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Correlates of Condom use Among Community College Women: The Role of Victimization, Substance Use, and Mental Health Symptoms

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Abstract

Research is needed to understand intersecting health risks among community college students. Applying a syndemic framework, the present research explored childhood sexual victimization, adolescent sexual victimization, intimate partner violence (IPV), marijuana use, alcohol consumption, and symptoms of depression and post-traumatic stress disorder as additive as well as interactive correlates of women's condom use. Questionnaires were administered to a sample of 212 women between the ages of 18 to 24 attending a community college. A series of logistic regression analyses documented that an increased number of psychosocial risk factors was associated with not using a condom during sexual intercourse. Experiencing both adolescent sexual victimization and lifetime intimate partner violence (IPV), compared to experiencing one form of victimization, increased the odds of not using a condom. Endorsing both lifetime IPV and past year marijuana use, compared to endorsing only one of these factors, also increased the odds of not using a condom. These findings highlight the importance of targeting intersections between adolescent sexual victimization, IPV, marijuana use, and sexual risk behavior when developing educational programs for community college women.

Keywords

Community College; Sexual Risk; Victimization; Substance Use

Growing evidence suggests that health risk behavior varies as a function of college status (Carter, Brandon & Goldman, 2010; Simons-Morton et al., 2017). Compared to students enrolled at 4-year colleges, students at 2-year colleges, community colleges, and technical schools display particularly high rates of sexual risk behavior, including higher numbers of sexual partners, lower rates of condom use, higher rates of unintended pregnancy and sexually transmitted infections (STI), higher use of emergency contraception, and lower rates of human immunodeficiency virus (HIV) testing (Shapiro, Radecki, Charchian, & Josephson, 1999; Trieu, Bratton, & Marshak, 2011). These findings are concerning, as HIV infection is increasingly common among young adults (Centers for Disease Control and Prevention [CDC], 2015; Hightow et al., 2005). With these data in mind, the present study

sought to advance our knowledge of sexual risk behavior among community college women by applying a syndemic framework to explore how co-occurring psychosocial risk factors contribute to condom use.

The term syndemic is utilized in public health to refer to co-occurring psychosocial health and environmental conditions that cluster together and interact to worsen health consequences among marginalized communities (Singer, 1994; Singer et al., 2006). This approach highlights how social inequalities, such as poverty and stigma, contribute an important vulnerability to disease among minorities (Singer, 2009). The first syndemic identified was the substance use, violence, and acquired immune deficiency (i.e., “SAVA”) syndemic, which documented how violence and substance use among gay, bisexual and other men who sleep with men coexisted synergistically in the context of cultural marginalization and mental health symptoms to exacerbate HIV risk (Stall et al., 2003; Parsons et al., 2017). Although a syndemic framework has yet to be applied to understanding intersecting health risks among community college students specifically, several prior studies document how substance use and violence also represent interactive conditions that increase sexual risk among women (El-Bassel et al., 2003; Meyer, Springer, & Altice, 2011). This literature is reviewed below.

First, research documents associations between sexual risk and several forms of violence, including: intimate partner violence (IPV), sexual assault, and childhood sexual victimization (Campbell et al., 2008; Wyatt, Myers, & Loeb, 2004). In one study, women who experienced IPV two times more likely than women without IPV to be report HIV infection (Dunkle et al., 2004). Compared to non-victimized women, victimized women are also more likely to be with a partner who engages in sexual risk behavior (Beadnell, Baker, Mirrison & Knox, 2000) or personally engage in sexual risk behavior (Teitelman, Ratcliffe, Dichter, & Sullivan, 2008). There are several possible reasons why victimization may increase sexual risk behavior. It is hypothesized that the psychological consequences and interpersonal skill deficits associated with victimization may increase sexual risk by hindering condom use negotiation (El-Bassel, Caldiera, Ruglass, & Gilbert, 2009). Women in violent relationships may avoid negotiating with their partner to use a condom due to fear of injury (El-Bassel et al., 2000). Violent partners may be less receptive to women’s requests to use a condom (Maman, Campbell, Sweat, & Gielen, 2000). Given that 23.5% of women enrolled in a 2-year college reported an experience of sexual victimization in adulthood, and approximately two-thirds (64.9%) of these women reported a prior history of childhood sexual abuse (CSA) (Urquiza & Goodlin-Jones, 1994), it is important to explore how victimization may increase sexual risks among this population of women.

