THE DISTAL AND PROXIMAL ROLE OF ALCOHOL USE, ALCOHOL EXPECTANCIES, AND DRINKING CONTEXTS IN SEXUAL ASSAULT PERPETRATION

by

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ABSTRACT

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Under the Supervision of Shawn P. Cahill, Ph.D.

Sexual assault is a major public health and criminal justice problem worldwide, in our society, and particularly among college students. The aim of the present study was to gain a deeper and more comprehensive understanding of the role of various alcohol-related factors in sexual assault perpetration, including problematic alcohol use, alcohol expectancies related to social facilitation and sexual enhancement, and drinking contexts, such as bars, clubs, parties, etc. Further, the present study assessed these factors in univariate and multivariate analyses and both distal and proximal to incidents of sexual assault. Participants were 275 college men who responded to a variety of questionnaires via a confidential online survey. Participants were categorized into one of three groups based on their level of endorsement of sexual assault perpetration behaviors during the past 12 months: non-perpetrators (n = 127), contact/coercion perpetrators (n = 104), and rape perpetrators (n = 44). Results indicated that frequent alcohol use, heavy episodic drinking, high endorsement of alcohol expectancies related to social facilitation and sexual enhancement, and frequent attendance of drinking contexts were all individually significantly predictive of sexual assault perpetration during the past 12 months, across both levels of sexual assault severity. However, multivariate analyses indicated that only three of these factors were uniquely predictive of sexual assault perpetration, namely, high endorsement of alcohol

expectancies related to sexual enhancement, frequent attendance of drinking contexts, and frequent alcohol use. Additionally, results indicated that rape perpetrations, but not contact/coercion perpetrations, were significantly more likely than not to involve alcohol use at the time of the assault by both the perpetrator and the victim, and were significantly more likely to occur at, or immediately after leaving, a drinking context. The role of alcohol expectancies related to social facilitation and sexual enhancement proximal to sexual assault perpetration was inconclusive, due to the small sample size for those specific analyses. Implications for research on sexual assault generally, and particularly research investigating risk factors for sexual assault perpetration, as well as applications for intervention programs aimed at reducing sexual assault perpetration, are discussed.

To

my dear wife Chaya,

and our precious children,

Chavie, Esti, Zevi, Avraham Menachem, and Sara Rivka

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INTRODUCTION

Sexual assault, defined broadly as nonconsensual completed or attempted vaginal, anal, or oral penetration, or nonconsensual physical contact of a sexual nature (Cortina et al., 2018; see Basile et al., 2014), is a major public health and criminal justice problem worldwide and in our society (Centers for Disease Control and Prevention [CDC], 2022).

Prevalence of Sexual Assault

According to the World Health Organization (WHO, 2021), an estimated 736 million women globally—almost one in three—have reported being subjected to intimate partner violence, non-partner sexual violence, or both, at least once in their lifetime. Furthermore, six percent of women globally report that they have been subjected to sexual violence from someone other than their husband or partner (WHO, 2021).

In the United States, it is estimated that a sexual assault is perpetrated approximately every 68 seconds (RAINN, 2020). According to the Bureau of Justice Statistics' recent National Crime Victimization Survey (NCVS), there were 319,950 reported incidents of rape or other sexual assaults in the year 2020 (Bureau of Justice Statistics, 2021). Moreover, according to the Centers for Disease Control and Prevention's (CDC) National Intimate Partner and Sexual Violence Survey (NISVS; Basile et al., 2022), 54.3% of women (or 67.8 million) and nearly a third of men (30.7% or 36.2 million) in the United States reported experiencing some form of contact sexual violence in their lifetime.

Limited research has also found high rates of sexual assault victimization among ethnically marginalized women (Abbey et al., 2010), women with disabilities (National Council on Disability, 2018), and alarmingly high rates among sexually marginalized and transgender people (Cantor et al., 2015; Ford & Soto-Marquez, 2016; Stotzer, 2009; see Turchik et al., 2016).

Furthermore, individuals identifying with more than one marginalized identity (e.g., race, ethnicity, gender identity, sexual orientation, etc.) are likely to experience particularly high rates of sexual assault (Coulter et al., 2017). For example, Staples and Fuller (2021) found that transgender people of color experienced higher sexual assault severity compared to transgender white people, perhaps due to the former group's intersecting marginalized identities.

