

Sexual Assault as A ‘Social Fact’

A Cross-Campus Analysis

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This study addresses the structural causes of sexual assault by analyzing assault rates across institutions. In a sample of 23 American universities, I use regression models to examine the factors associated with rates of general sexual assault among undergraduate females and males, and disaggregated rates among females. High levels of institutional support for sexual assault survivors are associated with decreased rates of assault among females and males while high rates fraternity membership and being an NCAA Football Bowl Subdivision school are associated with increased rates of sexual assault among females alone. I conclude by drawing attention to the gendering of environments that are hospitable to sexual assault and calling on institutions to address the structural problems that create such conditions.

In recent years, awareness has risen around sexual assault and it is now often recognized as one of the foremost issues plaguing colleges and universities across the United States. Although the attention is recent, the problem has existed for decades, and little has changed. Today, about one in five women and 5 to 6 percent of men experience sexual assault during their college careers (Krebs et al. 2007; Cantor et al. 2015). Furthermore, these assaults commonly cause fear and isolation among survivors and can have serious long term psychological impacts (National Sexual Violence Resource Center 2016).

Some universities have attempted to address campus sexual assault. Many institutions have implemented training programs for students and some have even appointed specialized officials to respond to sexual assault. Groups outside of universities have also attempted to rectify the problem. President Obama, for example, appointed a White House Task Force to Protect Students from Sexual Assault. Campus sexual assault rates, however, remain alarmingly high. This may be due to the focus on the individual that is embodied in response efforts. Programs often call on students to change their behaviors: they are urged not to assault, to intervene in a situation in which an assault may occur, and to protect themselves from assault by drinking responsibly and traveling in groups. These efforts, however, are somewhat misguided. Responses that call upon individuals to change their behaviors fail to recognize the structural and institutional factors that create an environment in which sexual assault becomes a ‘social fact.’

This study addresses structural causes of sexual assault by analyzing assault rates across institutions. I use regression models to examine the factors associated with sexual assault among undergraduate females and males. Three factors comprise the focus of the study: the level of institutional support for individuals affected by sexual assault, the percent of males in fraternities, and NCAA Football Bowl Subdivision (FBS) membership status.

RISK FACTORS FOR INDIVIDUALS

Much of the literature on college sexual assault has examined the individual-level risk factors for victimization among undergraduate females (eg. Koss, Gidycz, and Wisniewski 1987; Abbey et al. 1998; Tyler, Hoyt, and Whitbeck 1998; Krebs et al. 2009; Barrick et al. 2012), focusing mainly on behaviors and attributes of the victims. Some scholars, however, (eg. Mohler-Kuo et al. 2004) have included characteristics of institutions that put individuals at a higher risk for experiencing sexual assault. Others have also begun to study risk factors for male victims (eg. Fagen et al. 2011) as well as variables associated with sexual assault perpetration (eg. Koss et al. 1987; Koss and Gaines 1993; Tyler et al. 1998; Fagen et al. 2011).

Scholars consistently find alcohol and drug consumption to be a significant predictor of sexual assault on college campuses among victims (eg. Abbey et al 1996; Tyler et al. 1998; Fagen et al. 2011) as well as perpetrators (eg. Tyler et al. 1998; Fagen et al. 2011). College women and men who engage in frequent (more than once in two weeks) “high risk” (i.e. binge drinking, playing drinking games, etc.) alcohol consumption are at an elevated risk for both sexual assault victimization and perpetration (Fagen et al. 2011). Koss and Gaines (1993) note that regular alcohol and nicotine use are associated with perpetration of sexual aggression among undergraduate men. Furthermore, studies of sexual assault among undergraduates find that either the victim, perpetrator, or both consumed alcohol at the time of nearly half of the reported assaults, although this is more common among white students (Abbey et al. 1996; Gross et al. 2006). Perpetrators are also more likely to have consumed alcohol than victims (Abbey et al. 1996; Gross et al. 2006).

The impact of substance use, however, may vary based on the user and they type of sexual assault. The frequency of alcohol use is associated with experiencing sexual assault as a result of alcohol or drug coercion, while incapacitated by drugs or alcohol, and both forced and incapacitated sexual assault, but not with experiencing sexual assault as a result of force alone (Tyler et al. 1998; Krebs et al. 2009; Barrick et al. 2012). Having used marijuana at least once is also linked with having experienced sexual assault while incapacitated (Krebs et al. 2009). Similarly, an increased frequency of alcohol use among men is associated with an increased frequency of the use of alcohol or drugs to coerce sexual contact, but is not associated with the use of verbal coercion or physical force (Tyler et al. 1998). Although the effects of alcohol use are varied, it is clear that it increases the likelihood of sexual assault victimization as well as perpetration in some way.

Individuals’ history of sexual assault is cited as an additional risk factor for assault during college. Experiencing sexual assault as an adolescent significantly increases the likelihood of experiencing sexual assault as a college student (Koss and Dinero 1989; Krebs et al. 2009; Barrick et al. 2012). Specifically, having been a victim of sexual assault as a result of physical force during adolescence predicts victimization due to force during college, while victimization while incapacitated (by drugs and/or alcohol) as an adolescent predicts victimization while incapacitated during college (Krebs et al. 2009; Barrick et al. 2012). It is unclear, however, why this association exists. In addition to having been sexually assaulted, having a history of family hostility and detachment, when mediated by participation in hookup culture, has been cited as a

risk factor for sexual assault victimization among undergraduate females and for perpetration among undergraduate males (Sutton and Simmons 2014).

Certain sexual behaviors and dating practices are also associated with experiencing sexual assault among undergraduates. Women at predominantly white institutions with more sexual partners are more likely to have experienced some type of sexual assault (Abbey et al. 1996; Krebs et al. 2009; Barrick et al. 2012). Women with more dating partners are also more likely to have experienced sexual assault (Abbey et al. 1996; Barrick et al. 2012). Furthermore, women with “sexually permissive attitudes” are more likely to have experienced sexual assault as a result of coercion (Tyler et al. 1998). Because there is no measure of temporal order, it is difficult to establish a causal relationship. It is unclear, for example, that sexually permissive attitudes or having a higher number of sexual partners led victims to be assaulted. These behaviors and beliefs may instead be coping mechanisms.

Beliefs surrounding sexual behaviors are also associated with sexual assault perpetration. Men who endorse casual sexual encounters are more likely to have engaged in prior sexual aggression, believe in rape myths, and have coercive sexual attitudes (Yost and Zurbriggen 2006), and men with sexually permissive attitudes are more likely to have perpetrated sexual assault using verbal or alcohol/drug coercion (Tyler et al. 1998).