Second, there is an association between substance use and victimization (Norris, 2008). Compared to nonvictimized women, women with a history of sexual victimization are more likely to consume alcohol prior to sexual activity (Wilsnack, Wilsnack, Kristjanson, Vogeltanz-Holm & Harris, 2004); potentially as a way to cope with the trauma (Kaysen, Neighbors, Martell, Fossos, & Larimer, 2006; Parks, Hsieh, Taggart, & Brazzida, 2014). It is also well documented that perpetrators of sexual violence may deliberately target women who consume alcohol for their attack (Graham et al., 2014), or utilize alcohol as a way to coerce a woman into having unwanted sex (Struckman-Johnson, Struckman-Johnson &

Anderson, 2003). Given that 25% of students attending community college engage in binge drinking (Sheffield, Darkes, Del Boca, & Goldman, 2005), it follows that more attention should be paid to how substance use increases risk for victimization. Of note, research examining the association between victimization and other forms of substance use, such as marijuana use, is lacking (Messman-moore, Coates, Gaffey, & Johnson, 2008). However, one study of community college students documented marijuana use among 33.8% of respondents (Borcherding, 2016). Thus, research is warranted to explore the association between marijuana use and victimization among community college students.

Substance use following victimization may increase risk for engaging in sexual activity without a condom through several pathways (Cooper, 2006; Leigh, 2002). Studies examining global associations between alcohol use and condom use suggest that consuming alcohol at a higher frequency is associated with unprotected sex (Hendershot, Stoner, George & Norris, 2007). It should be noted however, that event-level studies document increased (Brown & Venable, 2007) as well as decreased (Leigh et al., 2008) likelihood of condom non-use when alcohol is used prior to sexual activity. Further, the association between alcohol use and condom use varies by gender (Certain, Harahan, Zaewyc, & Fleming, 2009), as event-level studies suggest that women, but not men, are less likely to use condoms when heavy drinking occurs prior to sex with a steady partner (Scott-Sheldon, Carey, Carey, 2010). These mixed findings underscore the importance of exploring the factors that contribute to a potential association between substance use and condom use.

Psychological distress, including symptoms of posttraumatic stress disorder (PTSD) and depression, may also contribute to the association between victimization, substance use, and condom use (Plotzker, Metzger & Holmes, 2007). PTSD is commonly reported among women with a history of IPV (Nathanson, Shorey, Tirone, & Rhatigan, 2012) and sexual victimization (Resnick, Kilpatrick, Dansky, Saunders, & Best, 1993), and is also associated with depression and substance abuse (Subica, Claypoole, & Wylie, 2011). Depression following victimization may heighten PTSD; resulting in rapid turnover of sexual partners and increased contact with riskier social networks (Holmes, Foa & Sammel, 2005). Notably, a recent survey of over 4,000 community college students documents that upwards of 50% report a current or recent mental health concern, such as depression, anxiety, suicidal ideation, non-suicidal self-injury, or an eating disorder (Eisenberg, Goldrick-Rab, Lipson, & Broton, 2016). These data underscore the importance of considering the role of mental health concerns when examining predictors of condom use among women attending community college.

Purpose of the Present Study

In summary, the aforementioned research suggests that victimization, substance use, mental health symptoms, and sexual risk frequently co-occur. To our knowledge, no studies have examined victimization, substance use, and mental health symptoms as intersecting health correlates of condom use among young women, in general, or among young women enrolled in community college, in particular. Therefore, the purpose of this study was to explore the additive as well as interactive effects of the aforementioned psychosocial conditions on condom use among a sample of women enrolled in a large Northeastern community college.

The application of a syndemic framework to examine these intersecting concerns is reasonable, given evidence of high rates of sexual assault (Urquiza & Goodlin-Jones, 1994), sexual risk behavior (Shapiro et al., 1999; Trieu et al., 2011), substance use (Sheffield et al., 2005), and mental health concerns (Eisenberg et al., 2016) among community college students. Further, many community college students experience financial stress (Baum, Little, & Payea, 2011; Center for Community College Student Engagement, 2017), and syndemic frameworks also emphasize how factors related to marginalization increase risk for negative health outcomes (Singer et al., 2006). The Social Determinants of Health Model of the World Health Organization also emphasizes how environmental conditions and distribution of resources within communities contribute to health inequities (Wilkinson & Marmot, 2003).

In the present study, the primary variable of interest was failure to use a condom the last time they engaged in sexual intercourse. We hypothesized that (a) victimization (i.e., childhood sexual victimization, adolescent sexual victimization, IPV), substance use (i.e., heavy drinking and marijuana use in the past 12 months), mental health (i.e., depression and PTSD), and condom use would be inter-related; (b) there would be an additive effect for these psychosocial conditions on condom use, such that individuals who reported a higher number of these psychosocial conditions would be at increased risk for not using a condom; and (c) two-way interactions between victimization, substance use, and mental health would be associated with increased likelihood of condom non-use, such that individuals who reported two of these conditions would be at increased risk to not use a condom compared to individuals who reported one or none of these experiences.

