levels of incarceration (44.02% and 25.34% respectively). Gay males report the lowest levels of incarceration within each race/ethnic group. Overall, black and Hispanic males have significantly higher levels of incarceration than whites.

Forced sex also varies substantially both across race/ethnic groups and within race/ethnic groups by sexual identity. The most vulnerable groups were gay Hispanic (25.9%) and black (18.1%) males, rates comparable to those among females. This compares to an average overall prevalence rate of forced sex among males of 4.38%, and a range of 3.7%-7.2% among straight males.

Among males who report a sexual relationship in the past year, condom use is low (52%). Black males report higher condom use rates (63%) than whites (50%) or Hispanics (54%). Within race/ethnic groups, straight males report the lowest rates of condom use and gay males the highest. Overall, 75.6% of white, 70.7% of black, and 92.3% of Hispanic gay males report condom use in the last year. Intravenous drug use is low (2.1%) among the total male population. Like findings among gay white females, the highest reported percentage among males is among gay white males (4.73%).

Commercial sex prevalence estimates are highest among black males, and concentrated among straight identified men. 17.8% of straight black males report having either given or received sex for money, compared to mixed oriented (5.5%) and gay (2.6%) black males, and 6.9% among the total male population.

Taken together, these risk factors suggest a higher risk profile for non-Hispanic black males. Blacks report higher numbers of sexual partners, and higher rates of incarceration, forced sex, and

commercial sex than both whites and Hispanics. This risk is reflected in male STI prevalence rates. Black males have nearly thrice (33.2%) the STI diagnoses rates of whites (12.1%) and twice the rates of Hispanics (17.42%). However, these rates are significantly lower than those of females. Sexual minority males report higher numbers of partners and higher prevalence rates of forced sex than straight identified males and this is reflected in their STI diagnoses rates. Gay identified whites (24.8%) and Hispanics (49.2%), and mixed oriented blacks (68.6%) report the highest rates of STI diagnoses.

2) ***How significant are these factors across race/ethnic-gender-sexual orientation groups?***

Overall, the descriptive statistics are suggestive of higher STI risk among mixed oriented females, black males of all sexual orientations, and gay identified males. To further investigate these trends, we turn to multivariate regression analyses. Table 3 presents the odds ratios for all risk factors and reported STIs, and the betas for total number of partners by sex for all race/ethnic-sexual orientation identity subgroups. The models control for age, education, and whether the respondent changed sexual orientation identity between Waves III and IV. Income and marital status did not improve model fit, nor did they mediate the relationships between sexual identity-race/ethnic subgroups so these are not included in the models.

**Insert Table 3 here**

<u>Females</u>

As suggested by the descriptive statistics, gay identified women are no more likely to report an STI than straight white women in all race/ethnic groups. However, mixed oriented women of all

race/ethnic groups are significantly more likely to report an STI compared to straight white women. Black mixed-oriented women have the highest odds (6.15) of ever reporting STI diagnoses.

Moving onto STI risk factors the results reveal interesting trends by race/ethnicity-sexual orientation subgroups. Mixed oriented and gay white women are significantly more likely to report higher numbers of partners, incarceration (2.18, 3.61), and forced sex (2.38, 2.68) compared to straight white women. Gay white women are also significantly more likely to report IV drug use (6.26), and less likely to report condom use (0.16).

There are no significant differences in the number of partners between straight black and white women. However, black mixed oriented and gay women, like their white counterparts, report significantly higher numbers of partners. Straight and mixed oriented black women are significantly more likely to report commercial sex (9.44, 17.18), but less likely to report IV drug use or forced sex compared to straight white women. They are also significantly more likely to report condom use in the last year. (1.82, 1.66)

There are fewer differences between Hispanic women and straight white women. Hispanic straight women have significantly fewer total partners and are less likely to report forced sex (0.7), but mixed-sex oriented Hispanic women report significantly higher numbers of partners and more forced sex (1.89) than straight white women. There are no differences between straight white women and Hispanic women's IV drug and condom use. Mixed-sex oriented Hispanic women are only marginally significantly more likely to report incarceration, and straight Hispanic women are marginally significantly more likely to report commercial sex.

Males.

At Wave IV for all race/ethnic groups, gay males are significantly more likely to report having been diagnosed with an STI compared to straight males. However, mixed oriented blacks have the highest odds (14.78) of reporting an STI diagnosis, followed by gay identified Hispanics (6.78) compared to straight white males. Mixed oriented Hispanics and whites are not significantly different from straight white males in STI diagnoses.

Moving on to STI and HIV related risk factors, for all race/ethnic groups, gay males have significantly higher numbers of sexual partners relative to straight white males. Straight black and Hispanic males are significantly more likely to report incarceration (1.49, 1.4). Gay Hispanic males have the highest odds of reporting forced sex (10.55), followed by gay blacks (6.76) relative to straight white males. Straight white males are more likely to report IV drug use, relative to other race/ethnic-sexual orientation sub-groups. Hispanic gays have the highest odds of reporting condom use in the last year (22.73) relative to straight white males. Finally, straight black males are significantly more likely to report commercial sex (4.33) compared to straight white males.

3) ***What are the pathways mediating STI risk across race/ethnic-gender-sexual orientation groups?***

In our final set of analyses, we examine the relative impact of each of the STI and HIV related risk factors on self-reported "ever" diagnosis of an STI in Table 4. All models control for age, education, and whether the respondent changed sexual orientation identity between Waves III and

IV. Model 8 of the analysis includes all risk factors to examine their cumulative mediating effect on STI risk.

**Insert Table 4 here**

Females.

Model 1 of Table 4 regresses sexual identity-race/ethnic subgroups on self-reported STI diagnosis at Wave IV without any mediating factors. Model 2 controls for total number of partners. Model 2 shows that for every additional partner, STI risk goes up by 6%. Total number of partners reduces the relationship between mixed-sex oriented black and white women by over 30%, making the odds ratios no longer significant for white women. The relationship between mixed-sex oriented Hispanic women and STI diagnosis is reduced by 17% yet they are still almost twice as likely to report an STI compared to straight white women. Controlling for number of sexual partners increases STI risk among straight black women by 9%

Model 3 adds incarceration to the baseline model (Model 1). Incarceration increases the risk of reporting an STI by 249%, however, it has a much smaller reductive impact than number of partners, and there are no changes in significance between Model 1 and Model 3. Forced sex (Model 4) increases the likelihood of self-reported STI by 206%, and reduces the relationship between sexual orientation and STI risk by 12% for mixed-sex oriented white women, 16% for gay white women, and 7% for mixed-sex oriented Hispanic women. Model 5 shows that there is no relationship between IV drug use and self-reported STI diagnosis among women. Further IV drug use has little or no mediating impact on any sexual identity-race/ethnic subgroup. Condom use (Model 6) has no relationship to STI risk, but persons who have not had sex in the last 12 months are less likely to report an STI (OR=0.64, $p<.001$). Model 7 adds a control for self-reported

commercial sex and shows that women who report at least one incident of giving or receiving money in exchange for sex are almost three times as likely to report an STI. Commercial sex, however, does not mediate the relationships between sexual identity-race/ethnic subgroups and STI risk.

