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SEXUAL AGGRESSION ON CAMPUS:
ALCOHOL USE, PEER SUPPORT, AND FRATERNITY MEMBERSHIP

by

ALEXANDRA L BELLIS

Under the Direction of Kevin Swartout, PhD

ABSTRACT

Sexual violence is a serious problem on college campuses. Nearly twenty-five percent of men report perpetrating some form of sexual violence during their first four years of college. This study examined how dynamics related to membership in all male groups (e.g., fraternities) interacted with alcohol use to predict sexual violence, specifically whether membership in a fraternity affected the relationships between frequency of drinking, peer attitudes, and sexual violence in a sample of college men across time. Data were collected, as part of a larger study, from undergraduate males at a large Southeastern university. In the final model, frequency of drinking and peer support did significantly predict sexual violence perpetration across time for non-fraternity men but not for fraternity men. These findings demonstrate that differences exist between fraternity men and non-fraternity men and illustrate the need for further in-depth research of fraternities.

INDEX WORDS: Sexual violence perpetration, Fraternity, Drinking, Peer influence, All male groups

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by

ALEXANDRA L BELLIS

A Thesis Submitted in Partial Fulfillment of the Requirements for the Degree of

Master of Arts

in the College of Arts and Sciences

Georgia State University

2015

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Alexandra Louise Bellis
2015

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ALCOHOL USE, PEER SUPPORT, AND FRATERNITY MEMBERSHIP

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August 2015

DEDICATION

I dedicate this thesis to my parents, my research team members, and my boyfriend.

Without your support, I would not be here. Thank you.

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1 INTRODUCTION

College campuses are often considered safe havens for students, places where education is a top priority and violence is rare (Schwartz & DeKeseredy, 1997). Unfortunately, violence is an all too real concern for men and women on campus. Several colleges and universities across the United States (e.g., Montana State University, Portland State University, Occidental College, University of North Carolina-Chapel Hill, Michigan State University, Morehouse College, Oklahoma State University) have been in the media recently because students have reported experiencing sexual violence on campus. Recently, four Vanderbilt football players were charged with aggravated rape and aggravated sexual battery after a student reported being raped in a dorm room while unconscious (Botelho, 2013; Holland, 2013). Some details of the case are still unclear; but it seems that the perpetrators had been drinking with the victim at a campus bar earlier in the night (Haas & Gonzalez, 2013). One of the players reported being out with the victim at the bar. He brought her back to his dorm room where he and the other players raped and sodomized her. The Nashville Police and Vanderbilt University are still investigating the possibility that more football players were involved in covering up the crime (Botelho, 2013). This case is an example of many cases on many college campuses across the country where members of an all male group have committed sexual violence. In addition to the extensive media coverage, sexual violence on college campuses has received attention from the White House, which launched the “Not Alone” campaign and named the White House Task Force to Protect Students from Sexual Assault (Obama, 2014). All of this attention highlights the importance of exploring factors related to sexual violence on college campuses, especially how dynamics related to membership in all male groups interacts with alcohol use to predict sexual violence. This study investigated whether membership in a fraternity moderated the effects of

frequency of drinking and peer attitudes on sexual violence perpetration in a sample of college men across time.

Sexual violence is defined as unwanted, non-consensual sexual activity and includes a range of behaviors (e.g., non-contact unwanted sexual experiences, unwanted sexual contact, non-physically forced penetration, completed or attempted drug facilitated penetration, completed or attempted forced penetration; Basile, Smith, Breiding, Black & Mahendra, 2014). According to the National Intimate Partner and Sexual Violence Survey (Black, et al. 2011), one in five women and one in seventy-one men are sexually victimized during their lifetime. Of those who reported sexual victimization, 79.6% of women first experienced victimization before their 25th birthday, which means that many women who experience sexual violence will be victimized before they graduate college (Black, et al., 2011).

In a national study of sexual violence perpetration on college campuses, Koss and colleagues (1987) found that nearly one quarter of men reported perpetrating some form of sexual violence and 4.4% reported that they had committed rape during their four years at college. In a sample of students at a large commuter university surveyed a decade later, researchers found that 26% reported some form of sexual violence perpetration and 9% reported committing rape (Abbey, McAuslan, & Ross, 1998). Even more recently, studies conducted on individual campuses suggest between 12% and 14% of college men report perpetrating some form of sexual violence in the past year (Abbey & McAuslan, 2004; Thompson, Swartout, & Koss, 2013). Although these prevalence rates come from a variety of researchers and a variety of samples, the rates of sexual violence are staggeringly high. With the possibility that over one quarter of college men have perpetrated some form of sexual violence, it is imperative that researchers explore risk and protective factors for perpetration.

1.1 Correlates of Sexual Violence Perpetration

1.1.1 Alcohol use.

Previous research has established a link between alcohol use and sexual violence (Abbey, McAuslan, & Ross, 1998; Abbey, McAuslan, Zawacki, Clinton, & Buck, 2001; Abbey & McAuslan, 2004; Carr & VanDeusen, 2004; Kingree & Thompson, 2014; Koss & Gaines, 1993; Muehlenhard & Linton, 1987; Zawacki, Abbey, Buck, McAuslan, & Clinton-Sherrod, 2003).

Alcohol is a strong situational predictor of sexual violence with nearly half of all assaults involving alcohol consumption by the victim, perpetrator, or both parties (Abbey, et al., 2001; Abbey & McAuslan, 2004). With easy access to alcohol and a culture supportive of drinking on most college campuses, it is not surprising that alcohol use is a significant predictor of sexual violence among college students (Koss & Gaines, 1993; Carr & VanDuesen, 2004). Twelve percent of college men report using alcohol to obtain sex and 15% report being sexually aggressive while drinking (Carr & VanDeusen, 2004). In a two-time-point assessment of college men, men who perpetrated one or more assaults at both time points reported higher drinking levels on dates and during sexual interactions than those who did not perpetrate and those who perpetrated only at one time point (Abbey & McAuslan, 2004). Perpetrators, who reported that they or the victim had been drinking during an assault, reported higher levels of drinking during sexual interactions than perpetrators who did not report drinking and those who did not perpetrate (Zawacki, et al., 2003).

1.1.2 Peer support for sexual aggression.

There is also an established link between peer support for sexual aggression and individuals' sexually violent behavior (Schwartz and DeKeseredy, 1997; Thompson, 2014). Male peer support, whether positive or negative, is an integral part of men's lives (Schwartz & DeKeseredy, 1997). When men encounter stress, they often turn to friends and formal social

groups for advice. It is within these informal and formal settings that men may receive messages that encourage violence against women. Informational peer support for intimate partner violence, which includes advice given by friends that encourage violence against dating partners, and attachment to aggressive peers significantly predicts sexual violence (DeKeseredy & Kelly, 1995). In a sample of adolescents who perpetrated sexual assaults, almost 40% report their friends knew about what they had done and almost all supported the behavior or were indifferent (Ageton, 1983). Men who report perpetrating sexual assault also report receiving informational support and peer pressure to commit violence against women (Franklin, Bouffard, & Pratt, 2012). Similarly, peer approval of forced sex predicts sexual violence perpetration one year later (Kingree & Thompson, 2013). Peer norms (e.g., peer approval or peer pressure to commit violence) predict high and increasing trajectories of sexually aggressive behavior (Thompson, Swartout & Koss, 2013). Perceived peer attitudes about sexual violence, including attitudes about date rape, influence men's attitudes about violence against women, which in turn predicts their level of sexual violence (Swartout, 2013). Peer support for sexual aggression, whether informational support or peer approval of violence against women, is related to individuals' sexually violent behavior.

1.1.3 Fraternity membership.

Previous findings about the relationship between fraternity membership and sexual violence perpetration are mixed. Some evidence suggests membership in all-male groups (e.g., fraternities, sports teams) may be related to sexual violence perpetration (Boeringer 1996; Boeringer, Shehan & Akers, 1991; Murnen & Kohlman, 2007). Fraternity men and athletes report more use of coercion (e.g., non-physical force) and drugs or alcohol to facilitate sexual assault but are not more likely to have committed assault or to have used physical force to obtain sex (Boeringer, 1996; Boeringer, et al., 1991). In a meta-analysis of 29 studies on fraternity

membership and athletic participation, fraternity membership is associated with attitudes related to sexual violence (e.g., rape myth acceptance, hypermasculinity) and to a lesser extent associated with self-reported sexual violence perpetration (Murnen & Kohlman, 2007). On the other hand, fraternity membership did not significantly predict sexual violence perpetration when taking into account alcohol use and hostile attitudes (Koss & Gaines, 1993) and there was no difference in reported sexual violence perpetration between fraternity and non-fraternity men (Schwartz & Nogrady, 1996).