The impact of race and ethnicity on the likelihood of sexual assault victimization among undergraduates is somewhat disputed. Some authors find no association between a college woman’s race and her likelihood of experiencing sexual assault (eg. Barrick et al. 2012). Other studies find women of color to be at a higher risk of sexual assault than white women. In Gross et. al’s (1998) sample of undergraduate students, 36 percent of African American women had experienced unwanted sexual contact compared to 26.3 percent of white women, a “marginally significant” difference (p. 292). Koss et al. (1987) found significant variation by race and ethnicity in prevalence of rape victimization with Native American women reporting the highest rates (40 percent) followed by white women (16 percent), Hispanic women (12 percent) and Black women (10 percent) with Asian women reporting the lowest rates (7 percent).

Participation in certain extracurricular activities may also increase an individual’s likelihood of sexual assault victimization or perpetration. Membership in Greek life is consistently linked to incidences of sexual assault. Sorority members are at a higher risk for having experienced sexual assault as a result of physical force as well as drug or alcohol coercion (Tyler et al. 1998; Barrick et al. 2012), and fraternity members are more likely than non-fraternity members to be perpetrators (Barrick et al. 2012). Fraternity members are also more likely than non-fraternity members to use coercion and drugs or alcohol as a strategy for obtaining sex (Boeringer 1996). Women who attend fraternity parties regularly are more likely than those who do not to be victims of sexual assault (Krebs et al. 2009; Barrick et al. 2012). Furthermore, women who live in sorority houses are also more likely than those who do not to be victims of rape (Mohler-Kuo et al. 2004).

Participation in athletic life is also associated with perpetration of sexual assault. Koss and Gaines (1993) found “formal sports involvement, particularly in revenue-producing sports” to be associated with the perpetration of sexual aggression (p. 105). Athletes may also have more rape-prone attitudes than non-athletes (Boeringer 1996).

Far fewer scholars have examined risk factors beyond those attributed to the individual. In a national study of college women, Mohler-Kuo and colleagues (2004) found that women attending schools with elevated rates of heavy episodic drinking, in rural settings, and in the southern and north central United States were significantly more likely to be raped while intoxicated than students at schools without those characteristics. Furthermore, when controlling for various individual-level attributes including drug use, age, race, residence, and high school alcohol use, undergraduate women at institutions with heavy or moderate levels of heavy episodic drinking were still more likely than women at institutions with low levels of heavy episodic drinking to be raped (Mohler-Kuo et al. 2004:42).

A CULTURE OF RAPE

Much of the literature that identifies individual risk factors for sexual assault lacks an understanding of sexual assault as an activity that is profoundly rooted within a social context. Often times, even the most individual-seeming acts occur within and as a result of social structures. The characteristics of the social order of a society, instead of individual agency, determine the varying rates of certain phenomena (Durkheim 1966). These phenomena are “social facts”—behaviors and actions enacted by individuals, occurring within the context of society, that comply with the society’s norms and beliefs (Durkheim 1982). A few scholars recognize this in relation to sexual assault. Sanday (1981) suggests that rape is a reflection of the structures in which it occurs, rather than an act naturally perpetrated by males. In a study of 95 tribal cultures, she identifies sociocultural correlates of rates of sexual assault. First, she notes that rates of rape do not hold constant across societies: rape is low or relatively non-existent in some while high in others (Sanday 1981). Societies are more prone to rape when there is an ideology of “male-toughness”, women have less power, father child relationships are weaker, and when there is an elevated degree of interpersonal and intercultural violence (Sanday 1981:23). From this, Sanday (1981) concludes:

It is important to understand that violence is socially and not biologically programmed. Rape is not an integral part of male nature, but the means by which men programmed for violence express their sexual selves. Men who are conditioned to respect the female virtues of growth and the sacredness of life, do not violate women. (P. 25-6)

According to Sanday (1981) individuals’ biology does not cause them to perpetrate rape. Instead, rape occurs as a result of social values imparted on individuals, specifically gender inequality and violence. This creates a framework through which sexual assault can be understood as a profoundly social act, rather than an individual one.

Herman (1984) extends this to contemporary western culture. She argues that we live in a culture that permits, and practically encourages, rape. Through laws, the treatment of rape victims and offenders, and through public opinion and the media, American society perpetuates a culture that is permissive of sexual assault (Herman 1984). She notes, “[O]ur culture can be characterized as a rape culture because the image of heterosexual intercourse is based on a rape model of sexuality” (Herman 1984:20).

Rape Culture on College Campuses.

The notion of a rape culture has been extended to college campuses. Guided by her research of tribal societies, Sanday (1996) points out that some colleges are more prone to rape than others. She suggests a prevalence of sexist language and justification of sexual assault as exemplary behaviors of individuals on rape prone campuses (Sanday 1996). Sanday (2007) also asserts that institutions' failures to punish perpetrators of sexual assault help to reproduce rape culture by reinforcing beliefs that sexual assault will have no formal repercussions. In contrast, rape free societies prohibit sexual assault through laws, customs, and norms (Sanday 1996). She therefore imagines that rape free campuses are egalitarian environments in which decision making is collective and interactions are respectful (Sanday 1996).

Several authors have examined specific aspects of colleges and universities that make sexual assault more or less likely. Lindo, Siminski, and Swensen (2016) found that rapes are reported more frequently on football game days at NCAA Division IA schools. They suggest that these games encourage alcohol consumption and partying, creating physical and social spaces for sexual assault to occur (Lindo, Siminski, and Swensen 2016). Fraternities are also cited as locations that perpetuate rape culture (Martin and Hummer 1989; Sanday 2007). Martin and Hummer (1989) found:

[F]raternities are a physical and sociocultural context that encourages the sexual coercion of women...[R]ape is especially probable in fraternities because of the kinds of organizations they are, the kinds of members they have, the practices their members engage in, and a virtual absence of any university or community oversight. (P. 458-9)

Masculinity, which contributes to the perpetration of sexual aggression, is of the utmost importance in fraternities (Martin and Hummer 1989; Sanday 2007). Brothers use ritualistic masculinity to promote bonding (Sanday 2007). Often times bonding rituals are homoerotic, forcing fraternity members to engage in real or imagined sexual violence against women in order to affirm their masculinity and loyalty to the group, resulting in a normalization of sexual assault (Sanday 2007). Additionally, members value athleticism, attractiveness, and the ability to drink large amounts of alcohol, and new recruits must undergo a "boot camp" of humiliating and physically taxing activities, creating a masculine ideal that rejects femininity (Martin and Hummer 1989:460-2).

Fraternity members also conform to a strict culture of brotherhood, which enforces norms that are conducive to the perpetration of sexual assault (Martin and Hummer 1989). Among these norms is the practice of loyalty to the group and secrecy (Martin and Hummer 1989:463-4). Fraternity brothers are highly loyal to the group and are strongly discouraged from reporting incidents to authorities outside of the fraternity (Martin and Hummer 1989). This prevents external policing, allowing brothers to escape formal punishment for sexually aggressive behavior.