Model 8 includes all risk factors. While the impact of each risk factors is slightly attenuated when they are all included in one model, statistically significant relationships between STI diagnosis and total number of sexual partners (OR=1.05, p<.001), incarceration (OR=1.62, p<.01), forced sex (OR=1.49, p<.001), and commercial sex (OR=2.11, p<.01) persist. Compared to Model 1, controlling for all risk factors reduces the relationship between STI risk and mixed-sex oriented white women by 38% and the relationship is no longer significant, 65% for gay white women, 29% for mixed-sex oriented black women, 50% gay black women, and 23% for straight Hispanic women. After these reductions, however, straight black women are still 3.5 times as likely, mixed-sex oriented black women are 4.4 times as likely, and mixed-sex oriented Hispanic women are 1.8 times as likely to report an STI compared to straight white women. Gay white women, however, have a 90% decrease in the odds of reporting an STI, and there are no differences between straight white women's STI risk and gay black or Hispanic women's risk.

Males.

Model 1 regresses sexual identity-race/ethnic subgroups on self-reported STI diagnosis ever at Wave IV while controlling for age, education, and identity change between Waves III and IV. Model 2 adds total number of partners to Model 1 and shows that for every additional partner, STI risk goes up by 1%. Controlling for total number of partners reduces the relationship between STI risk and gay white men by 16%, gay black men by 19%, and gay Hispanic men by 7%. These reductions

render the relationship between gay white men and STI risk no longer significant and gay black men only marginally significant. Number of partners has little or no effect on all other sexual identity-race/ethnic subgroups.

Model 3 adds a control for incarceration to Model 1. Self-reported incarceration increases the odds of reporting an STI by 95%, and has the most dramatic effect among black men. It increases the odds for gay black men by 18%, and 13% for mixed-sex oriented black men. Thus, in Model 3 mixed-sex oriented black men are 16.7 times as likely and gay black men are 5.3 times as likely to report an STI compared to straight white men. Hispanic gay men also experience an increase in STI risk after controlling for incarceration; in Model 3 they are 7.7 times as likely to report an STI.

Model 4 adds forced sex to Model 1. Respondents who report forced sex are 2 times as likely to report an STI diagnosis. Forced sex reduces the relationship between STI risk and gay black men by 10% and gay Hispanic men by 14%. Both of these relationships, however, remain statistically significant. Model 5 shows that IV drug use increases the odds of STI diagnosis by 346% and increases STI risk among all sexual identity-race/ethnic subgroups, except for gay white males, by roughly 5%. The relationship between STI risk and gay white males is reduced by 4%, but still remains significant. Model 6 add condom use to Model 1. Condom use has no relationship with STI diagnosis. Model 7 adds commercial sex to Model 1 and shows that men who report having given or received money in exchange for sex are 2.5 times as likely to report an STI, however, all odds ratios for sexual identity-race/ethnic subgroups remain significant at the same level as Model 1.

Model 8 controls for all risk factors. Total number of partners (OR=1.01, $p<.001$), incarceration (OR=1.63, $p<.001$), forced sex (OR=1.64, $p<.05$), IV drug use (OR=2.26), and commercial sex (OR=1.98, $p<.001$), are all positively related to self-reported STI diagnosis. In combination, these

risk factors reduce the relationship between STI risk and mixed-sex oriented white males by 18%, gay males by 6%, straight black males by 6%, and gay black males by 4%. Conversely, STI risk increases for mixed-sex oriented black males by 11%, straight Hispanic men by 9%, mixed-sex oriented Hispanic men by 30%, and gay Hispanic men by 3%. Therefore, after controls gay white men (OR=2.12, $p<.10$), straight black men (OR=3.4, $p<.001$), mixed-sex oriented black men (16.5, $p<.001$), gay black men (OR=4.31, $p<.05$), straight Hispanic men (OR=1.63, $p<.01$), and gay Hispanic men (OR=6.97, $p<.01$) are all significantly more likely to report an STI diagnosis than straight white males.

