I. Introduction

The Healthy People 2010 (NCHS 2000) initiative identifies sexual minorities as a key population of interest regarding health disparities, and an emerging field of research is beginning to document these inequalities (Boehmer 2002; Mail & Safford 2003; GLMA 2001). To be sure, in the last two decades a host of research articles have examined the relationship between sexual orientation, substance abuse, and sexually transmitted infections (STIs) (Rostosky et al 2003; Ryan et al 2001; Stall et al 2001). The existing research on adolescent sexual minority substance abuse and STIs, however, has several limitations: 1) it is largely based on clinical and community samples; 2) it relies on cross sectional data sets; 3) it often miss-specifies the sexual minority populations; and 4) it often neglects to examine important mediating and moderating social-ecological contexts at the family, neighborhood, school, and individual level.

This paper seeks to improve upon existing research by examining the relationship between differential sexual developmental trajectories, substance abuse, and STIs by utilizing nationally representative, longitudinal data, and employing more general measure of sexual minority status. Moreover, I include a social stress processes framework to examine the relationship between sexual minority status trajectories, substance abuse, and sexually transmitted infections during the transition from adolescence to adulthood. Among sexual minority adolescents, the process of negotiating a sexual identity often is a particularly stressful period of time. As sexual minorities become more visible as a minority population, they risk increased stigmatization and victimization (Lasser & Tharinger, 2003). Indeed, much research has examined the link between stress, discrimination, and substance abuse (Sinha 2001), and the impact substance abuse has on sexually transmitted infections (for review see Fortenberry 1995). As a result, sexual identity development during the transition from adolescent to young

adulthood this time period are a particularly important period to study to curb substance abuse and STI risks among sexual minorities. I find that contextual and individual level factors influence sexual development trajectories and that these trajectories have important implications for current and future adolescent substance abuse and sexual transmitted infections.

II. Literature Review

A) *Minority Stress, Substance Abuse, and Sexually Transmitted Infections*

Theories of social stress emphasize the impact of negative social interactions, both institutional and interpersonal, as sources of disruption to individuals' routine behaviors and emotional statuses (Cohen & Wills 1985; for a review see Thoits 1995). In addition to general social stressors, researchers have identified a unique type of social stress- "minority stress"- that stems from increased rates of both structural and interpersonal discrimination, victimization, and stigmatization due to one's race/ethnic, gender, or sexual orientation minority status (Meyer 1995; 2003). Minority stress works both independently and additively to other general social stressors that affect persons of all status positions; it is therefore inescapable and chronic. Social support systems or social ties are important pathways through which adolescents can mediate the effects of stress on well-being. Social networks and ties can stem from any number of relationships, such as family members, peers, co-workers, as well as attachment and participation at school, organized clubs and organizations, and religious service attendance. A large body of work has documented the benefits of social support and social ties on decreasing the likelihood of substance abuse as well as sexual risk behaviors among adolescents (Hawkins, Catalano, & Miller 1992; Kotchick, Shaffer, & Forehand 2001; Resnick et al 1997; Shedler & Block 1990). These include, but are not limited to perceived family and school connectedness, physical

development, school achievement, and peer networks (Resnick et al 1997; Hawkins, Catalano, and Miller 1992; Hawkins, Graham, and Maguin 1997; Kaplan et al 1986; Will et al 1996).

In the absence of pro-social support networks, substance abuse is a viable alternative for coping with minority stress (Rhodes and Jason 1990). The use of drugs or alcohol both serve to avoid stress and problems, as well as heighten pleasurable feelings creating a positive feedback loop that rewards substance abuse and self medication (Sinha 2001). Much research has linked psychological distress and stress to substance abuse (Kilpatrick et al 1997; Otis and Skinner 1996; Rotherum-Borus, Hunter, and Rosario 1994; Savin-Williams 1994 Kikpatrick et al 1997; Kilpatrick et al 2000). Among sexual minority adolescents, there risk of substance abuse is more pronounced due to the fact that sexual minority adolescents experience higher rates of social isolation, poorer relationships with family (Rostosky et al 2003; Russell, Seif, Truong 2001). Despite recent increases in civil rights for sexual minorities, the LGBTQ population still experiences high rates of discrimination and stigmatization, and victimization both interpersonally and structurally (Herek 1998, 2007, 2009; Berrill 2002; Pilkington & D'augelli 1995). In their qualitative study, Eccles et al pointed out that despite that their sample showed that many sexual minority adolescents reported similar social networks and did not point to their sexuality as the main source of conflict in their life, almost all respondents discussed school as a particularly hostile environment (2004).

Thus, it is no surprise that sexual minorities experience higher rates of substance abuse than their non-sexual minority peers (Durant, Krowchuk & Sinal 1998; Stall et al. 2001; Wilsnack et al. 2008). A recent literature review of 12 studies examining sexual minority populations and smoking behaviors showed that across these studies LGBTQ persons were more likely to engage in smoking behaviors (Ryan et al. 2001). Drug and alcohol abuse have also been

shown to be elevated among sexuality minorities, (D'augellie 2004; Garofalo et al 1999a; Rosario et al 1997; Rostosky et al 2003; Russell, Driscoll, and Truong 2002; Stall and Purcell 2000; Stall et al. 2001; Wilsnack et al. 2008; Orentstein 2001).

Increased involvement with drugs and alcohol have important implications for the sexual health of sexual minority adolescents and young adults, particularly among females. Substance abuse is associated with both incidence of sexually transmitted infections, but many known antecedents to STI such as early sexual onset, reduced condom use, and higher numbers of sexual partners (for review see Fortenberry 1995). While STI risks among sexual minority males, particularly HIV/AIDS, have been well documented (Stall & Purcell 2000; Stall et al. 2000), STI risk among female sexual minorities is an underdeveloped field of inquiry. Existing research suggests that sexual minority women, particularly those who identify as bisexual, report higher rates of engagement in STI risk behaviors than heterosexual women, including intravenous drug use, exchanging sex for money, unprotected sex with male partners, sexual intercourse with partners who have used intravenous drugs, and sexual intercourse with gay and bisexual males (Bailey et al. 2004; Bevier et al. 1995; Lemp et al. 1995; Rosario 1999; Scheer et al. 2002). While STI transmission is lower among women who exclusively have sex with women, these findings suggest that sexual minority women who use intravenous drugs or engage in sexual intercourse with males may still be at increased risk for STIs compared to their heterosexual counterparts.

B) *Differential Developmental Sexual Identity Trajectories*

There exist two major issues the with much of the existing literature's approach to examining sexual orientation, substance abuse, and STIs among adolescents. The first results

form the oversimplification or mis-specification of the target population. For many persons, a gay or straight label does not capture the plethora of sexual orientations and behaviors that individuals engage in. Among adolescents, qualitative research suggest that sexual orientation identification may not be the best indicator of sexual minority status; rather, physical and cognitive attraction were identified as being better measures (Friedman et al. 2004). For many individuals the first step in the process of developing a sexual identity is experiencing same-sex romantic attraction and the public labeling oneself as "gay" or "bisexual" is often the last step in a series of milestones toward developing a sexual minority identity (Savin-Williams and Diamond 2008; Floyd and Stein; Maguen, Floyd, and Bakeman 2002). Moreover, some individuals who experience same-sex attraction or engage in same-sex sexual relationships may never attach themselves to a "gay" or "bisexual" identity (Diamond 2008).