The use of alcohol to obtain sex is another a normative practice within fraternities (Martin and Hummer 1989; Sanday 2007). This is prominent in situations involving one brother

using alcohol to coerce or incapacitate women so that they will have sex with them as well as in cases of gang rape (Martin and Hummer 1989; Sanday 2007). In these situations, brothers often fail to recognize their wrongdoing, pointing to the commonly held belief that intoxicated women are “fair game” (Sanday 2007).

Employing this type of violent language to describe women is a common practice within some fraternities. Martin and Hummer (1989) found that fraternity members commodified women on campus, treating them as “bait,” “servers,” and “sexual prey” (p. 466, 467, 468). Sanday (2007) heard brothers describe women as “sluts”. Together the normative practices and values of fraternities create a culture that encourages brothers to perpetrate sexual aggression against women on campus (Martin and Hummer 1989; Sanday 1996; Sanday 2007).

While the structure of fraternities promotes sexual aggression (Martin and Hummer 1989; Sanday 2007), some are less prone to sexual assault than others (Boswell and Spade 1996; Sanday 2007). Boswell and Spade (1996) found that parties at fraternities where there is a lower risk for sexual assault encourage conversation, have clean restrooms for women, have a more even gender ratio, and are less focused on alcohol and hookups. Parties at assault prone fraternities, on the other hand, have loud music that prevents conversation, more men than women, and little interaction between genders aside from attempts to engage in sexual relations (Boswell and Spade 1996). Furthermore, Boswell and Spade (1996) find that fraternity members change their behavior based on the location of the parties they attend: when men from low risk fraternities attend parties at high risk fraternities, they adapt their behavior to match members from the high risk organizations, suggesting that assault behavior is in fact influenced by one’s environment, rather than personal biography alone. This further supports the assertion that society produces sexual aggressors, and sexual aggression can be prevented by targeting the characteristics of institutions that encourage it.

Although much is known about rape culture within college campuses (i.e. why one fraternity may be higher risk than another for elevated rates of sexual assault), few have studied rape culture across campuses. Koss and colleagues’ (1987) large national study of undergraduate students serves as an exception. Notably they found incidences of sexual victimization of females occur twice as often at private colleges and major universities (14 and 17 percent, respectively) when compared to religiously affiliated institutions (7 percent). Region was also associated with female victimization rate: institutions in Great Lakes and Plains States have slightly higher percentages. Additionally, men reported perpetration most often in the Southeast (6 percent), followed by the Plains States (3 percent) and the West (2 percent). Also notable is the lack of effect of school size on both rates of perpetration and victimization (Koss et. al 1987). Although Koss and colleagues (1987) provide valuable information about predictors of sexual assault on college campuses, the authors did not examine several important variables including measures of Greek life participation as well as alcohol and drug use.

The current study adds to the body of literature surrounding sexual assault by identifying characteristics that render institutions more prone to sexual assaults. Guided by an understanding of sexual assault as a social act, I use cross-campus data to determine predictors of varying rates of sexual assaults. I focus mainly on the effects of fraternity membership rates, the prominence of athletics, and the level of institutional support for survivors of sexual assault and their allies.

METHODS AND DATA

Measures of Sexual Assault.

Sexual assault measures used in this study were taken from the Association of American Universities (AAU) Campus Climate Survey on Sexual Assault and Sexual Misconduct. Surveys were conducted at 27 institutions of higher education in April and May of 2015. The survey, developed in collaboration with Westat and the universities, was modeled on the White House Task Force to Protect Students from Sexual Assault's instrument and individual versions were tailored specifically to the needs and resources at each participating institution. The AAU survey was conducted online and students were invited to participate via email. It was open to all students in 26 of the 27 institutions—779,170 students in total. In nearly all schools, the survey was incentivized, with either small compensation for each participant or by entering respondents in a raffle. Overall, 150,072 or 19.3 percent of students participated in the survey, although the participation rate varied quite a bit by school. Women responded at higher rates than men, as did graduate students compared to undergraduate students. Data were weighted using school census data and base weighting procedures to better reflect the schools' populations. (A more in depth explanation of the weighting methods is available in the AAU Campus Climate Survey Report). Response rates for individual institutions are reported in Appendix A. Because a lack of availability of data, one school, Case Western Reserve University, was excluded from this analysis.

The AAU's survey asked questions pertaining to sexual assault, sexual harassment, intimate partner violence, and stalking as well as students' awareness of the issues, the resources available to students who have experienced sexual assault or misconduct and their knowledge of them, and the general environment regarding sexual assault and misconduct on campus. The survey carefully avoided imprecise language like "rape" and "assault," opting instead for descriptions of specific situations.

Variables taken from this survey include measures of sexual assault rates, sexual assault reporting rates, and institutional support for survivors of sexual assault and their allies. Sexual assault is defined in the survey as nonconsensual sexual contact, including penetration and sexual touching. Penetration is defined as a person putting "a penis, finger, or object inside someone else's vagina or anus" as well as when a person's "mouth or touch makes contact with someone else's genitals" while sexual touching includes "kissing, touching someone's breast, chest, crotch, groin, or buttocks," and "grabbing, groping, or rubbing against [another person] in a sexual way", including touching over clothing (Cantor et al. 2015:12). The circumstance in which the assault occurred was then broken into four categories: assault due to "physical force or threat of physical force," sexual contact while a student was "unable to consent or stop what was happening because [they] were passed out, asleep, or incapacitated due to drugs or alcohol", sexual contact following "coercive threats of non-physical harm or promised rewards", and sexual contact without obtaining affirmative consent (Cantor et al. 2015:11-12). The present study examines first generalized sexual assault by force, incapacitation or both among undergraduate women and men. Following findings (eg. Tyler et al. 1998; Krebs et al. 2009;

Barrick et al. 2012) that predictors of sexual assault at the individual level vary based on the type of assault experienced, I also analyze disaggregated assault rates among undergraduate women, including the percent experiencing sexual penetration by force, sexual penetration while incapacitated, and sexual contact without giving affirmative consent.

This study also uses variables pertaining to the broader climate on campus. Following assertions that the lack of a punitive institutional response to reports of sexual assault contributes to the reproduction of rape culture (Sanday 2007), the first variable describes the institutional support for survivors of sexual assault and misconduct and their allies. In operationalizing support, I generated a composite variable of the percentages of students responding “very” or “extremely” to the following statements: “Campus officials would take the report seriously.”, “Campus officials would protect the safety of the person making the report.”, “Campus officials would conduct a fair investigation.”, “Campus officials would take action against the offender(s).”, and “Campus officials would take action to address factors that may have led to the sexual assault or sexual misconduct.” Chronbach’s alpha for the composite variable is 0.973 with individual values ranging from 0.962 to 0.968, suggesting a high level of internal consistency.

Institutional Characteristics.

In addition to variables pertaining directly to sexual assault, I use institutional characteristics to develop a broader understanding of the factors that allow or encourage sexual assault. Most school demographic measures were taken from The 2015-2016 Common Data Set published by U.S. News and World Report. The Common Data Set is a collaborative study conducted by The College Board, Peterson’s, and U.S. News and World Report. It employs a standardized survey instrument that is sent to all participating colleges and universities to collect demographic information about the schools. The survey asks school representatives to provide information regarding enrollment, acceptance rates, student activities, and more.