Actual rates of sexual assault are likely to be even higher than reports indicate, as the majority of sexual assaults go unreported for various reasons (Cantor et al., 2015; Cohn et al., 2013; Kilpatrick & Hahn, 2019; Mills et al., 2021; Schwarz et al., 2017; Thompson & Tapp, 2022; Zinzow & Thompson, 2011). It should be noted that although perpetrators and victims of sexual assault can be of any gender (see Krebs et al., 2007), most sexual assaults are perpetrated by men against women (Basile et al., 2022; Rozee & Koss, 2001). Additionally, although some research indicates that the majority of sexual assaults are committed by serial perpetrators (Lisak & Miller, 2002; Zinzow & Thompson, 2015), recent scholarship has challenged this notion (see Gray et al., 2016).

The prevalence of sexual assault victimization among college students, especially against college women, is even more troubling. According to the National Center for Education Statistics (NCES, 2022), forcible sex offenses constituted 43% of all reported criminal incidents on college campuses in the United States in 2019, which translated to approximately eight forcible sex offenses per 10,000 college students (NCES, 2022). Surveys indicate that 27-33% of female college seniors in the United States report experiencing sexual assault at least once during their time in college (Cantor et al., 2015; Ford & Soto-Marquez, 2016; Krebs et al., 2007; Muehlenhard et al., 2017; see Fedina et al., 2018, for a review), and 16% of women report being sexually assaulted during the current academic year alone (Fisher et al., 2000). Moreover, 11-

22% of female college seniors in the United States report experiencing rape while in college (Cantor et al., 2015; Fisher et al., 2000; Krebs et al., 2007; White et al., 2015; see Fedina et al., 2018, for a review).

As in the general population, the prevalence of sexual assault victimization among college students is also likely to be underestimated (Cantor et al., 2015; Schwarz et al., 2017; Zinzow & Thompson, 2011). According to Fisher et al. (2000), less than 5% of attempted and completed rapes among college students were reported to law enforcement, with an even lower percentage of reporting for less severe forms of sexual assault. Further, only about two-thirds of women who experienced rape shared this information with any other person, usually a friend, but not with a family member, law enforcement, or college official (Fisher et al., 2000). Barriers to reporting incidents of sexual assault include feelings of guilt, shame, fear of not being believed, fear of being judged negatively by others, and concerns about the report not remaining confidential, among other barriers (Sable et al., 2006; Schwarz et al., 2017; Zinzow & Thompson, 2011).

Furthermore, mandatory reporting policies instituted by many colleges and universities, which require all or some employees to report sexual violence they learn about to college officials, remain questionable as to whether they achieve their intended goals (Holland et al., 2018; Weiss & Lasky, 2017). Additionally, such mandatory reporting policies have sparked debate as to whether they limit sexual assault survivor's autonomy and result in other negative consequences to sexual assault survivors and college employees (Holland et al., 2023).

Rates of sexual assault perpetration by college students are equally troubling. About one in four college men report engaging in some form of nonconsensual sexual behavior during their four years in college (Abbey et al., 1998; Thompson et al., 2013; Zinzow & Thompson, 2015),

and about 16% report engaging in behavior that meets the legal definition of attempted or completed rape (Thompson et al., 2013). In addition, between 11-15% of college men have reported perpetrating some form of nonconsensual sexual behavior in the past 12 months (Abbey & McAuslan, 2004; Thompson et al., 2011; Thompson et al., 2013). Moreover, Malamuth (1989) found that approximately one third of college men indicated that it is likely they would rape a woman if they were certain they would not be caught.

Effects of Sexual Assault

The negative impacts of sexual assault on individuals and society are many and significant (Basile & Smith, 2011). Besides genital injury (Sommers, 2007) and other physical injuries that may result from violent sexual aggression, victims of sexual assault may develop acute and chronic physical health problems, such as headaches, gastrointestinal complications, sleep disturbances, and gynecologic and reproductive health issues (Brener et al., 1999; Martin et al., 2011; Sabina & Ho, 2014; Turchik & Hassija, 2013). Victims of sexual assault may also develop various mental health problems, including depression, anxiety, posttraumatic stress disorder (PTSD), body image issues, eating disorders, alcohol and substance use disorders, sexual dysfunction, and suicidality (Campbell et al., 2009; Chen et al., 2010; Dworkin et al., 2017; Martin et al., 2011; Sarkar & Sarkar, 2005).

