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Risk Factors for Intimate Partner Violence and Relationships to Sexual Risk Behavior Outcomes Among College Students

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Risk Factors for Intimate Partner Violence and Relationships to Sexual Risk Behavior Outcomes Among College Students

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BS in Biology
Indiana University
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Thesis Committee Chair: Carla Berg PhD

An abstract of
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Rollins School of Public Health of Emory University
in partial fulfillment of the requirements for the degree of
Master of Public Health
in Behavioral Sciences and Health Education
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ABSTRACT

Background: Intimate partner violence (IPV) or the physical violence, sexual violence, stalking, and psychological aggression by a current or past intimate partner is prevalent in both men and women in the United States. Nearly half of individuals report their first IPV experience during college aged years. Although IPV is prevalent in the United States, specific correlates and outcomes, particularly among college students is largely unknown.

Methods: Using the Theory of Gender and Power, this study aimed to examine a number of correlates and outcomes related to IPV in a sample of diverse males and females attending seven colleges or universities in Georgia. In this cross sectional study, survey data was collected regarding sociodemographics, past IPV experience, and sexual outcomes (specifically sex after drug or alcohol use and condomless sex). Bivariate analyses were conducted to examine correlates of IPV subscale scores and correlates of sexual behavior outcomes. Multivariable regression analyses were conducted to examine correlates the two sexual behavior outcomes.

Results: Bivariate results indicate that there are a number of sociodemographic and psychosocial factors associated with each IPV construct. Additionally, results indicate that lower negotiation subscale scores were associated with use of drugs or alcohol before last sexual encounter. Higher psychological aggression was associated with no condom use at last sexual encounter.

Conclusions: Findings from the present study reveal the need for college campuses to address IPV and focus on promoting positive relationship functioning among college students in order to reduce sexual risk behaviors.

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INTRODUCTION

Intimate partner violence (IPV) is a pervasive issue in the United States, as roughly one third of both men and women have experienced some form of IPV in their life times (Black et al., 2011). With IPV comes a wide range of both short term (e.g., headaches, difficulty sleeping, injury), long term (e.g., chronic pain, pelvic inflammatory disease, mental health implications) health outcomes (Black et al., 2011; Ulloa & Hammett, 2014; Campbell, 2002). Previous literature has identified a number of well established risk factors associated with IPV factors including: being younger in age, being a racial minority, being a sexual minority, adverse childhood events (ACE), and alcohol use (Breiding et al., 2014; Johnson et al., 2015; Walters, Chen, & Breiding, 2013; Schafer, Caetano, & Cunradi, 2004; Stockman, Hayashi, & Campbell 2015; Banyard, Arnold, & Smith, 2000; Caetano, Schafer, & Cunradi, 2001).

Along with direct health outcomes, there are a number of other outcomes related to IPV, one of which is risky sexual behaviors. Existing research has found that alcohol use is highly related to IPV factors, such that alcohol use may be both a risk factor and an outcome of IPV (Caetano, Schafer, & Cunradi, 2001). Of particular interest in this study is the outcome of alcohol and drug use before last sexual encounter. Additionally, other risky sexual behaviors have been linked to IPV experiences, including not using a condom during time of last sexual encounter (Breiding, Black, & Ryan 2008).

IPV is often associated with power and can result in power struggles within the relationship. The Theory of Gender and Power provides the framework to understand how IPV can be used as a mechanism for controlling power in the relationship. Previous literature has applied this theory to condom use, explaining that often times males will use psychological aggression as a means of gaining control, which can take the shape of condom negotiations. The

Theory of Gender and Power can be used to understand other IPV factors, as IPV is often used as a means to gain power in a relationship (Wingood & DiCelemente, 2000).

The present study looks to expand upon existing literature by understanding mechanisms of IPV factors (e.g., negotiation, injury, psychological aggression, physical aggression, and sexual aggression), within a diverse sample of men and women, attending different colleges and institutions in Georgia. As previous literature has determined that there are a number of well established risk factors, the present study aims to understand these risk factors within this unique population.

LITERATURE REVIEW

An estimated 35% of women and 28.5% of men in the United States have experienced Intimate Partner Violence (IPV) in their lifetime. While definitions of IPV vary to some degree across the literature, the Centers for Disease Control and Prevention (CDC) defines IPV as physical violence, sexual violence, stalking, and psychological aggression by a current or past intimate partner (Black et al., 2011). The abuse can be categorized as unidirectional (i.e., one partner is perpetrating the abuse) or bi-directional (i.e., both partners are perpetrating the abuse) (Black et al., 2011).

As a large number of individuals in the United States experience IPV in their lifetime, IPV is a growing public health concern, particularly given the numerous negative physical and mental health outcomes in both men and women (Black et al., 2011; Coker et. al., 2002). IPV also has many short-term negative health repercussions from the abuse (e.g., headaches, difficulty sleeping, injury), and evidence also suggests that IPV is associated with many long-term negative health outcomes, including chronic pain, pelvic inflammatory disease, sexually

transmitted diseases, mental health implications, alcohol and drug misuse, depression, and suicide, among others (Black et al., 2011; Ulloa & Hammett, 2014; Campbell, 2002).

Theoretical Framework

A vast number of different theories have been applied to correlates and outcomes of IPV, including the control balance theory, resource theory, and the differential coercion and social support theory (Castro, Nobles, & Zavala, 2017; Basile, Hall, & Walters, 2013; Zavala & Kurtz, 2017). The central construct in all of the theories applied to IPV is power, and who holds the power in the relationship. In particular, the Theory of Gender and Power provides a framework for understanding where power is derived from in a relationship, specifically through three main structures: the sexual division of labor, the sexual division of power, and the structure of cathexis. Ultimately, the theory indicates that men typically hold a disproportionate power in society and in relationships. This disproportionate spread of power in relationships can lead men to perpetrate IPV as a means to maintain their elevated power (Wingood & DiCelemente, 2000). The model operates on both an institutional and societal level, such that gender roles are continually reinforced by both society and smaller institutions within society. The theory was expanded to take into account exposures, risk factors, and biological factors (Wingood & DiCelemente, 2000). It is well established that power dynamics, gender roles, and gender inequalities play a key role in perpetration and victimization of IPV, and the Theory of Gender and Power provides the framework to understand how these power dynamics are developed (Fleming et al., 2015; McCarthy, Mehta, & Haberland, 2018).