Humphrey and Khan (2000) suggested that not all fraternities are conducive to sexual assault and argued that it may be misleading to lump all organizations into one pot. They conducted a risk assessment and grouped fraternities and athletic teams into two groups, high and low risk, based on student perceptions of the extent to which the organizations' events were conducive to sexual violence. High-risk groups reported committing more sexual violence than low risk groups and reported higher levels of hostility towards women (Humphrey & Khan, 2000). This may help explain why previous findings on the effect of fraternity membership on sexual violence have been mixed. If organizations cannot be lumped together, maybe membership in a fraternity is just one piece of a much more complex puzzle. Unfortunately, most researchers do not differentiate fraternities in this way because it can be time consuming and difficult to collect reliable information about these organizations. Unless the goal of a study is to investigate the nature of individual fraternities, most researchers use a simple dichotomous variable representing membership in a fraternity to examine the relationship between fraternity membership and sexual violence. The current study involves secondary data analysis and as such cannot investigate the impact of membership in a specific type of fraternity.

1.2 Perhaps a Third Variable?

Many have suggested a third variable accounts for the relationship between membership in an all-male group, specifically fraternity membership, and sexual violence (DeKeseredy & Kelly, 1995; Koss & Gaines, 1993; Schwartz & Nogrady, 1996). Unfortunately, little research has been conducted to examine the possibility of third variables in sexual violence perpetration. One exception was a study conducted by Kingree and Thompson (2013); they found that joining a fraternity increased participants' perceived peer approval for forced sex and frequency of binge drinking, which in turn significantly predicted sexual violence perpetration one year later. These findings suggest that alcohol and peer support mediate the relationship between joining a fraternity and perpetrating sexual violence. Fraternity membership may therefore moderate the effects of alcohol use and peer support on sexual violence perpetration, such that these effects may be stronger for fraternity members than non-members.

Fraternity and sorority members drink more on average than their non-member counterparts; fraternity men drink more heavily over their four years of college than both sorority women and non-members (Barry, 2007; McCabe, Schulenberg, Johnston, O'Malley, Bachman & Klokka, 2005). Additionally, Greek membership is positively correlated with binge drinking, frequent binging, and alcohol related consequences (e.g., injury, fighting, DUI, and sexual victimization; Ragsdale, Porter, Mathews, White, Gore-Felton, & McGarvey, 2012). Although not all fraternities or fraternity members may be involved in high-risk drinking (e.g., binge drinking), many are. This may help to explain why high risk drinking is so strongly related to sexual violence on college campuses.

A number of researchers have investigated the characteristics of fraternities and why fraternity membership is often related to sexually aggressive behavior. Fraternities are social groups that have their own belief systems and practices that may encourage violence against

women (Boeringer et al., 1991; Sanday, 2007; Yancey Martin & Hummer, 1989). Fraternity members, compared to non-members, associate with a greater number of other men who engage in coercive and violent sexual activities. Fraternity men are also more likely to be reinforced by their friends for engaging in violence (Boeringer et al., 1991). This suggests that there may be a social learning process through which fraternity men are encouraged to engage in coercive and aggressive behaviors (Boeringer et al., 1991). Researchers in other disciplines also suggest the nature of fraternity membership encourages and justifies violence. Sanday (2007), who conducted an anthropological case study on the topic, suggested there are certain male-bonding rituals within fraternities that encourage and promote sexual violence. Specifically, she argued components of fraternity initiation rituals encourage violence against women by equating femaleness with weakness and encouraging power, dominance, and violence against the weak (Sanday, 2007). Yancey Martin and Hummer (1989) also conducted a case study of fraternity membership. They discussed the social construction of fraternity life they believe fosters the use of coercion and violence against women. There are certain characteristics of fraternities (e.g., kinds of members, practices, absence of oversight) that make rape more likely. Fraternity membership may therefore be a special case of peer support for sexual aggression.

1.3 Current Study

The current study aims to investigate the relationships between frequency of drinking, peer support for sexual aggression, fraternity membership, and sexual violence perpetration in a sample of men across their first four years of college. This study extends previous research by testing the extent to which fraternity membership moderates relationships between frequency of drinking, peer support for sexual aggression, and sexual violence perpetration across time. The research questions were (1) Does frequency of drinking predict sexual violence perpetration

across time among all college men?; (2) Does peer support for sexual aggression predict sexual violence perpetration across time among all college men?; (3) How do the relationships between frequency of drinking, peer support, and sexual violence perpetration differ for fraternity men and non-fraternity men across time? Consistent with previous research, the first two hypotheses were (1) frequency of drinking will predict sexual violence perpetration across time for all college men and (2) peer support will predict sexual violence perpetration across time for all college men. The third hypothesis was that fraternity membership will moderate the effects of frequency of drinking and peer support for sexual aggression on sexual violence perpetration, such that frequency of drinking and peer support will be stronger predictors for fraternity men compared with non-fraternity men. An initial cross-lagged panel model was constructed that best fit the full sample. Then, the model was compared across two groups of participants: a sub-sample of fraternity men and a sub-sample of non-fraternity men.

2 METHOD

2.1 Participants

Participants ($N = 796$) were recruited from a population of 1472 first-year students at a large southeastern university. All were male and ranged in age from 18 to 20 years old at the first wave of data collection ($M = 18.56$, $SD = .83$). The majority of participants were White (89%), but some were Black (7.2%), Hispanic (.3%), and “Other” (3%). At wave one, 24% of the participants ($N = 191$) reported being members of a fraternity. Two outliers, who reported perpetrating over 100 acts of sexual violence, were removed from the data for these analyses because their extreme scores hindered model convergence. This left a sample of 794.

2.2 Procedure

Participants were recruited through emails, posted announcements, and flyers at the end of their first year. They were directed to the university’s Student Health Center to fill out a twenty to thirty-minute survey about attitudes and behaviors. Prior to surveys, participants were provided with informed consent documents. Upon completion, participants placed only the survey document into a locked box. Consent forms were detached and returned to the researchers. Participants then received payment of \$20 at waves one and two and \$25 at waves three and four. All procedures were reviewed and approved by the local institutional review board and a certificate of confidentiality was obtained from the National Institutes of Health.

Data were collected over one week in March and April of 2008 for the first wave. Participants who completed the first wave of questionnaires were contacted in the spring of 2009, 2010, and 2011, respectively, to participate in follow up data collection. Eighty-two percent of participants completed follow up surveys at wave two ($N = 646$), 75% completed surveys at wave three ($N = 603$), and 72% at wave four ($N = 572$).

2.3 Measures

2.3.1 Fraternity membership.

Participants responded to a single question asking them, “In what activities did you participate during this school year?” They were presented with a list of common activities for male college students and instructed to check all that applied. Those who checked “Fraternity” at the first wave were classified as fraternity members in these analyses; those who did not were classified as non-members. This question was asked at each subsequent wave. For the purpose of these analyses, those who reported being a member of a fraternity at wave one were compared with those who did not ever report being a member of a fraternity.

2.3.2 Potential covariates.

Four potential covariates – childhood sexual abuse, physical abuse, exposure to family violence, and hostility towards women – were assessed at wave one and hypermasculinity was assessed at wave four. Childhood sexual abuse was assessed using one item: “Did anyone 5 or more years older than you ever kiss or touch you in a sexual way or have you touch them in a sexual way?” Participants responded yes or no. Physical abuse was assessed with one item: “Did anyone less than 5 years older than you use physical force to kiss or touch you in a sexual way or force you to touch them in a sexual way?” Participants responded yes or no. Exposure to family violence was assessed using seven items from the Children’s Perception of Interparental Conflict scale (Grych, Seid, & Finchman, 1992). Responses ranged from 1 “not at all” to 4 “very often”. For example, participants were asked “My parents have pushed or shoved each other during an argument.” Hostility towards women was assessed using an eight-item scale adapted by Koss and Gaines (1993). Participants responded to questions such as “Many times a woman appears to care, but really just wants to use me” along a 5-point scale with higher scores corresponding to higher levels of hostility towards women. Hypermasculinity was only assessed at wave four and

was measured using 17-items from the short version of the Hypermasculine Values Questionnaire (HVQ; Archer, 2010). Participants responded using a 7-point response format ranging from 1 “strongly disagree” to 7 “strongly agree”. For example, participants’ were asked, “Wife-swapping is fine as long as both men agree” and “Real men don’t back away from barroom confrontations.” Model convergence could not be achieved when covariates were entered into the model.