Additionally, college students who are sexually assaulted may experience impairments in academic engagement and performance, including difficulty carrying a full course load, increased frequency of missed classes, declines in academic achievement, reduced capacity to contribute to the campus community, and greater likelihood of dropping courses, leaving school, or transferring to another school (Jordan et al., 2014; van Roosmalen & McDaniel, 1998). Sexual assault victims also tend to feel less safe on their college campus (Cortina et al., 1998).

The economic cost of sexual assault is also very high. The financial cost of rape, including costs for medical and mental health care, loss of productivity, quality of life impact, and criminal justice activities is estimated to be $3.1 trillion (2014 U.S. dollars) over victims' lifetimes in the United States (Peterson et al., 2017). In addition, arrest and conviction can have severe negative social and economic consequences for the perpetrator, their family, and their community (Levenson, 2008).

Sexual Assault Prevention

The need for effective interventions to reduce sexual assault in general, and on college campuses in particular, has become very apparent over the past several decades. The Campus Sexual Violence Elimination (SaVE) Act (2013), which was signed into law in 2013, requires colleges and universities that receive federal funding to provide sexual violence primary prevention and awareness programs for all incoming students and new employees. These programs must incorporate definitions for various sexual violence offenses and the definition of consent with regard to sexual activity. Additionally, these programs must include information about risk reduction, so that students may better recognize warning signs of abusive behavior and potential attacks, and information about bystander intervention options that they can use to intervene if there is a risk of sexual assault to others. Further, education about sexual violence must continue for all students and faculty through ongoing prevention and awareness trainings and campaigns by the school (RAINN, n.d.; Schroeder, 2014).

For sexual assault prevention programs to be effective, it is essential to understand the factors that lead to sexual assault. Indeed, a considerable amount of research has already been done to identify risk factors for becoming a victim of sexual assault (Street et al., 2016; Turchik & Wilson, 2010). Additionally, various sexual assault risk reduction programs or sexual assault

resistance programs have been developed for women who are at high risk for sexual assault victimization, in an attempt to reduce incidents of sexual assault victimization (Gidycz & Dardis, 2014; Koss, 2005; Newlands & O'Donohue, 2016). Further, bystander intervention programs have been developed to encourage individuals to intervene when they witness another person at risk for being sexually assaulted, with the hope of reducing incidents of sexual assault in general, and among college students in particular (Banyard et al., 2007; Kettrey & Marx, 2019; Moynihan et al., 2010; Mujal et al., 2021; Orchowski et al., 2020).

However, although several studies have found some value in these sexual assault prevention programs (Bouchard et al., 2022; Coker et al., 2016; Senn et al., 2015; Vladutiu et al., 2011), these approaches have not been very effective in reducing rates of sexual assault overall (Adams-Curtis & Forbes, 2004; Basile, 2003; Newlands & O'Donohue, 2016; Porat et al., 2024; Tharp et al., 2011). Additionally, these approaches place the burden of preventing sexual assault on potential victims, bystanders, and the community, rather than on the perpetrators who are the ones ultimately responsible for the occurrence of sexual assault (DeGue et al., 2012). As such, consideration of alternative approaches to preventing sexual assault is warranted.

One obvious approach, and perhaps a more direct one, is to prevent attempts at sexual assault perpetration in the first place (CDC, 2004; DeGue et al., 2012; Loh et al., 2005; Newlands & O'Donohue, 2016; Rozee & Koss, 2001). By reducing attempts of sexual assault perpetration, sexual assault victimization will automatically be reduced. Indeed, some work has been done in developing primary prevention programs for sexual assault perpetration, for example The Men's Program (Foubert et al., 2006), The Men's Project (Gidycz et al., 2011; Stewart, 2014), and Coaching Boys Into Men (Jaime, 2016; Miller, 2012; 2013), among others (see Graham et al., 2021 for a review).