The second issue results from limited empirical or theoretical work that has explored the relationship between sexual orientation trajectories, risk behaviors, and STIs. Sexual orientation is time, space, and place dependent and varies historically, cross-culturally, and within a single person across the life course. In contrast to the identity models proposed by Cass (1979) and Troiden (1989) which suggest that sexual identity development occurs in one directional, linear phases with varying mental health and behavioral risks and outcomes associated with each phase. A new paradigm for the study of sexual orientation, however, is emerging that focuses on the fluid nature of sexual orientation throughout the life course (Diamond 2008; Dickson 2003; Laumann et al. 1994; Savin-Williams, 2001). In his book *The New Gay Adolescent*, Savin-Williams argues that contemporary sexual minority youths view their sexuality in radically different terms than previous generations. Instead of linear, consistent sexual preferences, contemporary adolescents have more alternatives in their behavior as well as the labels they

choose or resist. For example, in the Add Health data, it has been shown that depending on the measure of sexual orientation, sexual minority prevalence can fluctuate from 1 to 15% of the population, and that across time, individuals responses are subject to variation in their reports of sexual orientation (Savin-Williams & Ream 2007).

The extent to which changes in sexual orientation are related to substance abuse and STI diagnosis have not been explored. While some sexual minority adolescents may not experience discrimination or increased stress associated with their sexuality, others may not be so lucky. These differences may be reflected in the timing and patterns of sexual minority status identification. Those individuals who may remain unidentified for longer periods of time may do so because of perceived negative attitudes by peers and family (Floyd and Stein 2002). Delaying identification may therefore be a strategy that sexual minority youths deploy to avoid stigma and discrimination (D'augelli and Hershberger 1993). Research has shown that those individuals who identity as sexual minorities earlier are associated with higher levels of self-esteem (Jordan and Deulty 1998; Maguen, Floyd and Bakeman 2002). Additionally, until one identifies as a sexual minority, it remains difficult for them to access resources and social networks allowing them to feel more comfortable in their identity. Therefore, those individuals who delay identification may be at risk for increased substance abuse and may also be more likely to engage in risky sexual behaviors and therefore have higher rates of STI infection. Moreover, those individuals who delay same-sex attraction identification may be less likely to receive correct safe-sex information or seek out sexual gratification in unsafe environments.

III. Aims

The examination of the effects of social support on improving health behaviors and outcomes among sexual minorities is extremely limited and has been the subject of much criticism (Eccles et al. 2004; Russell 2005; Savin-Williams 2001). This research includes important moderating and mediating variables at the family, neighborhood, school and individual level. Moreover, I utilize a more general measure of sexual minority status, examines within group diversity. I first examine the sociodemographic correlates of sexual orientation trajectories in order examine how social support effects the timing and pattern or sexual minority status identification. Next, I examine the relationship between trajectories and substance abuse in order to examine the relationship between sexual minority status identification and substance abuse and STIs at two time periods, within school as adolescents and six years later, as young adults. I test the following hypothesis:

Hypothesis 1: Those individuals with higher levels of attachment to school and better relationships with parents will be more likely to report same-sex attraction in wave I.

Hypothesis 2: Due to higher rates of discrimination and victimization, those individuals who identify as sexual minorities in wave I, whether they maintain their sexual minority status or transition out in wave III, will have higher rates of substance and increased risk of STI diagnosis than other trajectories at wave I. Additionally, compare to their non-SM peers, those who delay SM status will also have higher rates of substance abuse and STIs compared to non-SMs.

Hypothesis 3: In wave III, those individuals who delay sexual minority status will have higher rates of depression and suicidal thoughts as they begin the "coming out" process compared Those who transition out of SM status will have lower rates of substance as they are less likely to suffer from discrimination and victimization associated with their previous SM status.

Hypothesis 4: The risks associated with sexual minority status and substance will be mediated by social psychological, social ecological, and behavioral factors for all sexual minority youths.

III. Methods

A) *Data*

This research uses data from the National Longitudinal Study of Adolescent Health (Add Health). The Add Health study began in the fall of 1994 and involves a nationally representative, longitudinal sample of US adolescents. The initial Add Health sample was drawn from 80 high schools and 52 middle schools, with unequal probability of selection, throughout the United States (Bearman, Jones, and Udry 1997). The first wave of the Add Health study surveyed 90,118 adolescents who filled out a brief in-school survey. A sub-sample of students (n=20,747) and their parents were asked to additionally fill out an in-depth home interview survey. High school seniors in Wave I of Add Health were not selected for follow-up for wave II, but were reclaimed for the wave III sample, conducted in 2001 and 2002. Response rates for this study were 79% for wave 1, 88% for wave II, and 77.4% for wave III. Because high school seniors were not followed for the wave II sample, this study is restricted to only wave I and wave III in order to retain the most respondents possible. This results in a total of 13,572 eligible cases, 1,009 cases, or 7.4% of cases were removed due to missing data, resulting in a final sample of 12,563 respondents. More information on subsample sizes are available in the descriptive table.

B) *Measures*

The Add Health data not only collects information from the respondent, but also surveyed the parents of the in-home sub-sample and school administrators in wave I. These surveys provide important information regarding the family and neighborhood context, such as family structure and parenting style, as well as neighborhood and school characteristics.

Sexual Minority Status: As stated before, asking adolescents to identify with a "gay", "lesbian," or "bisexual" label may miss a large proportion of sexual minority youth not ready to label themselves, or individuals who may not ever label themselves as "gay." Therefore, sexual minority status is derived from a question that asks respondents to identify whether they have ever been romantically attracted to a male or a female. These questions were asked of both male and female respondents and are included in both waves I and III of the Add Health data. From this, four mutually exclusive categories were derived, those individuals who identify as sexual minorities at both wave I and wave III, those individuals who identify as sexual minorities at wave III only, and those individuals who do not identify as sexual minorities at either wave[1]. This results in 163 females and 75 males who report sexual minority status at both waves; 297 females and 403 males that report SM status at wave I only; 782 females and 320 males who report sexual minority status at wave III only; and 5,892 females and 5,591 males who do not report sexual minority status at any point in time.

