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Michelle Kroger
University of Kentucky

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Michelle Kroger, Student

Corrine Williams, Sc.D., Committee Chair

Linda Alexander, EdD, Director of Graduate Studies

Associations among Sexual Violence, Risky Sexual Behaviors, and Substance Abuse: Risk and Protective Factors among Women from the National Survey of Family Growth

Capstone Project Paper

A paper submitted in partial fulfillment of the
requirements for the degree of
Master of Public Health
in the
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By
Michelle Ann Kroger, BS
Erlanger, Kentucky

Lexington, Kentucky
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Dr. Corrine Williams, Sc.D., Chair

Dr. Christina R. Studts, Ph.D., Committee Member

Dr. Richard A. Crosby, Ph.D., Committee Member

Abstract

Introduction: Millions of women experience sexual violence which results in a plethora of adverse health consequences. Given the scope of the problem, more attention is needed to examine the complexities in which sexual violence occurs, and possible associations among sexual violence and related health behaviors. The present study analyzes whether a significant association between sexual violence and condom use and/or sexually transmitted diseases (STDs) exists, and whether consuming alcohol and/or drugs increases women's risk of having unprotected sex and/or an STD.

Methods: Data from the National Survey of Family Growth 2006-2010 and 2011-2013 were analyzed using bivariate and multivariate chi-square tests. Bivariate chi-square assessed possible differences between women who experienced sexual violence, and demographic variables, condom use, STDs, binge drinking, marijuana use, and illicit drug use. Multivariate chi-square, controlling for binge drinking, marijuana use, and illicit drug use, assessed potential associations among sexual violence, outcomes, and covariates.

Results: Bivariate results indicate demographic variables, condom use during last sex, condom use during vaginal intercourse, STDs, binge drinking, marijuana use, and illicit drug use were significantly associated with sexual violence. No association was found between oral sex and sexual violence, and anal sex and sexual violence. Multivariate analyses show potential associations between sexual violence and certain variables.

Conclusions: This study suggests the experience of sexual violence matters in relation to certain health behaviors, and sexual violence victims may experience some protective factors. Limitations include inability to determine the sequence of events, not knowing the age a woman was victimized, and the inability to determine the consistency that women used condoms or the appropriateness of condom use.

Introduction

Sexual violence, often ignored as an important public health issue, affects a large proportion of women in the United States. Roughly 15 million women in the United States have experienced sexual coercion and around 32 million women have experienced some type of unwanted sexual contact during their lifetime.[1] Among women aged 15 to 44, injury from intimate partner violence (IPV) is more common than vehicle accidents, muggings, and cancer deaths.[2] In addition, victims of sexual violence suffer from a magnitude of consequences, such as mental illness, substance abuse, risky sexual behaviors, adverse reproductive conditions, and other chronic diseases.[1,3,4] One study concluded that women who experienced IPV had worse health outcomes compared to women who had not experienced IPV, and the longer women endured IPV, the worse their health outcomes.[3] Given the scope of the problem, more attention should be given to exploring the complexities in which sexual violence occurs including examining the connections among sexual violence, unprotected sex, and substance use. Research has examined relationships among sexual violence and behaviors, such as history of sexually transmitted diseases/infections (STDs/STIs),[5,6] fear of requesting condom use for fear of experiencing sexual coercion,[7,8] early initiation of sex,[9-11] number of sexual partners,[9,12] drug and/or alcohol use, and unprotected sex.[4,8,13] The present study examines the risk factors: condom nonuse, STDs, alcohol and drug use.

While past research has explored relationships between sexual violence and unprotected vaginal intercourse, little is known about sexual violence and its associations with unprotected oral and anal sex. Specifically, if a victim is more likely to participate in unprotected oral and anal sex because they have experienced sexual

violence. Research has examined behaviors surrounding the increase of heterosexual anal intercourse such as the risk of HIV and condom use. For example, studies have demonstrated that heterosexual couples who engage in anal intercourse frequently do not use condoms.[14,15] Earlier studies examined the risk of HIV acquisition among heterosexual couples[16,17] and determined that women are at greater risk because many do not use a condom during anal sex.[18,19] Condoms may be used more frequently to prevent pregnancy because condom use for oral and anal sex is lower than vaginal sex.[20] Due to the increase of heterosexual couples engaging in anal sex and the inconsistent use of condoms for oral and anal sex, this study examines the potential association among victims of sexual violence engaging in unprotected oral, anal, and vaginal sex.

Research studies have found an association between intimate partner violence (IPV) and the risk of sexually transmitted diseases/infections (STDs/STIs).[5,6,21-24] Coercive sexual risk behaviors of women's partners, such as forcing unprotected sex, alcohol consumption, and physical assault,[25] are likely to negatively influence women's sexual health outcomes. Individual sexual risk factors that are significantly associated with IPV include number of sexual partners in the past year, history of STIs, partner infidelity, non-condom use, substance use prior to intercourse, and unprotected anal sex.[4] Earlier studies indicate that coercive male sexual behaviors are likely to negatively influence sexual negotiation among females, particularly in regards to negotiating condom use and other safe sex practices.[7,8,26-29] This evidence suggests a potential connection between women's confidence in requesting safer sex practices,

such as condom use, to protect their selves from adverse health outcomes, such as STDs.