Method

Participants

Participants included 212 women between 18–24 years of age attending a large Northeastern community college. The sample was 18.4% African American ($n = 39$), 3.3% American Indian ($n = 7$), 1.9% Asian ($n = 4$), 7.5% multiracial ($n = 16$), and 34% Caucasian ($n = 72$). Further, 35.4% self-identified as Hispanic/Latina ($n = 75$). The average age of participants was 19.65 years ($SD = 1.7$).

Procedures

The study procedures were reviewed and approved by the hospital Institutional Review Board. Participants were recruited through print advertisements, which advertised the study as research examining social, health, and dating experiences among community college women. An overview of the research was provided, and women who agreed to participate provided written informed consent. Surveys were administered via commercially available on-line survey software in private on-campus computer labs. A female Research Assistant was available to answer questions. Participants were compensated \$25 for their time, and all participants were provided with a list of campus resources after completing the surveys. The surveys took approximately one hour to complete. Analyses were conducted with SPSS software.

Measures

Demographics.—A short demographics questionnaire collected information regarding age, sexual orientation, dating status, race, concurrent enrollment in a 4-year college, and income. Age was classified as a continuous variable. Race was classified as Non-Caucasian (coded 0) or Non-Hispanic Caucasian (coded 1), concurrent enrollment in a 4-year college was classified as non-enrolled (coded 0) or enrolled (coded 1), and income was classified as \$20,000 per year or less (coded 0) or greater than \$20,000 per year (coded 1). Women who indicated “I don’t know” regarding their annual income were coded as “0”.

Condom Use.—Condom use was operationalized as not using a condom during the most recent experience of sexual intercourse. Participants completed items from the Youth Risk Behavior Survey (CDC, 2011) examining a range of sexual behavior. The following prompt assessed condom non-use: “The last time you had sexual intercourse, did you or your partner use a condom?” Participants were classified as using a condom if they responded “yes” to the prompt (coded 1), and those who responded no to the prompt were considered as not using a condom (coded 0). This questionnaire also allowed individuals to note whether they had not previously engaged in vaginal, oral, or anal intercourse. Women who indicated no history of vaginal, oral, or anal sexual intercourse were excluded from analyses.

Sexual Victimization in Childhood.—The 13-item Childhood Sexual Victimization Questionnaire (CSVQ; Finkelhor, 1979) was completed to assess unwanted sexual experiences that occurred prior to age 14. Individuals respond “yes” or “no” to each type of sexual experience. Respondents who answer “yes” are then asked a series of three questions, which document the relationship to the perpetrator, the age of the perpetrator, and the tactic utilized by the perpetrator. Experiences are classified as childhood sexual victimization if (a) there is an age discrepancy between the child and perpetrator of more than 5 years; (b) coercion or force was used to garner participation in the sexual activity (e.g., use of power/authority, gifts, threats of force, or force); and/or (c) the other person was a family member, authority figure, or caregiver (Risin & Koss, 1987). Participants who reported attempted or completed rape in childhood were classified as victims (coded 1). Other respondents were classified as having no history of childhood sexual victimization (coded 0). The concurrent validity of the CSVQ is documented by Risin and Koss (1987).

Adolescent Sexual Victimization.—A history of adolescent sexual victimization (from the age of 14 to the time of the study) was assessed using the 10-item Revised Sexual Experiences Survey—Short Form Victimization (SES-SFV; Koss et al., 2007). The SES-SFV includes behaviorally-specific and sexually-explicit question that assess several types of unwanted sexual experiences. Participants respond “Yes” or “No” to each item. Respondents who answered “yes” to any of the items were classified as having a history of adolescent sexual victimization (coded 1). Other respondents were classified as having no victimization history in adolescence (coded 0). Johnson, Gidycz, and Murphy (2017) suggest that the reliability and validity of the SES-SFV is adequate.

Intimate Partner Violence.—A lifetime history of psychological or physical IPV victimization was assessed with The Conflict Tactics Scale – 2 (CTS-2; Strauss, Hamby,

Boney-McCoy & Sugarman, 1996). The CTS-2 includes behaviorally-based indicators of victimization. In response to each item, participants indicate how many times they have experienced the target behavior (i.e., never, one time, two times, 3–5 times, 6–10 times, 11–20 times, 20+ times). Respondents note whether the experience occurred in the past year, sometime before but not in the past year, or never in the lifetime. Participants were classified as having a history of IPV victimization if they indicated any experience of psychological or physical victimization with a past/current partner (coded 1). Participants who did not report any psychological or physical victimization with a past/current partner were classified as not having a history of IPV (coded 0).