**DISCUSSION**

**Mojola-Everett (2010) - Intersecting Identities and STI Risk**

**Table 1. Females**

| | Total Population | Non-Hispanic White | | | | Non-Hispanic Black | | | | Hispanic | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | All Orientations | Straight | Mixed-Sex Orientated | Gay | All Orientations | Straight | Mixed-Sex Oriented | Gay | All Orientations | Straight | Mixed-Sex Orientated | Gay |
| **Wave IV** | | | | | | | | | | | | | |
| Age (μ) | 28.63 (28.39, 28.87) | 28.59 (28.32, 28.86) | 28.69 | 28.30 | 28.58 | 28.79 (28.38, 29.21) | 28.93 | 28.52 | 28.39 | 28.63 (28.16, 29.11) | 28.67 | 28.55 | 28.09 |
| Education | | | | | | | | | | | | | |
| Less than high school degree (%) | 5.89 (5.45, 8.34) | 6.19 (4.61, 7.77) | 5.73 | 7.67 | 3.74 | 8.86 (6.12, 11.60) | 8.32 | 9.26 | 13.49 | 8.70 (5.66, 11.74) | 8.34 | 6.63 | 17.38 |
| High school graduate (%) | 13.36 (11.72, 15.00) | 12.20 (10.30, 14.11) | 12.12 | 12.15 | 20.98 | 15.62 (11.97, 19.28) | 16.11 | 10.08 | 25.80 | 17.37 (13.36, 21.37) | 18.43 | 12.61 | 4.02 |
| Greater than high school degree (%) | 79.75 (77.24, 82.26) | 81.60 (78.82, 84.39) | 82.15 | 80.17 | 75.28 | 75.51 (70.69, 80.34) | 75.57 | 80.66 | 60.72 | 73.93 (69.48, 78.39) | 73.22 | 80.76 | 78.61 |
| Sexual identity change between WIII & WIV (%) | 17.79 (16.14, 19.44) | 19.09 (16.98, 21.19) | 6.42 | 64.00 | 73.30 | 11.83 (9.62, 14.05) | 2.83 | 71.68 | 82.95 | 17.66 (14.41, 20.91) | 6.04 | 64.77 | 72.24 |
| STI Risk Factors Reported at WIII or IV | | | | | | | | | | | | | |
| No. male partners, before 18 (μ) | 2.65 (2.43, 2.87) | 2.70 (2.46, 2.94) | 2.25 | 4.63 | 2.71 | 2.78 (2.30, 3.26) | 2.42 | 5.50 | 1.95 | 2.20 (1.65, 2.75) | 1.85 | 3.73 | 1.56 |
| No. female partners, before 18 (μ) | 0.07 (0.05, 0.08) | 0.07 (0.05, 0.09) | 0.02 | 0.21 | 0.98 | 0.04 (0.02, 0.06) | 0.01 | 0.18 | 0.63 | 0.07 (0.03, 0.12) | 0.03 | 0.19 | 0.69 |
| No. male partners, ever (μ) | 9.68 (9.01, 10.34) | 10.02 (9.17, 10.86) | 8.07 | 18.15 | 5.57 | 9.80 (8.79, 10.82) | 8.74 | 18.43 | 8.66 | 7.35 (6.01, 8.69) | 5.91 | 14.27 | 5.02 |
| No. female partners, ever (μ) | 0.53 (0.40, 0.67) | 0.57 (0.40, 0.74) | 0.08 | 1.54 | 12.54 | 0.41 (18.57, 64.38) | 0.08 | 1.23 | 11.37 | 0.38 (0.26, 0.50) | 0.10 | 1.31 | 3.45 |
| Incarcerated, ever (%) | 7.70 (6.68, 8.73) | 7.20 (6.03, 8.35) | 5.37 | 13.28 | 20.76 | 9.25 (6.38, 12.11) | 8.34 | 16.78 | 7.92 | 8.67 (5.70, 11.65) | 7.99 | 11.61 | 9.94 |
| Forced sex, ever (%) | 24.28 (22.50, 26.06) | 26.08 (24.08, 28.09) | 22.31 | 40.52 | 42.54 | 18.97 (15.22, 22.71) | 17.91 | 29.58 | 28.82 | 20.03 (14.93, 25.13) | 16.75 | 35.03 | 19.21 |
| Intravenous drug use, ever (%) | 1.11 (0.71, 1.51) | 1.28 (0.77, 1.78) | 0.82 | 2.55 | 7.84 | 0.01 (0.00, 1.29) | 0.04 | 0.14 | 0.00 | 1.40 (0.29, 2.51) | 1.25 | 1.45 | 6.70 |
| Condom Use in the past 12 Months | 41.10 (38.91, 43.29) | 38.71 (36.22, 41.20) | 38.19 | 43.02 | 11.19 | 50.84 (47.40, 54.28) | 50.66 | 52.56 | 49.24 | 42.64 (37.37, 47.91) | 41.01 | 51.11 | 31.56 |
| No Sexual Partners in the Previous 12 Months | 12.63 (11.37, 13.88) | 12.63 (11.05, 14.22) | 14.11 | 7.34 | 7.15 | 12.15 (10.01, 14.21) | 12.60 | 10.46 | 0.80 | 15.47 (11.34, 19.60) | 15.47 | 4.90 | 0.36 |
| Given/Received Money for Sex, ever (%) | 2.56 (1.92, 3.21) | 1.33 (0.91, 1.74) | 0.81 | 3.33 | 1.96 | 8.38 (5.73, 11.04) | 7.41 | 15.86 | 10.56 | 2.34 (0.81, 3.87) | 2.18 | 3.29 | 0.38 |
| Reported ST at WIII | 14.75 (13.21, 16.29) | 11.80 (10.34, 13.27) | 10.49 | 17.43 | 5.84 | 28.44 (25.18, 31.71) | 27.65 | 35.50 | 24.22 | 14.25 (10.52, 17.98) | 12.40 | 22.51 | 13.81 |
| Reported STI diagnosis, ever (%) | 36.91 (34.60, 39.21) | 32.32 (30.44, 34.21) | 29.26 | 46.06 | 12.63 | 59.45 (55.73, 63.18) | 58.07 | 74.16 | 38.43 | 34.61 (28.48, 40.73) | 31.25 | 51.42 | 20.30 |
| Reported STI 12 months (%) | 14.37 (12.98, 15.76) | 13.13 (11.59, 14.68) | 11.43 | 19.94 | 12.37 | 19.00 (16.30, 21.69) | 18.14 | 27.91 | 7.21 | 15.97 (11.54, 20.40) | 16.05 | 17.38 | 0.00 |
| Chlamydia diagnosis, ever(%) | 14.09 (12.11, 16.07) | 8.96 (7.64, 10.27) | 7.58 | 15.14 | 4.12 | 36.72 (33.03, 40.39) | 36.35 | 42.03 | 22.91 | 15.33 (10.98, 19.68) | 14.73 | 18.96 | 7.20 |
| Gonorrhea diagnosis, ever (%) | 4.17 (3.10, 5.24) | 2.86 (1.91, 3.82) | 2.61 | 4.11 | 0.00 | 11.13 (7.84, 14.41) | 10.38 | 19.01 | 0.00 | 2.67 (1.09, 4.26) | 3.13 | 0.90 | 0.00 |
| Genital Warts diagnosis, ever (%) | 5.04 (4.18, 5.89) | 5.25 (4.23, 6.26) | 4.35 | 8.90 | 3.77 | 3.97 (2.46, 5.49) | 3.67 | 5.94 | 6.67 | 5.04 (2.93, 7.14) | 4.82 | 6.61 | 0.00 |
| Herpes diagnosis, ever (%) | 4.86 (4.11, 5.60) | 4.56 (3.63, 5.49) | 4.06 | 6.75 | 1.77 | 6.56 (4.52, 8.60) | 5.59 | 13.76 | 10.56 | 4.23 (2.65, 5.82) | 4.46 | 3.67 | 0.00 |
| HPV diagnosis, ever (%) | 11.84 (10.79, 12.89) | 13.08 (11.90, 14.25) | 12.27 | 16.85 | 5.82 | 7.61 (5.52, 9.70) | 6.96 | 12.17 | 11.69 | 9.61 (6.94, 12.27) | 8.43 | 15.27 | 6.49 |
| Female specific STI diagnosis, ever (%) | 11.19 (9.71, 12.68) | 8.17 (7.02, 9.31) | 6.71 | 12.97 | 6.75 | 28.30 (24.89, 31.72) | 26.02 | 49.85 | 9.32 | 6.43 (4.12, 8.74) | 5.86 | 8.95 | 6.61 |
| N | 6062 | 3638 | | 2854 | 731 | 53 | 1459 | | 1235 | 194 | 30 | 965 | 793 | 151 | 21 |