Past research has examined associations between substance use and IPV, but most studies have focused on the perpetrators' frequency of substance abuse rather than the victim.[30-33] There is substantial disagreement among researchers whether alcohol consumption has a casual role in IPV.[34] However, one study found that most incidents of IPV occur after individuals have consumed alcohol.[35] Another study provided support for a relationship between experiencing sexual victimization and increased alcohol consumption before sexual interactions contributing to the likelihood of unprotected sex.[36] Some studies demonstrated an association between victimization and substance use (drugs and/or alcohol), although statistical significance was limited.[37-40] Other studies have found an association between anal sex and 'hard' drug/injection use.[19,41]

The present study examines potential associations between sexual violence and other risky behaviors, including unprotected sexual intercourse (vaginal, oral, and anal), substance use (alcohol and drug use), and STDs. This study analyzes whether a significant association between sexual violence and condom use and/or STDs exists, and whether consuming alcohol and/or using drugs increases women's risk of having unprotected sex and/or an STD. While past research has used small sample sizes, this study contributes to the literature by using a dataset that is representative of the U.S. female population.

Data Collection

Data are from two waves of the Centers for Disease Control and Prevention's (CDC) National Survey of Family Growth (NSFG), 2006-2010 and 2011-2013. Developed by the CDC's National Center for Health Statistics (NCHS) in 1973, the NSFG is a nationally representative sample of men and women living in households across all 50 U.S. states and the District of Columbia. The present study data are from the most recent series 2006-2013. Specific information regarding the NSFG's sample design can be found in the user's guide manual.[42] Participants were interviewed face-to-face by trained female interviewers in the participants' household. Persons were eligible if they were between the ages of 15-44 and currently residing in the household. Participants were identified by randomly choosing one eligible person in every eligible household. The selection process was random; however, certain subgroups are represented at higher rates in the sample which include teenagers (15-19 years), non-Hispanic black and Hispanic men and women. The present study includes female participants only, between the ages 15-44, with a total sample size of 17,880. The response rate for 2006-2010 was 80% and the response rate for the 2011-2013 was 73.4% for females. Data were used from the audio computer-assisted self-interviews (ACASI) portion of the NSFG which asks participants more sensitive questions in the survey. Due to de-identified data, this study did not require IRB review, according to University of Kentucky Office of Research Integrity.

Measures

We measured the association between sexual violence and behaviors condom use, sexually transmitted diseases (STDs), alcohol consumption, and drug use. The exposure of interest was sexual violence, referred to as forced coercion in the survey.

Participants ages 18-44 were asked two questions regarding sexual violence. The first question asked, “Would you say that this first vaginal intercourse was voluntary or not voluntary, that is, did you choose to have sex of your own free will or not?” Participants could respond with either voluntary or not voluntary. The second question asked, “At any time in your life, have you ever been forced by a male to have vaginal intercourse against your will?” Participants could respond yes or no. These questions were combined into one dichotomous sexual violence measure. Women who answered not voluntary or yes to these questions were coded as having experienced sexual violence, and those who answered voluntary and no were coded as never experienced sexual violence.

Outcome Variables

Participants were asked about their use of condoms during sexual activity. First, participants were asked, “The very last time you had any type of sex –that is, vaginal intercourse or anal sex or oral sex –with a male partner, was a condom used?” Response options were yes or no. This question was also asked each sexual activity of vaginal intercourse, oral sex, and anal sex. Women who reported not using a condom during the last time they had any type of sex, and during the last vaginal, oral, or anal sex were coded as no, indicating low condom use.

To ascertain history of STDs, women were asked the yes/no question, “In the last 12 months, have you been treated or received medication from a doctor or other medical care provider for a sexually transmitted disease like gonorrhea, Chlamydia, herpes, or syphilis?”

Covariates

The covariates include alcohol and drug use. Women were asked specific questions regarding the frequency of their alcohol consumption and illicit drug use. For alcohol use, the question regarding binge drinking was used, which asked, “During the last 12 months, how often did you have 4 or more drinks within a couple of hours?” It is important to note that this question was changed from “5 or more drinks” to “4 or more drinks” in series 2011-2013 to be more representative of women’s alcohol tolerance. The response options were: never; once or twice during the year; several times during the year; about once a month; about once a week; and, about once a day. Participants responding never were coded as answering no to the question, all others were coded as yes.

Five questions were asked regarding illicit drug use of marijuana, cocaine, crack cocaine, crystal meth, and injection drugs. Participants were asked, “During the last 12 months, how often have you used […],” for each illicit drug. The response options for marijuana use were different from the other four drugs, but the same for the alcohol questions: never; once or twice during the year; several times during the year; about once a month; about once a week; and, about once a day. For cocaine, crack, crystal meth, and injection drugs, response options included: never; once or twice during the year; several times during the year; and, about once a month or more. With the exception of marijuana use, we combined and recoded all drugs into one yes/no variable, participants responding as anything other than never were coded as yes.