Dependent Variables**:** The dependent variables in this paper capture two domains of substance abuse:, binge drinking and hard drug at both waves I and III, and two domains of sexual behavior: sexual intercourse and STI diagnosis in waves I and III. Binge drinking is coded as a dummy variable that captures whether respondents report in having five or more drinks on at least one occasion over the past 12 months. Hard drug use is captured as a dummy variable and captures whether respondents reported using crack, cocaine, LSD, PSP, ecstasy, mushrooms, speed, ice, heroin, or pill without a doctor's prescription in the last 30 days. Sexual intercourse is derived from a question asked at both waves I and III whether respondents have had vaginal

intercourse. Sexually transmitted diseases are coded as a dummy variable for whether respondents have been diagnosed (ever at wave I, since time of last interview at wave III) with Chlamydia, syphilis, gonorrhea, HIV or AIDS, genital herpes, genital warts, trichomoniasis, or hepatitis B. Additionally for females this variable included diagnosese of bacterial vaginosis and non-gonococcal vaginitis.

Controls: Included as controls in the models are age, coded as a series of dummy variables (11 to 14; 14 to 16; 16-18; and 18+ [referent]) and race/ethnicity coded as a series of dummy variables that capture whether respondents identity as non-Hispanic white, non-Hispanic black, Hispanic or other. To capture socio-economic status, I included controls that measure family structure coded as a series of dichotomous variables that capture whether individuals reside in a home with two biological parents, a single parent, two other parent figures, or other; the mean score of their parents' reported education level; and a series of dummy variables that capture poverty level based upon income and household size that measures where respondents are on the poverty index.

Mediating Pathways: To capture family, school, and individual level factors, I include a series of important mediating covariates. To capture family level processes I include a variable that captures the adolescent's report of their satisfaction with their relationship with their parent; the number of evening meals they sit down with at least one parent. Teen satisfaction with their relationship with their parent is a continuous variable that ranges from 0-4 and is derived from a question that asks respondents to rate "overall, are you satisfied with your relationship with your mother/father?" (Strongly Agree to Strongly Disagree). The number of evening meals a

respondent reports eating with at least one parent present ranges from 0 to 7. The scaled measure of attachment to school is derived from a series of question that ask respondents to identify if they felt close to people at their school they felt like they were part of their school, whether they were happy to be at their school, whether teachers at their school treat students fairly, and whether they felt safe at school. This scale ranges from 1.25 to 6.25.

I include important individual level factor to examine the mediating effects of victimization, perceived acceptance, and protective relationships with family members and peers on the relationship between sexual minority status and health, I will use three scales to examine each of these dimensions. The victimization scale is derived by summing series of five questions that asks respondents to identify if, in the last 12 months, they had been shot, stabbed, jumped, had a knife or gun pulled on them, or gotten into a physical fight. The scale ranges from 0-5 and has a Cronbach alpha of .60. Perceived acceptance is a scale constructed from four questions, where respondents are asked to identify if they feel that people are unfriendly to them, that people disliked them, they felt socially acceptable, and if they felt loved and wanted. The scale ranges from 0-15 and has a Cronbach alpha of .66. The protective relationships scale is constructed from 8 questions that ask respondents to identify how much they feel that adults, teachers, parents and friends care about them, that people in their family understand them, they want to leave home, that they and their family have fun together, and their family pays attention to them. The scale ranges from 0-32 and has a Cronbach alpha of .78. Additionally, to be included in wave IV is a question that asks respondents to identify "In your day-to-day life, how often do you feel you have been treated with less respect of courtesy than other people?" and whether their sexual orientation as the main reason for these experiences.

I also include two measures of sexual risk behaviors: condom use and number of sexual partners. Condom use is coded in wave 1 from a variable that asks respondents whether they have used a condom before and is coded as a dummy variable, and in wave III is derived from a question that asks respondents to what extent of the time they use a condom and ranges from 0-5 on a Likert scale (none of the time to all the time). Number of sexual partners is a variable derived from a question that asks respondents the number of partners that they have had sexual intercourse with in their lifetime. This variable is recoded as a scale that ranges from 0 to 6 (no sexual partners; 1 to 2 partners; 3 to 5 partners; 6 to 10 partners; 11 to 15 partners; and 16 or more partners).

C. *Analytic Plan*

Previous research has shown that there are gender differences in substance abuse outcomes (CITES)[2]. Therefore, all analyses are completed separately by sex. I first present descriptive statistics by sexual orientation trajectories. Next, I employ multinomial logistic regression to examine the correlates of different sexual minority status trajectories. This analysis is restricted to those individuals who report sexual minority status at least one point in the survey. I next employ logistic regressions to examine the relationship between sexual minority status trajectories and substance abuse, sexual intercourse, and STIs at wave I, followed by an analysis of sexual minority status trajectories and substance, sexual intercourse, and STIs at wave III. These models include all eligible adolescents. In order to account for Add Health's

[2] Additional analyses (not shown) further disaggregated the population by two age groups (11-16 & 16+). Among female respondents, the trends were similar to that of the age aggregated analyses. Due to small sample sizes, I was unable to complete the analyses using 11-16 years old males. The older age group looks similar to the analyses presented. To maintain statistical power, I present all ages in the same model and control for age.

complex survey design, I utilize the "svy" commands in Stata 9.2 incorporating the appropriate weights. I employ multivariate model building techniques to examine the impact of important mediating pathways described in the measurement section. I present and discuss the findings in terms of odds ratios, the exponentiated form of betas produced by thee logistic regressions.

IV. Results

A) *Descriptive Results*

Table 1 presents the descriptive statistics for the covariates and the dependent variables by sex and sexual minority status trajectories. This table shows that on many of the covariates sexual minority youths look similar to non-sexual minority youths. They do differ however on some vary important mediating pathways. For both girls and boys, those individuals who report sexual minority status at both waves are more likely to meet the CESD-19 cutoffs for being clinically depressed- 21% of girls and 17% or boys- compared to 10% and 7% of girls in the wave III only and non-sexual minority category, and 7% and 6% of boys in the other categories. Moreover, compared to non-sexual minorities at both waves, sexual minority girls report higher rates of victimization 33% for those girls at both waves and 31% at only wave III, compared to 24% of non-sexual minorities. The descriptive statistics also show that sexual minority identified girls at both waves exhibit lower satisfaction with their relationship with their parents and fewer shared evening meals. For boys, the differences are less consistent. This table shows that those who identify as sexual minorities report higher satisfaction with their relationship with their parent than the other two categories and lower number of shared evening meals.

(Table One About Here)

The descriptive statistics show for both sexes, those adolescents who report sexual minority status at both waves have the highest percentage of substance abuse at wave I in all

categories as well as the highest percentage of STIs. At wave III, there is a shift to those individual who report sexual minority status at wave III only exhibiting the highest rates of substance abuse, and STIs for girls. For boys, sexual minority identified boys at both waves still have the highest percentage of reported STIs at wave III.