Based on the consistent significance of Greek life participation as a predictor of sexual assault victimization and perpetration as well as evidence that fraternity practices and environments promote sexual violence against women and provide spaces lacking formal surveillance to prevent sexual assault (eg. Martin and Hummer 1989; Boeringer 1996; Tyler et al. 1998; Barrick et al. 2012), I include the percent of males at each school participating in fraternities in my analyses.

Schools are also categorized by their region and type. Regions include Northeast, South, Midwest, and West, based on United States Census regions. This follows findings that students in certain parts of the United States are more likely to experience and perpetrate sexual assault (Koss and Gaines 1987; Mohler-Kuo et al. 2004). School type is broken into public research institutions, private research institutions, and Ivy League schools. School type was determined based on descriptions provided on their websites. I include the type of school based on its significance in earlier research (Koss et al. 1987). Finally, because of the significant relationships between sexual assault and athletics at the individual and group level (Koss and Gaines 1993; Boeringer 1996), I attempt to examine the importance of high-status athletics on campus. To operationalize this, I coded the schools based on their membership in the NCAA Division I Football Bowl Subdivision (FBS). These schools have elite sports programs. They are permitted

to give full athletic scholarships to 85 football players and their games must have an average season attendance of 15,000.

It should be noted that some variables have a broader implied meaning. School region, for example, describes the geographic location of the school, but it may also be associated with the “culture” of the school. Universities in the South, for example, are likely to have very different norms than those in the Northeast due to the social climate of their surroundings. The type of school likely has a broader implication for campus culture as well. Extracurricular activities and social norms, for example, may be quite different at Ivy League institutions than at public research institutions. The type of institution may also dictate the extent to which the norms are enforced. Large public institutions may have more loosely enforced norms because of the possibility for anonymity. Furthermore, the percent of students participating in Greek life may be descriptive of the party culture on campus. Because fraternity and sorority members report higher levels of alcohol use, fraternity membership rates may correspond to the level of campus alcohol use (Alva 1998). They may also represent the prevalence of spaces that provide opportunity for sexual assault (Martin and Hummer 1989; Kimmel 2015). Additionally, Sanday (1981) notes that fraternities’ prominent position on campus often allows them to dictate the party norms and sexual expectations for the student body.

Methods.

I used Stata statistical software to conduct multivariate analyses to examine the sexual assault climates among American universities. I developed ordinary least squares (OLS) regression models predicting the percentages of female and male undergraduate students experiencing sexual assault, as well as models disaggregated by assault type for only female undergraduates. Ultimately, 23 schools were included—Case Western Reserve University, Harvard University, Ohio State University, and Yale University were excluded from regression analyses because of missing data for dependent or independent variables. I selected independent variables based on their levels of association in bivariate analyses. Using the regressions, I assess the predictors of the different types of sexual assault.

Although I will attend to statistical significance in the regression models, two factors require that it be considered in context. First, the sample in this study is quite small ($n=23$). In this case, variables must be highly associated for a relationship to reach statistical significance. Additionally, multicollinearity exists among the independent variables. Variance inflation factors for two independent variables, FBS membership and Ivy League classification, are quite high ($VIF=9.17$ and 16.29 , respectively), but because school type serves as a control variable rather than one of the main independent variables and FBS membership is significant in most cases despite its covariance with Ivy League status, I elected to include both variables in the models. Such multicollinearity simply causes an inflation of standard errors, resulting in higher p-values. It does not, however, affect the fit of the model and its ability to make predictions. For this reason, in addition to an analysis of significant independent variables in regressions, special attention will be paid to the explanatory power of the five models.

Table 1. Descriptive Statistics of Regression Variables (n=23)

	Mean	SD	Min	Max
Dependent Variables (%)				
Sexual Assault, Female Undergrads	23.2	4.3	12.7	30.3
Sexual Assault, Male Undergrads	5.6	1.3	3.1	8.0
Forced Penetration, Female Undergrads	5.7	1.2	3.3	8.2
Incapacitated Penetration, Female Undergrads	5.5	1.3	2.3	7.9
Sexual Contact w/o Affirmative Consent, Female Undergrads	12.3	2.9	5.0	17.8
Independent Variables				
% of Males in Fraternities	17.7	10.0	0	46.0
Institutional Support	50.1	8.0	34.5	63.9
% (n)				
FBS	69.6 (16)			
Non-FBS	30.4 (7)			
Region				
Northeast	26.1 (6)			
South	21.7 (5)			
Midwest	34.8 (8)			
West	17.4 (4)			
School Type				
Public Research Institution	65.2 (15)			
Private Research Institution	13.0 (3)			
Ivy League Institution	21.7 (5)			

Note: Percentages may not add to 100 because of rounding.

FINDINGS

I develop OLS regression models of five types of sexual assault using data from a sample of American universities. Table 1 presents descriptive statistics for dependent and independent variables used in the regression models. The most frequently occurring type of assault is generalized sexual assault among female undergraduates. The rate ranges from 12.7 to 30.3 percent with an average rate of 23.2 percent. Generalized sexual assault occurs less often among male undergraduates, ranging from 3.1 to 8.0 percent and averaging 5.6 percent of male students. Forced penetration and penetration while incapacitated among female undergraduates occur at similar rates. The lowest rate of forced penetration is 3.3 percent and the highest is 8.2 percent, while rates of incapacitated penetration range from 2.3 to 7.9 percent. The means are 5.7 percent and 5.5 percent, respectively. Finally, an average of 12.3 percent of female undergraduate students report experiencing sexual contact without giving affirmative consent. Rates range from 5.0 to 17.8 percent.

Main independent variables include the percent of males involved in fraternities, the level of institutional support, and NCAA Division I Football Bowl Subdivision (FBS) membership. On average, 17.7 percent of males participate in fraternities (see Table 1). One school has no fraternity members while the highest rate of fraternity membership is 46.0 percent. The lowest institutional support score is 34.5, while the highest is 69.3, and schools average 50.1. Of the 23 schools in the regression, 16 are FBS members (69.6 percent). Notably, none of the FBS schools are classified as Ivy League institutions. The final two variables described in Table 1, region and type, are used as control variables in the regression models. We see that schools are distributed throughout the United States with the highest percent located in the Midwest (34.8 percent, $n=8$), followed by the Northeast (26.1 percent, $n=6$), South (21.7 percent, $n=5$), and West (17.4 percent, $n=4$). Finally, the majority of schools are classified as public research institutions (65.2 percent, $n=15$), followed by Ivy League and private research institutions (21.7 and 13.0 percent, $n=5$ and 3, respectively).