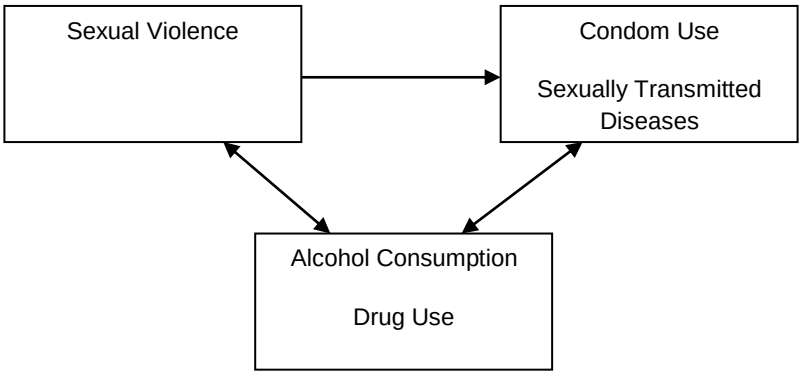
Demographics

Female participants’ age, race/ethnicity, education attainment, marital status, and sexual orientation were recoded as reported in Table 1.

Analytic Plan

Statistical analyses included chi-square to assess the relationship between sexual violence and alcohol consumption and drug use, as well as the relationships between those variables and condom use during vaginal sex, oral sex, and anal sex, and STDs (see conceptual model below). Chi-square was used to determine the differences between women who experienced sexual violence, and demographic variables, condom use, STDs, alcohol use, and drug use. A total of 15985 women were included in these statistical analyses. All statistical analyses were performed with SPSS software v.22.

Conceptual Model



Results

The majority of women in the sample were between the ages 25-31 (29.9%), non-Hispanic White, single race (48.9%), earned a high school diploma or GED (51%), had never been married (39.2%), and identified as heterosexual orientation (93.1%). Table 1 shows the frequencies for demographics and behavioral variables in question.

A little less than one-fourth of women experienced some form of sexual violence. Overall, about three-fourths of women did not use a condom during their last sexual activity. However, only 5.2% had been treated or received medication for an STD in the

last 12 months. Approximately 40% of women consumed four or more drinks within a couple of hours in the last 12 months, while fewer women reported smoking marijuana (16.7%) and using illicit drugs (2.8%).

Table 2 shows the results of chi-square tests of independence for demographics, outcome variables and covariates. Condom use during last sexual activity and STDs were significantly related to sexual violence (p=<0.001). Among women who did not experience sexual violence, 72.5% did not use a condom during their last sexual activity compared to 75.6% of those who experienced sexual violence. While 4.6% of women who did not experience sexual violence reported having an STD, 8.4% of women who experienced sexual violence reported having an STD. Although, when condom use during each type of sexual activity was tested independently, only condom use during last vaginal sex was significant (p=0.007). There was no significant relationship between condom use during oral sex and sexual violence, and anal sex and sexual violence. Binge drinking, marijuana use, and illicit drug use were significantly associated with sexual violence (p=<0.001). All demographic variables were significantly related to sexual violence (p=<0.001).

Results of chi-square tests are shown in Table 3. Among women who did not experience sexual violence, there is a relationship between binge drinking and condom use (p=<0.001), but not among women who experienced sexual violence (p=0.795). Among women who did not experience sexual violence, 26.2% of those who did not binge drink reported using condoms, while 29.4% binge drank also reported using condoms.

Chi-square tests showed a significant association among sexual violence, binge drinking, and STDs, with a stronger association among women who never experienced sexual violence (p=<0.001) than women who did (p=0.034). Among women who did not experience sexual violence, 3.6% who did not binge drink reported having an STD, while 6% of women who binge drank reported having an STD.

Comparison of sexual violence, marijuana use, and condom use, showed a strong significant association among women who did not experience sexual violence (p=<0.001) and a significant association among women who did (p=0.030). Among women who did not experience sexual violence, 26.7% who did not smoke marijuana reported using condoms, while 31.9% who smoked marijuana reported using condoms.

There is an association among sexual violence, marijuana use, and STDs, regardless of whether or not a woman experienced sexual violence (p=<0.001). However, 8.3% of women who did not experience sexual violence and smoked marijuana had an STD, compared to 14.7% of women who experienced sexual violence and smoked marijuana had an STD.

No statistically significant association was found among sexual violence, illicit drug use, and condom use. However, when comparing sexual violence, illicit drug use, and STDs, results indicated a significant association among both women who did and did not experience sexual violence (p<0.001). Among women who did not experience sexual violence 4.5% did not use illicit drugs and had an STD, while 10% of women who used illicit drugs had an STD. Among women who experienced sexual violence and had an STD, 7.8% did not use illicit drugs, while 18.6% used illicit drugs.