B. *Correlates of Delayed Sexual Minority Identification*

Table two provides relative risk ratios for the correlates of differential sexual identity trajectories using multinomial logistic regression. The referent trajectory in this analysis is reporting SM status at both waves. This table shows that for both boys and girls, younger individuals are more likely delay reports of sexual minority status. Among girls, living in a single parent household associated with decreased odds of making a transition in either direction whereas for boys, living in an household with "other" two parents is associated with increased odds of reporting a transition either into (OR=2.38, $p<.10$) or out of (OR=2.62, $p<.10$) sexual minority status. Markers of socioeconomic status also have important implications for SM status transitions. Higher levels of parent education decrease the likelihood that females will make a transition. For boys, being in the lowest poverty category is associated with a sharp increase in the odds of delaying sexual minority identification (OR 7.64 $p<.001$) or transitioning out of sexual minority status (OR=4.72, $p<.01$).

(Table Two About Here)

Positive relationships with parents work in the opposite direction for boys and girls. For girls, higher levels of satisfaction with parents is associated with an increase in odds of delayed reporting (OR 1.31, $p<.05$) and transitioning out of SM status (OR=1.28, $p<.05$) and for boys decreased odds in delaying (OR .56, $p<.05$). This is consistent with research that suggests that

those boys with better relationships with their parents are more likely to disclose their sexual minority status (Maguen et al 2002). Higher levels of attachment to school are also related to increased odds of making a transition for females. This relationship is not present among boys. Self-reported victimization is also important among males as it is associated with a increased odds of delaying SM identification (OR=2.80, $p<.01$).

C. *Sexual Minority Status Trajectories, Substance Abuse, and STIs*

In order to examine the relationship between sexual minority status trajectories, substance abuse, sexual intercourse onset, and sexually transmitted infections I perform multivariate logistic regressions presented in tables 3 and 4. The first model in these tables controls for race/ethnicity, age, parent education, and family structure. The second model adds controls for important family, school, and individual characteristics that may mediate the relationship between sexual minority status, substance abuse, and STIs. Included in the models of sexual behaviors are controls for hard drug use and binge drinking as well as markers of sexual risk-condom use and number of partners. The analyses presented on STI are restricted to those respondents who report sexual intercourse, I however report the odds ratios for STI risk among the total sample as STIs may be contracted from other forms of sexual contact besides vaginal intercourse.

Wave I Outcomes:

Table 3, Panel A presents the odds ratios for sexual minority status and other covariates on substance abuse, sexual onset, sexually transmitted infections at wave I of the survey among girls. Sexual minority status at both waves and delayed SM identification are associated with increased odds of hard drug use, while SM status at any point in time is associated with increased

risk of binge drinking compared to non-SMs. This effect, however, is stronger for those individuals who report SM status at both waves for both hard drug use (OR=5.99, p<.001) and binge drinking(OR=3.13, p<.001). This effect is partially mediated with the inclusion of family, school, and individual level factors for those persons who report SM status at both waves such that there is a 28% reduction in hard drug use (OR 2.63, p<.001) and a 30% reduction in binge dinking (OR 4.22, p<.001). For those individuals who report SM status at wave III only, there is very little change in the effect of sexual minority status trajectories and substance abuse with the inclusion of mediating pathways- the largest effect being for being a 15% reduction in binge drinking (OR 1.47, p<.01) in the second model. Attachment to school decreases the likelihood of substance abuse, as do measures of protective relationships, perceived social acceptance, and victimization.

(Table 3 about here)

Interestingly, analysis of penile-vaginal intercourse show that compared to non-SM adolescent females, those females who report SM status at any point in time are more likely too engage in sexual intercourse and that binge drinking is an important predictor of sexual onset (OR=1.25, p<.001). Moreover, among those individuals who report having had sexual intercourse, females who report SM status are more likely to report an STI diagnosis (OR 1.88, p<.10), even after controlling for sexual risk behaviors and substance abuse in model three. A supplementary analysis (not shown) that includes the total sample of females, but does not control for sexual risk behaviors as they are not asked of those who do not report penis-vaginal intercourse, show similar risks to the model restricted to those who report having penis-vaginal intercourse with only those individual who report SM status at both waves having an increased risk of STI diagnosis (OR=2.03, p<.10).

Table 3, Panel presents odds ratios for substance abuse, sexual onset, and STI diagnosis among males. Similarly to females, adolescent boys who report sexual minority status at both waves are associated with increased risk of both hard drug use (OR=3.46, p<.01) and binge drinking (OR=1.86, p<.10). There is, however, no relationship between delayed sexual minority status identification and substance abuse. Interestingly, for boys, the inclusion of mediating family, neighborhood, school, and individual level factors increases the odds of substance abuse among sexual minorities at both waves, but decreases odds of substance abuse for those individuals who report sexual minority status at wave III only by 25% for hard drugs (OR 1.97, p<.01), and 13% for binge drinking (OR 1.31) such that it is no longer significant. Similarly to girls, relationship with parents, attachment to school, protective relationships and victimization are important predictors of substance abuse. Unlike females, however, SM status is not associated with increased odds of having sex, and among those adolescents who have had sexual intercourse, only those who transition out of SM status are marginally associated with increased odds of STI diagnosis (OR=1.93, p<.10). Supplemental analyses of STI risk among the total population show similar results with only those who transition out of SM status having a higher risk of STI diagnosis (OR=1.87, p<.10).

Wave III Outcomes:

Using the covariates measured at wave I of the Add health survey, I next examine the relationship between sexual minority status trajectories and future substance abuse, sexual intercourse, and sexually transmitted infection diagnosis, both measured at wave III. I provide supplementary analysis to analyze STI risks among the full sample as well as report the odds ratios for SM trajectories on HIV/AIDS risk among the full sample. These models control for all

covariates in model 2, but not for sexual risk predictors as those are only asked regarding vaginal intercourse.

Table 4, Panel A, shows that for females, reporting sexual minority status at is associated with hard drug use that persists after the inclusion of mediating pathways (OR=3.77, p<.01). Delayed SM status identification in model 2 remains associated with both hard drugs (OR=4.91, p<.001) and binge drinking (OR=1.78, p<.001). The relationship between SM trajectories and sexual intercourse is no longer significant, but SM trajectories continue to be related to STI diagnosis. In model one, all trajectories are associated with increased STI diagnosis. In model 2 the inclusion of measure of substance abuse partially mediates the relationship yet all three trajectories remain significantly associated with STI diagnosis. Controlling for number of partners and condom use, however, mediate the relationship between SM status at both waves, such that it is no longer associated with STI diagnosis. However, those females who make a transition either into SM status (OR=1.28, p<.10) or out of (OR=1.60, p<.05) remain associated with STI diagnosis. When the sample is opened up to all female respondents, similar risks to model 2 emerge and all trajectories are associated with increased risk. These analyses however, do not control for sexual risk behaviors. Additional supplementary analysis of HIV risk show that there are no females who report SM status at both waves that also report HIV diagnosis, yet those individuals who transition out of SM status are associated with increased risk (OR=5.61, p<.10).

(Table Four About Here)

Table Four, Panel B shows that only males who delay SM status are significantly associated with hard drug use (OR=1.84, p<.01) and that SM status trajectories are not associated with binge drinking. The analyses of sexual intercourse and STI tell a more complicated story.