Table 2 presents two models comparing the rates of sexual assault (including sexual assault by force, while incapacitated, or both) between female and male undergraduates. The first model predicts the rate of sexual assault among undergraduate females. Here we see significant effects of three variables: the percent of males involved in fraternities, the level of institutional support, and FBS membership, while controlling for the type of school and the region in which it is located. To better understand effects, consider that for each ten-unit increase in the percent of males in fraternities, there is a corresponding 2.4 percent predicted increase the estimated rate of sexual assault, holding other factors constant ($B=0.240$, $p=0.002$). On the other hand, for a ten-unit increase in the level of institutional support, we see a 2.6 percent predicted decrease in sexual assault rate ($B=-0.255$, $p=0.002$). The rate of assault is about 8.3 percent higher in FBS schools than non-FBS schools ($B=8.306$, $p=0.010$). Overall, this model fits the data quite well. It accounts for about 86 percent of the variation the rates of sexual assault among female undergraduates ($R^2=0.86$). Furthermore, values of assault rates predicted by the model near the true assault rates (see Figure 1).

Table 2. Results of OLS Regressions Modeling Predictors Percent of Female and Male Undergraduates Who Have Experienced Sexual Assault (n=23)

	Female SA Model 1		Male SA Model 2	
	B (SE B)	p	B (SE B)	p
% Fraternity	0.240 (0.061)	0.002	0.010 (0.027)	0.703
Inst. Support	-0.255 (0.067)	0.002	-0.125 (0.030)	0.001
FBS	8.306 (2.787)	0.010	-1.129 (1.223)	0.371
Region (Northeast=ref)				
South	-3.274 (2.270)	0.171	-2.236 (0.996)	0.041
Midwest	2.310 (2.194)	0.310	-1.361 (0.963)	0.179
West	-0.561 (2.480)	0.824	-0.799 (1.088)	0.475
Type (Public Research=ref)				
Private Research	4.243 (2.640)	0.130	0.442 (1.158)	0.709
Ivy League	4.633 (4.144)	0.282	-3.621 (1.818)	0.066
Constant	24.40		14.26	
R ²	0.86		0.69	
Adj. R ²	0.78		0.51	

B=unstandardized coef.; β =standardized coef.; p-values based on two tailed tests of significance

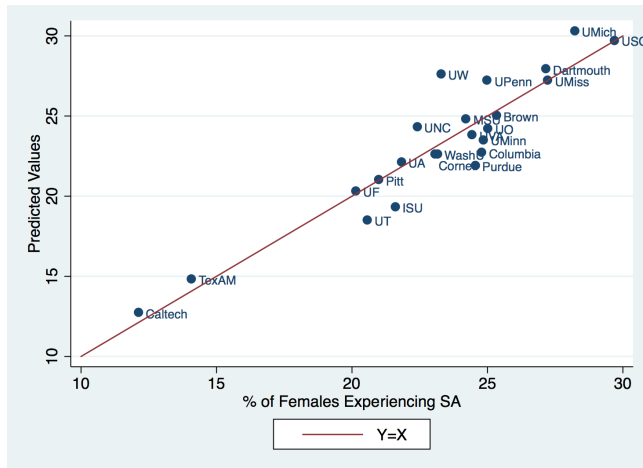


Figure 1. Predicted Versus Real Values of the Percent of Undergraduate Females Experiencing Sexual Assault Using Model 1

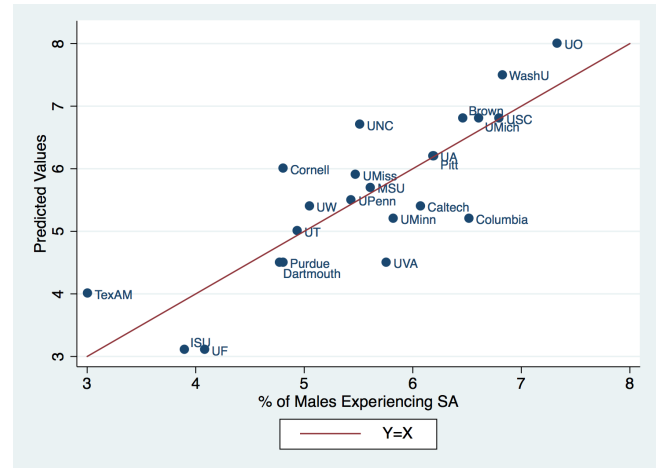


Figure 2. Predicted Versus Real Values of the Percent of Undergraduate Males Experiencing Sexual Assault Using Model 2

Model 2 addresses sexual assault rates among male undergraduates. In contrast to sexual assault among female undergraduates, the rate of sexual assault among male undergraduates does not significantly co-vary with fraternity membership rates and FBS status. Institutional support, however, still has a significant effect on the male assault rate. For each ten-unit increase in the level of institutional support, we see a 1.3 percent predicted decrease in assault rates ($B=-0.125$, $p=0.001$). Region and type of school also have significant or nearly significant effects. Men are assaulted less frequently in the South compared to the Northeast ($B=-2.236$, $p=0.041$) and at Ivy League institutions compared to public research universities, although this relationship only nears significance ($B=-3.621$, $p=0.066$). The total model accounts for more than half of the variation in the percent of undergraduate males experiencing sexual assault ($R^2=0.69$), and the predicted values are somewhat close to the true assault rates (see Figure 2).

Table 3 presents regression results for disaggregated rates of sexual assault against undergraduate females. Model 3 shows results for rates of sexual penetration using force. Like generalized sexual assault, penetration by force is significantly associated with the percent of males in fraternities, the level of institutional support, and FBS membership. For a ten percent increase in fraternity membership, we see approximately a one half percent predicted increase in the frequency of forced penetration ($B=0.056$, $p=0.018$), while a ten-unit increase in institutional support corresponds to about a one half percent predicted decrease in the rate of sexual penetration by force ($B=-0.066$, $p=0.013$). Furthermore, females experience forced sexual penetration about 2.4 percent more frequently at FBS schools than at non-FBS schools ($B=2.407$, $p=0.024$). Additionally, there is a nearly significant negative impact of being located in the South compared to the Northeast ($B=-1.641$, $p=0.053$). Overall, the model accounts for about 80 percent of the variation in the percent of undergraduate females experiencing sexual penetration by force ($R^2=0.80$) and predicted values near true rates (see Figure 3).