Correlates of IPV

Previous literature determined that the three subcategories of IPV, specifically physical, sexual, and psychological violence, tend to occur simultaneously, and that sociodemographic and

psychosocial risk factors for the three subcategories are similar (Ulloa & Hammett, 2014; Bazargan-Hejazi et al., 2014). In regard to sociodemographics, age is a well-established risk factor for IPV, with IPV occurring at higher levels in individuals under the age of 25 (Black et al., 2011; Breiding et al., 2014; Johnson et al., 2015). Nationwide, about 47% of female and 44% of male IPV victims report their first occurrence of IPV between the ages of 18 and 25 (Breiding et al., 2014). College-attending young adults are at an even greater risk for IPV victimization than their non-college-attending counterparts, potentially related to increased alcohol access and illicit drug use among college students (Krebs et al., 2009).

Regarding sex and relationship status, the majority of research has focused on male-to-female IPV, leading there to be a misconception that males perpetrate IPV at a greater rate. This may not the case; the literature suggests that females are equally likely to perpetrate IPV (Cho 2012). While there are similarities in levels of IPV perpetration and victimization across the sexes, there is discrepancy in findings if risk factors, expression, and outcomes of IPV differ by sex (Cho, 2012; Coker et. al., 2002; Black et al., 2011; Daigneault, Hébert, & McDuff, 2009). Research indicates that sexual minorities are also at an increased risk for all forms of IPV victimization and perpetration (Porter & Williams, 2011; Walters, Chen, & Briding, 2013). For example, 46.4% of lesbian women, 74.9% of bisexual women, and 43.3% of heterosexual women nationally report victimization of sexual aggression other than rape (Walters, Chen, & Briding, 2013). While relationship status likely plays a role in levels of IPV, the association between relationship status and IPV occurrence is not well established. One study finds that marital IPV is more severe compared to IPV in couples dating, partially related to the use of weapons (Sutton & Dawson, 2018). Another study finds that women cohabitating with their partner experience highest levels of IPV victimization (Brown & Bulanda 2008).

There are also clear racial disparities related to IPV. Racial minorities experience IPV at overall higher rates (Schafer, Caetano, & Cunradi, 2004; Stockman, Hayashi, & Campbell 2015). Racial differences in IPV levels occur such that Black men and women experience and perpetrate IPV 2 to 2.7 times more compared to their White counterparts (Cazenave & Straus, 1990). A multiracial study of IPV victimization in women found that Blacks reported the highest levels of IPV victimization, followed by Whites and Hispanics, with Asians reporting the lowest rates of IPV (Cho, 2012). Interestingly, men and women from varying income brackets experience relatively similar levels of IPV (Sugg 2015), so such racial and ethnic disparities can not be accounted for by income.

Psychosocial and behavioral factors also play key roles in the risk of IPV in both men and women in the United States. In regard to psychosocial risk factors, ACE are risk factors for both perpetration and victimization of IPV (Banyard, Arnold, & Smith, 2000). In particular, childhood sexual assault has been shown to predict future IPV victimization. For example, women who were sexually abused as children are more likely to be the victim of IPV later in life, compared to men who were sexually assaulted (Daigneault, Hébert, & McDuff, 2009). One study found that men who experienced childhood sexual abuse were more likely to later perpetrate IPV and were also more likely to experience bidirectional partner abuse (Renner & Whitney, 2011). Among women, childhood neglect was associated with all IPV subcategory outcomes; childhood physical abuse was associated with later bidirectional IPV (Renner & Whitney, 2011). In addition, mental illness, including experiencing depressive symptoms, is a risk factor for IPV victimization (Chan et al., 2008; Khalifeh & Dean, 2010). However, this association is complicated, with some research indicating that IPV leads to depressive symptoms and some research indicating that depressive symptoms lead to IPV (McPherson, Delva, & Cranford, 2007;

Devries et. al, 2013). The association between depressive symptoms and IPV victimization is stronger in females than in males (Graham et al., 2012).

Substance use, in particular alcohol use, is a well-established behavioral risk factor for IPV. One study found that 30-40% of men and 27-34% of women who perpetrated violence were drinking at the time of the incident (Caetano, Schafer, & Cunradi, 2001). Reporting issues with alcohol misuse is associated with more occurrences of IPV perpetration and victimization in both males and females, across racial groups (Schafer, Caetano, & Cunradi, 2004; Caetano, Schafer, & Cunradi, 2001). The association between IPV and other substance use is not as well established, though there has been some indication of a relationship between use of marijuana and cocaine and increased levels of IPV perpetration (Ulloa & Hammett, 2014; Cunradi, Caetano, & Schafer, 2002).

Previous literature has identified constructs to be protective factors for IPV victimization. One study finds that social support and community resources are both protective factors for IPV victimization (Gerino et al., 2018). A systematic review found that being older and married were both factors that protected against IPV victimization (Yakubovich et al., 2018). Protective factors related to IPV victimization are less well established within existing literature.

Outcomes of IPV

Particularly relevant to this study, IPV may lead to risky sexual behaviors (Breiding, Black, and Ryan 2008). One important risk behavior is drug or alcohol use prior to sex, which may contribute to acts of sexual aggression (Thompson et al., 2104; Abbey et al., 2003), and as mentioned above, alcohol use has been related to IPV perpetration and victimization (Boden, Fergusson, & Horwood, 2012; Exner-Cortens, Eckenrode, & Rothman, 2013). In addition, research has documented an association between past psychological IPV victimization and less

consistent condom use (Teitelman et al., 2008), perhaps related to ineffective condom negotiation (Teitelman et al., 2008; Peasant et al., 2018). The Theory of Gender and Power has been applied to condom use specifically, determining that men are able to use their power over women to control conversations surrounding condom use and ultimately not utilize condoms (Wingood & DiCelemente, 2000).