Both those males who report SM status at both waves (OR=.15, p<.001) and those that delay SM status (OR=.32, p<.001) are less likely to report penis-vaginal intercourse. Among those SMs that report having had penis-vaginal intercourse, males who report SM status at both waves are much less likely to report STI diagnosis (OR=.04, p<.001), yet those who delay are more likely to report STI diagnosis (OR=2.60, p<.001) than non-SMs. This relationship persists when the sample is not restricted to only those individuals who report penis-vaginal intercourse. Additional supplementary analyses, however show that the odds of HIV diagnosis is much higher among both those who report SM status at both waves (OR=10.01, p<.05) and those who delay (OR=12.48, p<.001).

V. Discussion

These results add to the literature on sexual minority status, substance abuse, and sexually transmitted infections in important ways. First, this research uses a large, nationally representative longitudinal sample, and a broad definition of sexual minority status. Secondly, by employing a developmental and social stress theoretical framework, I am able to examine a previously unidentified sub-population of sexual minorities that are particularly vulnerable for substance abuse and STIs, as well as highlight important mediating pathways, particularly victimization, protective relationships, and perceived social acceptance. Third, this research provides valuable analyses of both the correlates that contribute to differential sexual minority identity trajectories and examines their affect on substance abuse and sexually transmitted diseases at two time periods.

In Table 2, I examine the correlates of delayed sexual minority status identification. These analyses demonstrated that I correctly hypothesized that those individuals in lower

socioeconomic statuses would be more likely to delay reports. Contrary to my hypothesis however that those with higher levels of attachment to their family, school and neighborhood would have decreased odds of delayed sexual minority identification, I found that among girls better relationship with parents and higher levels of school attachment were associated with increased odds in making a transition in SM status both into and out of. This may be largely due to peer pressure and desires to conform to traditional hetero-normative sexuality by those young girls with higher levels of attachment to their family and school. For boys, better relationships with parents is associated with a decrease in the odds of delaying sexual minority status reports and higher levels of attachment to their neighborhood is associated with increase odds in delayed identification. Previous research has shown that those boys with better relationships with their fathers are more likely to disclose their sexual minority status to parents (Maguen et al 2002), however they may be less reluctant to discuss their sexual identity if they fear rejection from peers. Also, reporting victimization among boys dramatically increases the likelihood that they will delay SM identification until wave III.

In hypothesis two, I argue that those individuals who report same-sex attraction at wave I, whether they transition in or out of this status in the future will have higher rates of substance abuse. I did not find full support for this hypothesis. Among females, I found that all SM trajectories were associated with binge drinking, but only those who report SM status at both waves, and those who delay identification are associated with hard drug use. This suggests that those individuals who transition out of SM status do not have the same risk differential as SMs who remain stable. Furthermore, those individuals who will identify as SMs in the future, are already experiencing substance abuse risk. Additionally, table three shows that among females, all SM trajectories are associated with penile-vaginal intercourse, and those who report SM

status at both waves are associated with increases STI diagnosis. This finding suggests that despite same-sex sexual attraction, adolescent SM females are more likely to engage in sexual intercourse, even after all mediating pathways are included into the model. Previous research has shown that bisexual and lesbian females are more likely to engage in a host of sexual risk behaviors (Bailey et al. 2004; Bevier et al. 1995; Lemp et al. 1995; Rosario 1999; Scheer et al. 2002). Indeed, I find support that SMs are more likely to engage in binge drinking and hard drug use, which are important predictors of STI risks. Furthermore, as table two demonstrated, attachment to school and better relationships with parents increase the likelihood that a SM female will make a transition in her sexual orientation between the two periods. It may be then that those females who make transitions, and even those who do not, are engaging in penile-vaginal intercourse as a way of demonstrating their heterosexuality and/or femininity.

Among males, we see that those individuals who report SM status at both waves are more likely to report hard drug use as well as binge drinking. Moreover, those who transition out of SM status are associated with hard drug use. Among those who report SM status at both waves, there is a suppressor effect that emerges with the addition of mediating pathways. As table 2 demonstrated, those individuals who have good relationships with their parents are more likely to remain stable in their sexual orientation, such that when you net out these impact of these relationships in the analyses of substance abuse, you actually see their risk increase compared to other trajectories. Contrary to females, SM males experience no increased odds of engaging in penile-vaginal intercourse, and only those who transition out of SM status are associated with reporting and STI diagnosis.

Table 4 illustrates the relationship between SM status trajectories, substance abuse, and STIs. Among females, similarly to the outcomes at wave I, both those individuals who report

SM status at both waves and those who delay identification are associated with hard drug use, but only those who delay are associated with binge drinking. The relationship between SM status and sexual intercourse is also no longer present. This is most likely due to the majority of females by wave III having had sexual intercourse. Interestingly, those individuals who transition in or out of SM status over the time periods are still linked to STI diagnosis, even after controls for substance abuse and sexual risk behaviors are controlled for. Supplementary analyses show that when the sample includes all females, whether they report penile-vaginal intercourse or not, all SM trajectories are associated with increased risk, and those individuals who transition out of SM status are five and half times more likely to report HIV diagnosis. These findings show that despite an element of same-sex sexual orientation, which one would assume would lead to less penile-vaginal penetration and perhaps decreased HIV/AIDS risk, which indeed not a single case of HIV/AIDS is reported among those females who report SM status at both waves, female SMs who make a transition in SM status continue to have a risk for contracting STIs, including HIV/AIDS, that are significantly higher than non-SMs.

Among males, we see that only those males who delay SM identification are almost two times as likely as non-SMs to report hard drug use. There are no significant relationship between SM trajectories and binge drinking at wave III. The analyses of sexual behaviors and outcomes show that those individuals who report SM status at both waves are much less likely to engage in penile-vaginal intercourse, to report the most robust measure of STI diagnosis, yet are ten times as likely to report HIV/AIDS diagnosis compared to non-SMs. Those who transition out of SM status are not associated with sexual intercourse, STI diangonsis, or HIV/AIDS diagnosis. But those individuals who delay SM identification are associated 2.5 times as likely to report STI diagnosis, and 12.5 times as likely to report HIV/AIDS diagnosis compared to non-SMs.

The findings presented in this paper are particularly important as they identify a population with particularly high risk that is often collapsed with other sexual minorities in cross-sectional data. Furthermore, that contrary to previous evidence, sexual minorities are not an automatically "at risk" population. Rather, there exists large heterogeneity within this population that warrants further investigation. The timing of events in the development of a sexual minority identity as well as the role of family, school, and individual factors can have a large impact on the risks associated with sexual minority status.