However, there is scant research on the effectiveness of these programs (DeGue et al., 2014; Graham et al., 2021; Porat et al., 2024). Furthermore, although well intentioned, some of these programs may potentially have harmful effects (Bonar et al., 2022; DeGue et al., 2014). For example, Bosson et al. (2015) found that an injunctive norm intervention (see Cialdini et al., 1990; Lewis et al., 2014) aimed at reducing men's sexually aggressive tendencies by providing information regarding social norms and peer approval of paternalism and egalitarian treatment of women, actually resulted in increased sexual aggression among men who scored higher on a measure of hostile sexism, a finding the authors termed a "boomerang effect" (Bosson et al., 2015; Hovland et al., 1953).

As noted above, in order to develop effective primary prevention programs for sexual assault perpetration, it is essential to first identify the factors that increase the likelihood of the occurrence of sexual assault perpetration and to have a clear understanding of the conditions under which these factors are associated with incidents of sexual assault perpetration (CDC, 2004; Mellins et al., 2017; Tharp et al., 2013). This is important for at least two reasons. First, by identifying risk factors for sexual assault perpetration, these factors can be addressed directly in prevention programs, thereby minimizing the potential risk they pose. Second, rather than developing a universal, one-size-fits-all sexual assault prevention program, distinct prevention programs, each one focusing on unique sets of risk factors, can be provided to different individuals or groups of individuals based on the specific risk factors that are relevant to them (Testa & Cleveland, 2017; Thompson et al., 2013). Now, although a substantial amount of research has already been conducted to identify various risk factors for sexual assault perpetration (see Tharp et al., 2013 for a review), gaps remain in our understanding of whether and how these factors are associated with sexual assault perpetration.

The Present Study

The goal of the present study was to gain a deeper understanding of some of the factors that have been identified in previous research as potential risk factors for sexual assault perpetration. Given that the prevalence rates for both sexual assault perpetration and alcohol use (Substance Abuse and Mental Health Services Administration [SAMHSA], 2015) are higher among college students compared to the general population, and given that alcohol use is associated with more than half of sexual assaults (Abbey, 2002; Abbey et al., 2004; Abbey et al., 2014; Testa, 2002), the present study focused on investigating the role of alcohol in sexual assault perpetration among college men. Specifically, the present study investigated several alcohol-related factors, in addition to alcohol use *per se*, that may increase the risk for sexual assault perpetration, including alcohol expectancies and drinking contexts, such as bars, clubs, parties, and large social gatherings.

Considering the various influences on human behavior generally, such as other behaviors, physiological and pharmacological effects, cognitive processes, and social and environmental impacts, the alcohol-related factors investigated in the present study broadly examined the various potential influences of alcohol on sexual assault behavior. Specifically, alcohol use represents the behavioral, pharmacological, and physiological influences of alcohol on sexual assault behavior. Alcohol expectancies represent the cognitive and psychological influences, including beliefs, thoughts, and expectations, of alcohol on sexual assault behavior. And drinking contexts represent the social and environmental influences of alcohol on sexual assault behavior. Additionally, these alcohol-related factors are particularly relevant to college students and are potentially modifiable. As such, if found to be strongly associated with sexual assault

perpetration, addressing these risk factors in primary prevention programs may be successful in significantly reducing rates of sexual assault perpetration among the college population.

In the subsections that follow, the various alcohol-related factors that were investigated in the present study are discussed in more detail. Specifically, findings of past research on the association between these factors and sexual assault perpetration are summarized. Additionally, gaps in our understanding of how these factors are associated with sexual assault perpetration are identified. Finally, the goals of the present study in filling some of these gaps and furthering our knowledge and understanding of these associations are outlined.

Alcohol Use

A substantial number of studies have found that problematic alcohol use is associated with sexual assault perpetration (Abbey et al., 2014; Abbey & McAuslan, 2004; Carr & VanDeusen, 2004; Locke & Mahalik, 2005; Parkhill & Abbey, 2008; Tuliao & McChargue, 2014; White et al., 2008). However, several other studies failed to support this association (e.g., Calhoun et al., 1997; Gidycz et al., 2007; Loh et al., 2005; Lyndon et al., 2007).