2.3.3 Alcohol use.

Participants were asked six questions about alcohol use, five questions about the past thirty days and one question about the last two weeks, at each wave. First, they were asked to describe their current alcohol use, “How would you best describe yourself in terms of your current use of alcohol?”, using a seven point Likert-type scale from “Abstainer” to “Problem Drinker.” Then, participants were asked on how many occasions, ranging from 1 to 40 or more, they drank alcohol, “On how many occasions have you had a drink of alcohol in the past 30 days?”, and how many drinks, ranging from 1 to 36 or more, they usually had on those occasions, “In the past 30 days, on those occasions when you drank alcohol, how many drinks did you usually have?” Next, participants were asked how often, ranging from 1 to 40 or more occasions, they drank enough to get drunk, “In the past 30 days, how often did you drink enough to get drunk? (By drunk, we mean unsteady, dizzy, or sick to your stomach.)”, and about the largest number of drinks, ranging from 1 to 36 or more, they had in a twenty-four hour period, “What is the largest number of drinks that you drank within a 24-hour period in the past 30 days?” Finally, participants were asked about how times in the last two weeks, ranging from none to 10 or more, they had five or more drinks in two hours, “In the last two weeks, how many times have you had five or more drinks in a row in a two hour period?”

For these analyses, only the question that assessed frequency of drinking was used (e.g., “On how many occasions have you had a drink of alcohol in the past 30 days?”).

2.3.4 Peer support for sexual aggression.

Participants were asked six questions to assess the extent to which they believe their friends would approve of forcing a woman to have sex (Abbey & McAuslan, 2004). These questions were assessed at all four waves, using a 4-point response format ranging from 1 “not at all” to 4 “a lot”. For example, participants’ were asked, “Do your friends approve of getting a woman drunk or high to have sex?” and “How much pressure have you felt from your friends to lie to a woman in order to have sex with her?”

2.3.5 Sexual violence perpetration.

Participants responded to the revised Sexual Experiences Survey Short Form for Perpetration (SES-SFP; Koss, et al., 2007) to assess their perpetration of sexual violence at each of the four waves. The SES is a widely used measure for assessing sexual violence perpetration among college students. Reliability and validity for the SES have been established numerous times (Koss & Gidycz, 1985; Koss, et al., 1987).

The SES short form is divided into seven acts or behaviors and five tactics. Together, these acts and tactics make up thirty-five items that assess perpetration of unwanted sexual contact, sexual coercion, attempted rape, and rape. Participants responded on a four point scale from 0 times to 3+ times. The SES usually assesses perpetration for two time frames: since fourteen years old and in the last year. As this study was longitudinal, the time frames were adjusted. At wave one, participants were asked to report experiences prior to entering college and during their first academic year. For wave two, participants were asked to report perpetration experiences for the summer between their first and second year and during their second academic

year. The reporting time frame was the same for waves three and four as it was for wave two (e.g., the summer between their second and third year and their third academic year).

For the purpose of this study, a frequency scoring system was used, which takes into account all instances of reported perpetration of sexual violence. Each participant received a score that corresponded to the number of times they reported perpetrating any act of sexual violence.

3 RESULTS

3.1 Analysis Strategy

This study used an auto-regressive cross-lagged panel model (ARCL; Curran, 2000) as the basis for building a multiple groups path model that examined predictors of sexual violence perpetration across time for two groups: fraternity men and non-fraternity men. The models for this study were built in progressive steps and all analyses were conducted in Mplus version 6 (Muthen & Muthen, 2012). Additionally, sexual violence perpetration was operationalized as a count variable at each assessment (e.g., number of sexually violent acts), which required estimating a Poisson distribution (Swartout, Thompson, Koss, & Su, 2014). A Poisson distribution is similar to the distribution for logistic regression in that it is a probability distribution and models the natural log of the counts (Huang & Cornell, 2012).

First, an ARCL model was constructed that examined frequency of drinking and peer support for sexual aggression as predictors of reported sexual violence perpetration across time for the full sample, see Figure 1. ARCL models are used to estimate stability of constructs over time and examine whether earlier constructs predict later constructs above and beyond autoregressive effects (Curran, 2000). Stability was assessed by regressing later time points of a construct, e.g., frequency of drinking at wave two, onto earlier time points of that same construct, e.g., frequency of drinking at wave one. The lagged effect of a time-varying covariate on change in the construct of interest was examined by regressing one construct at a later time point, e.g., sexual violence perpetration at wave two, onto a different construct at an earlier time point, e.g., frequency of drinking at wave one, to assess the effect of frequency of drinking on sexual violence perpetration above and beyond the effect of having previously perpetrated sexual violence.

Next, the data were parsed into two groups – fraternity men and non-fraternity men – and the initial ARCL model was estimated for both groups using known groups latent class analysis (LCA; e.g., Read, Colder, Merrill, Ouimette, White, & Swartout, 2012) with maximum likelihood estimation with robust standard errors, see Figure 2. Using the “known class” option in Mplus, the structural models for the two known groups – fraternity men and non-fraternity men – were estimated. These analyses required the use of Monte Carlo integration, a numerical integration method that integrates results based upon different distributions (e.g., normal and Poisson; Muthen & Muthen, 2012).

Then, model fit was compared using the Satorra-Bentler scaled chi-square (*TRd*), which applies a scaling correction factor to the normal chi-square statistic to correct for non-normality (Satorra & Bentler, 2010). It is computed using loglikelihood values and scaling correction factors for the initial and nested comparison models. This tested the hypothesis that modeling fraternity and non-fraternity men separately represented the data better than modeling all men together, taking into account the increased complexity of the multiple-groups model.

After justifying the use of a multiple-groups framework, each group’s intercepts and slopes were examined by constraining estimates to be equal across groups and then freely estimating them one at a time (Kline, 2011). Satorra-Bentler scaled chi-square tests were conducted at each step to test if model fit improved when individual intercepts and slopes were freed. If model fit improved, the intercepts and slopes were significantly different across groups. Finally, incidence rate ratios (*IRR*) for each slope were calculated for both the full sample model and the final model.

3.2 Descriptive Statistics

Descriptive statistics and sexual violence incidence rates are presented in Tables 1 and 2, respectively. On average, participants reported drinking on three to five occasions per month during each of their four years at college. Participants reported drinking most frequently during their fourth year of college. Relatively low levels of peer support for sexual aggression were reported across time, with the highest level reported at wave one. Participants reported committing one sexually violent act on average at each wave. Twenty-six percent of participants reported committing at least one sexually violent act during their four years at college.

Non-fraternity men ($N=603$) reported drinking on three to five occasions per month during their four years at college. They also reported receiving relatively low levels of peer support for sexual aggression throughout college. Although non-fraternity men reported committing less than one act of sexual violence on average per year, 22% reported committing at least one sexually violent act during college.

Fraternity men ($N=190$) reported significantly more drinking across time and significantly higher levels of peer support at wave one compared with non-fraternity men, see Table 1. Fraternity men reported committing significantly more sexually violent acts at wave one and two than non-fraternity men. On average, they reported committing between one and two sexually violent acts per year during their four years at college and nearly 40% reported committing at least one sexually violent act during college. Fraternity men also reported significantly more childhood sexual abuse than non-fraternity men but did not report significantly more physical abuse, exposure to family violence or hostile attitudes towards women than non-fraternity men. At wave 4, fraternity men reported higher levels of hypermasculinity.

3.3 Correlations

Correlations for the full sample are presented in Table 3. Overall, there were significant intercorrelations between the four assessments of drinking frequency, peer support, and sexual violence perpetration, respectively. Frequency of drinking and peer support were significantly positively correlated at wave one but not at wave two or three. Frequency of drinking and sexual violence perpetration were positively correlated across time. Peer support and sexual violence perpetration were also positively correlated across time.