Present Study

The study looks to expand upon current literature by examining a number of correlates and outcomes related to IPV, in a sample of diverse males and females, attending different types of colleges and institutions in Georgia. Specifically, the present study examined sociodemographics, psychosocial risk factors (i.e., ACEs, depressive symptoms), and substance use (i.e., use of tobacco, alcohol, and marijuana) associated with IPV. A number of IPV factors were included in analysis, including the factor of negotiation, which was framed as a protective factor. Additionally, we examined IPV as a correlate of sexual behaviors (i.e., use of alcohol or drugs prior to intercourse, condom use), controlling for sociodemographics and substance use. We hypothesized that, based on extensive previous research, a number of sociodemographic and psychosocial factors influence IPV prepetition and victimization. Within college students, it is hypothesized that younger individuals and racial minorities will be more likely to report IPV victimization. It is also hypothesized that ACE, depressive symptoms, and substance use of any kind will all correlate with greater levels of IPV. We expect to find that increased levels of IPV leads to greater likelihood of reporting use of drugs or alcohol before last sexual and of reporting condomless sex.

METHODS

Procedures & Participants

Data for this study came from Project DECOY: Documenting Experiences with Cigarettes and other Tobacco in Young Adults, which aimed to examine psychosocial correlates of tobacco use trends among young adults attending college/universities in Georgia (Berg et al., 2016). The study collected data with a cohort of 3,418 racially and ethnically diverse young adults. All participants were attending one of seven colleges or universities in rural and urban areas within the state of Georgia: two public universities, two private colleges/universities, two community/technical colleges, and one historically Black university. To take part in the study, participants had to meet the inclusion criteria of being within the age range of 18 to 25 and able to read English.

Data collection started in Fall of 2014 and was subsequently collected every four months (spring, summer and fall), for a total of two years (i.e., six waves of data). The total response rate for the baseline (wave 1) survey was 22.9% (N=3,574/15,607) and met the predetermined targets sample size. Response rates for school type varied; private universities response rates ranged from 18.8% and 59.4%, public colleges/universities response rates ranged from 12.0% to 19.2%, the historically Black university had a response rate of 23.1%, and technical colleges response rates ranged from 15.4% to 27.6%. Seven days after completing the baseline survey, participants were asked to confirm their participation through an email sent to them that reminded participants about what their participation in the study entailed, aimed at increasing retention. This confirmation also initiated their $30 electronic gift card incentive. The confirmation rate was 95.6% (N=3,418/3,574). Additional retention strategies were also put in place to retain participants throughout the two-year study (e.g., obtaining alternate contact information including secondary email addresses and Facebook account, providing participants with the study's contact information to report changes of contact information). Compensation for

participation was increased at every other survey wave to retain participants (i.e., $30 for the first two assessments, $40 for the third and fourth, $50 for the fifth and sixth).

This study analyzed data collected at Wave 5, which included data from 2,689 participants (78.7% of the baseline sample). Of these, 1,849 (68.8%) were sexually active, and 1,496 reported being in a relationship (55.6%, and thus had valid responses to the IPV measures). In total, 1,249 (46.4%) of the participants reported both being sexually active and had valid responses to the IPV measures and were included in the analyses involving both sets of variables (sexual behavior outcomes and IPV factors).

Measures

Current analyses focus on the primary outcomes of sexual behaviors (i.e., use of alcohol or drugs prior to intercourse, condom use), the primary correlate of interest – experiences of IPV, and covariates including sociodemographic variables, psychosocial factors (i.e., ACEs, depressive symptoms), and substance use (i.e., use of tobacco, alcohol, and marijuana). The specific variables are described below.

Primary Outcomes

Sexual behaviors. We assessed two specific sexual behaviors in participants. First, substance use at the time of last sexual encounter was assessed by asking, "Did you drink alcohol or use drugs before you had sexual intercourse the last time?" Responses to this question included: I have never had sexual intercourse, yes, no, or refuse. Next, condom use during most recent intercourse was assessed by asking, "The last time you had sexual intercourse, did you or your partner use a condom?" Responses to this question also included: I have never had sexual intercourse, yes, no, or refuse. Analyses of these outcomes were restricted to participants who reported being sexually active and did not provide "refuse" as their response.

Primary Correlates of Interest

Intimate partner violence. Experiences of IPV were assessed using the revised Conflict Tactics Scale (CTS2), which assesses one positive aspect of intimate partner interactions – negotiation – and four negative processes – physical assault, injury, psychological aggression, and sexual aggression (Straus & Douglas, 2014). This scale asks participants to indicate how often certain situations with their intimate partner(s) occurred in the past year. Response options for the questions included: this has never happened=0, not in the past year but it did happen before=1, once=2, twice=3, 3-5 times=4, 6-10 times=5, 11-20 times=6, more than 20 times=7, refuse, and not in a relationship. To examine negotiation, participants were asked about two situations: (1) My partner explained his or her side or suggested a compromise for a disagreement with me and (2) My partner showed respect for, or showed what he or she cared about my feeling about an issue we disagreed on. To assess physical assault, participants were asked about two scenarios: (1) my partner pushed, shoved, or slapped me and (2) my partner punched, kicked, or beat-me-up. To assess injury, participants were asked about two scenarios: (1) I had a sprain bruise or small cut, or felt pain the next day because of a fight with my partner and (2) I went to see a doctor (M.D.) or needed to see a doctor because of a fight with my partner. To assess experiences of psychological aggression, participants were asked about two scenarios: (1) My partner insulted or swore or shouted or yelled at me and (2) My partner destroyed something belonging to me or threated to hurt me. Finally, to assess sexual aggression, participants were asked about two situations: (1) My partner used force (like hitting, holding down, or using a weapon) to make me have sex, and (2) My partner insisted on sex when I did not want to or insisted on sex without a condom (but did not use physical force). Cronbach's alphas for each subscale in the current study were: negotiation .73; physical assault .91; injury

.91; psychological aggression .66; and sexual aggression .70. Note that participants who reported either "refuse" or "not in a relationship" were excluded from analyses.

Covariates

Sociodemographic variables. For sociodemographics, we assessed a range of factors, including some specific college student measures. For current analyses, we included the following factors assessed at baseline: age, sex, sexual orientation, race, ethnicity, and parental education. At each wave, we assessed relationship status and included this information from Wave 5. In multivariable analyses, the relationship status variable was recoded from single/never married, married, living with a partner, separated, widowed, divorced, or other (which was frequently specified by participants as "in a committed relationship") to married, living with a partner, or in a committed relationship versus other responses. We also coded school type (private, public, technical college, HBCU).