Recent increases in visibility of alternative sexual identities have facilitated the coming out process for some youths, many youths have not benefited from cultural shifts in attitudes toward SMs. For many adolescents, they may be aware of their same-sex attraction however, not be willing to discuss it or negotiate the specific contexts in which they are willing to discuss their sexuality as safe (Jordan and Deulty 1998; Lasser and Tharinger 2003; Maguen, Floyd and Bakeman 2002). Those individuals who may remain unidentified for longer periods of time may do so because of perceived negative attitudes by peers and family (Floyd and Stein 2002). Until one identifies as a sexual minority, it remains difficult for them to access resources and social networks allowing them to feel more comfortable in their identity. Delaying identification, therefore, may be a strategy that sexual minority youths deploy to avoid stigma and discrimination (D'augelli and Hershberger 1993). Delayed identification during adolescence may hinder the ability to establish same-sex romantic relationships. In adolescence, romantic relationships are an important pathway through which individuals learn to relate interpersonally with others and contribute to overall self esteem (Harter 1999), attractiveness, and self worth (Kuttler, LaGreca and Prinstein 1999). Therefore, sexual minorities who experience difficulty in establishing romantic relationships due to fear of victimization and/or discrimination may be at

an elevated risk for substance abuse than sexual minorities in more supportive school and familial contexts, as well as their non-sexual minority peers.

VI. Limitations and Future Directions

While this research does make large contributions to the existing literature, it is not without limitations. First, the use of a general measure of sexual minority status based upon respondent reports of "ever being romantically attracted" to persons of the same sex does not tell us anything about whether the respondent is engaging in same-sex sex, same-sex relationships, or has adopted an open, sexual minority identity to peers and family. Second, this research is limited in its ability to examine the affect of adolescent exposure to sexual minority persons, either via the media, family, or other peers. Those individuals with better sexual minority networks and support groups available to them may have lower risks of substance abuse in adolescents and within the school context.

Despite these limitations, this research still makes large contributions to the literature and has important public policy implications. Currently, the existing empirical evidence presents a grave outlook for SM youths. It unilaterally suggests that sexual minority youths are at a pronounced risk for developing drug, alcohol and substance abuse problems and suffering from depression and suicidal thoughts (Huebner et al 2004; Mays and Cochran 2001; Bontempo and D'Augelli 2002). The results presented in this paper find some support that sexual minority youths face substantial risks for substance abuse and STIs; however, they also suggest there exists developmental pathways through which this risk is mediated. This paper shows that there exist family, school, and individual level processes, as well as important social psychological

coping mechanism, that reduce the substance abuse risks associated with SM status during the transition from adolescence to young adulthood.

Sexual minority adolescents manage their sexual identity in meaningful ways, the extent to which they are "out" varies. A limitation of this paper is that it does not investigate "visibility" or the role of "visibility management" as a tool that adolescent sexual minorities use to negotiate their sexual identity in different contexts (Lasser and Tharinger 2003). This added dimension of adolescent stress may be an important mechanism through which substance abuse is examined. The experience of openly "out" and self-identified gay or lesbian adolescents are different than the experiences of those individuals who refuse or resist labels and engage in different behaviors. Orenstein showed that depending on the consistency of same-sex behaviors, feelings, and relationships that rates of substance abuse vary (2001). Sexual minority adolescents manage their sexual identity in meaningful ways, the extent to which they are "out" varies.

These results add to the literature on sexual minority status, and substance abuse in multiple important ways. First, this research uses a large, nationally representative longitudinal sample of U.S. adolescents. Secondly, this research uses a more general measure of sexual minority status that is better suited for examining sexual orientation among an adolescent population. Third, by employing a developmental framework, I am able to examine a previously unidentified sub-population of sexual minorities that are particularly vulnerable for substance abuse.

VII. References

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Table 1: Per cent distribution by sex/gender and sexual minority status trajectory

	Females				Males			
	Yes, WI & WIII	Yes, WI	Yes, WIII	No, WI & WIII	Yes, WI & WIII	Yes, WI	Yes, WIII	No, WI & WIII
Age								
11 to 14	0.10	0.08	0.20	0.21	0.07	0.17	0.27	0.18
14 to 16	0.29	0.34	0.40	0.32	0.13	0.40	0.31	0.31
16 to 18	0.38	0.40	0.30	0.33	0.39	0.31	0.27	0.34
18+	0.24	0.18	0.10	0.14	0.41	0.12	0.15	0.17
Race/Ethnicity								
White	0.74	0.60	0.77	0.68	0.63	0.62	0.68	0.68
non-Hispanic black	0.08	0.18	0.10	0.17	0.17	0.17	0.11	0.14
Hispanic	0.13	0.15	0.10	0.11	0.14	0.16	0.12	0.12
Other	0.04	0.02	0.02	0.01	0.06	0.02	0.02	0.02
Family Structure								
Two biological parents	0.47	0.53	0.52	0.58	0.59	0.50	0.56	0.60
Other two parents	0.19	0.17	0.21	0.16	0.13	0.18	0.21	0.16
Single parent	0.33	0.22	0.23	0.23	0.19	0.26	0.21	0.21
Other family	0.01	0.07	0.03	0.03	0.09	0.06	0.02	0.03
Parent's Education	13.78	12.79	13.41	13.13	13.14	12.91	13.32	13.21
Poverty Index								
Below poverty line to 200%	0.26	0.35	0.31	0.31	0.18	0.40	0.36	0.30
201- 300%	0.20	0.14	0.18	0.17	0.15	0.18	0.11	0.19
301-400%	0.09	0.07	0.11	0.13	0.03	0.11	0.14	0.13
401% and above	0.22	0.21	0.22	0.18	0.33	0.10	0.20	0.19
Missing	0.22	0.24	0.18	0.21	0.30	0.22	0.19	0.19
Mediating Pathways								
Attachment to school	3.96	4.46	4.47	4.68	4.63	4.59	4.65	4.70
CESD-19 Clinically Depresse	0.2	0.13	0.1	0.07	0.15	0.12	0.08	0.06
Relationship with parent	3.75	4.15	4.11	4.26	4.58	4.29	4.43	4.4
Family meals	3.8	4.23	4.8	4.72	4.03	4.53	4.97	4.79
Positive relationships	3.68	3.85	3.92	4.07	3.89	3.89	4.01	4.03
Perceived discrimination	5.46	4.65	4.88	4.44	4.87	4.54	4.47	4.23
Victimization	0.31	0.28	0.31	0.24	0.28	0.58	0.44	0.48
Sexual Risk Behaviors								
Condom Use, WI	0.53	0.42	0.35	0.29	0.42	0.40	0.25	0.32
Condom Use, WIII	1.37	1.31	1.42	1.47	1.04	1.57	1.57	1.70
Number of Partners, WI	1.21	0.70	0.51	0.33	0.84	0.78	0.44	0.54
Number of Partners, WIII	2.77	2.10	2.54	1.79	1.60	2.40	1.74	2.07
Dependent Variables								
Harddrugs WI	0.14	0.05	0.05	0.02	0.15	0.09	0.05	0.04
Hard drugs WIII	0.08	0.03	0.03	0.02	0.04	0.07	0.12	0.06
Binge drinking WI	0.51	0.37	0.37	0.22	0.45	0.36	0.22	0.28
Binge drinking WIII	0.51	0.46	0.46	0.41	0.62	0.61	0.64	0.6
Sexual Intercourse, WI	0.61	0.48	0.29	0.32	0.50	0.43	0.27	0.36
Sexual Intercourse, WIII	0.91	0.93	0.92	0.87	0.56	0.89	0.70	0.87
STI WI	0.10	0.06	0.03	0.03	0.04	0.02	0.01	0.01
STI WIII	0.21	0.21	0.19	0.13	0.00	0.07	0.12	0.05
N	163	297	782	5892	75	403	320	5591