Heavy Drinking.—Daily alcohol consumption was assessed with the Drinking and Drug Habits Questionnaire (Collins, Parks & Marlatt, 1985). Participants are first presented with the definition of a standard drink. Next, participants indicate the typical number of standard drinks they consume, on average, each day of the week. The U.S. Department of Health and Human Services (2005) recommends that women consume no more than 1 drink per day. Thus, women were classified as heavy drinkers if they consumed 8 or more drinks in a given week. The scale is associated with other self-report measures of alcohol use ($r = .86$; Collins, Koutsky, Morsheimer, & MacLean, 2001). Cronbach's alpha was .66 in the present sample.

Marijuana Use.—One item was utilized to assess marijuana use in the past 12 months, including use of pot, hash, or hash oil. Participants responded “yes” or “no” to the item: “Have you used in the past 12 months?” Participants were considered to have a history of marijuana use in the past 12 months if they indicated “yes” to the prompt (coded 1), and participants who responded “no” to the prompt (coded 0) were considered non-users in the past 12 months.

Depression.—The 20-item Centers for Epidemiologic Studies Depression Scale (CES-D; Radloff, 1977) assessed current symptoms of depression. Symptoms included: depressed mood, sleep difficulties, loss of appetite, feelings of guilt, feelings of hopelessness, and psychomotor retardation. Participants were asked to indicate how often they have felt each symptom in the past week, ranging from “rarely or none of the time (less than a day)” (coded 0) to “most of the time (5–7 days)” (coded 3). Scores are summed (total scores ranging from 0 to 60), and higher scores reflect greater symptoms of depression. Consistent with the recommendations of Lewinsohn, Seeley, Roberts and Allen (1997), scores equal to or greater than 16 were considered at risk for clinical depression (coded 1), and scores of 15 or lower were considered not at risk for clinical depression (coded 0). Cronbach's alpha was .85 in this sample.

PTSD.—The 17-item Posttraumatic Stress Disorder Checklist Civilian Version (PCL-C; Weathers et al., 1993) assessed for symptoms of PTSD. This scale aligns with the diagnostic criteria for PTSD in the Diagnostic and Statistical Manual of Mental Disorders-IV-TR (DSM-IV-TR; American Psychiatric Association, 2000). Respondents are asked about symptoms they have felt in reaction to “stressful life experiences”. Participants indicate how much they have been bothered by each symptom in the past month, with scores ranging from 1 (not at all) to 5 (extremely). Scores are summed (total scores ranging from 17 – 85), with

higher scores reflecting greater symptoms of PTSD. To decrease the likelihood of false positives, a total severity score of greater than 50 was used as the cut-point for clinically significant PTSD symptoms (National Center for PTSD, 2012). Participants were classified as meeting criteria for PTSD if they fell above the empirically derived cut-point, and if they met DSM-IV-TR symptom criteria for PTSD (i.e., at least one re-experiencing item rated as “moderately” or above, three or more avoidance items rated as “moderately” or above, and at least two hyperarousal symptoms rated as “moderately” or above). Participants also completed the Trauma History Screen (Carlson et al., 2011), to assess whether women endorsed at least one traumatic event meeting criteria “A” of the DSM-IV-TR criteria for PTSD.

Syndemic Variable.—Following prior research (Mutanski, Garofalo, Herrick & Donenberg, 2007; Senn, Carey, & Vanable, 2010), the number of psychosocial problems endorsed was summed to create a syndemic variable. The psychosocial problems included: childhood and/or adolescent sexual victimization, lifetime IPV, heavy drinking, marijuana use, depression, and PTSD. Scores ranged from 0 to 7.

Data Preparation and Analyses

Women who never had vaginal, anal, or oral sexual intercourse ($N = 34$) were excluded from the analyses. The final sample included 178 women. No participants were excluded from the dataset as a result of missing or incomplete data. Descriptive statistics were computed for demographic characteristics of the sample (see Table 1). Among the sample of women with a history of vaginal, oral, or anal intercourse, a series of chi-square analyses were conducted to examine whether condom use during the most recent experience of sexual intercourse varied as a function of demographic characteristics (see Table 1).