Psychosocial factors. To assess *adverse childhood events (ACEs)*, participants were asked 10 items from the CDC-developed ACE from the Behavioral Risk Surveillance Survey (Centers for Disease Control and Prevention, National Center of Injury Prevention and Control) at Wave 2. The 10 items were questions related to stressful or traumatic experiences occurring before the age of 18, including: physical and sexual violence, parental mental health, parental substance use, and childhood maltreatment. *Depressive symptoms* were assessed at Wave 5 with the Patient Health Questionnaire-9 (PHQ-9 scale), where participants were asked nine questions about how often in the past two weeks, they were "bothered by any of the following problems" (Manea, Gilbody, & McMillan, 2015). An example problem includes, "little interest or pleasure in doing things." A second example questions includes, "feeling bad about yourself or that you are a failure or have let yourself or your family down." Participants answered these nine

questions with a four-point Likert scale with responses of not at all, several days, more than half the days, or nearly every day. Cronbach's alpha in the current study was .87.

Substance use. At Wave 5, we assessed participant tobacco, alcohol (as well as binge drinking), and marijuana use. Participants were asked how many of the last 30 days they used each of the substances and were coded as current users versus not current users.

Data Analysis

Analyses were completed using SPSS version 25. To characterize the sample, descriptive analyses were conducted. Next, bivariate analyses were calculated to examine 1) correlates of IPV subscale scores, including sociodemographics, psychosocial factors, and substance use; and 2) correlates of sexual behavior outcomes, including sociodemographics, psychosocial factors, substance use, and IPV subscale scores.

Then, multivariable regression analyses were conducted to examine correlates the two sexual behavior outcomes. The primary correlates of interest – the IPV subscale scores – were forced into each model. Age, sex, sexual orientation, race, ethnicity, and parental education were forced into each model; school type was examined as a correlate in preliminary analyses and did not contribute significantly to the models. Given the overlapping nature of this variable with race and parental education, we removed this variable from the models. We explored ACEs and depressive symptoms in these models, which did not contribute to the models. They were thus excluded from analyses. We also forced the substance use variables into each model.

Finally, we examined IPV subscale scores and their interactions with sex and with sexual orientation as correlates in the multivariable models. None of these interactions contributed significantly to the models. (Note: Given high collinearity among IPV subscales, we also

modeled each IPV subscale separately, controlling for all other factors, indicated as notes for Table 3.)

RESULTS

Participant Characteristics

Table 1 presents participant characteristics. In brief, the average age of participants was 20.77 years (SD=1.94), 63.5% (n = 1174) was female, 24.0% (n=437) was Black, 10.0% (n=167) was sexual minority, and 28.9% (n=535) were attending a public university.

Average scores across the IPV factors were as follows: negotiation (M=9.59, SD=3.48), physical assault (M=1.03, SD=2.43), injury (M=0.82, SD=2.22), psychological aggression (M=2.95, SD=2.99), and sexual aggression (M=0.99, SD=2.34). The majority of participants reported high negotiation (59.8% with scores ≥10 out of 14) and no experience of physical assault (83.3%; 80.3% in men, 84.8% in women), injury (86.9%; 86.1% in men, 87.2% in women), or sexual aggression (82.9%; 86.2% in men, 81.2% in women). However, 52.7% (57.7% in men, 54.3% in women; 55.1% in men, 51.5% in women) reported at least one experience of psychological aggression (with 25.8% reporting ≥5).

Bivariate Analyses Examining Correlates of IPV Factors

Bivariate analysis (**Table 1**) indicated that higher scores on the *negotiation* subscale were associated with being married (p<.001), being White (p=.001), being Hispanic (p=.021), higher parental education (p=.028), attending private school (p<.001), higher levels of depressive symptoms (p=.015), and past 30-day alcohol use (p=.001). Higher scores on the *physical assault* subscale were associated with being male (p=.014), being a sexual minority (p=.013), being Black (p<.001), attending HBCU (p=.001), higher ACE scores (p<.001), higher levels of depressive symptoms (p<.001), past 30-day tobacco use (p<.001), and past 30-day marijuana use

(p=.050). Higher scores on the *injury* subscale were associated with being a sexual minority (p=.047), being Black (p<.001), attending an HBCU (p=.001), higher ACE scores (p=.004), higher levels of depressive symptoms (p<.001), past 30-day tobacco use (p<.001), and past 30-day binge drinking (p=.031). Higher scores on the *psychological aggressive* subscale were associated with being sexual minority (p<.001), being Black (p<.001), lower parental education (p=.031), attending HBCU (p<.001), higher ACE (p<.001), higher depressive symptoms (p<.001), past 30-day tobacco use (p<.001), past 30-day binge drinking (p=.003), past 30-day marijuana use (p<.001). Higher scores on the *sexual aggression* subscale were associated with younger age (p=.015), being Black (p<.001), lower parental education (p=.050), attending an HBCU (p<.001), higher ACE scores (p=.001), higher levels of depressive symptoms (p<.001), and past 30-day tobacco use (p<.001). Also note that all IPV subscales were significantly correlated with each other, with the exceptions of negation and physical assault (p=.230) and of negotiation and sexual aggression (p=.071).

Alcohol or Drug Use Before Last Sexual Encounter

Bivariate analysis (**Table 2**) shows that correlates of alcohol and drug use before last sex included being single or never married (p<.001), higher parental education (p<.001), school type attended (p=.036), higher levels of depressive symptoms (p<.001), past 30-day use of tobacco, alcohol, and marijuana (p's<.001), lower subscales scores for negation (p=.002), and higher subscale scores for physical assault (p<.001), injury (p<.001), psychological aggression (p=.001), and sexual aggression (p<.001). Among *men*, alcohol and drug use before last sex included being single or never married (p=.010), higher parental education (p=.001), past 30-day use of tobacco, alcohol, and marijuana (p's<.001), and higher subscale scores for physical assault (p=.013) and sexual aggression (p=.013; not shown in tables). Correlates of alcohol and drug use

before last sex among *women* included being single or never married (p<.001), higher parental education (p=.046), school type attended (p=.019), higher levels of depressive symptoms (p<.001), past 30-day use of tobacco, alcohol, and marijuana (p's<.001), lower subscales scores for negation (p=.001), and higher subscale scores for physical assault (p=.011), injury (p=.001), psychological aggression (p=.005), and sexual aggression (p<.001).