Discussion

This study supports associations among sexual violence, demographic variables, condom use, STDs, binge drinking, and drug use. Chi-square tests indicated an association between sexual violence and demographics. Associations between sexual violence and condom use exist; however, when broken down by each type of sexual activity, only condom use during vaginal sex is associated with sexual violence. Bivariate analyses indicated that sexual violence is also associated with having STDs, binge drinking, marijuana use, and illicit drug use. Multivariate analyses revealed associations between not experiencing sexual violence, binge drinking, and condom use; sexual violence, binge drinking, and STDs; sexual violence, marijuana use, and condom use; sexual violence, marijuana use, and STDs; and, sexual violence, illicit drug use, and STDs.

We hypothesized that women younger than age 25 would be associated with experiencing sexual violence. However, bivariate analyses indicated that women ages 25-31 were at the greatest risk of sexual violence. This is surprising because past literature suggests women ages 16-25 have the highest prevalence of victimization.[1,43-46] This is potentially a result of not knowing at what age women in the dataset were victimized. Therefore, a 31 year old woman may report experiencing sexual violence at some point in her life, but we do not know at what age the woman was sexually victimized. Further, women who are currently 18-25 may go on to experience sexual violence during this period, even if they are reporting no violence on the current survey.

Women who experienced sexual violence were less likely to use a condom during their last sexual activity and vaginal sex, and more likely to have an STD. This is consistent with literature which indicates victims of sexual violence infrequently use

condoms/contraceptives.[47-55] This could be because women who have experienced violence are fearful of how their partner will react to condom negotiation.[7,8,26-29] The concepts of sexual agency and male dominance also apply to these explanations. However, contrary to what we hypothesized, there was no association between sexual violence and oral sex and anal sex. It is not surprising that there is no relationship between unprotected oral sex and sexual violence because condom use during oral sex was low. On the other hand, given the fact that anal sex is increasing among heterosexual couples, it is surprising there was no association for anal sex since past literature found associations among victimized women and unprotected anal sex.[8,55] However, because past studies used smaller sample sizes, our findings could be attributed to using a nationally representative dataset with a large sample size.

Results of bivariate analyses supported our hypotheses that women who experience sexual violence are more likely to binge drink, smoke marijuana, and use illicit drugs, than women who have not experienced sexual violence. Women who have been victimized may seek unhealthy alternatives, such as substance use, as a coping method.[56,57] This is referred to as the self-medication hypothesis; when individuals who experience trauma or post-traumatic stress disorder (PTSD) use alcohol and drugs to manage their distress symptoms.[56]

Women who did not experience sexual violence and binge drank were more likely to use a condom during sex, compared to women who experienced sexual violence. There was no association among binge drinking and condom use among women who experienced sexual violence ($p=0.795$). Binge drinking and having an STD had a stronger association among women who did not experience sexual violence than

women who experienced sexual violence. A possible explanation may be that women who have not been victimized and engage in binge drinking may be seeking sexual activity, and prepare themselves ahead of time by intending to use a condom and having a condom with them. This behavior could be referred to as “prepared fun,” when someone plans to engage in sexual activity after binge drinking and plans to use a condom to protect their self.

We hypothesized that women who experienced sexual violence and smoked marijuana would be less likely to use a condom and more likely to have an STD. However, there was a stronger association for condom use and smoking marijuana among women who did not experience sexual violence. This difference may also be influenced by protective behavior of victimized women, as well as ‘prepared fun.’ But, there was no difference in association between women who did and did not experience sexual violence, marijuana use, and STDs. It is unclear why there is a significant association among not experiencing sexual violence, smoking marijuana and condom use, but no difference in association among groups for STDs.

We hypothesized that women who experienced sexual violence and used illicit drugs would be less likely to use a condom and more likely to have an STD. Although no association was found among women who used illicit drugs and condom use for either experience of sexual violence, there was a relationship among sexual violence, illicit drug use, and STDs. This may be because persons using illicit drugs can also contract STDs by sharing syringes to use injection drugs. Another contributing factor is that condoms do not offer consistent protection among all STDs, and illicit drug users have riskier partners who are at a greater risk of contracting an STD.

While past studies used small sample sizes to explore sexual violence, this study used a large sample size from a nationally representative dataset. Therefore, conclusions are more representative of the U.S. female population.

There are several limitations to this study. First, sequence of events was a major limitation of this study. For example, questions most often asked participants whether they did or did not engage in or experience something in the last 12 months. There were two questions regarding sexual violence: one question asked about forced sex at first vaginal intercourse and the other asked about ever being forced to have sex. These questions were combined to encompass anyone who had experienced sexual violence at any time. Due to the way participants were asked about their experience of sexual violence and other behaviors, there is no way to determine whether participants were binge drinking or using drugs, for example, before or after they experienced sexual violence. We also do not know the age a woman was victimized or their consistency of condom use, as previously discussed. We also do not know a person's intentions for using a condom, and the appropriateness of use on a case by case basis. For example, some married and/or monogamous couples with no STDs may not use condoms because they have no perceived risk of STD acquisition from their partner. Without further circumstantial information, conclusions regarding condom use are limited.