One possible explanation for the null findings in the latter studies is that these studies used stepwise regression in multivariate analyses, which may have obscured any significant relationship between problematic alcohol use and sexual assault perpetration by only selecting those factors that are the strongest predictors of sexual assault perpetration (Tharp et al., 2013; see also Testa & Cleveland, 2017). Another possibility is that motives, triggers, and risk factors for sexual assault perpetration are heterogeneous, and the role of alcohol use in sexual assault perpetration may vary across perpetrators (Abbey, 2017). As such, one goal of the present study was to assess the association between problematic alcohol use and sexual assault perpetration

both when assessing alcohol use as the sole predictive factor and in combination with the other alcohol-related factors evaluated in the present study using multivariate analyses.

In addition, past studies investigating the relationship between problematic alcohol use and sexual assault perpetration generally have not evaluated whether different forms of problematic alcohol use, such as high frequency alcohol use and heavy episodic drinking, have varying associations with sexual assault perpetration. Although a few studies have specifically evaluated the relationship between one of these forms of problematic alcohol use and sexual assault perpetration, for example, high frequency alcohol use (Schwartz et al., 2001) or heavy episodic drinking (Abbey & McAuslan, 2004; Kingree & Thompson, 2013; Thompson et al., 2011), it is still unclear whether one form of problematic alcohol use is more strongly associated with sexual assault perpetration than the other. As such, the present study went further than most previous studies and evaluated the association between different types of problematic alcohol use and sexual assault perpetration.

Importantly, many of the studies that have implicated problematic alcohol use as a risk factor for sexual assault perpetration have only evaluated general problematic alcohol use (i.e., distal alcohol use). However, this leaves unclear the causal role that alcohol use close in time to the sexual assault event (i.e., proximal alcohol use) may have on sexual assault perpetration, if any. Further, for sexual assault prevention purposes, it would arguably be more informative to know if proximal alcohol use, rather than distal alcohol use, is a risk factor for sexual assault perpetration.

Indeed, several studies have found that alcohol consumption is proximally involved in more than half of sexual assaults (Abbey, 2002; Abbey et al., 2004; Abbey et al., 2014; Testa, 2002). Additionally, Koss et al. (1988) found that 74% of perpetrators of rape in a nationally

representative sample of college students reported having consumed alcohol at the time of the assault. Moreover, data indicate that sexual assault perpetrators' consumption of alcohol around the time of the assault is associated with more severe acts of aggression used in the assault (Abbey et al., 2003; Abbey et al., 2014). However, more data is needed in this area (Testa & Cleveland, 2017). As such, the present study sought to further our understanding of the role of proximal alcohol use in sexual assault perpetration by assessing whether incidents of sexual assault involved alcohol use by the perpetrator either immediately before, during, or immediately following the sexual assault.

Additionally, it is very common for victims of sexual assault to have consumed alcohol around the time of the assault (Abbey, 2002; 2011; Anderson & Clement, 2015; Lorenz & Ullman, 2016; Orchowski et al., 2013; Testa, 2002). Indeed, alcohol use has been found to be a significant risk factor for sexual assault victimization (Mouilso et al., 2012; Neal & Fromme, 2007; Testa & Hoffman, 2012). As such, the present study also assessed whether incidents of sexual assault were more likely than not to occur when both the perpetrator and the victim were consuming alcohol at the time of the sexual assault.

It should be acknowledged that information about victims' alcohol use at the time of the sexual assault was only obtained from self-identified perpetrators of the assault. While this is arguably not the most reliable source of such information, as perpetrators may not know whether victims used alcohol at the time of the sexual assault, surveying victims of sexual assault was beyond the scope of the present study. Additionally, there is also value in examining victims' alcohol use around the time of the assault from the perspective of the perpetrators. In other words, it is useful to understand perpetrators' perceptions of victims' alcohol use and whether or not they perceived victims to be intoxicated at the time of the sexual assault.