Correlations for the subsample of non-fraternity men and subsample of fraternity men are presented in Table 4. For both non-fraternity men and fraternity men, frequency of drinking and peer support were positively intercorrelated across time, respectively. Sexual violence perpetration was also positively intercorrelated across time for both groups with the exception of waves three and four for fraternity men. Frequency of drinking and sexual violence perpetration were positively correlated across time for non-fraternity men and positively correlated at waves 1 and 3 for fraternity men. Peer support and sexual violence perpetration were significantly positively correlated across time for non-fraternity men and fraternity men.

3.4 ARCL Model with the Full Sample

Frequency of drinking, peer support, and sexual violence perpetration were relatively stable across time based on the significant autoregressive effects, see Figure 3. Consistent with hypotheses one and two, both frequency of drinking and peer support significantly predicted sexual violence perpetration at subsequent time points above and beyond the effect of sexual violence perpetration at the previous time point. Increases in frequency of drinking and peer support led to increases in reported sexual violence perpetration when all men in the sample were analyzed together. For every one unit increase in frequency of drinking at the previous wave, the

rate of sexually violent acts at the next wave increased by a multiplicative factor of 1.40 from wave one to two, 1.28 from wave two to three, and 1.27 from wave three to four, see Table 5.

For every one unit increase in peer support at the previous wave, the rate of sexually violent acts at the next wave increased by a multiplicative factor of 1.73 for wave one to two, 2.55 from wave two to three, and 6.0 from wave three to four.

3.5 Multiple Groups Model

The multiple groups model fit the data significantly better than the initial model with the full sample combined, $TRd = 53.03$, $df = 8$, $p < .05$, this suggests modeling fraternity and non-fraternity men separately better represents the observed data. Frequency of drinking, peer support, and sexual violence perpetration remained stable across time, see Figure 4. Frequency of drinking significantly predicted sexual violence perpetration for both fraternity men and non-fraternity men across time. Peer support, on the other hand, significantly predicted perpetration across time for non-fraternity men but did not significantly predict sexual violence perpetration across time for fraternity men. The relationship between frequency of drinking and sexual violence perpetration was generally stronger for fraternity men when compared with non-fraternity men, but the relationship between peer support and sexual violence perpetration was not significant for fraternity men.

Model fit improved with each freed slope and with two freed intercepts – sexual violence perpetration at years two and four, see Table 6 and Table 7. The sexual violence perpetration intercepts were freed across time (i.e., year 2 sexual violence perpetration, year 3 sexual violence perpetration, year 4 sexual violence perpetration). Equality constraints were set for all of the other intercepts, see Table 7. The final model with three freed intercepts is depicted in Figure 5.

3.5.1 Non-fraternity men.

Frequency of drinking and peer support significantly predicted sexual violence perpetration across time for non-fraternity men. For every one unit increase in frequency of drinking at the previous wave, the rate sexually violent acts at the next wave increased by a multiplicative factor of 1.43 from wave one to two, 1.40 from wave two to three, and 1.31 from wave three to four, see Table 8. For every one unit increase in peer support at the previous wave, the rate of sexually violent acts at the next wave increased by a multiplicative factor of 2.83 from wave one to two, 3.74 from wave two to three, and 8.46 from wave three to four.

3.5.2 Fraternity men.

When the intercepts for sexual violence were freed across fraternity and non-fraternity men, the paths between frequency of drinking and sexual violence perpetration for fraternity men dropped from significance. Fraternity men reported perpetrating significantly more acts of sexual violence across time, even after controlling for the effects of drinking and peer support. For every one unit increase in frequency of drinking at the previous wave, the rate sexually violent acts at the next wave increased by a multiplicative factor of 1.15 from wave one to two, 1.08 from wave two to three, and decreased by a factor of .89 from wave three to four, see Table 8. For every one unit increase in peer support at the previous wave, the sexually violent acts at the next wave decreased by a multiplicative factor of .64 for wave one to two and .85 from wave two to three, but increased by a factor of 1.52 from wave three to four.

Table 1. Descriptive Statistics

	Overall			Fraternity Men		Non-Fraternity Men		<i>t</i>	<i>d</i>
	<i>M</i>	<i>SD</i>	Range	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>		
Childhood Sexual Abuse (Y1)	.08	.28	0-1	0.14	0.35	.07	.25	2.61*	0.23
Physical Abuse (Y1)	.04	.18	0-3	0.06	0.23	.03	.17	1.62	0.15
Exposure to Family Violence (Y1)	.77	.57	0-1	0.75	0.51	.77	.59	-.34	-0.04
Hostility Towards Women (Y1)	2.59	.82	0-4	2.65	0.81	2.60	.82	1.08	0.06
Hypermasculinity (Y4)	2.96	.73	0-5	3.26	0.65	2.86	.73	5.69*	0.58
Year 1 Frequency of Drinking	1.95	1.76	0-6	3.37	1.45	1.50	1.60	15.09*	1.22
Year 2 Frequency of Drinking	2.22	1.73	0-6	3.41	1.35	1.82	1.67	12.17*	1.05
Year 3 Frequency of Drinking	2.55	1.58	0-6	3.55	1.11	2.27	1.58	10.44*	0.94
Year 1 Peer Support	.27	.38	0-3	0.34	0.44	.25	.36	2.52*	0.22
Year 2 Peer Support	.24	.32	0-3	0.26	0.33	.23	.32	1.13	0.09
Year 3 Peer Support	.23	.31	0-3	0.24	0.35	.24	.30	-.15	0.00
Year 1 SV Perpetration	.55	2.43	0-34	1.08	3.89	.38	1.73	2.35*	0.23
Year 2 SV Perpetration	1.1	4.32	0-49	2.13	6.47	.77	3.30	2.51*	0.26
Year 3 SV Perpetration	.99	3.65	0-35	1.03	2.86	.98	3.85	.14	0.01
Year 4 SV Perpetration	.99	4.34	0-49	1.74	5.69	.76	3.82	1.84	0.20

Note: * denotes $p < .05$; SV represents sexual violence.

Table 2. Incidence

		Fraternity Men	Non-Fraternity Men	Relative Risk	Relative Risk 95%CI	Overall
Year 1	<i>n</i>	190	604			794
	Incidence	18.9%	8.6%	2.25	1.52, 3.33	11.1%
Year 2	<i>n</i>	155	486			641
	Incidence	21.6%	10.8%	1.98	1.40, 2.80	13.4%
Year 3	<i>n</i>	129	466			595
	Incidence	15.8%	10.6%	1.69	1.15, 2.49	11.8%
Year 4	<i>n</i>	129	427			556
	Incidence	15.3%	6.8%	2.34	1.52, 3.61	8.8%
Overall	<i>n</i>	190	604			794
	Incidence	37.9%	22.5%	1.50	1.17, 1.92	26.2%

Table 3. Overall Correlations

	2	3	4	5	6	7	8	9	10
1. Year 1 Frequency of Drinking	.75*	.62*	.32*	.08*	.06	.18*	.21*	.13*	.10*
2. Year 2 Frequency of Drinking		.70*	.25*	.06	.05	.15*	.20*	.18*	.07
3. Year 3 Frequency of Drinking			.19*	.01	.05	.10*	.17*	.16*	.09*
4. Year 1 Peer Support				.22*	.21*	.39*	.25*	.20*	.16*
5. Year 2 Peer Support					.57*	.24*	.21*	.15*	.26*
6. Year 3 Peer Support						.22*	.27*	.24*	.26*
7. Year 1 SV Perpetration							.48*	.36*	.20*
8. Year 2 SV Perpetration								.52*	.21*
9. Year 3 SV Perpetration									.28*
10. Year 4 SV Perpetration									

Note: * denotes $p < .05$; SV represents sexual violence.