Overall, victims of sexual violence had the lowest rates of condom use and the highest rates of STDs, alcohol and drug use. However, when controlling for binge drinking and drug use, victims rates of condom use and STDs are not affected by substance use in the same way as non-victims. Therefore, whether a victim uses

substances may not influence condom use and STDs as much as experiencing sexual violence. Because sexual violence is not associated with the relationship between alcohol and condom use, more research is needed to explore how this knowledge can be incorporated into public health intervention programs.

The present study was unable to determine the sequence of events. Future studies should explore the sequence of events in which sexual violence occurs more closely. For example, how does a woman behave before and after experiencing sexual violence? Is there a difference? The present study suggests that victims may experience some protective factors after sexual violence. Determining the extent of females' risk and protective factors for sexual violence could contribute to greater public health efforts to improve sexual violence intervention and prevention programs that greatly impact the number of women who ever experience sexual violence.

Given the overall low rates of condom use during oral and anal sex, sex education programs must stress the importance of condom use during these sexual activities. Public health professionals should explore the extent to which unprotected oral and anal sex contribute to the nation's high STD rates. In particular, the study's findings suggest important reasons to further investigate and monitor sexual behavior, and its relationship to sexual violence.

References

1. Black MC, Basile K, Breiding MJ, et al. *The National Intimate Partner and Sexual Violence Survey (NISVS): 2010 Summary Report.* Atlanta, GA2011.
2. Bent-Goodley TB. Health Disparities and Violence against Women: Why and How Cultural and Societal Influences Matter. *Trauma Violence Abuse.* 2007;8(2):90-104.
3. Bonomi AE, Thompson RS, Anderson M, et al. Intimate Partner Violence and Women's Physical, Mental, and Social Functioning. *American journal of preventive medicine.* 2006;30(6):458-466.
4. Fontenot HB, Fantasia HC, Lee-St John TJ, Sutherland MA. The effects of intimate partner violence duration on individual and partner-related sexual risk factors among women. *Journal of midwifery & women's health.* 2014;59(1):67-73.
5. Coker AL, Smith PH, Bethea L, King MR, McKeown RE. Physical Health Consequences of Physical and Psychological Intimate Partner Violence. *Archives of Family Medicine.* 2000;9(5):451-457.
6. Campbell JC. Health Consequences of Intimate Partner Violence. *The Lancet.* 2002;359(9314):1331-1336.
7. Swan H, O'Connell DJ. The Impact of Intimate Partner Violence on Women's Condom Negotiation Efficacy. *Journal of interpersonal violence.* 2012;27(4):775-792.
8. Silverman JG, McCauley HL, Decker MR, Miller E, Reed E, Raj A. Coercive forms of sexual risk and associated violence perpetrated by male partners of female adolescents. *Perspectives on sexual and reproductive health.* 2011;43(1):60-65.
9. Raj A, Silverman JG, Amaro H. The Relationship Between Sexual Abuse and Sexual Risk among High School Students: Findings from the 1997 Massachusetts Youth Risk Behavior Survey. *Maternal and Child Health Journal.* 2000;4(2):125-134.
10. Silverman JG, Raj A, Mucci LA, Hathaway JE. Dating Violence against Adolescent Girls and Associated Substance Use, Unhealthy Weight Control, Sexual Risk Behavior, Pregnancy, and Suicidality. *JAMA.* 2001;286(5):572-579.
11. Upchurch DM, Kusunoki Y. Associations Between Forced Sex, Sexual and Protective Practices, and Sexually Transmitted Diseases among a National Sample of Adolescent Girls. *Women's health issues : official publication of the Jacobs Institute of Women's Health.* 2004;14(3):75-84.
12. Silverman JG, Raj A, Clements K. Dating Violence and Associated Sexual Risk and Pregnancy among Adolescent Girls in the United States. *Pediatrics.* 2004;114(2):e220-e225.
13. Wingood GM, DiClemente RJ, McCree DH, Harrington K, Davies SL. Dating Violence and the Sexual Health of Black Adolescent Females. *Pediatrics.* 2001;107(5):e72-e72.
14. Baldwin JI, Baldwin JD. Heterosexual Anal Intercourse: An Understudied, High-Risk Sexual Behavior. *Archives of Sexual Behavior.* 2000;29(4):357-373.