Notes: Source= National Longitudinal Study of Adolescent Health

| Table 2. Males | Mojola-Everett (2010) Intersecting Identities and STI Risk | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Total Population | | Non-Hispanic White | | | | Non-Hispanic Black | | | | Hispanic | | | | | |
| | | | All Orientations | | Straight | Mixed-Sex Oriented | Gay | All Orientations | | Straight | Mixed-Sex Oriented | Gay | All Orientations | | Straight | Mixed-Sex Oriented | Gay |
| **Wave IV** | | | | | | | | | | | | | | | | |
| Age (μ) | 28.87 | (28.62, 29.12) | 28.79 | (28.52, 29.07) | 28.79 | 28.68 | 28.70 | 29.14 | (28.71, 29.58) | 29.15 | 28.67 | 28.99 | 29.00 | (28.52, 29.47) | 29.01 | 28.89 | 28.83 |
| Education | | | | | | | | | | | | | | | 100.00 | 99.99 | 100.00 |
| Less than high school degree (%) | 10.01 | (8.42, 11.69) | 8.13 | (6.50, 9.76) | 8.29 | 8.19 | 1.79 | 14.47 | (10.51, 18.43) | 14.44 | 16.01 | 12.00 | 15.93 | (11.54, 20.32) | 16.29 | 12.71 | 6.48 |
| High school graduate (%) | 20.50 | (17.99, 23.01) | 19.13 | (16.38, 21.87) | 19.87 | 8.23 | 10.27 | 26.71 | (20.49, 32.93) | 27.34 | 28.06 | 0.67 | 20.89 | (15.93, 25.86) | 21.52 | 13.48 | 10.05 |
| Greater than high school degree (%) | 69.44 | (65.95, 72.94) | 72.75 | (69.10, 76.40) | 71.84 | 83.58 | 87.94 | 58.82 | (50.88, 66.76) | 58.22 | 55.93 | 87.32 | 63.16 | (57.19, 69.13) | 62.19 | 73.80 | 83.47 |
| Sexual identity change between WIII & WIV (%) | 6.23 | (4.94, 7.53) | 6.93 | (5.22, 8.63) | 2.50 | 69.48 | 61.95 | 4.15 | (2.86, 5.44) | 1.23 | 71.61 | 49.30 | 4.52 | (2.74, 6.34) | 1.76 | 50.30 | 43.89 |
| STI Risk Factors Reported at WIII or IV | | | | | | | | | | | | | | | | | |
| No. male partners, before 18 (μ) | 0.12 | (0.05, 0.20) | 0.08 | (0.04, 0.12) | 0.01 | 0.36 | 2.56 | 0.31 | (0.00, 0.78) | 0.02 | 0.61 | 10.96 | 0.13 | (0.03, 0.24) | 0.02 | 0.48 | 3.14 |
| No. female partners, before 18 (μ) | 3.60 | (3.13, 4.08) | 3.33 | (2.84, 3.82) | 3.47 | 2.25 | 0.66 | 4.93 | (3.66, 6.19) | 5.10 | 2.34 | 0.53 | 3.68 | (2.36, 5.01) | 3.89 | 3.43 | 0.36 |
| No. male partners, ever (μ) | 0.82 | (.54, 1.10) | 0.70 | (0.37, 1.03) | 0.12 | 1.60 | 24.58 | 1.21 | (0.44, 1.97) | 0.23 | 3.79 | 34.63 | 1.06 | (0.44, 1.68) | 0.11 | 2.68 | 27.76 |
| No. female partners, ever (μ) | 16.35 | (15.00, 17.71) | 15.12 | (14.05, 16.19) | 15.59 | 12.67 | 1.87 | 22.93 | (17.84, 28.02) | 23.43 | 9.62 | 1.18 | 16.10 | (12.14, 20.07) | 17.05 | 13.83 | 0.70 |
| Incarcerated, ever (%) | 24.15 | (21.84, 26.45) | 21.71 | (19.28, 24.14) | 21.71 | 25.34 | 13.53 | 30.82 | (24.41, 37.23) | 31.89 | 18.10 | 2.43 | 30.24 | (24.71, 35.78) | 30.48 | 44.02 | 7.90 |
| Forced sex, ever (%) | 4.38 | (3.56, 5.20) | 3.69 | (2.91, 4.47) | 3.46 | 8.48 | 3.62 | 7.23 | (4.59, 9.86) | 6.88 | 9.85 | 18.05 | 4.92 | (2.73, 7.13) | 4.09 | 8.35 | 25.88 |
| Intravenous drug use, ever (%) | 2.11 | (1.54, 2.68) | 2.69 | (1.92, 3.45) | 2.72 | 1.07 | 4.73 | 3.98 | (0.03, 0.77) | 0.34 | 2.76 | 0.00 | 0.87 | (0.07, 1.67) | 0.92 | 0.29 | 0.00 |
| Condom Use in the past 12 Months | 52.39 | (49.71, 55.06) | 49.64 | (46.58, 52.70) | 48.38 | 63.28 | 75.55 | 63.46 | (58.91, 68.02) | 62.95 | 74.95 | 70.73 | 54.92 | (50.10, 59.74) | 54.09 | 42.03 | 92.26 |
| No Sexual Partners in the Previous 12 Months | 10.74 | (9.41, 12.07) | 9.64 | (8.25, 11.02) | 9.64 | 10.58 | 7.39 | 15.20 | (10.38, 20.03) | 15.34 | 8.49 | 17.20 | 11.76 | (8.21, 15.30) | 11.85 | 16.25 | 4.66 |
| Given/Received Money for Sex, ever (%) | 6.91 | (5.77, 8.04) | 4.70 | (3.76, 5.64) | 4.36 | 11.38 | 5.19 | 17.11 | (12.79, 21.44) | 17.80 | 5.51 | 2.58 | 7.43 | (4.21, 10.65) | 7.76 | 5.27 | 0.00 |
| Reported STI diagnosis, WIII | 5.78 | (4.73, 6.81) | 4.50 | (3.50, 5.50) | 4.46 | 2.90 | 9.63 | 13.08 | (9.69, 16.75) | 13.05 | 17.16 | 9.72 | 4.32 | (2.31, 6.32) | 4.07 | 5.44 | 10.21 |
| STI diagnosis, ever (%) | 15.96 | (14.24, 17.69) | 12.11 | (10.63, 13.59) | 11.62 | 16.27 | 24.80 | 33.16 | (28.46, 37.86) | 32.00 | 68.59 | 39.74 | 17.42 | (13.45, 21.39) | 16.56 | 12.46 | 49.15 |
| STI 12 months (%) | 4.96 | (4.13, 5.79) | 3.91 | (2.94, 4.89) | 3.65 | 7.41 | 8.00 | 8.72 | (6.45, 10.98) | 7.90 | 41.00 | 5.21 | 6.38 | (4.40, 8.36) | 5.43 | 7.07 | 34.57 |
| Chlamydia diagnosis, ever(%) | 7.13 | (6.03, 8.23) | 4.82 | (3.86, 5.78) | 4.65 | 7.63 | 6.39 | 18.20 | (14.53, 21.87) | 17.88 | 21.64 | 27.20 | 7.07 | (4.34, 9.81) | 7.35 | 5.65 | 0.12 |
| Gonorrhea diagnosis, ever (%) | 2.04 | (2.03, 3.84) | 0.99 | (0.60, 1.38) | 0.92 | 0.00 | 6.19 | 12.90 | (9.50, 16.31) | 12.27 | 19.78 | 30.50 | 2.22 | (0.76, 3.67) | 2.02 | 0.00 | 10.59 |
| Genital Warts diagnosis, ever (%) | 2.81 | (2.14, 3.84) | 2.94 | (2.09, 3.78) | 2.84 | 5.20 | 2.59 | 2.89 | (1.42, 4.37) | 2.85 | 5.78 | 1.26 | 2.03 | (0.61, 3.45) | 1.92 | 0.00 | 7.55 |
| Herpes diagnosis, ever (%) | 1.75 | (1.27, 2.23) | 1.39 | (0.88, 1.90) | 1.24 | 2.57 | 5.35 | 2.68 | (1.40, 3.96) | 2.31 | 11.08 | 8.21 | 2.74 | (1.34, 4.14) | 2.92 | 0.19 | 0.00 |
| N | 5026 | | 3100 | | 2887 | 141 | 72 | 1026 | | 970 | 27 | 29 | 900 | | 832 | 34 | 34 |