Of note, various theories have been proposed to explain the link between alcohol use and sexual assault perpetration. Some researchers have posited that the association between alcohol use and sexual assault perpetration, as well as other risky sexual behaviors, is simply correlational and a third variable is the cause of both of these behaviors. For example, thrill seeking, poor impulse control, or ineffective skills to cope with negative emotions may lead some people to engage in both increased alcohol use and sexually risky behaviors, including sexual assault perpetration (Cooper, 1992; Leigh & Stall, 1993). Additionally, both of these behaviors may be the result of childhood sexual abuse (Merrill, 2001) or underlying psychopathology (Ouimette, 1997). Further, these two behavior sets may both be part of person's lifestyle and social group, such as being part of a fraternity group, where both alcohol use and sexual pursuits are often encouraged, at least tacitly (Baer, 1994; Cooper, 2002).

Importantly, if the association between alcohol use and sexual assault perpetration is simply spurious, then targeting alcohol use in prevention programs aimed at reducing sexual assault perpetration may not be effective or successful. If, however, a causal relationship exists between alcohol use and sexual assault perpetration, then targeting alcohol use in such prevention programs may be an effective strategy for reducing sexual assault perpetration (Abbey, 2011; Cooper, 2002; 2006).

Indeed, many researchers have argued that there is in fact a causal relationship between alcohol use and sexual assault perpetration. However, there is some disagreement regarding the causal direction between these two behaviors. A few researchers have suggested that rather than alcohol use causing perpetration of sexual assault, it is the motivation and intention to engage in aggressive sexual behavior that leads one to consume alcohol (see Coleman & Cater, 2005). According to this understanding, individuals who are motivated to engage in sexual aggression

may drink alcohol because it provides them with the courage they need to actually act aggressively. Additionally, for some perpetrators, acting aggressively while being under the influence of alcohol gives them, in their mind, an excuse they can rely on later to justify their actions (Coleman & Cater, 2005). This idea has been referred to in the literature as "an excuse in-a-bottle" (Derman et al., 1998, p. 75).

However, the major causal theories linking alcohol use and sexual assault perpetration propose that there is a direct causal mechanism by which alcohol use causes one to engage in various risky sexual behaviors, including sexual assault perpetration (Abbey, 2011; Abbey et al., 1998; Cooper, 2002; Noel et al., 2009). Two of these causal theories have been extensively discussed in the sexual assault literature. One of these causal theories implicates the pharmacological effects of alcohol on psychophysiology, whereas the other implicates the psychological effects of alcohol on people's thoughts, emotions, attitudes, and behaviors (Abbey, 2011; Cooper, 2002).

The first of these causal theories relies on the established fact that alcohol impairs higher order cognitive functioning, including planning, processing speed, working memory, response inhibition, and the interpretation, processing, and integration of complex information (Bartholow et al., 2003; Curtin & Fairchild, 2003; Giancola, 2000). Furthermore, when under the influence of alcohol, people tend to focus only on the most immediate and salient cues in the environment rather than processing multiple cues around them. Steele and Josephs (1988; 1990) have termed this phenomenon "alcohol myopia."

Consequently, in a situation where the cues for sexual interest and consent are ambiguous, an individual who is under the influence of alcohol and is interested in having sex may only focus on cues consistent with sexual interest (e.g., a smile from their companion) and

minimize or ignore disconfirming information (e.g., physical distancing when touched). Additionally, as a result of reduced information processing efficiency, an individual under the influence of alcohol may focus only on immediate, simple, and salient cues that prompt behavior (e.g., sexual arousal) while ignoring more distal and complex cues that would inhibit behavior (e.g., considering the consequences of sexual assault to self and others). Furthermore, because acute alcohol intoxication disrupts inhibitory control (Abroms et al., 2006), individuals intoxicated with alcohol may be disinhibited from using force to obtain sex (Barbaree & Marshall, 1991; Noel et al., 2009). According to this "alcohol myopia theory," it is these pharmacological effects of alcohol on an individual's psychophysiology that leads to engagement in risky sexual behavior, including sexual assault perpetration (Abbey et al., 1998; Cooper, 2002).

In contrast, the second major causal theory linking alcohol use and sexual assault perpetration suggests that risky sexual behavior, including sexual assault perpetration, is the result of people's preexisting beliefs and expectancies about the effects that alcohol has on them (Fromme et al., 1999; Lang, 1985). According to this "alcohol expectancy theory," it is the psychological influence of these beliefs and expectancies that people have about alcohol use and its effects, as discussed next, that leads to sexual assault perpetration, rather than the pharmacological effects of alcohol *per se*.