Multivariable regression analysis (**Table 3**) indicated that Blacks had higher odds of alcohol and drug use before sex compared to Whites (OR=1.79, p=.012). Additionally, past 30-day use of alcohol (OR=3.82, p<.001) and marijuana (OR=2.12, p=.001), and lower score on negotiation subscale (OR=0.92, p=.001) were associated with higher odds of alcohol or drug use before last sex (Nagelkerke R-square=.155). In multivariable analyses examining men and women separately, correlates of alcohol or drug use before last sexual encounter among *men* included alcohol use (OR=2.99, CI: 1.19-7.58, p=.020) and sexual aggression (OR=1.27, CI: 1.01-1.60, p=.038; Nagelkerke R-square=.154; not shown in tables). Among *women*, correlates of alcohol or drug use before last sexual encounter among men included being Black (OR=2.09, CI: 1.23-3.54, p=.006), alcohol use (OR=4.97, CI: 2.27, 10.89, p<.001), marijuana use (OR=2.27, CI: 1.27-4.04, p=.002), and lower negotiation scores (OR=0.90, CI: 0.84-0.96, p=.002; Nagelkerke R-square=.188).

Condom Use During Last Sexual Encounter

Bivariate analyses (**Table 2**) showed that correlates of not using condoms during last sexual encounter included being older (p<.001), being female (p<.001), being a sexual minority (p=.007), being married (p<.001), being White (p=.002), lower parental education (p=.002), type of school attended (p<.001), higher ACE scores (p=.007), and higher scores on the psychological aggression subscale (p=.025). Among *men,* correlates of not using condoms during last sexual

encounter included being older (p<.001), being married (p<.001), and type of school attended (p=.030; not shown in tables). Among *women*, correlates of not using condoms during last sexual encounter included being older (p<.001), being a sexual minority (p<.001), being married (p<.001), race (p=.040), lower parental education (p=.040), type of college attended (p=.022), higher ACE scores (p=.007), and higher scores on the psychological aggression subscale (p=.017).

Multivariable regression analyses (Table 3) indicated that older age (OR=1.15, p<.001), being female (OR=2.05, p<.001), being a sexual minority (OR=2.09, p=.003), past 30-day use of tobacco (OR=0.05, p=.001), and higher scores on the psychological aggression subscale (OR=1.09, p=.006) were associated with no condom use during last sexual encounter. Not being partnered (OR=0.53, p<.001) and being Asian (OR=0.50, p=.021) indicted lower odds of condomless sex (Nagelkerke R-square=.142). In multivariable analyses examining men and women separately, correlates of not using condoms during last sexual encounter among *men* included being older (OR=1.15, CI: 1.05, 1.26, p=.002; Nagelkerke R-square=.107; not shown in tables). Among *women*, correlates of not using condoms during last sexual encounter included being older (OR=1.15, CI: 1.03, 1.28, p=.015), being a sexual minority (OR=2.49, CI: 1.32-4.74, p=.005), being in a relationship (OR=0.44, CI: 0.31-0.63, p<.001), and more experiences of psychological aggression (OR=1.10, CI: 1.01-1.19, p=.021; Nagelkerke R-square=.125).

DISCUSSION

This study examines a number of associations between IPV factors and various previously established correlates and outcomes of IPV in a diverse sample of young college attending adults in Georgia. Two of our initial hypothesis were partially supported – that specific IPV factors are associated with the sex risk outcomes of drugs or alcohol before last sexual

encounter and condom less sex at last sexual encounter. Moreover, while the results indicated some differences among men and women, many of the significant findings identified in the overall sample and among women were also identified as trends among the men. This may be a result of the sample of men (n=397) being smaller than the sample of women (n=761), as well as the relatively limited frequencies of IPV experiences, particularly in regard to physical assault, injury, and sexual aggression.

Using drugs or alcohol before the last sexual encounter was only associated with the IPV factor of lower negotiation subscale scores. While the hypothesis is not entirely supported since only negotiation scores were associated with IPV victimization, this finding does agree with existing literature in which, alcohol is highly associated with overall violence, including factors of IPV (Caetano, Schafer, & Cunradi, 2001). Multivariable analysis separating out men and women found that in men drugs and alcohol before last sex was associated with sexual aggression and in females, drugs and alcohol before last sex was associated with lower negotiation scores. For men, this associated is supported by existing literature as alcohol is highly associated with violence, which could include sexual aggression. Secondly, Individuals with higher scores on the psychological aggression subscale had greater odds of condom less sex during last sexual experience. While it is somewhat surprising that this is the only IPV factor to be associated with lack of condom use during last sexual encounter, this can be framed by the Theory of Gender and Power (Wingood & DiCelemente, 2000). As the Theory of Gender and Power explains, men typically utilize forms of aggression, including psychological aggression, to assert their power over women, which has been found to lead to more conversations surrounding condom negotiation and resulting lack of condom use (Wingood & DiCelemente, 2000). Multivariable analysis separating out men and women found that both men and women were less

likely to use a condom during last sexual encounter if they were older. Additionally, women were less likely to use a condom if they were a sexual minority, in a relationship, or had experienced psychological aggression. This difference between men and women can also be framed using the Theory of Gender and Power, as previous literature finds that men typically use psychological aggression during condom negotiations (Wingood & DiCelemente, 2000).

We found that alcohol and marijuana use in the last 30 days were both associated with higher odds of using drugs or alcohol before last sexual encounter. This association is not surprising based on the nature of the outcome and the risk factor both involving drugs and alcohol. Our results also expand upon the existing literature through our finding that Blacks had higher odds of using drugs and alcohol before last sex as compared to Whites. Future research is needed to further explore the mechanisms underlying the association between being Black and the use of drugs and alcohol before last sexual encounter.

Results of this study show that there is an association with being female and no condom use, as well as psychological aggression and decreased odds of condom use, both of which may be explained through the Theory of Gender and Power. Analysis also indicated that sexual minorities have higher odds of no condom use before last sexual encounter and Asians have lower odds of no condom use, though need further study is needed in order to fully understand these associations.