Table 3. Results of OLS Regressions Modeling Predictors Percent of Female Undergraduates Who Have Been Sexually Assaulted By Type of Assault (n=23)

	Forced Penetration Model 3		Penetration while Incapacitated Model 4		Sexual Contact w/o Affirmative Consent Model 5	
	B (SE B)	p	B (SE B)	p	B (SE B)	p
% Fraternity	0.056 (0.021)	0.018	0.095 (0.026)	0.003	0.114 (0.055)	0.057
Inst. Support	-0.066 (0.023)	0.013	-0.055 (0.029)	0.076	-0.206 (0.061)	0.004
FBS	2.407 (0.954)	0.024	1.832 (1.192)	0.147	-2.086 (2.506)	0.419
Region (Northeast=ref)						
South	-1.641 (0.777)	0.053	-0.699 (0.971)	0.484	-2.355 (2.041)	0.268
Midwest	0.238 (0.751)	0.756	0.083 (0.939)	0.931	-0.004 (1.972)	0.998
West	0.205 (0.849)	0.813	-0.990 (1.061)	0.367	-0.097 (2.230)	0.966
Type (Public Research=ref)						
Private Res.	1.287 (0.904)	0.176	1.407 (1.129)	0.233	1.466 (2.373)	0.547
Ivy League	0.976 (1.419)	0.503	-0.105 (1.773)	0.954	-2.344 (3.725)	0.539
Constant	6.18		5.43		22.95	
R ²	0.80		0.71		0.76	
Adj, R ²	0.69		0.54		0.62	

B=unstandardized coef.; β =standardized coef.; p-values based on two tailed tests of significance

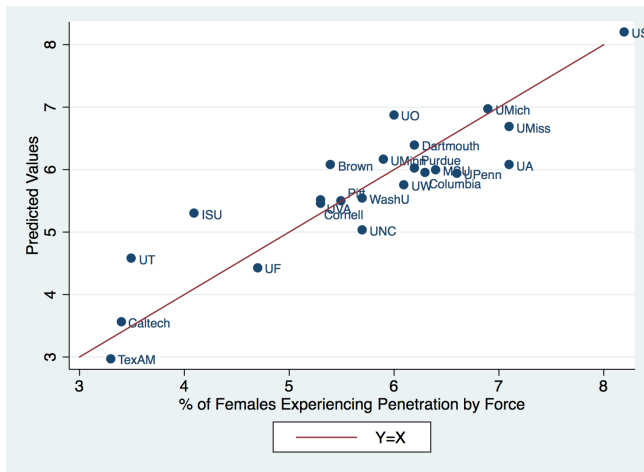


Figure 3. Predicted Versus Real Values of the Percent of Undergraduate Females Experiencing Sexual Penetration

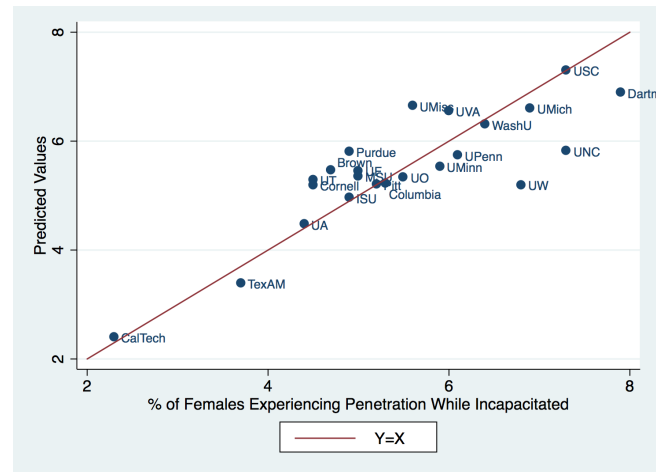


Figure 4. Predicted Versus Real Values of the Percent of Undergraduate Females Experiencing Sexual Penetration

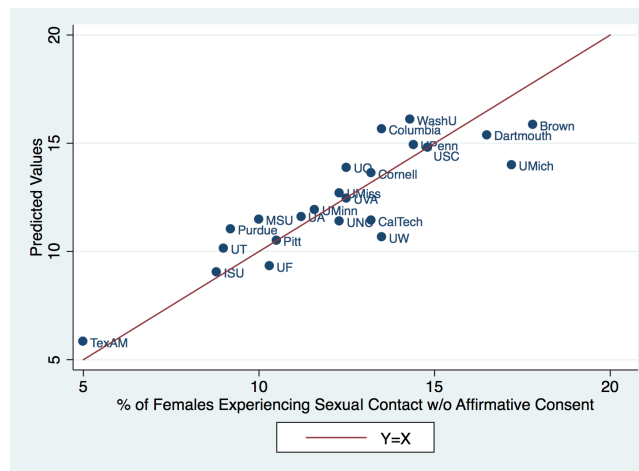


Figure 5. Predicted Versus Real Values of the Percent of Undergraduate Females Experiencing Sexual Contact without Affirmative Consent Using Model 5

Model 4 addresses rates of penetration while the victim was incapacitated, including by drugs and alcohol, among undergraduate females. Unlike the previous models, the only significant predictor here is the percent of males in fraternities. There is a nearly 1 percent predicted increase in the rate of incapacitated penetration among undergraduate women for each ten percent increase in the percent of males in fraternities, controlling for other factors ($B=0.095$, $p=0.003$). Furthermore, the level of institutional support nears significance, corresponding to a decrease in the incidence of penetration while the victim is incapacitated ($B=-0.055$, $p=0.076$). This model accounts for about 71 percent of the variation in the percent of female undergraduates who have experienced sexual penetration while incapacitated ($R^2=0.71$) and predicted values are quite close to true values in many cases (see Figure 4).

Model 5 predicts the percent of females experiencing sexual contact without giving affirmative consent. In contrast to the two prior measures, this type of assault is not included in the general sexual assault variable, but offers valuable information about unwanted sexual contact and is especially important as campuses transition to affirmative consent policies. Here,

the level of institutional support is the only significant predictor of the rate of assault. For a ten-unit increase in the level of institutional support, we see an approximately 2.1 percent predicted decrease in the rate of sexual contact without affirmative consent ($B=-0.206$, $p=0.004$). The rate of fraternity membership nears significance, corresponding to a 1-unit predicted increase in the percent of females experiencing this type of assault for a 10 percent increase in membership ($B=0.114$, $p=0.057$). This model explains 76 percent of the variation in the percent of females experiencing sexual contact without affirmative consent ($R^2=0.76$). Like the other models, predicted values are quite close to real assault rates (see Figure 5).

DISCUSSION AND CONCLUSIONS

Overall, three significant predictors of sexual assault among females stand out: the percent of males involved in fraternities, FBS membership status, and the level of institutional support. The first two, percent of males in fraternities and FBS membership status, represent the presence of high-status all-male groups on campus, while the third describes the level of support given to students by school officials when dealing with sexual assault. In contrast to assault rates among females, institutional support and regional location are the only significant predictors of sexual assault among male undergraduates. In all cases, the explanatory power of the regressions is impressive. Only five variables are needed to develop a model that explains 86 percent of the variation in the percent of undergraduate females experiencing sexual assault.

The three main predictor variables can be broken into two categories: institutional support for sexual assault survivors and their allies and the presence of groups and spaces that promote a collective effervescence around ritualistic expressions of masculinity, often driven by alcohol consumption. The level of institutional support is associated with a decreased rate of sexual assault among both female and male undergraduates. This corresponds to assertions made by other scholars. They often argue that institutions' failures to respond effectively and publicly to reports of sexual assault reinforces the perpetrators' assumptions that they will not be punished for their actions (Bohmer and Parrot 1993; Sanday 1996; Sanday 2007).