The data analysis plan followed procedures previously utilized by previous investigators of health risk behavior and condom use among high risk groups (Mutanski et al., 2000; Senn et al., 2010). All analyses accounted for demographic covariates (i.e., age, income, concurrent enrollment in a 4-year college and race). Using a series of individual logistic regressions, we first examined whether each of the psychosocial conditions (i.e., victimization, substance use, mental health) were related to one another, and whether each of the psychosocial conditions was related to women’s condom use (see Table 2). Second, we explored whether the psychosocial conditions had an additive effect on the odds of condom use. Towards this goal, we conducted a single logistic regression with the syndemic variable as the independent variable and condom use as dependent variable. Third, we examined multivariate associations between the psychosocial conditions and the odds of not using a condom by conducting a single logistic regression that included all of the psychosocial conditions as dependent variables, and condom use as the dependent variable (see Table 3). Fourth, we explored whether each of the psychosocial conditions interacted to increase this form of sexual risk. Towards this goal, we conducted a series of logistic regression analyses, which produced unadjusted and adjusted odds ratios. The two-way interaction of each of the psychosocial conditions served as the independent variable, and condom non-use as the dependent variable (see Table 4).

Results

Rates of Psychosocial Conditions.

Characteristics of the sample, including age, ethnicity, family income, relationship status, sexual orientation, and alcohol use by condom use are presented in Table 1. Condom use did not vary as a function of demographic characteristics. The majority of the sample (62.4%; $N = 111$) reported that neither they nor their partner used a condom the last time they had sex. Varying rates of the psychosocial conditions were indicated by the sample. Specifically, attempted rape or rape in childhood was reported by 7.9% ($N = 14$) of the sample. Further, 34.3% ($N = 61$) of women reported some form of sexual victimization in adolescence. Regarding mental health conditions, 37.1% ($N = 66$) met the cut-off for a clinical risk of depression, and 9.6% ($N = 17$) met the cut-off and diagnostic criteria for PTSD. Heavy drinking was reported by 15.2% ($N = 27$) of participants and 52.2% ($N = 93$) of the sample indicated marijuana use in the past 12 months.

Associations between Psychosocial Conditions and Condom Use.

Several of the psychosocial conditions were interrelated (see Table 2). Accounting for age, race, concurrent enrollment in a 4-year college, and income, participants who indicated childhood sexual victimization were more likely to indicate prior experiences of adolescent sexual victimization compared to women without such a history. Adolescent sexual victimization was also associated with IPV, PTSD, and failure to use a condom at last sexual intercourse. Marijuana use was associated with IPV, PTSD, heavy drinking, and failure to use a condom during the most recent experience of sexual intercourse. Meeting the cut-off for depression also increased the odds of exceeding the cut-off for PTSD.

Additive Effect of the Psychosocial Conditions on Condom Use.

Accounting for age, race, income, and concurrent enrollment in a 4-year college, the total number of psychosocial health conditions reported by participants was associated with failure to use a condom at last sexual intercourse, $G^2(5, 178) = 15.01, p = .01$, Nagelkerke $R^2 = .11$. Specifically, each additional psychosocial condition endorsed was associated with 1.32 greater odds of failing to use a condom at the last sexual intercourse, while accounting for age, race, income, and concurrent enrollment in a 4-year college, Wald $\chi^2(1, N = 178) = 5.29, p < .05, 95\% \text{ CI} = 1.04 - 1.67$.

Logistic Regression Examining the Multivariate Effects of Psychosocial Conditions on Condom Use.

Accounting for age, race, income, and concurrent enrollment in a 4-year college, the logistic regression model examining the multivariate effects of the psychosocial conditions was significantly associated with failure to use a condom at last sexual intercourse, $G^2(11, 178) = 27.49, p = .004$, Nagelkerke $R^2 = .20$. Specifically, accounting for age, income, race, and concurrent enrollment at a 4-year college, the psychosocial health conditions of a history of adolescent sexual assault, report of marijuana use in the past 12 months, and not meeting criteria for PTSD increased the odds that the participant failed to use a condom at the last sexual intercourse; Wald $\chi^2(1, N = 178) = 5.12, p < .05, 95\% \text{ CI} = 1.12 - 5.14$; Wald $\chi^2(1,$

$N = 178$) = 7.49, $p < .01$, 95% CI = 1.35 – 6.07; Wald χ^2 (1, $N = 178$) = 5.01, $p < .05$, 95% CI = 0.07 – 0.84 (see Table 3).

Interactions between Psychosocial Conditions and Condom Use.

Low frequencies of participants reporting both psychosocial conditions precluded some analyses (i.e., childhood sexual victimization and heavy drinking, childhood sexual victimization and PTSD, heavy drinking and PTSD). However, reporting both adolescent sexual victimization and IPV significantly increased the odds of condom non-use compared to individuals experiencing neither form of victimization, or one form of victimization. Additionally, accounting for age, income, race, and concurrent enrollment at a 4-year college, participants who indicated both IPV and marijuana use were at higher risk for condom non-use compared to individuals reporting neither psychosocial condition or individuals reporting only one of the conditions (see Table 4).