Our results found that Blacks had higher IPV subscales scores for physical assault, injury, psychological aggression, and sexual aggression. This study finding supports previous literature which finds Blacks experience overall increased IPV as victims compared to other racial groups (Cazenave & Straus, 1990; Cho, 2012). Blacks have also been found to be higher perpetrators of IPV compared to other racial groups (Cazenave & Straus, 1990), though it should be noted that

our study only includes measurements of IPV victimization experience. One of our initial hypothesis was supported in, higher ACE scores were associated with all IPV factors, except negotiation. As ACE have been found to predict later IPV experiences in other populations, this finding expands upon existing literature (Banyard, Arnold, & Smith, 2000). Tobacco use was found to be associated with the IPV factors of physical assault, injury, psychological aggression, sexual aggression. Marijuana use was associated with the IPV factors of physical assault and psychological aggression, and alcohol use was associated with the IPV factor of higher negotiation scores, while binge drinking was associated with injury and psychological aggression. There are well established correlations between alcohol and IPV factors, but future research should focus on the mechanism of other substance use (i.e., marijuana and tobacco) with relation to IPV factors (Schafer, Caetano, & Cunradi, 2004; Caetano, Schafer, & Cunradi, 2001).

The current study has implications for both research and in practice. In research, existing literature indicates that drugs and alcohol have different risk with relation to IPV (Ulloa & Hammett, 2014; Cunradi, Caetano, & Schafer, 2002). As we found negotiation IPV factor to be associated with drugs and alcohol, future research should separate out drugs and alcohol in this analysis to further understand the relationship between drugs and alcohol before last sexual encounter as separate entities. Additionally, the study has implications surrounding condom use at last sexual encounter. As our results found that with psychological aggression there were increased odds of no condom use during last sexual experience, future research should separate analysis by men and women, to work towards further understanding of how the Theory of Gender and Power is highly related to condom negotiations and subsequent lack of condom use. In practice, college campuses should focus existing sexual misconduct curriculum on other

important areas related to IPV risk factors and outcomes. Information about condom usage, negotiation skills, and impacts of drugs and alcohol before sex should be made readily available to this population.

Limitations

There were a couple of notable limitations of this study. One of these important limitations is that the study population consisted of only young adults in Georgia. As a result of this specific population, findings from this study are likely not generalizable to other age groups or for young adults in other states. However, the data did include diverse adults from different racial and ethnic groups and institutions, which is a strength of the study. Secondly, the study only asked about IPV factors within the last year. This means that it is possible the study only captured a portion of the IPV occurring in an individual's life time, and therefore might not provide complete information about associations. Finally, due to the self-reported there could be social desirability or recall bias. The data is cross sectional which limits the ability to draw casual inferences. Despite some limitations, the study was able to expand upon existing literature and provide some interesting developments in the association between substance use, race, sexual behaviors and IPV factors.

CONCLUSIONS

IPV is a concerning issue within the United States, with young college attending adults being at particular risk. This study works to expand upon the extensive existing literature by framing sexual outcome behaviors of lack of condom use and drugs or alcohol before last sexual encounter, within the Theory of Gender and Power. This study provides evidence that factors of IPV are associated with risky sexual behaviors of drugs or alcohol before last sexual encounter and no condom use at last sexual encounter. Future research should look at IPV factors by drugs

and alcohol separately to further understand these associations, and which substances have higher correlations. Additionally, future research should run separate analysis on men and women to understand gender differences within the Theory of Gender and Power. Results describe the need for IPV focused education on college campuses.

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APPENDIX

Table 1. Bivariate Analyses Examining Participant Characteristics Associated with IPV Factors, N=1849

	Total	Negotiation		Physical Assault		Injury		Psychological Aggression		Sexual Aggression	
Variable	**N (%) or M (SD)**	**r or M (SD)**	**p**	**r or M (SD)**	**p**	**r or M (SD)**	**p**	**r or M (SD)**	**p**	**r or M (SD)**	**p**
Sociodemographics											
Age	20.77 (1.94)	0.002	.959	-0.03	.365	-0.01	.711	-0.02	.615	-0.08	.015
Sex			.066		.014		.258		.370		.368
Male	675 (36.5)	9.39 (3.77)		1.03 (2.52)		0.77 (2.26)		2.38 (2.84)		0.73 (2.13)	
Female	1174 (63.5)	9.76 (3.60)		0.72 (2.18)		0.62 (2.07)		2.24 (2.91)		0.84 (2.21)	
Sexual Orientation [a]			.805		.013		.047		<.001		.163
Heterosexual	1671 (90.0)	9.63 (3.68)		0.79 (2.25)		0.64 (2.07)		2.20 (2.81)		0.78 (2.16)	
Other	167 (10.0)	9.71 (3.52)		1.33 (2.88)		1.04 (2.79)		3.18 (3.48)		1.08 (2.52)	
Relationship Status			<.001		.367		.521		.294		.137
Single/never married	1291 (69.8)	9.11 (3.80)		0.90 (2.41)		0.73 (2.20)		2.26 (2.98)		0.91 (2.23)	
Married	173 (9.4)	10.59 (3.43)		0.72 (2.22)		0.50 (1.84)		2.51 (2.83)		0.55 (1.92)	
Living with partner	259 (20.0)	10.56 (3.22)		0.79 (2.14)		0.63 (2.11)		2.40 (2.74)		0.68 (2.08)	
Other*	126 (6.8)	10.08 (3.17)		0.56 (2.02)		0.57 (2.05)		1.93 (2.61)		0.70 (2.38)	
Race [b]			.001		<.001		<.001		<.001		<.001
White	1171 (64.3)	9.88 (3.58)		0.64 (2.06)		0.50 (1.86)		2.03 (2.70)		0.61 (1.85)	
Black	437 (24.0)	9.03 (3.82)		1.53 (3.09)		1.31 (2.94)		3.12 (3.34)		1.53 (3.06)	
Asian	103 (5.7)	8.94 (3.79)		0.82 (2.06)		0.84 (2.35)		2.00 (2.85)		0.77 (1.98)	
Other	109 (6.0)	9.62 (3.54)		0.83 (1.97)		0.48 (1.53)		2.73 (2.92)		0.86 (2.21)	
Hispanic			.021		.770		.668		.505		.788
Yes	118 (8.5)	8.90 (3.83)		0.87 (2.08)		0.58 (1.47)		2.45 (2.65)		0.85 (2.14)	
No	1368 (90.5)	9.70 (3.63)		0.81 (2.28)		0.67 (2.15)		2.26 (2.89)		0.80 (2.18)	
Parental Education [c]			.028		.152		.081		.031		.050
< Bachelors	886 (48.3)	9.41 (3.64)		0.92 (2.46)		0.76 (2.27)		2.45 (3.02)		0.92 (2.35)	
≥ Bachelors	949 (51.7)	9.83 (3.68)		0.74 (2.16)		0.57 (1.99)		2.13 (2.75)		0.70 (2.01)	
School Type			<.001		.001		.001		<.001		<.001
Private	735 (39.8)	9.80 (3.49)		0.60 (1.87)		0.44 (1.61)		1.92 (2.60)		0.55 (1.69)	
Public	535 (28.9)	9.77 (3.65)		0.86 (2.46)		0.72 (2.36)		2.34 (2.91)		0.98 (2.57)	
Technical college	353 (19.1)	9.06 (3.86)		0.96 (2.62)		0.84 (2.40)		2.71 (3.20)		0.75 (2.13)	
HBCU	226 (12.2)	8.89 (3.81)		1.38 (2.72)		1.15 (2.64)		2.86 (3.14)		1.42 (2.68)	
Psychosocial Factors											
ACEs	1.61 (1.85)	-0.05	.180	0.13	<.001	0.08	.004	0.16	<.001	0.16	.001
Depressive symptoms	5.75 (5.77)	0.08	.015	0.19	<.001	0.18	<.001	0.26	<.001	0.24	<.001
Substance Use											
Tobacco			.557		<.001		<.001		<.001		<.001
Yes	393 (21.3)	9.66 (3.70)		1.60 (3.22)		1.32 (2.95)		3.47 (3.39)		1.31 (2.78)	
No	1456 (78.7)	9.51 (3.47)		0.66 (2.02)		0.53 (1.89)		2.03 (2.70)		0.70 (2.02)	