Notes: Source= National Longitudinal Study of Adolescent Health

**Mojola-Everett (2010) - Intersecting Identities and STI Risk**

Table 3. Results from multivariate regression analyses for self-reported STIs and STI Risk Factors

**Females**

| | Reported STI, Ever (WIII) | | STI, Ever | | Total Number of Partners | | Incarcerated, Ever | | Forced Sex, Ever | | IV Drug Use, Ever | | Condom Use, Last 12 Mo. | | Given/Received Money for Sex, Ever | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | OR | CI | OR | CI | B | CI | OR | CI | OR | CI | OR | CI | OR | CI | OR | OR |
| S.O. * Race/ethnicity (Non-Hispanic White* Straight) | | | | | | | | | | | | | | | | |
| Non-Hispanic White*Mixed Sex | 1.77 *** | (1.28, 2.45) | 1.85 *** | (1.42, 2.39) | 12.1 *** | (5.91, 18.34) | 2.18 *** | (1.48, 3.21) | 2.38 *** | (1.84, 3.09) | 2.00 | (0.57, 7.02) | 0.99 | (0.78, 1.26) | 3.2 * | (1.12, 9.13) |
| Non-Hispanic White*Gay | 0.61 | (0.16, 2.31) | 0.31 * | (0.11, 0.88) | 10.56 ** | (2.71, 18.40) | 3.61 ** | (1.30, 9.30) | 2.68 ** | (1.34, 5.34) | 6.26 * | (1.18, 33.15) | 0.16 *** | (0.07, 0.38) | 1.69 | (0.19, 15.19) |
| Non-Hispanic Black*Straight | 2.96 *** | (2.39, 3.68) | 3.33 *** | (2.82, 3.94) | 0.53 | (-0.58, 1.63) | 1.48 † | (0.98, 2.24) | 0.74 * | (0.56, 0.97) | 0.05 ** | (0.01, 0.33) | 1.82 *** | (1.50, 2.22) | 9.44 *** | (5.02, 17.74) |
| Non-Hispanic Black*Mixed Sex | 6.43 *** | (3.52, 11.77) | 6.15 *** | (3.91, 9.66) | 12.05 *** | (7.07, 17.04) | 2.82 ** | (1.44, 5.55) | 1.37 | (0.82, 2.28) | 0.10 * | (0.01, 1.02) | 1.66 * | (1.05, 2.63) | 17.18 *** | (5.95, 49.61) |
| Non-Hispanic Black*Gay | 6.15 * | (1.52, 24.94) | 1.26 | (0.39, 4.06) | 12.70 ** | (3.16 ,22.42) | 0.89 | (0.12, 6.50) | 1.34 | (0.47, 3.83) | --- | --- | 1.24 | (0.46, 3.33) | 8.89 * | (1.24, 63.47) |
| Hispanic*Straight | 1.20 | (0.83, 1.75) | 1.08 | (0.78, 1.50) | -2.20 *** | (-3.43, -0.96) | 1.38 | (0.83, 2.27) | 0.70 * | (0.49, 0.99) | 1.41 | (0.47, 4.22) | 1.23 | (0.88, 1.72) | 2.57 † | (0.91, 7.27) |
| Hispanic*Mixed Sex | 2.05 * | (1.03, 4.09) | 2.31 *** | (1.45, 3.69) | 7.89 ** | (2.86, 12.92) | 1.86 † | (0.97, 3.57) | 1.89 * | (1.13, 3.15 | 1.14 | (0.14, 9.12) | 1.38 | (0.79, 2.43) | 3.07 | (0.74, 12.74) |
| Hispanic*Gay | 1.31 | (0.15, 11.61) | 0.51 | (0.12, 2.12) | 0.98 | (-4.72, 6.68) | 1.22 | (0.25, 6.06) | 0.78 | (0.20, 307) | 5.18 | (0.29, 93.78) | 0.55 | (0.15, 1.92) | 0.31 | (0.03, 2.94) |
| Ident. Change Between WIII and WIV | --- | --- | 1.18 | (0.89, 1.58) | -0.75 | (-4.88, 3.38) | 1.41 † | (0.94, 2.13) | 1.01 | (0.78, 1.31) | 1.87 | (0.55, 6.37) | 1.10 | (0.87, 1.38) | 1.61 | (0.61, 4.21) |
| Age | 0.97 | (0.92, 1.03) | 0.99 | (0.95, 1.04) | 0.43 * | (0.07, 0.79) | 1.04 | (0.97, 1.12) | 1.03 | (0.98, 1.09) | 0.93 | (0.78, 1.12) | 0.90 *** | (0.86, 0.94) | 1.08 | (0.95, 1.22) |
| Education (Greater than high school degree) | | | | | | | | | | | | | | | | |
| Less than high school degree | 1.32 | (0.90, 1.92) | 1.51 * | (1.02, 2.24) | 0.72 | (-1.32, 2.74) | 3.95 *** | (2.85, 5.49) | 1.53 ** | (1.13, 2.07) | 1.76 | (0.56, 5.52) | 0.50 *** | (0.37, 0.66) | 1.98 * | (1.15, 3.41) |
| High school graduate | 0.97 | (0.78, 1.19) | 1.05 | (0.86, 1.28) | 0.70 | (-4.88, 3.38) | 2.18 *** | (1.57, 3.02) | 1.04 | (0.81, 1.33) | 1.59 | (0.62, 4.07) | 0.73 * | (0.57, 0.94) | 1.17 † | (0.96, 3.03) |
| Constant | --- | --- | --- | --- | -4.11 | (-14.34, 6.13) | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |

**Males**

| | Reported STI, Ever (WIII) | | STI, Ever | | Total Number of Partners | | Incarcerated, Ever | | Forced Sex, Ever | | IV Drug Use, Ever | | Condom Use, Last 12 Mo. | | Given/Received Money for Sex, Ever | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | OR | CI | OR | CI | B | CI | OR | CI | OR | CI | OR | CI | OR | CI | OR | OR |
| S.O. * Race/ethnicity (Non-Hispanic White* Straight) | | | | | | | | | | | | | | | | |
| Non-Hispanic White*Mixed Sex | 0.86 | (0.31, 2.36) | 1.30 | (0.60, 2.83) | 1.22 | (-5.81, 8.25) | 1.09 | (0.51, 2.32) | 2.84 ** | (1.36, 5.91) | 0.21 * | (0.05, 0.87) | 1.73 * | (1.03, 2.89) | 2.26 | (0.74, 6.93) |
| Non-Hispanic White*Gay | 8.31 *** | (2.40, 28.68) | 2.25 * | (1.05, 4.83) | 13.43 † | (-2.08, 28.94) | 0.56 | (0.18, 1.72) | 1.15 | (0.20, 6.74) | 1.10 | (0.21, 5.73) | 3.19 ** | (1.50, 6.80) | 1.01 | (0.24, 4.25) |
| Non-Hispanic Black*Straight | 2.90 *** | (2.00, 4.21) | 3.56 *** | (2.77, 4.58) | 8.37 ** | (3.04, 13.70) | 1.49 * | (1.09, 2.03) | 2.18 *** | (1.37, 3.45) | 0.12 *** | (0.04, 0.36) | 3.04 *** | (2.34, 3.95) | 4.33 *** | (2.92, 6.43) |
| Non-Hispanic Black*Mixed Sex | 6.00 *** | (2.20, 16.18) | 14.78 *** | (4.99, 43.77) | 1.04 | (-5.75, 7.83) | 0.51 | (0.11, 2.34) | 3.20 | (0.55, 18.70) | 0.54 | (0.06, 4.83) | 3.22 | (0.66, 15.77) | 0.90 | (0.20, 4.07) |
| Non-Hispanic Black*Gay | 3.19 | (0.47, 21.64) | 4.50 * | (1.39, 14.54) | 22.81 † | (-2.53, 48.14) | 0.07 ** | (0.01, 0.40) | 6.76 * | (1.46, 31.18) | --- | --- | 4.67 | (0.73, 30.00) | 0.47 | (0.08, 2.61) |
| Hispanic*Straight | 1.00 | (0.67, 1.48) | 1.49 * | (1.09, 2.04) | 0.49 | (-3.60, 4.59) | 1.40 * | (1.06, 1.85) | 1.27 | (0.71, 2.26) | 0.31 * | (0.11, 0.86) | 1.48 ** | (1.14, 1.92) | 1.69 | (0.99, 2.88) |
| Hispanic*Mixed Sex | 1.79 | (0.32, 9.88) | 0.98 | (0.21, 4.62) | 1.99 | (-8.89, 12.86) | 2.51 | (0.44, 14.36) | 2.51 | (0.60, 10.46) | 0.07 * | (0.01, 0.60) | 0.99 | (0.35, 2.79) | 0.96 | (0.19, 4.86) |
| Hispanic*Gay | --- | --- | 6.78 *** | (2.29, 20.05) | 14.82 * | (1.35, 28.50) | 0.29 | (0.05, 1.54) | 10.55 *** | (3.02, 36.85) | --- | --- | 23.73 ** | (2.96, 190.1) | --- | --- |
| Ident. Change Between WIII and WIV | --- | --- | 1.19 | (0.64, 2.22) | -3.87 | (-9.85, 2.10) | 1.41 | (0.86, 2.31) | 0.91 | (0.50, 1.63) | 2.21 | (0.76, 6.43) | 1.32 | (0.82, 2.12) | 1.51 | (0.66, 3.45) |
| Age | 0.98 | (0.91, 1.06) | 1.02 | (0.96, 1.09) | 0.61 + | (-0.07, 1.29) | 0.99 | (0.93, 1.06) | 0.98 | (0.90, 1.07) | 1.05 | (0.88, 1.26) | 0.84 *** | (0.80, 0.89) | 1.19 *** | (1.11, 1.29) |
| Education (Greater than high school degree) | | | | | | | | | | | | | | | | |
| Less than high school degree | 1.89 *** | (1.34, 2.66) | 1.09 | (0.82, 1.44) | 2.18 | (-3.87, 8.23) | 4.69 *** | (3.48, 6.34) | 1.21 | (0.70, 2.08) | 1.81 + | (0.95, 3.44) | 0.81 | (0.58, 1.12) | 1.80 * | (1.12, 2.88) |
| High school graduate | 1.06 | (0.75, 1.49) | 0.91 | (0.70, 1.17) | -1.67 | (-5.07, 1.74) | 2.11 *** | (1.70, 2.62) | 1.22 | (0.74, 2.00) | 0.84 | (0.40, 1.80) | 0.78 * | (0.63, 0.97) | 1.22 | (0.88, 1.69) |
| Constant | --- | --- | --- | --- | -1.62 | (-21.21, 17.96) | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |

Notes: Source= National Longitudinal Study of Adolescent Health; Referent category in parentheses; † p < .10.; * p < .05; ** p < .01; *** p < .001; OR=Odds Ratios; B=Beta; CI= 95% Confidence Interval; Constants are not reported for logistic regressions; --- denotes missing data

**Mojola-Everett (2010) - Intersecting Identities and STI Risk**

Table 4.