The level of institutional support is also likely related to social norms. Schools with high institutional support may have better-enforced normative boundaries that prevent students from perpetrating assault. Combined with institutional support for sexual assault survivors, norms can have a serious impact in preventing assault. Sanday (1996) notes that in one of the rape free societies she studied "rape was impossible...because custom, law, and religion forbade it severely" (p. 202). Furthermore, the perceived institutional support may be a reflection of the presence of anti-assault programs, workshops, and forums that serve to create the normative boundaries that are preventative of sexual assault.

Unlike institutional support, groups and spaces that encourage displays of masculinity appear to increase the rates of sexual assault among undergraduate women, although they have no apparent effect on assault rates among males. This can be explained by the characteristics of such groups and the behaviors they promote. Various scholars have pointed to normative activities within fraternities that encourage sexual assault. First, the loyalty and secrecy among fraternity members shields them from formal institutional punishments as well as social

repercussions following an assault rendering them relatively immune to potential deterrents (Martin and Hummer 1989).

More importantly, fraternities rely on hypermasculine bonding rituals. These rituals affirm the members' masculinity through real and imagined sexual violence against women, which makes sexual assault a normative behavior rather than a deviant one (Martin and Hummer 1989; Sanday 2007). There is also a spatial dimension to fraternities that may promote sexual assault. Fraternity houses are often highly alcohol infused and exist with little formal surveillance (Martin and Hummer 1989; Kimmel 2015). Furthermore, these spaces are controlled by the males in the fraternity, producing an environment that fosters gender inequality. Together these factors likely create conditions that promote sexual assault.

Fraternities are also important because of their influence. Sanday (2007) notes that because fraternities are often extremely prominent in campus partying, they inform the expectations of other students. Not only do certain norms permeate fraternity culture, they can diffuse into the general population because of the fraternities' social positions (Sanday 2007). If, therefore, fraternities have sexually exploitative expectations, the rest of the student body likely will as well. These findings may support Sanday's assertions.

The presence of prominent athletic programs, described by FBS membership, is also associated with higher rates of sexual assault. This may correspond to an increase in incidents of sexual assault on football game days. Lindo, Siminski, and Swensen (2016) find that reports of rape are significantly higher on football game days, especially during home games, at NCAA Division IA institutions. They point to an increase in alcohol consumption and parties which provide the context for the assaults to occur (Lindo, Siminski, and Swensen 2016). Often, these victory parties serve as ceremonies of high levels of alcohol consumption that promote a collective effervescence around the masculine ideologies of football and football spectatorship, mirroring much of what is seen in high risk fraternity parties.

Not only are elevated levels of fraternity participation and prominent athletic groups problematic for sexual assault rates, they play a role in a broader culture of gender inequality. They are disproportionately dangerous for women, with no effect on sexual assault rates among men. A failure to address these issues therefore promotes the idea that the existence of men's groups is of greater importance than women's safety.

Together, these factors describe the "sexual assault culture" of a campus. FBS schools with high fraternity membership and low institutional support have higher rates of sexual assault against undergraduate females on average while non-FBS schools with low fraternity membership and high institutional support have lower rates of assault on average. The first group of universities recall Sanday's notion of "rape prone" campuses (Sanday 1996, based on Sanday 1981). They permit high levels of participation in organizations that promote a form of masculinity that is often achieved by demeaning women through sexual violence and discussion (Martin and Hummer 1989; Sanday 1996; Sanday 2007). Furthermore, these institutions fail to provide the institutional support of sexual assault survivors seen in the "rape free" societies (Sanday 1981; Sanday 1996). Although the first group resembles "rape prone" campuses and societies, the latter is far from "rape free". Incidences of sexual assault against undergraduate females are quite high even among schools with the lowest rates—more than one in ten women (12.7 percent) at the best ranking institution.

Colleges and universities should use these findings to inform their efforts to decrease the prevalence of sexual assault on campus. If institutions wish to meaningfully reduce sexual assault rates, they must make an effort to change the structural factors that promote assault instead of focusing solely on individual-level predictors. These changes would include improvements to institutional support as well as a reduction of the prominence of fraternities and sports teams. Public opinion, however, may interfere with schools' attempts to address these issues. Improving institutional support will likely be a desirable solution, however students, alumni, and donors may pressure colleges and universities not to interfere with popular fraternities and sports teams. If institutions cede to pressures and fail to attend to these issues, they will find their efforts have a limited impact as they do not address the culture that is actively supportive of sexual assault and gender inequality.

Limitations and Implications for Future Research.

This study has some limitations. First, the sample of universities is quite small. This reduces confidence in estimates. Still several variables were significant predictors in regression models, and regressions accounted for quite a bit of the variation in dependent variables. Furthermore, the sample was fairly diverse with a range of institutions of various types located throughout the country. There are also some limitations due to the nature of the data. Survey response rates were uneven across campuses, and females responded more frequently than males, which may result in some measurement error. Finally, this study is limited in its failure to address rates of sexual assault among transgender and non-binary students.

There are several implications for future research. Scholars might further examine the significance of institutional support using qualitative data to identify the pathways through which high levels of institutional support effectively reduce rates of sexual assault. Researchers should also conduct qualitative examinations of the physical and social spaces, such as fraternity houses, that promote sexual assault. Finally, the significance of structural factors in explaining sexual assault rates found here provides support for future research to continue to look across colleges and universities to identify cultural and institutional causes of sexual assault, rather than simply individual-level predictors of victimization and perpetration.

Appendix A. Survey Response Rates by School % (weighted n)