Table 4. Correlations for Fraternity Men and Non-Fraternity Men

Non-Fraternity Men	2	3	4	5	6	7	8	9	10
1. Year 1 Frequency of Drinking	.73*	.59*	.34*	.06	.08	.14*	.22*	.16*	.09
2. Year 2 Frequency of Drinking		.70*	.25*	.02	.02	.08	.22*	.21*	.06
3. Year 3 Frequency of Drinking			.21*	.01	.06	.07	.16*	.17*	.08
4. Year 1 Peer Support				.22*	.17*	.22*	.23*	.20*	.21*
5. Year 2 Peer Support					.59*	.23*	.19*	.16*	.29*
6. Year 3 Peer Support						.21*	.30*	.26*	.37*
7. Year 1 SV Perpetration							.42*	.46*	.30*
8. Year 2 SV Perpetration								.66*	.30*
9. Year 3 SV Perpetration									.34*
10. Year SV Perpetration									
Fraternity Men	2	3	4	5	6	7	8	9	10
1. Year 1 Frequency of Drinking	.56*	.39*	.24*	.12	.03	.20*	.12	.02	.01
2. Year 2 Frequency of Drinking		.44*	.16*	.12	.20*	.19*	.08	.06	-.02
3. Year 3 Frequency of Drinking			.05	-.03	.04	.04	.11	.20*	-.01
4. Year 1 Peer Support				.23*	.34*	.61*	.29*	.22*	.04
5. Year 2 Peer Support					.53*	.28*	.24*	.09	.21*
6. Year 3 Peer Support						.27*	.27*	.18*	.06
7. Year 1 SV Perpetration							.51*	.31*	.10
8. Year 2 SV Perpetration								.38*	.08
9. Year 3 SV Perpetration									.13
10. Year 4 SV Perpetration									

Note: * denotes $p < .05$; SV represents sexual violence.

Table 5. Incidence Rate Ratios (*IRR*) for ARCL Model with the Full Sample

	<i>B</i>	<i>SE</i>	<i>b</i>	<i>IRR</i>	<i>IRR SE</i>	<i>IRR 95%CI</i>
SV Perpetration (Y2) on Frequency of Drinking (Y1)	.34*	.08	.60*	1.40	.12	1.19, 1.61
SV Perpetration (Y2) on Peer Support (Y1)	.55	.42	.21	1.73	.72	.76, 3.44
SV Perpetration (Y3) on Frequency of Drinking (Y2)	.25*	.10	.43*	1.28	.15	1.06, 1.51
SV Perpetration (Y3) on Peer Support (Y2)	.94*	.34	.30*	2.56	.88	1.30, 4.50
SV Perpetration (Y4) on Frequency of Drinking (Y3)	.24*	.10	.37*	1.27	.13	1.04, 1.50
SV Perpetration (Y4) on Peer Support (Y3)	1.79*	.23	.56*	6.0	1.36	3.85, 8.72

Note: * denotes $p < .05$; SV represents sexual violence; Y represents year of college; *IRR* denotes Incidence Rate Ratio.

Table 6. Slopes Analyses

	Non-Fraternity Men ^a	Fraternity Men ^a	<i>TRd</i>
SV Perpetration (Y2) on Frequency of Drinking (Y1)	.36*	.14	3.70, <i>df</i> = 1
SV Perpetration (Y2) on Peer Support (Y1)	1.04*	-.44	7.23*, <i>df</i> = 1
SV Perpetration (Y3) on Frequency of Drinking (Y2)	.34*	.08	7.86*, <i>df</i> = 1
SV Perpetration (Y3) on Peer Support (Y2)	1.32*	-.17	6.03*, <i>df</i> = 1
SV Perpetration (Y4) on Frequency of Drinking (Y3)	.27	-.11	6.04*, <i>df</i> = 1
SV Perpetration (Y4) on Peer Support (Y3)	2.14*	.42	30.34*, <i>df</i> = 1

Note: * denotes $p < .05$; SV represents sexual violence; Y represents year of college; ^a Unstandardized coefficients; *TRd* denotes Satorra-Bentler Scaled Chi Square.

Table 7. Intercepts Analyses

	Non-Fraternity Men	Fraternity Men	<i>TRd</i>
SV Perpetration (Y2)	-1.58	.03	4.86*, <i>df</i> = 1
SV Perpetration (Y3)	-1.46	-.57	3.29, <i>df</i> = 1
SV Perpetration (Y4)	-2.11	.74	6.42*, <i>df</i> = 1
Frequency of Drinking (Y2) ^a	.82	.82	1.88, <i>df</i> = 1
Peer Support (Y2) ^a	1.16	1.16	.17, <i>df</i> = 1
Frequency of Drinking (Y3) ^a	.19	.19	9.29*, <i>df</i> = 1
Peer Support (Y3) ^a	.10	.10	.35, <i>df</i> = 1

Note: * denotes $p < .05$; SV represents sexual violence; Y represents year of college; ^aIntercepts were fixed across groups; *TRd* denotes Satorra-Bentler Scaled Chi Square.

Table 8. Incidence Rate Ratios (IRR) for Final Multiple Groups Model

	<i>B</i>	<i>SE</i>	<i>b</i>	<i>IRR</i>	<i>IRR SE</i>	<i>IRR 95%CI</i>
Non-Fraternity Men						
SV Perpetration (Y2) on Frequency of Drinking (Y1)	.36*	.11	.57*	1.43	.16	1.15, 1.78
SV Perpetration (Y2) on Peer Support (Y1)	1.04*	.29	.37*	2.83	.82	1.60, 5.01
SV Perpetration (Y3) on Frequency of Drinking (Y2)	.34*	.09	.56*	1.40	.12	1.18, 1.66
SV Perpetration (Y3) on Peer Support (Y2)	1.32*	.31	.42*	3.74	1.14	2.05, 6.79
SV Perpetration (Y4) on Frequency of Drinking (Y3)	.27	.15	.43	1.31	.19	.98, 1.74
SV Perpetration (Y4) on Peer Support (Y3)	2.14*	.24	.64*	8.46	2.05	5.26, 13.59
Fraternity Men						
SV Perpetration (Y2) on Frequency of Drinking (Y1)	.14	.18	.20	1.15	.20	.81, 1.62
SV Perpetration (Y2) on Peer Support (Y1)	-.44	.90	-.19	.65	.57	.11, 3.69
SV Perpetration (Y3) on Frequency of Drinking (Y2)	.08	.16	.11	1.08	.17	.79, 1.48
SV Perpetration (Y3) on Peer Support (Y2)	-.17	.64	-.06	.85	.54	.24, 2.96
SV Perpetration (Y4) on Frequency of Drinking (Y3)	-.11	.26	-.13	.89	.24	.53, 1.50
SV Perpetration (Y4) on Peer Support (Y3)	.42	.38	.15	1.52	.57	.73, 3.17

Note: * denotes $p < .05$; SV represent sexual violence; Y represents year of college; *IRR* denotes Incidence Rate Ratio.

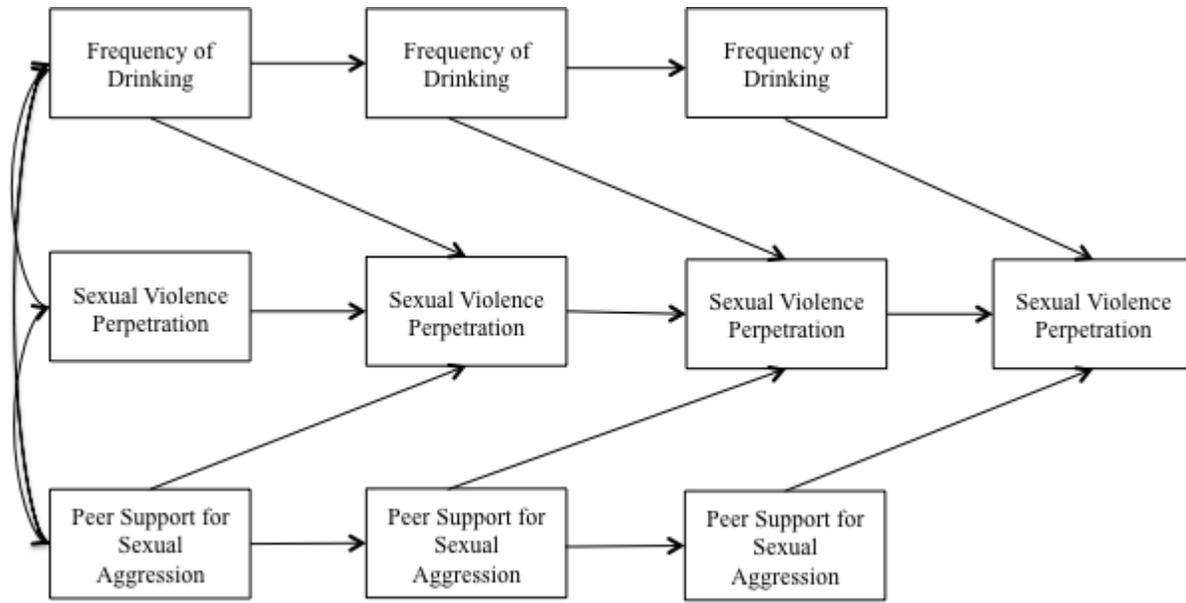


Figure 1. Hypothesized ARCL Model

Hypothesized cross-lagged panel model of the relationship between frequency of drinking, peer support for sexual aggression, and sexual violence perpetration.