**Females**

| | Model 1 | | | Model 2 | | | Model 3 | | | Model 4 | | | Model 5 | | | Model 6 | | | Model 7 | | | Model 8 | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| S.O. * Race/ethnicity (Non-Hispanic White* Straight) | | | | | | | | | | | | | | | | | | | | | | | | |
| Non-Hispanic White*Mixed Sex | 1.85 | *** | (1.42, 2.39) | 1.19 | | (0.90, 1.71) | 1.76 | *** | (1.35, 2.29) | 1.63 | *** | (1.26, 2.11) | 1.85 | *** | (1.42, 2.40) | 1.78 | *** | (1.38, 2.30) | 1.82 | *** | (1.40, 2.36) | 1.15 | | (0.86, 1.52) |
| Non-Hispanic White*Gay | 0.31 | * | (0.11, 0.88) | 0.11 | ** | (0.02, 0.52) | 0.26 | * | (0.09, 0.76) | 0.26 | * | (0.09, 0.79) | 0.31 | * | (0.11, 0.87) | 0.30 | * | (0.11, 0.85) | 0.31 | * | (0.11, 0.86) | 0.11 | ** | (0.02, 0.47) |
| Non-Hispanic Black*Straight | 3.33 | *** | (2.82, 3.94) | 3.60 | *** | (3.07, 4.28) | 3.31 | *** | (2.81, 3.90) | 3.54 | *** | (2.99, 4.19) | 3.33 | *** | (2.82, 3.95) | 3.26 | *** | (2.75, 3.86) | 3.15 | *** | (2.66, 3.73) | 3.52 | *** | (2.98, 4.16) |
| Non-Hispanic Black*Mixed Sex | 6.15 | *** | (3.91, 9.66) | 4.45 | *** | (2.76, 7.41) | 5.86 | *** | (3.78, 9.10) | 6.12 | *** | (3.87, 9.68) | 6.15 | *** | (3.91, 9.67) | 5.88 | *** | (3.77, 9.18) | 5.50 | *** | (3.52, 8.59) | 4.38 | *** | (0.86, 1.52) |
| Non-Hispanic Black*Gay | 1.26 | | (0.39, 4.06) | 0.70 | | (0.13, 1.85) | 1.29 | | (0.40, 4.16) | 1.22 | | (0.40, 3.79) | 1.27 | | (0.39, 4.06) | 1.16 | | (0.35, 3.79) | 1.15 | | (0.36, 3.68) | 0.66 | | (0.02, 0.47) |
| Hispanic*Straight | 1.08 | | (0.78, 1.50) | 1.26 | | (0.93, 1.58) | 1.06 | | (0.77, 1.47) | 1.13 | | (0.82, 1.55) | 1.08 | | (0.78, 1.40) | 1.08 | | (0.78, 1.51) | 1.06 | | (0.76, 1.48) | 1.24 | | (0.92, 1.69) |
| Hispanic*Mixed Sex | 2.31 | *** | (1.45, 3.69) | 1.91 | * | (1.16, 3.21) | 2.25 | *** | (1.42, 3.55) | 2.14 | *** | (1.35, 3.40) | 2.31 | *** | (1.45, 3.68) | 2.16 | *** | (1.35, 3.44) | 2.28 | *** | (1.42, 3.64) | 1.78 | * | (1.07, 2.96) |
| Hispanic*Gay | 0.51 | | (0.12, 2.12) | 0.49 | | (0.13, 1.85) | 0.50 | | (0.12, 2.11) | 0.52 | | (0.13, 2.07) | 0.51 | | (0.12, 2.12) | 0.47 | | (0.11, 1.96) | 0.51 | | (0.12, 2.15) | 0.50 | | (0.13, 1.88) |
| Ident. Change Between WIII and WIV | 1.18 | | (0.89, 1.58) | 1.13 | | (0.85, 1.49) | 1.15 | | (0.87, 1.53) | 1.19 | | (0.90, 1.58) | 1.18 | | (0.89, 1.57) | 1.17 | | (0.88, 1.55) | 1.17 | | (0.88, 1.56) | 1.10 | | (0.83, 1.45) |
| Age | 0.99 | | (0.95, 1.04) | 0.98 | | (0.93, 1.02) | 0.99 | | (0.94, 1.03) | 0.98 | | (0.94, 1.03) | 0.99 | | (0.95, 1.04) | 0.99 | | (0.95, 1.04) | 0.99 | | (0.94, 1.03) | 0.97 | | (0.93, 1.02) |
| Education (Greater than high school degree) | | | | | | | | | | | | | | | | | | | | | | | | |
| Less than high school degree | 1.51 | * | (1.02, 2.24) | 1.50 | † | (0.98, 2.31) | 1.34 | | (0.89, 2.01) | 1.04 | + | (0.97, 2.11) | 1.51 | * | (1.02, 2.24) | 1.53 | * | (1.02, 2.29) | 1.49 | * | (1.01, 2.20) | 1.37 | | (0.89, 2.10) |
| High school graduate | 1.05 | | (0.86, 1.28) | 0.98 | | (0.81, 1.20) | 0.99 | | (0.81, 1.21) | 2.06 | | (0.86, 1.27) | 1.05 | | (0.86, 1.28) | 1.04 | | (0.85, 1.27) | 1.03 | | (0.84, 1.26) | 0.93 | | (0.77, 1.14) |
| Risk Factors | | | | | | | | | | | | | | | | | | | | | | | | |
| Total Number of Partners, Ever | | | | 1.06 | *** | (1.05, 1.08) | | | | | | | | | | | | | | | | 1.05 | *** | (1.04, 1.07) |
| Incarcerated, Ever | | | | | | | 2.49 | *** | (1.93, 3.21) | | | | | | | | | | | | | 1.62 | ** | (1.19, 2.20) |
| Forced Sex, Ever | | | | | | | | | | 2.06 | *** | (1.71, 2.48) | | | | | | | | | | 1.49 | *** | (1.21, 1.83) |
| IV Drug Use, Ever | | | | | | | | | | | | | 1.09 | | (0.52, 2.28) | | | | | | | 0.54 | | (0.22, 1.32) |
| Condom Use, Previous 12 months | | | | | | | | | | | | | | | | 1.09 | | (0.94, 1.26) | | | | 1.06 | | (0.89, 1.25) |
| No Sexual Partners in the Previous 12 Months | | | | | | | | | | | | | | | | 0.64 | *** | (0.51, .80) | | | | 0.83 | | (0.65, 1.06) |
| Money in Exchange for Sex, Ever | | | | | | | | | | | | | | | | | | | 2.82 | *** | (1.83, 4.36) | 2.11 | ** | (1.29, 3.48) |