15. Hess KL, Javanbakht M, Brown JM, Weiss RE, Hsu P, Gorbach PM. Intimate Partner Violence and Anal Intercourse in Young Adult Heterosexual Relationships. *Perspectives on sexual and reproductive health.* 2013;45(1):6-12.
16. Karim SSA, Ramjee G. Anal Sex and HIV Transmission in Women. *American Journal of Public Health.* 1998;88(8):1265-1266.
17. Chirgwin KD, Feldman J, Dehovitz JA, Minkoff H, Landesman SH. Incidence and Risk Factors for Heterosexually Acquired HIV in an Inner-City Cohort of Women Temporal Association with Pregnancy. *Journal of Acquired Immune Deficiency Syndromes and Human Retrovirology.* 1999;20(3):295-299.
18. Baggaley RF, White RG, Boily MC. HIV transmission risk through anal intercourse: systematic review, meta-analysis and implications for HIV prevention. *International journal of epidemiology.* 2010;39(4):1048-1063.
19. Mackesy-Amiti ME, McKirnan DJ, Ouellet LJ. Relationship Characteristics Associated with Anal Sex among Female Drug Users. *Sex Transm Dis.* 2010;37(6):346-351.
20. Leichliter JS, Chandra A, Liddon N, Fenton KA, Aral SO. Prevalence and correlates of heterosexual anal and oral sex in adolescents and adults in the United States. *The Journal of infectious diseases.* 2007;196(12):1852-1859.
21. McFarlane J, Malecha A, Watson K, et al. Intimate Partner Sexual Assault against Women: Frequency, Health Consequences, and Treatment Outcomes. *Obstetrics and gynecology.* 2005;105(1):99-108.
22. Garcia-Moreno C, Jansen HAFM, Ellsberg M, Heise L, Watts C. *WHO Multicountry Study on Women's Health and Domestic Violence against Women.* Geneva, Switzerland WHO;2006.
23. Coker AL. Does Physical Intimate Partner Violence Affect Sexual Health? A Systematic Review. *Trauma Violence Abuse.* 2007;8(2):149-177.
24. Coker AL, Hopenhayn C, DeSimone CP, Bush HM, Crofford L. Violence against Women Raises Risk of Cervical Cancer. *Journal of Womens Health.* 2009;18(8):1179-1185.
25. Purdie MP, Abbey A, Jacques-Tiura AJ. Perpetrators of Intimate Partner Sexual Violence: Are There Unique Characteristics Associated with Making Partners Have Sex without a Condom? *Violence against women.* 2010;16(10):1086-1097.
26. Wingood GM, DiClemente RJ. The Effects of an Abusive Primary Partner on the Condom Use and Sexual Negotiation Practices of African-American Women. *American Journal of Public Health.* 1997;87(6):1016-1018.
27. Pulerwitz J, Amaro H, De Jong W, Gortmaker SL, Rudd R. Relationship power, condom use and HIV risk among women in the USA. *AIDS care.* 2002;14(6):789-800.
28. Varga CA. Sexual Decision-Making and Negotiation in the Midst of AIDS: Youth in KwaZulu-Natal, South Africa. *Health Transition Review.* 1997;7(Suppl.3):45-67.
29. Miller E, Decker MR, Reed E, Raj A, Hathaway JE, Silverman JG. Male Partner Pregnancy Promoting Behaviors and Adolescent Partner Violence: Findings from a Qualitative Study with Adolescent Females. *Ambulatory Pediatrics.* 2007;7(5):360-366.

30. Kyriacou DN, Anglin D, Taliaferro E, et al. Risk Factors for Injury to Women from Domestic Violence. *The New England Journal of Medicine.* 1999;341:1892-1898.
31. Desjardins N, Hotton T. *Trends in Drug Offences and the Role of Alcohol and Drugs in Crime.* Ottawa, Ontario, Canada: Juristat Canadian Centre for Justice Statistics;2004.
32. Wolff B, Busza J, Bufumbo L, Whitworth J. Women Who Fall by the Roadside: Gender, Sexual Risk and Alcohol in Rural Uganda. *Addiction.* 2006;101(9):1277-1284.
33. Mair C, Cunradi CB, Gruenewald PJ, Todd M, Remer L. Drinking Context-Specific Associations Between Intimate Partner Violence and Frequency and Volume of Alcohol Consumption. *Addiction.* 2013;108(12):2102-2111.
34. Leonard KE. Alcohol and Intimate Partner Violence: When Can We Say That Heavy Drinking is a Contributing Cause of Violence? *Addiction.* 2005;100(4):422-425.
35. Thompson MP, Kingree JB. The Roles of Victim and Perpetrator Alcohol Use in Intimate Partner Violence Outcomes. *Journal of interpersonal violence.* 2006;21(2):163-177.
36. Parkhill MR, Norris J, Davis KC. The Role of Alcohol Use During Sexual Situations in the Relationship Between Sexual Revictimization and Women's Intentions to Engage in Unprotected Sex. *Violence and Victims.* 2014;29(3):492-505.
37. Bauer HM, Gibson P, Hernandez M, Kent C, Klausner J, Bolan G. Intimate Partner Violence and High-Risk Sexual Behaviors among Female Patients with Sexually Transmitted Diseases. *Sexually Transmitted Diseases.* 2002;29(7):411-416.
38. McDonnell KA, Gielen AC, O'Campo P. Does HIV Status Make a Difference in the Experience of Lifetime Abuse? Descriptions of Lifetime Abuse and Its Context among Low-Income Urban Women. *Journal of Urban Health.* 2003;80(3):494-509.
39. Buzy WM, McDonald R, Jouriles EN, et al. Adolescent Girls' Alcohol Use as a Risk Factor for Relationship Violence. *Journal of Research on Adolescence.* 2004;14(4):449-470.
40. Temple JR, Freeman DH, Jr. Dating violence and substance use among ethnically diverse adolescents. *Journal of interpersonal violence.* 2011;26(4):701-718.
41. Gross M, Holte SE, Marmor M, Mwatha A, Koblin BA, Mayer KH. Anal Sex among HIV Seronegative Women at High Risk of HIV Exposure. *Journal of Acquired Immune Deficiency Syndromes.* 2000;24(4):393-398.
42. Lepkowski JM, Mosher WD, Davis KE, Groves RM, Van Hoewyk J. *The 2006-2010 National Survey of Family Growth: Sample Design and Analysis of a Continuous Survey.* Hyattsville, Maryland: Vital Health Statistics;2010.
43. Fisher B, Cullen F, Turner M. *The Sexual Victimization of College Women.* U.S. Department of Justice.;2000.
44. Belknap J. *The Invisible Woman: Gender, Crime, and Justice.* 3rd ed. Belmont, CA: Wadsworth Cengage Learning; 2007.