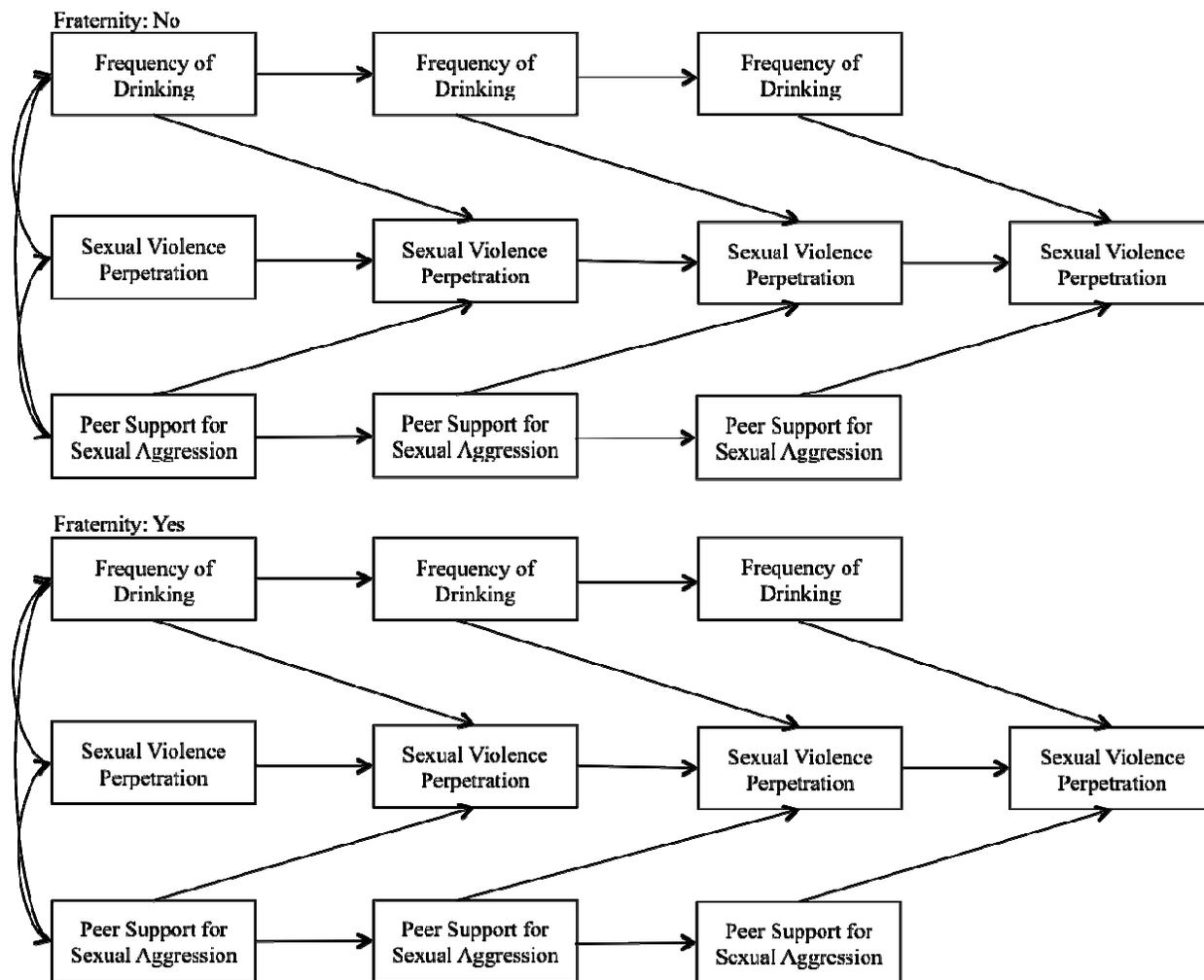


Figure 2. Hypothesized Multiple-Group ARCL Model

Hypothesized multiple-group, cross-lagged panel model of the relationship between frequency of drinking, peer support for sexual aggression, and sexual violence perpetration across fraternity membership.

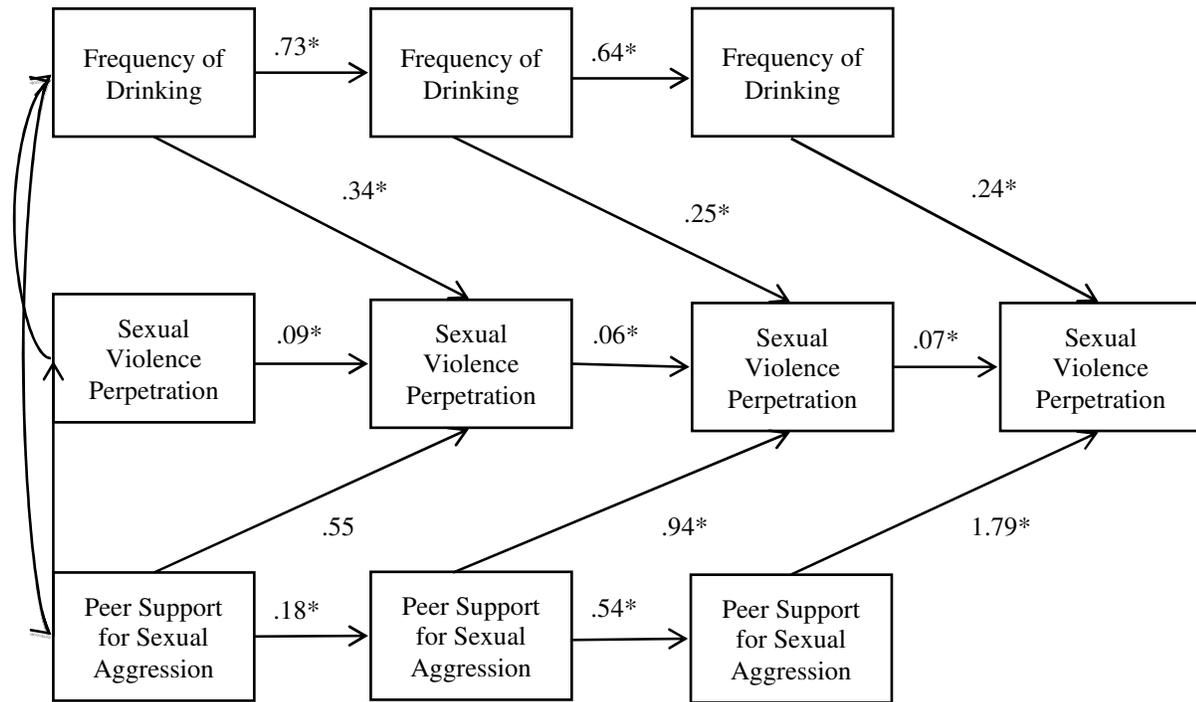


Figure 3. ARCL Model with Full Sample

Cross-lagged panel model of the relationship between frequency of drinking, peer support for sexual aggression, and sexual violence perpetration. Unstandardized coefficients are reported above.