Discussion

These analyses examined various forms of lifetime violence, substance use, and mental health conditions as contributors to sexual risk among a group of young women ages 18–24 enrolled in community college. The majority (62%) of community college women in this sample indicated that the last time they engaged in sexual intercourse, it was unprotected; mirroring other studies of college age young adults (CDC, 1997). Continued efforts to educate women regarding HIV risk, as well as the importance of condom use and HIV testing are particularly salient given data suggesting that approximately 15% of individuals with HIV do not know they are infected (CDC, 2017).

Informed by syndemic theory, the present research also sought to examine the interrelationships between a range of psychosocial conditions and sexual risk behavior. Results revealed a complex relationship between IPV and condom use. IPV alone was not associated with condom use; however, women who reported both marijuana use and physical/psychological victimization in a prior or current relationship were more likely to report not using a condom compared to women who reported one or none of the psychosocial conditions. There is growing recognition of the link between IPV and condom use, as well as a growing number of interventions that target the intersection between gender-based violence and sexual risk (Puffer, Kochman, Hansen, & Sikkema, 2011). However, these interventions have been developed and tested among high risk populations, such as women who are IV-drug users (Wechsberg, Luseno, Lam, Parry, & Morojele, 2006), women who are HIV positive with histories of child sexual abuse (Sikkema et al., 2007) and women who abuse substances (Hein et al., 2010). More research is needed to understand how interventions with an integrated focus on IPV, substance use and sexual risk can be tailored to meet the needs of non-treatment seeking young women in general, and young women enrolled at community college, in particular.

As indicated in some nationally-representative studies of the global association between alcohol use and inconsistent condom use among young adults (Wechsler, Davenport, Dowdall, Moeykens & Castillo, 1994), the use of marijuana displayed significant univariate and multivariate associations with not using a condom during the most recent experience of

sexual intercourse. Past year marijuana use was also more prevalent among this community college sample (52.2%) than in a national survey of 4-year college students (i.e., Mohler-Kuo, Lee & Wechsler, 2003). Future research is warranted to replicate this association and understand the mechanisms of the association among young women. Notably, a cross-sectional, prospective and event-level analyses conducted by Hendershot and colleagues (2010) suggested that global marijuana use and marijuana use prior to sex is associated with increased condom non-use among young adults ages 14 to 19. Further, compared to non-users, marijuana users report higher rates of STDs (De Genna, Cornelius, & Cook, 2007). These data underscore the importance of focusing on marijuana use as a risk factor for poor sexual health outcomes in the context of preventative interventions for young women enrolled in community college.

Consistent with research showing an association between sexual victimization and sexual risk (Houck, Nugent, Lescano, Peters, & Brown, 2010), experiencing sexual victimization in adolescence was associated with increased odds of condom non-use. Factors such as perceived self-efficacy and affect regulation difficulties may account for the link between a history of sexual assault and sexual risk behavior (Lescano et al., 2004). Future research is needed to investigate the mechanisms by which adolescent sexual assault is associated with greater sexual risk behavior.

Consistent with syndemic theory, results indicated that experiencing both adolescent sexual victimization and IPV increased the odds of condom non-use compared to individuals experiencing one form of violence, or neither form. These results also support previous findings of a link between revictimization and engaging in risky sexual behaviors (Classen et al., 2005). These findings suggest that community college women who have experienced multiple forms of victimization are at increased risk for adverse health consequences.

Surprisingly, not meeting criteria for PTSD increased the odds that women in the current study failed to use a condom during their last sexual experience. This finding contradicts prior studies documenting an association between PTSD and risky sexual behavior (Hutton et al., 2001). Future research should explore whether PTSD confers risk for engagement in specific risky sexual acts while buffering against other risky sexual acts. It is also possible that other variables mediate or moderate the relationship between PTSD and engagement in risky sexual behavior. Further, given research suggesting that specific symptoms of PTSD differentially impact risk for victimization (Krause, Kaltman, Goodman, & Dutton, 2006), future research should explore whether specific PTSD symptom clusters (i.e., intrusive thoughts, avoidance behavior) also influence the likelihood of engaging in sexual risk behavior.