45. Krebs C, Lindquist C, Warner T, Fisher B, Martin S. *The Campus Sexual Assault (CSA) Study.* U.S. Department of Justice.;2007.
46. White House Council on Women and Girls. *Rape and Sexual Assault: A Renewed Call to Action.* Washington D.C.2014.
47. Gielen AC, McDonnell KA, O'Campo P. Intimate Partner Violence, HIV Status, and Sexual Risk Reduction. *AIDS and behavior.* 2002;6(2):107-116.
48. Bogart LM, Collins RL, Cunningham W, et al. The association of partner abuse with risky sexual behaviors among women and men with HIV/AIDS. *AIDS and behavior.* 2005;9(3):325-333.
49. Roberts TA, Auinger P, Klein JD. Intimate partner abuse and the reproductive health of sexually active female adolescents. *The Journal of adolescent health : official publication of the Society for Adolescent Medicine.* 2005;36(5):380-385.
50. Panchanadeswaran S, Frye V, Nandi V, Galea S, Vlahov D, Ompad D. Intimate partner violence and consistent condom use among drug-using heterosexual women in New York City. *Women & health.* 2010;50(2):107-124.
51. Williams C, Larsen U, McCloskey L. Intimate Partner Violence and Women's Contraceptive Use. *Violence against women.* 2008;14(12):1382-1396.
52. Fair CD, Vanyur J. Sexual coercion, verbal aggression, and condom use consistency among college students. *Journal of American college health : J of ACH.* 2011;59(4):273-280.
53. Mittal M, Senn TE, Carey MP. Mediators of the relation between partner violence and sexual risk behavior among women attending a sexually transmitted disease clinic. *Sex Transm Dis.* 2011;38(6):510-515.
54. Hess KL, Javanbakht M, Brown JM, Weiss RE, Hsu P, Gorbach PM. Intimate partner violence and sexually transmitted infections among young adult women. *Sex Transm Dis.* 2012;39(5):366-371.
55. Stockman JK, Lucea MB, Draughon JE, et al. Intimate partner violence and HIV risk factors among African-American and African-Caribbean women in clinic-based settings. *AIDS care.* 2013;25(4):472-480.
56. Khantzian EJ. The Self-Medication Hypothesis of Substance Use Disorders: A Reconsideration and Recent Applications. *Harvard Review of Psychiatry.* 1997;4(5):231-244.
57. Walsh K, Galea S, Koenen KC. Mechanisms Underlying Sexual Violence Exposure and Psychosocial Sequelae: A Theoretical and Empirical Review. *Clin Psychol Sci Prac.* 2012;19(3):260-275.

Table 1. Demographics of female participants, 2006-2013.

Demographics	N (%)
Age	n=15985
18-24	4484 (28.1)
25-31	4785 (29.9)
32-38	3764 (23.5)
39-44	2952 (18.5)
Ethnicity	n=15985
Hispanic	3684 (23)
Non-Hispanic White, Single Race	7815 (48.9)
Non-Hispanic Black, Single Race	3214 (20.1)
Non-Hispanic Other or Multiple Race	1272 (8.0)
Education	n=15985
No High School Diploma	2824 (17.7)
High School Diploma or GED	8150 (51)
Associate Degree	1301 (8.1)
Bachelor's Degree	2629 (16.4)
Graduate Level Degree	1081 (6.8)
Marital Status	n=15985
Currently Married	5675 (35.5)
Cohabitating	2194 (13.7)
Divorced, Separated, or Widowed	1854 (11.6)
Never been Married	6262 (39.2)
Sexual Orientation	n=15725
Heterosexual or Straight	14646 (93.1)
Homosexual, Gay, or Lesbian	254 (1.6)
Bisexual	825 (5.2)
Sexual Violence	
Experience any form of Sexual Violence	n=14726
No	11299 (76.7)
Yes	3427 (23.3)
Behavioral Variables	
Condom Use during Last Sexual Activity	n=15985
No	11998 (75.1)
Yes	3987 (24.9)
Sexually Transmitted Diseases	n=15871
No	15051 (94.8)
Yes	820 (5.2)
Binge Drinking	n=15894
No	9265 (58.3)
Yes	6629 (41.7)
Marijuana Use	n=15892
No	13228 (82.8)
Yes	2664 (16.7)
Illicit Drug Use	n=15904
No	15457 (97.2)
Yes	447 (2.8)

Table 2. Percent for each variable by sexual violence, chi-square tests.