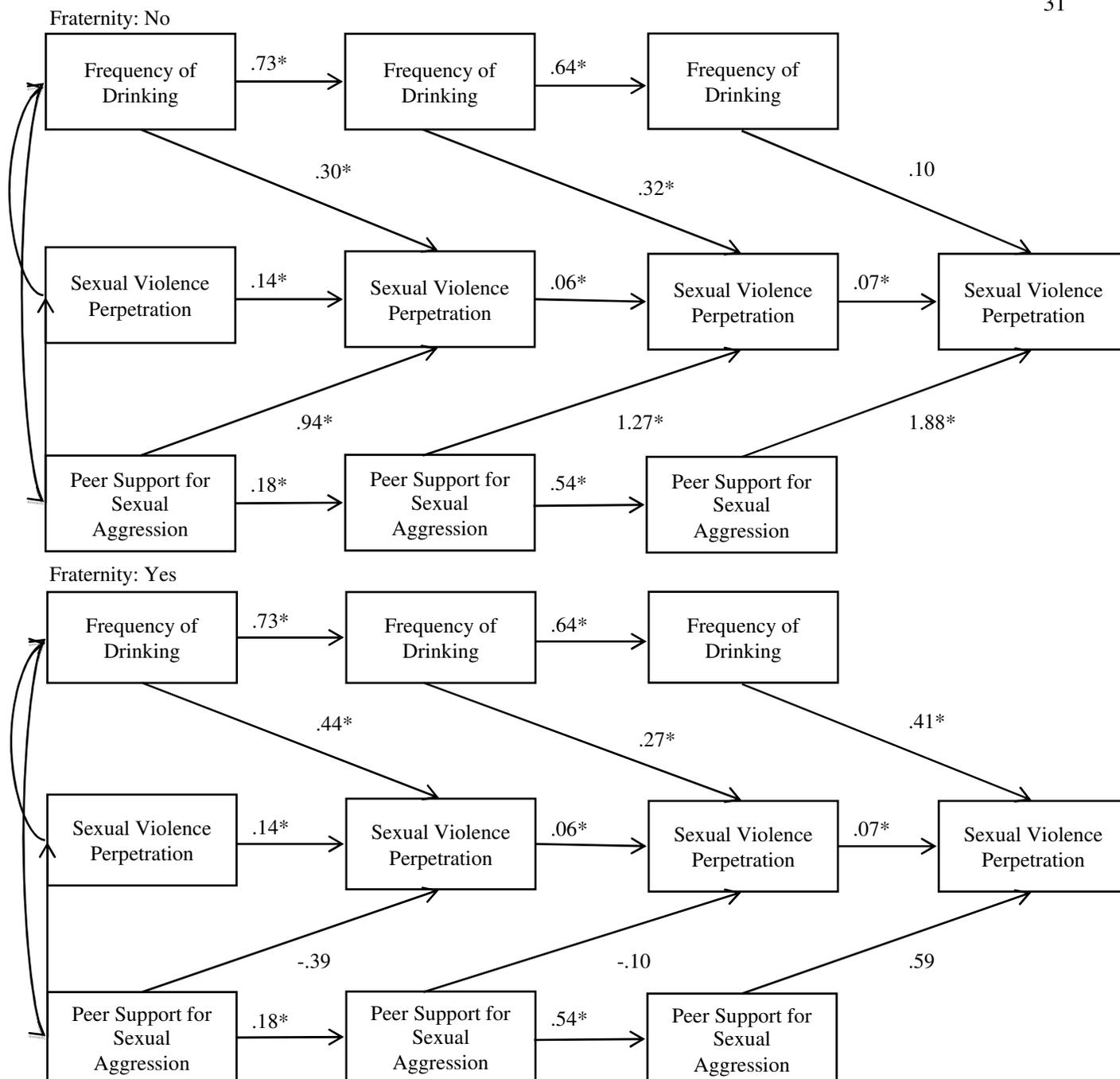


Figure 4. Multiple Groups ARCL Model with Fixed Intercepts

Multiple-group, cross-lagged panel model of the relationship between frequency of drinking, peer support for sexual aggression, and sexual violence perpetration across fraternity membership with fixed intercepts. Unstandardized coefficients are reported above.

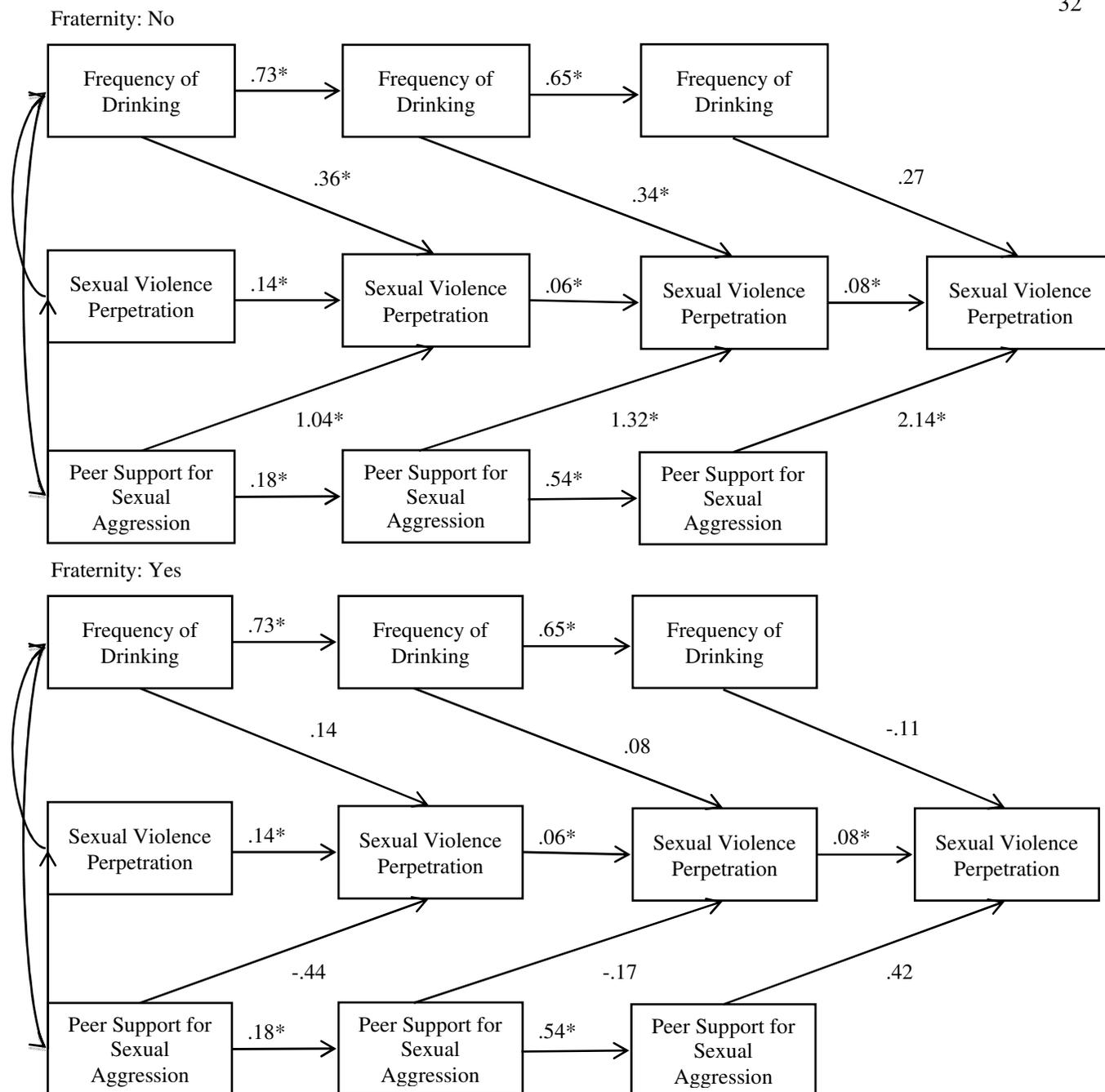


Figure 5. Final Multiple Groups ARCL Model with Freed Intercepts

Multiple-group, cross-lagged panel model of the relationship between frequency of drinking, peer support for sexual aggression, and sexual violence perpetration across fraternity membership with freed sexual violence perpetration intercepts. Unstandardized coefficients are reported above.

4 DISCUSSION

This study examined the relationships between frequency of drinking, peer support for sexual aggression, fraternity membership, and sexual violence perpetration in a sample of men across their first four years of college. The first and second hypotheses were supported: frequency of drinking and peer support significantly predicted sexual violence perpetration across time for all men in the sample. Hypothesis 3, which stated that fraternity membership would moderate the relationships between frequency of drinking, peer support, and sexual violence perpetration, was partially supported. In the final model, frequency of drinking and peer support did significantly predict sexual violence perpetration across time for non-fraternity men but not for fraternity men. When the sexual violence perpetration intercepts were freed, the paths between frequency of drinking and sexual violence perpetration dropped from significance for fraternity men. This suggests that the difference in these intercepts – fraternity men reported perpetrating more sexual violence – accounted for the relationships between frequency of drinking, peer support, and sexual violence perpetration for fraternity men. Therefore, fraternity membership moderated the relationships between frequency of drinking, peer support, and sexual violence perpetration, but not in the expected direction.