These findings should be interpreted in light of several limitations. Although women completed the surveys in a private computer lab with adequate privacy (i.e., ample space between monitors, barriers between each workspace), responses to the sensitive survey items may have been biased by a desire to respond in a favorable manner. Future research may consider incorporating a measure of reporting bias. Implementation of a more comprehensive measure of alcohol use would also allow for a more nuanced classification of women's alcohol use. In addition, for the purpose of analyses, individuals who did not know

their income were grouped with individuals who reported an income of the “less than \$20,000 a year” category. Future research should consider strategies for assessing and classifying income with greater precision. Future studies may also include variables such as the number of unprotected sex acts or the frequency of HIV/STI testing to provide a more comprehensive assessment of HIV risk behavior. Finally, as students were not randomly selected, findings should be generalized with caution.

Despite these limitations, the present study has several implications for the development and implementation of sexual risk reduction interventions for young women enrolled in community college. Interventions designed for community college students that focus on consistent condom use are needed, and warrant longitudinal evaluation in comparison to dose- and attention-matched control groups to ensure their efficacy. The present data also underscore the importance of addressing concomitant risk factors of IPV and substance use in sexual risk reduction interventions among community college young women. Clearly, just as women of varying ages have differing needs in sexual risk interventions, young women with a lifetime IPV may also warrant tailored prevention efforts. It is widely accepted that “one size fits all” approach to prevention can limit the saliency of program content; thus the next step in program development is to begin to tailor and adapt existing efficacious interventions to target intersecting health risks.

In sum, many community college women are engaging in unprotected sex. Past year marijuana use, adolescent sexual assault, and not meeting criteria for PTSD were associated with condom non-use, as was indicating a greater number of psychosocial risk factors. Reporting both adolescent sexual assault and IPV was also associated with higher risk for condom non-use. A similar result was found for lifetime IPV and marijuana use in the past year. These findings provide preliminary evidence of a syndemic for community college women and highlight the importance of developing and testing HIV preventative interventions for young women in non-traditional college settings.

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Table 1

Demographic Characteristics and Condom Use at Last Experience of Sexual Intercourse

Respondent Characteristics	Full Sample		A History of Sexual Intercourse (N= 178)				
	(N=212)		Condom Use (N = 67)		No Condom Use (N= 111)		
	N	(%)	N (%)		N	(%)	P
Syndemic Variable (mean ± SD)	2.16	+ 1.49	2.07	±1.5	2.51	+1.37	0.04
Age (mean ± SD)	19.65	± 1.7	19.45	±1.4	19.95	±1.90	0.05
Sexual Orientation							0.05
Bisexual	17	(8.0)	2	(3.0)	15	(13.5)	
Lesbian	4	(1.9)	0	(0.0)	4	(3.6)	
Heterosexual	186	(87.7)	64	(95.5)	88	(79.3)	
Questioning	1	(0.5)	0	(0.0)	1	(0.9)	
Prefer not to answer	4	(1.9)	1	(15)	3	(2.7)	
Ethnicity							0.49
White	72	(34.0)	29	(43.3)	37	(33.3)	
American Indian	7	(3.3)	0	(0.0)	5	(4–5)	
Asian	4	(1.9)	1	(1.5)	2	(1.8)	
Black/African American	39	(18.4)	11	(16.4)	22	(19.8)	
Multiracial	16	(7.5)	6	(9.0)	10	(9.0)	
Other	74	(34.9)	20	(29.9)	35	(31.5)	
Concurrently Enrolled in 4- year college							0.06
Yes	45	(21.2)	9	(13.4)	28	(25.2)	
No	166	(78.3)	58	(86.6)	83	(74.8)	
Household income, n (%)							0.71
Unemployed or disabled	19	(9.0)	5	(7.5)	12	(10.8)	
\$10,000-\$20,000	30	(14.2)	9	(13.4)	15	(13.5)	
\$20,001-\$30,000	14	(6.6)	3	(4.5)	7	(6.3)	
\$30,001-\$40,000	14	(6.6)	4	(6.0)	8	(7.2)	
\$40,001-\$50,000	5	(2.4)	3	(4.5)	2	(1.8)	
\$50,001-\$75,000	16	(7.5)	6	(9.0)	9	(8.1)	
\$75,001-\$100,000	5	(2.4)	3	(4.5)	1	(09)	
\$100,000 or more	5	(2.4)	3	(4.5)	2	(1.8)	
Uncertain	104	(49.1)	31	..(46.3)	55	(49.5)	
Dating Status							0.37
Not dating	43	(20.3)	12	(17.9)	16	(14.4)	
Date casually	73	(34.4)	26	(38.8)	32	(28.8)	
Monogamous relationship	88	(41.5)	28	(41.8)	57	(51.4)	
Engaged	6	(2.8)	1	(1.5)	4	(3.6)	
Married	2	(0.9)	0	(0.0)	2	(1.8)	
Drinking							
8 or more drinks per week							0.94