Alcohol			.001		.196		.090		.774		.072
Yes	1359 (73.5)	9.84 (3.50)		0.78 (2.20)		0.61 (2.02)		2.27 (2.80)		0.74 (2.04)	
No	490 (26.5)	9.17 (3.96)		0.94 (2.52)		0.81 (2.36)		2.32 (3.08)		0.96 (2.47)	
Binge drinking			.547		.148		.031		.006		.064
Yes	730 (39.5)	9.71 (3.48)		0.95 (2.43)		0.84 (2.37)		2.57 (2.95)		0.95 (2.37)	
No	1119 (60.5)	9.59 (3.75)		0.76 (2.24)		0.58 (2.00)		2.14 (2.84)		0.73 (2.08)	
Marijuana			.654		.050		.129		<.001		.082
Yes	183 (15.9)	9.55 (3.50)		1.07 (2.45)		0.83 (2.14)		2.96 (2.97)		1.01 (2.33)	
No	1487 (84.0)	9.68 (3.70)		0.73 (2.18)		0.59 (2.03)		2.13 (2.82)		0.72 (2.08)	
IPV Factors											
Negotiation	9.88 (3.51)	--	--	-0.03	.230	-0.60	.033	0.12	<.001	-0.51	.071
Physical Assault	0.77 (2.27)	--	--	--	--	0.87	<.001	0.67	<.001	0.74	<.001
Injury	0.67 (2.13)	--	--	--	--	--	--	0.60	<.001	0.78	<.001
Psychological Aggression	2.35 (2.94)	--	--	--	--	--	--	--	--	0.53	<.001
Sexual Aggression	0.90 (2.24)	--	--	--	--	--	--	--	--	--	--

Note: *Other = divorced, separated or other; HBCU = Historically Black College or University

[a] Data are missing for 9 participants

[b] Data are missing for 29 participants

[c] Data are missing for 14 participants

Table 2. Bivariate Analyses Examining Participant Characteristics Associated with Sexual Behavior Outcomes, N=1849

	Total	Alcohol/Drug Use Before Last Sex			Condom Use During Last Sex		
Variable	**N (%) or M (SD)**	**No N (%) or M (SD) N=1507**	**Yes N (%) or M (SD) N=357**	**p**	**No N (%) or M (SD) N=1007**	**Yes N (%) or M (SD) N=857**	**p**
Sociodemographics							
Age	20.77 (1.94)	20.78 (2.00)	20.78 (1.90)	.992	21.00 (2.03)	20.51 (1.88)	<.001
Sex				.051			<.001
Male	675 (36.5)	536 (35.7)	147 (41.2)		303 (30.1)	380 (44.3)	
Female	1174 (63.5)	971 (64.3)	210 (58.8)		704 (69.9)	477 (55.7)	
Sexual Orientation [a]				.179			.007
Heterosexual	1671 (90.0)	1358 (90.5)	327 (92.9)		894 (89.3)	791 (92.9)	
Other	167 (10.0)	142 (9.5)	25 (7.1)		107 (10.7)	60 (7.1)	
Relationship Status				<.001			<.001
Single/never married	1291 (69.8)	1004 (66.6)	299 (83.8)		610 (60.6)	693 (80.9)	
Married	173 (9.4)	159 (10.6)	16 (4.5)		138 (13.7)	37 (4.3)	
Living with partner	259 (20.0)	228 (15.1)	31(8.7)		187 (18.6)	72 (8.4)	
Other*	126 (6.8)	116 (7.7)	11 (3.1)		72 (7.1)	55 (6.4)	
Race [b]				.295			.002
White	1171 (64.3)	947 (63.9)	231 (65.4)		656 (66.1)	522 (62.0)	
Black	437 (24.0)	357 (24.1)	82 (23.2)		243 (24.5)	196 (23.3)	
Asian	103 (5.7)	82 (5.5)	25 (7.1)		40 (4.0)	67 (8.0)	
Other	109 (6.0)	96 (6.5)	15 (4.2)		54 (5.4)	57 (6.8)	
Hispanic				.339			.502
Yes	156 (8.5)	131 (8.8)	25 (7.0)		80 (8.0)	76 (8.9)	
No	1680 (91.5)	1365 (91.2)	330 (93.0)		921 (92.0)	774 (91.1)	
Parental Education [c]				<.001			.002
< Bachelors	886 (48.3)	752 (50.3)	141 (39.6)		516 (51.7)	377 (44.3)	
≥ Bachelors	949 (51.7)	742 (49.7)	215 (60.4)		483 (48.3)	474 (55.7)	
School Type				.036			<.001
Private	735 (39.8)	588 (39.0)	156 (43.7)		350 (34.8)	394 (46.0)	
Public	535 (28.9)	437 (29.0)	101 (28.3)		295 (29.3)	243 (28.4)	
Technical college	353 (19.1)	304 (20.2)	50 (14.0)		236 (23.4)	118 (13.8)	
HBCU	226 (12.2)	178 (11.8)	50 (14.0)		126 (12.5)	102 (11.9)	
Psychosocial Factors							
ACEs	1.61 (1.85)	1.47 (1.87)	1.37 (1.68)	.417	1.56 (1.85)	1.32 (1.81)	.007
Depressive symptoms	5.75 (5.77)	5.18 (5.51)	6.44 (6.17)	<.001	5.44 (5.76)	5.40 (5.54)	.865
Substance Use, Past 30 Day							
Tobacco				<.001			.126
Yes	393 (21.13)	277 (18.4)	121 (33.9)		229 (22.7)	169 (19.7)	
No	1456 (78.7)	1230 (81.6)	236 (66.1)		778 (77.3)	688 (80.3)	
Alcohol				<.001			.142
Yes	1359 (73.5)	1042 (30.9)	323 (90.5)		723 (71.8)	642 (74.9)	
No	490 (26.5)	465 (69.1)	34 (9.5)		284 (28.2)	215 (25.1)	
Binge drinking				<.001			.367
Yes	730 (39.5)	498 (33.3)	238 (66.7)		388 (38.5)	348 (40.6)	
No	1119 (60.5)	1009 (67.0)	119 (33.3)		619 (61.5)	509 (59.4)	
Marijuana				<.001			.174
Yes	183 (15.9)	176 (12.2)	108 (32.1)		163 (17.1)	121 (14.7)	
No	1487 (84.0)	1269 (87.8)	228 (67.9)		793 (82.9)	704 (85.3)	
IPV Factors							
Negotiation	9.88 (3.51)	9.88 (3.55)	8.95 (3.78)	.002	9.87 (3.47)	9.58 (3.77)	.155