Alcohol Expectancies

Studies have demonstrated that people hold numerous common beliefs and expectations about the effects that alcohol consumption has or will have for them (Goldman et al., 1987). These alcohol expectancies include cognitive, affective, and behavioral consequences. Furthermore, expectations about alcohol's effect can be positive and/or negative. Positive

expectancies may include beliefs and expectations that consuming alcohol will distract them from thinking about their problems, will make them feel less stressed, will make them more sexually active, or will facilitate social engagement and interaction. Negative expectancies may include beliefs and expectations that alcohol consumption will decrease their concentration, make them feel sick, make them behave more aggressively, etc. (Jones et al., 2001; Reich et al., 2010). Alcohol expectancies are developed and maintained through direct personal experience, as well as through social learning processes, such as reading about the effects of alcohol and vicarious observations of how alcohol has affected other people (Goldman et al., 1999).

It is important to note that alcohol expectancies do not necessarily reflect the actual effects of alcohol. Rather they are the beliefs and expectations people have about the effects of alcohol, even if they are not accurate reflections of the actual effects of alcohol generally or for the specific individual. However, alcohol expectancies may have self-fulfilling prophecy effects (Merton, 1948; Snyder & Stukas, 1999).

Research has demonstrated that people's expectations about alcohol's effects have direct associations with the subjective social and behavioral effects they report experiencing as a result of their alcohol use earlier that day, including both subjective positive consequences (e.g., feeling more relaxed, being in a better mood, etc.) and subjective interpersonal negative consequences (e.g., becoming aggressive, rude, obnoxious, etc.) (Lee et al., 2020). Furthermore, in a meta-analysis of 36 studies, Hull and Bond (1986) found that people who believed they had consumed alcohol, but actually had not, behaved similarly to people who actually consumed alcohol even if they did not know it. These expectancy effects may be independent of alcohol's pharmacological effects (George et al., 2000), and may also enhance the pharmacological effects of alcohol (Abbey, 2011; George & Stoner, 2000).

Alcohol expectancies, especially positive alcohol expectancies, have been shown to be positively correlated with increases in alcohol consumption (Aas et al., 1998; Anderson et al., 2011; Brown et al., 1980; Leigh, 1987; Leigh & Stacy, 2004), as well as linked to alcohol abuse, alcohol dependence, and other alcohol-related problems (Dunne et al., 2013). In addition, in an experimental study conducted by Lang et al. (1975), the researchers found that participants who were told they were given an alcoholic beverage to consume demonstrated more aggressive behavior than participants who were told they were given a non-alcoholic beverage, regardless of the actual alcohol content of the beverage given. This finding suggests that alcohol expectancies are significant determinants of aggressive behavior.

In the United States and other countries, alcohol is often linked to sexual behavior and positive sexual experiences (Abbey et al., 2014). This link is frequently presented in the media and promoted by the advertising industry (George, 2019). For example, scenes of sexual behavior presented on TV and in movies often show people drinking alcohol or bottles of alcohol displayed nearby. Consequently, many people expect that alcohol consumption will lead to increased sexual desire, improved sexual performance, social and sexual disinhibition, and increased risk taking in sexual situations. These sex-related expectancies can have self-fulfilling prophecy effects (Snyder & Stukas, 1999). Indeed, sex-related alcohol expectancies have been linked to increased sexual arousal and sexual behavior (George et al., 2000; Lang et al., 1980; Patrick & Maggs, 2009; White et al., 2009). Moreover, research suggests that holding high sex-related alcohol expectancies is strongly associated with sexual risk-taking (Bryan et al., 2007; Dermen & Cooper, 1994; Maisto et al., 2002).