Source: National Study of Adolescent Health (1995-2000)

Table 2: Relative Risk Ratios for Sexual Minority Status Trajectories

	Females		Males	
	No, Yes	No, Yes	No, Yes	Yes, No
Age				
11 to 14	4.68 ***	0.93	11.34 **	10.21 **
14 to 16	3.55 ***	1.65	4.95 **	7.42 ***
16 to 18	2.35 **	1.63 +	1.56	2.47 *
Race/Ethnicity (ref non-Hispanic white)				
non-Hispanic Black	1.58	3.09 *	0.61	0.74
Hispanic	0.69	1.06	0.71	1.16
Other	0.45	0.32	0.24 +	0.36
Family Structure (ref two biological paren				
Other two parents	0.95	0.72	2.62 +	2.38 +
Single parent	0.54 +	0.40 *	0.77	0.90
Other family	2.95	4.20	0.75	1.00
Parent's Education	0.89 *	0.83 ***	1.09	1.10
Poverty Index (ref 500% and above)				
Below poverty line to 200%	1.01	1.01	4.72 **	7.65 ***
201- 300%	0.81	0.58	1.50	4.47 **
301-400%	0.99	0.67	2.62	3.80 *
Missing	0.79	0.87	2.08 +	4.23 **
Relationship with parent	1.28 *	1.31 *	0.62	0.56 *
Attachment to school	1.53 ***	1.71 ***	1.12	1.09
Victimization	1.35	0.96	1.65	2.80 **

+ p<.10; * p<.05; ** p<.01; *** p<.001
Source: National Longitudinal Study of Adolescent Health

Table 3: Logistic Regression Analysis of Adolescent Substance Abuse and Sexually Transmitted Infections at Wave I

Panel A: Females

	Hard Drugs		Binge Drinking		Had Sex		STI		
Yes, WI & WIII	5.99 ***	3.59 ***	3.13 ***	2.26 **	3.74 ***	2.63 ***	2.83 **	2.37 *	1.88 +
No, WI & Yes, WIII	2.61 **	2.34 **	1.63 ***	1.46 ***	1.73 ***	1.47 **	1.25	1.16	1.09
Yes, WI & No, WIII	1.89	1.43	1.87 ***	1.59 *	1.77 **	1.56 *	1.27	1.22	1.06
Age									
11 to 14	0.56	0.70	0.15 ***	0.18 ***	0.04 ***	0.04 ***	0.36	0.11	0.12 **
14 to 16	1.23	1.30	0.42 ***	0.33 ***	0.19 ***	0.18 ***	0.35 ***	0.33	0.37 ***
16 to 18	2.02 **	1.82 *	0.81 +	0.79 +	0.64 ***	0.60 ***	0.72	0.68	0.7
Race/Ethnicity									
Non-Hispanic Black	0.12 ***	0.09 ***	0.33 ***	0.25 ***	1.85 ***	1.74 ***	2.9 ***	3.12	3.31 ***
Hispanic	0.58	0.58	0.77 +	0.72 *	0.60 ***	0.56 ***	1.26	1.15	1.35
Asian	0.42	0.41	0.60 **	0.56 *	0.44 **	0.40 ***	2.14	1.8	1.97
Other	0.33	0.41	0.32 **	0.34 **	0.49 *	1.60 +	0.85	1.31	1.69
Family Structure									
Other two parent	0.86	0.72	1.39 ***	1.21 +	2.03 ***	1.82 ***	1.10	1.00	0.92
Single parent	1.38	1.13	1.41 ***	1.20 +	1.67 ***	1.44 ***	1.50	1.38	1.33
Other family	1.23	1.07	1.10	0.95	1.73 **	1.60 *	1.69 +	1.74	1.73
Parent Education	0.96	1.01	0.98	1.00	0.91 ***	0.91 ***	0.95	0.99	0.99
Relationship with parent		0.89		0.95		0.91 *		1.11	1.10
Family meals		0.91 +		0.92 ***		0.92 ***		0.93	0.94 +
Attachment to school		0.70 **		0.80 ***		0.78 ***		0.97	1.03
Depressed		2.19 **		1.62 ***		1.80 ***		0.86	0.81
Protective Factors		0.91 ***		0.93 ***		0.64 ***		0.90	0.93
Perceived Acceptance		0.85 ***		0.88 ***		0.88 ***		1.06	1.07
Victimization		1.77 **		1.87 ***		2.21 ***		1.97	1.65 *
Bing Drinking						1.25 ***		1.54 *	1.26
Hard Drug Use						1.38		0.69	0.52 +
Number of Sexual Partners									1.57 ***
Condom Use (ever)									0.72

Panel B: Males

	Hard Drugs		Binge Drinking		Had Sex		STI		
Yes, WI & WIII	3.46 **	4.16 ***	1.49	1.86 +	0.79	0.96	2.48	2.36	2.37
No, WI & Yes, WIII	1.61	1.66	0.82	0.82	0.77	0.77	1.03	1.12	1.16
Yes, WI & No, WIII	2.64 ***	1.97 **	1.50 *	1.31	1.42	1.28	1.74	1.89 +	1.93 +
		0.25		0.13					
Age									
age 1	0.15 ***	0.24 **	0.09 ***	0.11 ***	0.06 ***	0.06 ***	0.36	0.47	0.44
age 2	0.63 *	0.82	0.25 ***	0.26 ***	0.19 ***	0.19 ***	0.31 **	0.30 *	0.29
age 3	1.01	1.09	0.66 ***	0.66 ***	0.55 ***	0.52 ***	0.46 *	0.47 *	0.46
Race/Ethnicity									
Non-Hispanic Black	0.24 ***	0.24 ***	0.39 ***	0.32 ***	2.81 ***	3.09 ***	3.64 ***	4.00 **	4.30
Hispanic	0.67	0.63	0.91	0.83	1.05	0.99	2.54 +	2.57 +	2.58
Asian	0.44 +	0.40 +	0.34 ***	0.31 ***	0.52 **	0.57 **	0.39	0.41	0.38
Other	1.12	0.84	0.83	0.66	1.54	1.37	5.66 *	5.93	6.07
Family Structure									
Other two parent	0.94	0.75	1.24 +	1.03	1.71 ***	1.51 ***	1.18	1.08	1.11
Single parent	1.72 *	1.21	1.57 ***	1.22 *	1.94 ***	1.62 ***	0.95	0.69	0.69
Other family	1.33	1.01	1.50 +	1.29	2.23 ***	2.05 **	2.26	2.37 +	2.42
Parent Education	1.04	1.06	1.02	1.04 *	0.90 ***	0.88 ***	1.01	1.02	1.03
Relationship with parent		0.83 *		0.99		1.05		1.10	1.11
Family meals		0.92 *		0.91 ***		0.92 ***		0.97	0.98
Attachment to school		0.81		0.84 **		0.81 ***		0.69 **	0.68
CESD-19 Clinically Depressed		1.32		1.01		1.16		1.94	1.97
Protective Factors		0.41 ***		0.58 ***		0.65 ***		0.93	0.92
Perceived Acceptance		0.99		0.93 **		0.87 ***		0.92	0.92
Victimization		1.67 **		2.38 ***		2.15 ***		1.29	1.39
Binge Drinking						1.48 ***		1.63	1.29
Hard Drug Use						1.21		1.24	1.73
Number of Sexual Partners									0.91
Condom Use (ever)									0.94