Respondent Characteristics	Full Sample		A History of Sexual Intercourse (N= 178)				
	(N=212)		Condom Use (N = 67)		No Condom Use (N= 111)		
	N	(%)	N (%)		N	(%)	P
Yes	30	(14.2)	10	(14.9)	17	(15.3)	0.07
No	182	(85.8)	57	(85.1)	94	(84.7)	
Lifetime alcohol use							
Yes	102	(48.1)	30	(44.8)	65	(58.6)	
No	110	(51.9)	37	(55.2)	46	(41.4)	

Table 2

Odds of Experiencing Concurrent Psychosocial Conditions

	CSA	ASA	IPV	Depression	PTSD	Heavy Drinking	Marijuana Use
Prevalence	7.9% (N=14)	34.3% (N=61)	78.7% (N=140)	37.1% (N=66)	9.6% (N=17)	15.2% (N=27)	52.2% (N=93)
ASA	OR=2.79 AOR= 3.56 [*]	-					
IPV	OR= 1.69 AOR=2.24	OR= 4.40 ^{**} AOR=4.13 ^{**}	-				
Depression	OR= 1.30 AOR= 1.18	OR= 1.29 AOR= 1.34	OR= 1.87 AOR=2.16	-			
PTSD	OR= 2.92 AOR= 2.34	OR= 3.08 [*] AOR= 2.90 [*]	OR= 4.77 AOR= 4.33	OR=16.18 ^{***} AOR=19.35 ^{***}	-		
Heavy Drinking	OR= 0.93 AOR= 1.07	OR= 1.67 AOR= 1.61	OR= 3.91 AOR= 3.68	OR= 1.44 AOR=1.53	OR=0.69 AOR=0.73	-	
Marijuana Use	OR=1.71 AOR=2.14	OR=1.86 AOR= 1.82	OR= 4.08 ^{**} AOR= 4.30 ^{**}	OR= 1.55 AOR= 1.53	OR=4.80 [*] AOR=4.93 [*]	OR=3.84 [*] AOR=3.85 [*]	-
Failure to Use a Condom^a	OR= 1.09 AOR= 1.03	OR= 2.17 [*] AOR= 2.33 [*]	OR= 1.46 AOR= 1.50	OR= 1.34 AOR= 1.45	OR=0.61 AOR= 0.65	OR= 1.03 AOR= 1.20	OR=1.97 [*] AOR=2.46 ^{**}

Note:

p< .001

**

p < 01

*

p < .05

OR= Odds Ratio; AOR= Adjusted Odds Ratio (adjusted for age, race, concurrent enrollment in a 4-year college, and income).

Table 3

Multivariate Logistic Regression Examining the Effect of Psychosocial Variables on Condom Use at Last Sexual Intercourse (N=178)

Variable	Wald χ^2	P
Age	5.29	0.02 *
Race	2.82	0.09
Income	0.29	0.81
Concurrent Enrollment in a 4-year College	3.75	0.05
Childhood Sexual Victimization	0.23	0.63
Adolescent Sexual Victimization	5.12	0.02 *
IPV	0.01	0.92
Heavy Drinking	0.39	0.53
Marijuana Use	7.49	0.006 **
Depression	2.28	0.13
PTSD	5.01	0.03 *

Note:

*
p < .05;

**
p < .01;

p < .001.

Table 4

Odds Ratios of Interactions between Psychosocial Variables and Condom Use at the Last Experience of Sexual Intercourse

	Odds Ratio	Adjusted Odds Ratio
CSA × ASA	1.01	0.77
CSA × IPV	1.88	1.69
CSA × Heavy Drinking ^a		
CSA × Marijuana Use	2.19	2.11
CSA × Depression	0.59	0.43
CSA × PTSD	-	-
ASA × IPV	2.63 **	2.77 **
ASA × Heavy Drinking	3.22	4.01
ASA × Marijuana Use	1.92	2.24
ASA × Depression	1.33	1.29
ASA × PTSD	0.59	0.45
IPV × Heavy Drinking	1.33	1.54
IPV × Marijuana Use	1.84	2.25 *
IPV × Depression	1.13	1.24
IPV × PTSD	0.76	0.72
Heavy Drinking × Marijuana Use	0.98	1.18
Heavy Drinking × Depression	1.89	2.24
Heavy Drinking × PTSD	-	-
Marijuana Use × Depression	1.27	1.58
Marijuana Use × PTSD	0.58	0.57
Depression × PTSD	0.90	0.84

Note:

p < .001

**
p < .01

*
p < .05

Adjusted Odds Ratio is adjusted for age, race, concurrent enrollment in a 4-year college, and income

^aSmall cell sizes precluded analyses.