	Total	Undergrads	Female Undergrads	Male Undergrads
California Institute of Technology	47.1 (2,116)	56.0 (941)	63.2 (337)	52.0 (604)
Texas A&M	8.7 (56,244)	8.3 (42,554)	9.2 (20,886)	7.3 (21,668)
Iowa State University	16.2 (32,134)	16.0 (26,693)	20.6 (11,682)	12.3 (15,011)
University of Texas	13.3 (49,740)	12.8 (37,675)	15.1 (19,585)	10.3 (18,090)
University of Florida	16.6 (12,000)	15.0 (8,634)	17.7 (4,780)	11.6 (3,854)
University of Pittsburg	19.0 (32,824)	16.5 (23,511)	21.4 (12,008)	11.4 (11,503)
Purdue University	13.3 (37,581)	13.1 (28,111)	16.9 (12,063)	10.2 (16,048)
University of Arizona	7.8 (36,575)	7.2 (29,915)	9.6 (15,471)	4.7 (14,444)
Columbia	26.2 (25,622)	25.6 (8,053)	30.9 (3,851)	20.7 (4,202)
Cornell	19.0 (20,547)	17.9 (13,085)	22.3 (6,594)	13.5 (6,491)
Washington University in St. Louis	22.5 (13,019)	20.5 (6,706)	24.2 (3,451)	16.6 (3,255)
Ohio State University	18.1 (61,491)	17.4 (48,639)	22.1 (23,595)	12.9 (25,044)
University of Minnesota	16.6 (48,440)	15.9 (31,068)	19.9 (15,993)	11.6 (15,075)
University of North Carolina	18.4 (28,353)	17.8 (17,959)	21.2 (10,487)	13.0 (7,472)
University of Oregon	13.9 (21,980)	12.5 (19,058)	17.4 (9,089)	8.0 (9,969)
University of Virginia	26.4 (20,743)	25.5 (14,782)	29.7 (8,112)	20.4 (6,670)
Brown University	36.3 (8,638)	36.5 (6,183)	41.8 (3,181)	31.0 (3,002)
Michigan State University	17.8 (46,896)	17.1 (36,642)	21.8 (18,581)	12.2 (18,061)
Harvard University	53.2 (20,880)	57.4 (7,100)	62.8 (3,364)	52.5 (3,736)
University of Missouri	15.7 (30,270)	14.0 (24,756)	18.1 (12,916)	9.6 (11,840)
University of Pennsylvania	26.9 (23,789)	29.2 (11,001)	33.5 (5,672)	24.5 (5,329)
Dartmouth University	41.7 (6,700)	44.0 (4,531)	47.6 (2,249)	40.5 (2,282)
University of Wisconsin	22.2 (40,501)	21.8 (28,636)	26.6 (14,670)	16.8 (13,966)
Yale University	51.8 (12,590)	55.5 (5,687)	61.8 (2,787)	49.5 (2,900)
University of Southern California	19.4 (41,594)	17.8 (18,365)	21.8 (9,268)	13.7 (9,097)
University of Michigan	17.6 (38,036)	16.5 (24,858)	20.9 (12,181)	12.3 (12,677)

Data Unavailable for Case Western Reserve University

Appendix B. Sexual Assault Rates Among Female Undergraduates (Ordered from Low to High Generalized SA Rate)

	Sexual Assault (%)	Penetration by Force (%)	Incapacitated Penetration (%)	Sexual Assault w/o Aff. Consent (%)
California Institute of Technology	12.7	3.4	2.3	13.2
Texas A&M	14.8	3.3	3.7	5.0
Iowa State University	19.3	4.1	4.9	8.8
University of Texas	18.5	3.5	4.5	9.0
University of Florida	20.3	4.7	5.0	10.3
University of Pittsburg	21.0	5.5	5.2	10.5
Purdue University	21.9	6.2	4.9	9.2
University of Arizona	22.1	7.1	4.4	11.2
Columbia	22.7	6.3	5.3	13.5
Cornell	22.6	5.3	4.5	13.2
Washington University in St. Louis	22.6	5.7	6.4	14.3
Ohio State University	24.0	5.8	5.6	10.6
University of Minnesota	23.5	5.9	5.9	11.6
University of North Carolina	24.3	5.7	7.3	12.3
University of Oregon	24.2	6.0	5.5	12.5
University of Virginia	23.8	5.3	6	12.5
Brown University	25	5.4	4.7	17.8
Michigan State University	24.8	6.4	5.0	10.0
Harvard University	25.5	6.1	5.9	17.2
University of Missouri	27.2	7.1	5.6	12.3
University of Pennsylvania	27.2	6.6	6.1	14.4
Dartmouth University	27.9	6.2	7.9	16.5
University of Wisconsin	27.6	6.1	6.8	13.5
Yale University	28.1	6.5	7.3	20.5
University of Southern California	29.7	8.2	7.3	14.8
University of Michigan	30.3	6.9	6.9	17.2

Data Unavailable for Case Western Reserve University

Appendix C. Sexual Assault Rate Among Male Undergraduates
(Ordered from Lowest Assault Rate to Highest)

	Percent Reporting Assault
Iowa State University	3.1
University of Florida	3.1
Texas A&M	4.0
Purdue University	4.5
University of Virginia	4.5
Dartmouth University	4.5
University of Texas	5.0
Columbia	5.2
University of Minnesota	5.2
Ohio State University	5.3
California Institute of Technology	5.4
University of Wisconsin	5.4
University of Pennsylvania	5.5
Michigan State University	5.7
University of Missouri	5.9
Cornell	6.0
University of Pittsburg	6.2
University of Arizona	6.2
Harvard University	6.5
University of North Carolina	6.7
Brown University	6.8
University of Southern California	6.8
University of Michigan	6.8
Washington University in St. Louis	7.5
University of Oregon	8.0
Yale University	8.2

Data Unavailable for Case Western Reserve University

Appendix D. Fraternity Membership Rates (Schools
Ordered from Lowest Fraternity Membership to Highest)

	Percent in Fraternities
California Institute of Technology	0.0
Texas A&M	3.3
Michigan State University	8.0
University of Minnesota	9.0
University of Wisconsin	9.0
University of Arizona	10.0
University of Pittsburgh	11.0
Iowa State University	12.0
University of Oregon	14.0
University of Texas	15.0
Purdue University	17.0
University of Michigan	17.0
University of North Carolina	18.0
Columbia	19.0
University of Florida	21.0
Brown University	22.0
University of Missouri	23.0
Washington University in St. Louis	25.0
University of Virginia	25.0
University of Southern California	25.0
Cornell	27.0
University of Pennsylvania	30.0
Case Western Reserve University	34.0
Dartmouth University	46.0
Data Unavailable for Ohio State, Harvard, and Yale	

Appendix E. Institutional Support Levels (Schools
Ordered Most Supportive to Least Supportive)

	Support Level
Iowa State University	63.94
Texas A&M	63.32
California Institute of Technology	62.58
Purdue University	57.08
University of Pittsburg	56.32
University of Florida	56.2
University of Wisconsin	54.48
Washington University in St. Louis	54.16
University of Missouri	52.22
Ohio State University	51.12
Dartmouth University	50.72
University of Arizona	49.92
Michigan State University	49.88
University of Southern California	49.84
University of Texas	48.88
Cornell	48.86
University of Minnesota	48.28
University of North Carolina	44.52
University of Pennsylvania	44.1
University of Virginia	43.14
University of Michigan	42.68
Harvard University	42.28
University of Oregon	41.12
Yale University	41.1
Brown University	35.24
Columbia	34.52

Data Unavailable for Case Western Reserve University

Appendix F. NCAA Division I Football Bowl Subdivision Membership

FBS Members	FBS Non-Members
Iowa State University	Brown University
Michigan State University	California Institute of Technology
Ohio State University	Case Western Reserve University
Purdue University	Columbia
Texas A&M	Cornell
University of Arizona	Dartmouth University
University of Florida	Harvard University
University of Michigan	University of Pennsylvania
University of Minnesota	Washington University in St. Louis
University of Missouri	Yale University
University of North Carolina	
University of Oregon	
University of Pittsburg	
University of Southern California	
University of Texas	
University of Virginia	
University of Wisconsin	

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