	Sexual Violence			
	No (n=11299)	Yes (n=3427)	χ^2	p-value
Age				
18-24	25.9%	21.5%	40.511	<0.001
25-31	30.9%	31.3%		
32-38	24.7%	24.7%		
39-44	18.6%	22.4%		
Ethnicity				
Hispanic	24.5%	18.8%	56.364	<0.001
Non-Hispanic White, Single Race	48.5%	50.0%		
Non-Hispanic Black, Single Race	19.8%	22.4%		
Non-Hispanic Other or Multiple Race	7.1%	8.8%		
Education				
No High School Diploma	16.9%	21.0%	129.473	<0.001
High School Diploma or GED	49.5%	52.9%		
Associate Degree	8.0%	9.5%		
Bachelor's Degree	18.0%	11.9%		
Graduate Level Degree	7.6%	4.7%		
Marital Status				
Currently Married	40.5%	30.0%	236.849	<0.001
Cohabitating	14.2%	16.3%		
Divorced, Separated, or Widowed	10.5%	19.0%		
Never been Married	34.9%	34.7%		
Sexual Orientation				
Heterosexual or Straight	94.9%	88.5%	179.631	<0.001
Homosexual, Gay, or Lesbian	1.1%	2.0%		
Bisexual	4.0%	9.5%		
Condom Use during Last Sexual Activity				
No	72.5%	75.6%	13.133	<0.001
Yes	27.5%	24.4%		
Condom Use during Vaginal Sex				
No	69.2%	71.6%	7.367	0.007
Yes	30.8%	28.4%		
Condom Use during Oral Sex (n=12054)				
No	93.3%	92.8%	0.944	0.331
Yes	6.7%	7.2%		
Condom Use during Anal Sex (n=5349)				
No	78.1%	77.2%	0.573	0.449
Yes	21.9%	22.8%		
Sexually Transmitted Diseases				
No	95.4%	91.6%	73.069	<0.001
Yes	4.6%	8.4%		
Binge Drinking				
No	58.4%	53.0%	30.647	<0.001
Yes	41.6%	47.0%		
Marijuana Use				
No	84.3%	77.2%	92.656	<0.001
Yes	15.7%	22.8%		
Illicit Drug Use				
No	97.8%	94.5%	97.523	<0.001
Yes	2.2%	5.5%		

Table 3. Chi-square results for outcomes condom use and STDs.

		Condom Use			
Sexual Violence	**Binge Drinking**	No	Yes	**X^2**	**p-value**
No	No	73.8%	26.2%	13.523	<0.001
	Yes	70.6%	29.4%		
Yes	No	75.8%	24.2%	0.068	0.795
	Yes	75.4%	24.6%		
		STDs			
Sexual Violence	**Binge Drinking**	No	Yes	**X^2**	**p-value**
No	No	96.4%	3.6%	36.517	<0.001
	Yes	94.0%	6.0%		
Yes	No	92.6%	7.4%	4.488	0.034
	Yes	90.5%	9.5%		
		Condom Use			
Sexual Violence	**Marijuana Use**	No	Yes	**X^2**	**p-value**
No	No	73.3%	26.7%	20.206	<0.001
	Yes	68.1%	31.9%		
Yes	No	76.5%	23.5%	4.708	0.030
	Yes	72.7%	27.3%		
		STDs			
Sexual Violence	**Marijuana Use**	No	Yes	**X^2**	**p-value**
No	No	96.1%	3.9%	66.236	<0.001
	Yes	91.7%	8.3%		
Yes	No	93.4%	6.6%	51.158	<0.001
	Yes	85.3%	14.7%		
		Condom Use			
Sexual Violence	**Illicit Drug Use**	No	Yes	**X^2**	**p-value**
No	No	72.5%	27.5%	0.029	0.866
	Yes	72.0%	28.0%		
Yes	No	75.6%	24.4%	0.023	0.880
	Yes	76.1%	23.9%		
		STDs			
Sexual Violence	**Illicit Drug Use**	No	Yes	**X^2**	**p-value**
No	No	95.5%	4.5%	17.049	<0.001
	Yes	90.0%	10.0%		
Yes	No	92.2%	7.8%	27.096	<0.001
	Yes	81.4%	18.6%		

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Biographical Sketch

This capstone has been prepared by Michelle A. Kroger. In preparation for graduate school, Michelle earned her Bachelor of Science in Sociology from Northern Kentucky University. She is conditionally certified as a CPH recipient, and will earn a graduate certificate in Maternal and Child Health upon graduation with her Master's in Public Health. Please use the contact information below for inquiries:

422 Division Street

Erlanger, KY 41018

(859) 486-1188

makr226@g.uky.edu