+<p.1; *p<.05; **p<.01; ***p<.001 (two tailed tests)

Source: National Study of Adolescent Health (1995-2000)

Table 4: Logistic Regression Analysis of Adolescent Substance Abuse and Sexually Transmitted Infections at Wave III

Panel A: Females

	Hard Drugs		Binge Drinking		Had Sex		STI		
Yes, WI & WIII	4.00 ***	3.77 **	1.18	1.20	1.32	0.91	2.53 ***	1.89 *	1.48
No, WI & Yes, WIII	5.14 ***	4.91 ***	1.74 ***	1.78 ***	1.73 **	1.33	1.73 ***	1.57 **	1.28 +
Yes, WI & No, WIII	1.48	1.38	1.31	1.30	1.97 *	1.66	1.68 *	1.62 *	1.6 *
Age									
11 to 14	2.46 **	2.68 ***	1.77 ***	1.87 ***	0.35 ***	0.42 ***	1.29	1.35	1.53 *
14 to 16	1.09	1.10	1.49 ***	1.53 ***	0.65 +	0.7	1.07	1.09	1.14 *
16 to 18	0.66	0.66	1.43 ***	1.44 **	0.9	0.89	1.07	1.05	0.98
Race/Ethnicity									
Non-Hispanic Black	0.22 ***	0.20 ***	0.19 ***	0.20 ***	1.16	1.32 +	2.95 ***	3.2 ***	3.28 ***
Hispanic	0.51 *	0.47 *	0.63 ***	0.63 ***	0.63 **	0.65 **	1.32 +	1.34 +	1.45 *
Asian	0.30	1.20	0.37 ***	0.38 ***	0.56 *	0.65 +	1.12	1.1	1.21
Other		0.31	0.69	0.68	0.71	0.82	1.55	1.74	1.94 +
Family Structure									
Other two parent	1.01	0.94	0.79	0.78 **	2.24 ***	2.18 ***	1.16	1.13	1.03
Single parent	1.05	1.00	0.94 **	0.68	2.15 ***	2.00 ***	1.28 *	1.21 +	1.48
Other family	1.70	1.75	0.87	0.87	1.36	1.34	1.21	1.20	1.04
Parent Education	1.02	1.03	1.11 ***	1.11 ***	0.89 ***	0.88 ***	1.04 *	1.03 +	1.02
Relationship with parent		0.79 +		0.92 +		0.96		0.92	0.91
Family meals		0.99		1.00		0.93 **		0.99	1
Attachment to school		1.00		0.99		0.85 *		0.90 +	0.94
Depressed		0.88		1.10		1.17		0.73	0.71 +
Protective Factors		0.98		0.99		0.56 ***		0.90	0.97
Discrimination		0.89		0.91 ***		0.87 ***		1.02	1.04
Victimization		1.53 *		0.86 +		1.44 **		1.24	1.17
Previous Substance Use	0.99	0.78	2.44 ***	2.46 ***					
Binge Drinking, WIII						2.48 ***		1.31 *	1.23 +
Hard Drug Use, WIII						2.65 +		1.17	1
Number of Partners, WIII									1.38 ***
Condom Use, WIII									0.91 **

Panel B: Males

	Hard Drugs		Binge Drinking		Had Sex		STI		
Yes, WI & WIII	0.95	1.00	0.99	1.02	0.15 ***	0.15 ***	0.06 **	0.05 ***	0.04 ***
No, WI & Yes, WIII	1.83 *	1.84 *	1.11	1.12	0.37 ***	0.32 ***	2.48 **	2.61 **	2.60 **
Yes, WI & No, WIII	1.02	1.00	1.02	1.02	1.22	1.16	1.05	0.97	0.93
Age									
age 1	3.00 ***	3.08 ***	1.51 **	1.50 **	0.57 *	0.54 **	1.66 +	1.99 *	2.41 **
age 2	2.05 **	2.07 **	1.43 **	1.43 **	0.83	0.82	1.58 +	1.78 *	1.89 *
age 3	1.30	1.31	1.44 **	1.43 **	1.34	1.24	1.75 *	1.84 **	1.95 **
Race/Ethnicity									
Non-Hispanic Black	0.38 ***	0.37 ***	0.27 ***	0.27 ***	1.25	1.81 ***	3.11 ***	3.20 ***	3.2 ***
Hispanic	1.04	0.98	0.84	0.83	0.92	0.93	0.90	0.91	0.91
Asian	0.49 +	0.53	0.45 ***	0.45 ***	0.37 ***	0.43 ***	0.39 +	0.31 *	0.37 +
Other	1.39	1.06	1.13	1.11	1.15	0.98	2.25	2.11	1.98
Family Structure									
Other two parent	1.32	1.27	0.91	0.90	1.72 **	1.57 **	1.19	1.09	1.02
Single parent	1.25	1.13	0.81 *	0.80 *	1.10	1.00	1.02	0.94	0.92
Other family	1.39	1.30	0.48 **	0.48 **	0.98	0.83	1.71	1.84 +	1.63
Parent Education	1.12 ***	1.13 ***	1.13 ***	1.13 ***	0.96	0.93 **	0.95	0.95	0.95
Relationship with parent		0.91		1.04		1.08		0.99	0.95
Family meals		0.98		0.99		0.94 *		0.95 +	0.96
Attachment to school		0.75 **		1.02		1.00		0.93	0.96
CESD-19 Clinically Depressed		1.27		0.86		0.67 +		1.00	1.04
Protective Factors		1.01		0.99		0.53 ***		0.81 +	0.88
Discrimination		0.92 +		0.98		0.87 ***		1.01	1.03
Victimization		1.34 *		1.08		2.31 ***		1.11	1
Previous Substance Abuse	2.61 ***	2.16 **	2.63 ***	2.56 ***					
Binge Drinking						2.69 ***		1.06	0.98
Hard Drug Use						3.07 **		1.09	0.92
Number of Sex Partners									1.27 ***
Condom Use									0.92 +

+<p.1; *p<.05; **p<.01; ***p<.001 (two tailed tests

Source: National Study of Adolescent Health (1995-2000)