**Males**

| | Model 1 | | | Model 2 | | | Model 3 | | | Model 4 | | | Model 5 | | | Model 6 | | | Model 7 | | | Model 8 | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| S.O. * Race/ethnicity (Non-Hispanic White* Straight) | | | | | | | | | | | | | | | | | | | | | | | | |
| Non-Hispanic White*Mixed Sex | 1.30 | | (0.60, 2.83) | 1.16 | | (0.52, 2.59) | 1.29 | | (0.59, 2.79) | 1.24 | | (0.57, 2.70) | 1.37 | | (0.62, 3.02) | 1.25 | | (0.57, 2.74) | 1.22 | | (0.58, 2.57) | 1.07 | | (0.48, 2.39) |
| Non-Hispanic White*Gay | 2.25 | * | (1.05, 4.83) | 1.90 | | (0.82, 4.43) | 2.42 | * | (1.15, 5.11) | 2.25 | * | (1.05, 4.84) | 2.24 | * | (1.00, 5.02) | 2.15 | † | (0.99, 4.68) | 2.27 | * | (1.08, 4.79) | 2.12 | † | (0.91, 4.96) |
| Non-Hispanic Black*Straight | 3.56 | *** | (2.77, 4.58) | 3.56 | *** | (2.71, 4.68) | 3.44 | *** | (2.69, 4.40) | 3.47 | *** | (2.71, 4.44) | 3.74 | *** | (2.90, 4.82) | 3.61 | *** | (2.79, 4.68) | 3.18 | *** | (2.46, 4.10) | 3.35 | *** | (2.52, 4.45) |
| Non-Hispanic Black*Mixed Sex | 14.78 | *** | (4.99, 43.77) | 14.48 | *** | (4.49, 46.64) | 16.68 | *** | (5.45, 51.04) | 14.35 | *** | (4.85, 42.50) | 15.52 | *** | (5.23, 46.01) | 14.20 | *** | (4.63, 43.57) | 15.34 | *** | (5.13, 45.87) | 16.45 | *** | (4.62, 58.63) |
| Non-Hispanic Black*Gay | 4.50 | * | (1.39, 14.54) | 3.65 | † | (0.97, 13.66) | 5.33 | ** | (1.69, 16.86) | 4.05 | * | (1.22, 13.39) | 4.81 | ** | (1.47, 15.75) | 4.33 | * | (1.32, 14.15) | 4.70 | ** | (1.46, 15.19) | 4.31 | * | (1.12, 16.59) |
| Hispanic*Straight | 1.49 | * | (1.09, 2.04) | 1.61 | ** | (1.19, 2.19) | 1.44 | * | (1.05, 1.96) | 1.48 | * | (1.08, 2.04) | 1.55 | ** | (1.13, 2.12) | 1.56 | ** | (1.13, 2.15) | 1.45 | * | (1.04, 2.02) | 1.63 | ** | (1.17, 2.26) |
| Hispanic*Mixed Sex | 0.98 | | (0.21, 4.62) | 1.27 | | (0.26, 6.08) | 0.85 | | (0.16, 4.58) | 0.94 | | (0.20, 4.47) | 1.04 | | (0.22, 4.92) | 1.04 | | (0.21, 5.20) | 0.99 | | (0.21, 4.65) | 1.27 | | (0.23, 7.09) |
| Hispanic*Gay | 6.78 | *** | (2.29, 20.05) | 6.28 | ** | (1.90, 20.80) | 7.70 | *** | (2.49, 23.86) | 5.81 | ** | (1.98, 17.07) | 7.23 | *** | (2.44, 21.43) | 2.15 | *** | (2.17, 18.95) | 7.22 | *** | (2.47, 21.11) | 6.97 | ** | (2.07, 23.53) |
| Ident. Change Between WIII and WIV | 1.19 | | (0.64, 2.22) | 1.19 | | (0.62, 2.29) | 1.14 | | (0.60, 2.18) | 1.20 | | (0.64, 2.24) | 1.16 | | (0.62, 2.17) | 1.29 | | (0.68, 2.44) | 1.16 | | (0.63, 2.12) | 1.13 | | (0.57, 2.25) |
| Age | 1.02 | | (0.96, 1.09) | 1.00 | | (0.94, 1.07) | 1.03 | | (0.96, 1.09) | 1.02 | | (0.96, 1.09) | 1.02 | | (0.96, 1.09) | 1.02 | | (0.96, 1.10) | 1.01 | | (0.95, 1.08) | 0.99 | | (0.92, 1.06) |
| Education (Greater than high school degree) | | | | | | | | | | | | | | | | | | | | | | | | |
| Less than high school degree | 1.09 | | (0.82, 1.44) | 0.97 | | (0.68, 1.38) | 0.86 | | (0.63, 1.19) | 1.08 | | (0.81, 1.43) | 1.06 | | (0.80, 1.42) | 1.10 | | (0.83, 1.45) | 1.03 | | (0.77, 1.39) | 0.80 | | (0.55, 1.18) |
| High school graduate | 0.91 | | (0.70, 1.17) | 1.01 | | (0.70, 1.21) | 0.82 | | (0.63, 1.08) | 0.90 | | (0.70, 1.17) | 0.91 | | (0.79, 1.18) | 0.90 | | (0.69, 1.17) | 0.89 | | (0.68, 1.15) | 0.82 | | (0.60, 1.11) |
| Risk Factors | | | | | | | | | | | | | | | | | | | | | | | | |
| Total Number of Partners, Ever | | | | 1.01 | *** | (1.01, 1.02) | | | | | | | | | | | | | | | | 1.01 | *** | (1.00, 1.02) |
| Incarcerated, Ever | | | | | | | 1.95 | *** | (1.50, 2.52) | | | | | | | | | | | | | 1.63 | *** | (1.22, 2.18) |
| Forced Sex, Ever | | | | | | | | | | 2.07 | *** | (1.35, 3.18) | | | | | | | | | | 1.64 | * | (1.05, 2.56) |
| IV Drug Use, Ever | | | | | | | | | | | | | 3.46 | *** | (2.06, 5.82) | | | | | | | 2.26 | * | (1.21, 4.24) |
| Condom Use, Previous 12 months | | | | | | | | | | | | | | | | 1.05 | | (0.82, 1.33) | | | | 0.98 | | (0.76, 1.27) |
| No Sexual Partners in the Previous 12 Months | | | | | | | | | | | | | | | | 0.89 | | (0.59, 1.35) | | | | 1.01 | | (0.64, 1.59) |
| Money in Exchange for Sex, Ever | | | | | | | | | | | | | | | | | | | 2.46 | *** | (1.73, 3.49) | 1.98 | *** | (1.34, 2.92) |

Notes: Source= National Longitudinal Study of Adolescent Health; Referent category in parentheses; † p < .10.; * p < .05; ** p < .01; *** p < .001; OR=Odds Ratios; B=Beta; CI= 95% Confidence Interval; Constants are not reported for logistic regressions; --- denotes missing data