Physical Assault	0.77 (2.27)	0.76 (2.23)	1.48 (3.03)	<.001	0.80 (2.29)	0.93 (2.46)	.370
Injury	0.69 (2.18)	0.60 (2.07)	1.26 (2.74)	<.001	0.67 (2.18)	0.72 (2.19)	.126
Psychological Aggression	2.35 (2.94)	2.30 (2.87)	3.08 (3.23)	.001	2.56 (2.92)	2.18 (2.93)	.025
Sexual Aggression	0.90 (2.24)	0.73 (2.06)	1.54 (2.93)	<.001	0.86 (2.26)	0.82 (2.16)	.735

Note: *Other = divorced, separated or other; HBCU = Historically Black College or University

[a] Data are missing for 11 participants

[b] Data are missing for 29 participants

[c] Data are missing for 14 participants

Table 3. Multivariable Analyses Examining Correlates of Sexual Behavior Outcomes, N=1249

	Alcohol/Drug Use Before Last Sex			No Condom Use During Last Sex		
Variable	**OR**	**CI**	**p**	**OR**	**CI**	**p**
Sociodemographics						
Age	1.08	0.98, 1.25	.118	1.15	1.07, 1.23	<.001
Sex						
Male	Ref	--	--	Ref	--	--
Female	0.74	0.50, 1.09	.129	2.05	1.56, 2.70	<.001
Sexual Orientation [a]						
Heterosexual	Ref	--	--	Ref	--	--
Other	0.76	0.39, 1.51	.438	2.09	1.28, 3.40	.003
Relationship Status						
Partnered	Ref	--	--	Ref	--	--
Other*	1.45	0.97, 2.16	.067	0.53	0.40, 0.69	<.001
Race [b]						
White	Ref	--	--	Ref	--	--
Black	1.79	1.14, 2.81	.012	0.87	0.62, 1.23	.431
Asian	1.71	0.53, 2.59	.697	0.50	0.28, 0.90	.021
Other	0.40	0.12, 1.38	.149	0.90	0.49, 1.67	.742
Hispanic	0.82	0.36, 1.90	.649	1.24	0.73, 2.12	.425
Parental Education [c]						
< Bachelors	Ref	--	--	Ref	--	--
≥ Bachelors	1.39	0.94, 2.06	.098	0.78	0.60, 1.02	.074
Substance Use, Past 30 Day						
Tobacco	1.42	0.93, 2.17	.105	1.65	1.16, 2.35	.005
Alcohol	3.82	2.15, 6.81	<.001	0.99	0.74, 1.33	.962
Marijuana	2.12	1.36, 2.29	.001	1.20	0.81, 1.76	.367
IPV Factors						
Negotiation	0.92	0.86, 0.97	.001	0.99	0.96, 1.03	.723
Physical Assault	1.02	0.88, 1.17	.815	0.91	0.81, 1.02	.117
Injury	0.94	0.80, 1.10	.428	0.93	0.82, 1.06	.284
Psychological Aggression	1.05	0.97, 1.15	.222	1.09	1.03, 1.16	.006
Sexual Aggression	1.11	0.97, 1.15	.085	1.10	1.00, 1.21	.059

Note: *Other = divorced, separated or other; HBCU = Historically Black College or University

Note: Given the collinearity among the IPV subscales, we also modeled each IPV subscale separately, controlling for all other factors. For not using condoms during last intercourse, the findings were as follows: Negotiation: OR=0.00, CI: 0.97, 1.04, p=.996, Nagelkerke R-squared=.126; Physical Assault: OR =-0.02, CI: 0.93, 1.04, p=.547, Nagelkerke R-squared=.129; Injury: OR =-0.01, CI: 0.93, 1.05, p=.739, Nagelkerke R-squared=.129; Psychological aggression: OR =0.04, CI: 0.99, 1.09, p=.096, Nagelkerke R-squared=.130; and Sexual Aggression: OR=0.03, CI: 0.97, 1.09, p=.364, Nagelkerke R-squared=.133.
For using alcohol or drugs prior to last intercourse, the findings were as follows: Negotiation: OR=-0.07, CI: 0.89, 0.98, p=.005, Nagelkerke R-squared=.140; Physical Assault: OR =0.08, CI: 1.01, 1.15, p=.018, Nagelkerke R-squared=.136; Injury: OR =0.09, CI: 1.02, 1.17, p=.010, Nagelkerke R-squared=.135; Psychological aggression: OR =0.06, CI: 1.00, 1.12, p=.049, Nagelkerke R-squared=.131; and Sexual Aggression: OR=0.11, CI: 1.04, 1.19, p=.001, Nagelkerke R-squared=.144.