Ultimately, this study contributes two key findings: frequency of drinking and peer support predict sexual violence perpetration among college men across time (1) and fraternity membership moderates the relationships between frequency of drinking, peer support, and sexual violence such that these relationships disappear for fraternity men (2). Each of these findings is significant and contributes to the literature but each also provides more questions that need to be answered. Taken together, these findings signal the need for further research that utilizes longitudinal designs, investigates the role of peer groups and peer support, and assesses fraternity

membership using more sensitive measures. This study expands on previous research by demonstrating that frequency of drinking and peer support significantly predict sexual violence perpetration across time among college men, see Figure 3. Previous research has examined the effects of these predictors separately, using cross sectional designs; but no study to date has longitudinally examined these two predictors simultaneously (Tharp, DeGue, Valle, Brookmeyer, Massetti & Matiasko, 2013). The results of this study demonstrate the importance of examining multiple predictors of sexual violence perpetration among college students across time. In this study, increases in both frequency of drinking and peer support led to an increase in the rate of sexual violence perpetration at the subsequent assessment, which means college men who drink more and experience more peer support for sexual aggression over time may perpetrate more sexual violence. Although this finding is not novel, it moved the field forward by clarifying relationships between alcohol use, peer support for sexual aggression, and sexual violence perpetration.

Interpretations

There are a number of explanations for the unexpected results regarding how fraternity membership moderates effects of peer support for sexual aggression and alcohol use on sexually violent behavior. First, fraternity men reported significantly higher levels of drinking and sexual violence perpetration across time—nearly two times that of their non-fraternity peers, see Table 1. This suggests there may be a ceiling effect such that fraternity men's rates of sexual violence perpetration are generally high, so the rates might not increase as rapidly as a function of frequency of drinking or peer support compared with non-fraternity men's rates, which are generally much lower.

Second, fraternity men may be subject to social desirability bias, especially when asked to report perceived peer attitudes concerning sexual violence (Davis & Liddell, 2002). They may make a connection between being asked to report whether or not they are a member of a fraternity and their friends' attitudes about sexual violence. This may lead them to report less perceived peer support for sexual aggression. Fraternity men may be more aware of the potential for negative findings and may attempt to protect against negative findings by underreporting. Fraternity men reported significantly more peer support at year one, which may also suggest that the amount of perceived peer support for sexual aggression among fraternity men changes over time. Perhaps men who join fraternities perceive more peer support at first as a part of the pledging and initiation process (Sanday, 2007; Yancey Martin & Hummer 1989). Once initiated, they may perceive less peer support and the peer support they receive may become normalized.

Finally, it is important to consider the roles of male peer support and social learning in fraternities. Fraternities are formal social groups with rules and structures that dictate much of what the fraternity members can and cannot do. Despite these rules and structures, fraternities are sources of male peer support for their members. This peer support is integral for college men and members may rely on one another for advice (Schwartz & DeKeseredy, 1997). This guidance likely receives more weight because it comes from a fraternity brother, someone who is perceived to have more knowledge and life experience. Peer support from fraternity brothers may provide a social learning process through which fraternity men learn to engage in coercive and sexually violent behaviors. These findings suggest that the effect of peer support may be enmeshed within the experience of fraternity membership in such a way that eliminates any potential for further effects.

4.1 Considerations

It is important to remember that fraternities are not all the same and may vary greatly across chapters, from campus to campus, and from year to year. Fraternities are student organizations that are governed by a number of entities, including national and international organizations, colleges and universities, local housing corporations, and individual chapter executive boards. Each of these entities has different policies, procedures, and motivations that can greatly impact how a fraternity functions and what they are allowed to do. For example, some national organizations might have specific risk management policies that require chapters to follow specific guidelines when hosting parties, while other chapters might be prohibited from serving alcohol in their chapter residences due to college and university policy or local housing corporation rules. These differences in fraternities may provide additional important context that needs to be further evaluated to truly understand the results of this study.

It is also important to consider that fraternity men were not the only men who reported perpetrating sexual violence. Over 20% of the non-fraternity men in this sample committed at least one act of sexual violence. As expected, frequency of drinking and peer support significantly predicted sexual violence perpetration for non-fraternity men. This provides further evidence for the importance of using multiple avenues for prevention, especially among college men. Alcohol use and peer support should be the focus of prevention and intervention efforts. Alcohol use is a situational predictor of sexual violence perpetration; as such, it may be a useful target for bystander intervention strategies (Abbey, 2001). A community-level prevention effort with the goal of addressing community-level norms about alcohol use and sexual violence might encourage college men to intervene and discourage their peers from using alcohol as a means to commit sexual violence. Peer support is another important avenue for prevention because peer

groups provide support and help individuals deal with the challenges they face in life (Schwartz & DeKeseredy, 1997). For college men, regardless of their membership in formal social groups, peer support from informal social groups is invaluable because it offers a source of emotional support and practical, experiential knowledge from similar peers. Men who support violence against women influence their peers' attitudes and beliefs about violence, which puts them at greater risk for engaging in sexual violence; this negative social influence is exacerbated in tight-knit social groups (Swartout, 2013). On the other hand, peer groups who do not encourage violence against women are beneficial and seem to have a stronger influence than negative peer groups. Thus, another avenue for prevention among college men may be to engage with informal social groups in hopes of fostering positive norms regarding sex and violence reduction.

4.2 Limitations

This study, like many previous studies, used a dichotomous variable to measure fraternity membership. The influence of fraternity membership may depend on a number of factors, including whether or not the chapter has a house, the amount of time spent in the chapter, other members attitudes and behaviors, whether the chapter is governed by a national organization, the structure and reach of the national organization, and the culture of the specific college campus. These factors complicate how fraternity membership is measured. Some researchers have used alternative measures, for example Humphrey and Khan (2000) used student ratings to group fraternities by risk. This method was useful because it allowed the researchers to assess risk without relying on the members themselves. Similar methods should be used in future research to attain a more nuanced understanding of how fraternity membership relates to sexual violence.

Although the Sexual Experiences Survey (SES) is widely used and considered by some to be a gold standard measure of perpetration, the structure of the measure (i.e., acts crossed with

tactics) limits the interpretability of these results. Instead of counting the number of assaults that an individual reported perpetrating, scores on the SES must be interpreted as the number of sexually violent acts. For example, one person might have used alcohol and physical force to get someone to have oral sex with them. Using the SES, this person would mark that they used two tactics (e.g., alcohol and force) to obtain oral sex but it is impossible to know whether or not these acts occurred in one incident or across multiple incidents. Therefore, these findings must be interpreted as the number of acts that each participant reported not the number of assaults they may have committed. Follow up questions are needed to clarify the context of the acts reported on the SES.

4.3 Future Directions

Given the recent media attention to sexual violence on college campuses, it is imperative that future research further examine potential avenues for prevention, such as the influence of male peer support. Taken together, the research literature suggests that positive peer groups could protect against perpetration (Swartout, 2013), while groups with hostile norms greatly contribute to the problem. Researchers should examine how fostering positive norms regarding sex and violence reduction in peer groups might influence perpetration of sexual violence. Additionally, future research must employ alternative methods of assessing fraternity membership. For example, researchers could use mixed methods to examine the experiences of fraternity members (e.g., attitudes, behaviors) and the structure of the organization (e.g., housing, regulations, leadership). Researchers should also examine other variables that might differentiate fraternities (e.g., hypermasculinity). Perhaps fraternities that report higher levels of hypermasculinity are more likely to encourage violence against women. This will allow

researchers to investigate the effects of specific features of the fraternity experience (e.g., chapter regulations, campus regulations, housing).

5 CONCLUSION

Overall, this study provides more clarity about the relationships between college men's frequency of drinking, peer support, and perpetration of sexual violence, both generally and for fraternity men, specifically. For all college men, frequency of drinking and peer support predict sexual violence perpetration across time. Fraternity men, on the other hand, report more drinking and more sexual violence perpetration than their peers who are not members of fraternities. Although counter intuitive, drinking and peer support for sexual aggression were weaker predictors of sexually violent behavior for fraternity men compared with non-fraternity men. Taken together, these findings signal the need for further research that investigates peer support as a means of preventing sexual violence among college men and these findings demonstrate the need for further, in-depth investigation of fraternities. College and universities are reevaluating their prevention and intervention efforts. The findings from this study demonstrate that all college men are perpetrating sexual violence at high rates regardless of whether or not they are members of fraternities. However, it is imperative to prevent sexual violence perpetration and reduce high risk drinking among fraternity men.

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