Several studies have also found a positive association between alcohol expectancies and sexual assault. Among studies of risk factors for sexual assault victimization, a number of studies

have found that individuals who reported being a victim of alcohol-related sexual assault endorsed various types of alcohol outcome expectancies to a greater extent than those who were not victims or who were victims of non-alcohol-related sexual assault (Benson et al., 2007; Corbin et al., 2001; Marx et al., 2000; Tyler et al., 2017). Additionally, studies have found a positive association between alcohol expectancies, especially sex-related alcohol expectancies, and sexual assault perpetration. This association has been observed in various research designs, including self-report surveys (e.g., Tuliao & McChargue, 2014; Wilson et al., 2002; Zawacki et al., 2003) and experimental studies using various sexual assault analogues (e.g., Davis, 2010; Gross et al., 2001). According to the alcohol expectancy theory introduced above, the causal relationship between alcohol use and sexual assault perpetration is a result of the psychological influence of various alcohol expectancies, especially sex-related alcohol expectancies, rather than the pharmacological effects of alcohol (Fromme et al., 1999; Lang, 1985).

There are several mechanisms by which alcohol expectancies may lead to sexual assault perpetration. First, as noted above, beliefs and expectations about the ability of alcohol to enhance sexual experiences could increase the likelihood that people will behave sexually when they drink alcohol (Abbey et al., 1998; George et al., 2000). Further, feeling more sexually aroused as a result of believing and expecting that alcohol consumption increases sexual arousal may lead an individual to perceive sexual interest and consent to engage in sexual behavior from a companion, even when this is not actually the case (Abbey et al., 1998). Consequently, this sex-related alcohol expectancy effect can result in the perpetration of sexual assault.

Second, men who believe that imbibing alcohol makes them more aggressive are more likely to behave aggressively when they drink alcohol (Abbey et al., 1998). Consequently, individuals who consume alcohol and expect to experience increased aggressiveness as a result

may be more likely to behave more aggressively in trying to fulfill their sexual desires, even when their counterpart has not provided consent or is actively resisting their advances. This aggression-related alcohol expectancy effect can then lead to the perpetration of sexual assault.

Third, beliefs and expectancies about alcohol's disinhibitory effects may lead individuals holding these beliefs to be less inhibited and more willing to be persistent and forceful in obtaining sex, despite their companion failing to express consent to engage in sexual behavior or even resisting their advances. Consequently, this disinhibition alcohol expectancy can result in perpetration of sexual assault (Abbey et al., 1998). Furthermore, expectancies about alcohol's disinhibitory effects, including disinhibition of engaging in aggressive and deviant behavior, may make it more acceptable for perpetrators to attribute or "blame" their sexually aggressive behavior to the disinhibitory effects of the alcohol rather than taking responsibility for their own actions (George & Norris, 1991). Indeed, reports indicate that perpetrators of sexual aggression and incest tend to blame their behavior on the effects of the alcohol they consumed at the time of the act (Scully & Marolla, 1984; Williams & Finkelhor, 1990).

As such, another goal of the present study was to further investigate the association between endorsement of alcohol expectancies and sexual assault perpetration. Specifically, the present study assessed whether individuals who report higher endorsement of alcohol expectancies, particularly alcohol expectancies related to social facilitation and sexual enhancement, are more likely to engage in sexual assault perpetration, relative to individuals who report lower endorsement of such alcohol expectancies.

Notably, most of the studies investigating the role of alcohol expectancies in sexual assault perpetration have only assessed participants' generally held alcohol expectancies (i.e., distal alcohol expectancies). However, it is still unclear whether these general alcohol

expectancies were specifically drawn upon when perpetrators consumed alcohol at the time of the sexual assault (i.e., proximal alcohol expectancies). Similar to the distinction between state and trait features of personality, beliefs, thoughts, motivations, behavioral tendencies, and emotional experience (Patrick & Zuckerman, 1977; Patrick et al., 1974; Zuckerman, 1976; Zuckerman, 1983), generally held alcohol expectancies may or not be activated or drawn upon in a given situation. As such, the present study filled this gap by assessing whether alcohol expectancies related to social facilitation and sexual enhancement were specifically drawn upon when participants who engaged in sexual assault perpetration used alcohol at the time of the sexual assault event.

In addition to considering the alcohol expectancies that perpetrators hold about their own alcohol use, it is also important to consider the beliefs and expectations they have about alcohol use by the victims of their assault and alcohol use by women more generally (Abbey, 2011). For example, many men believe and expect that when a woman consumes alcohol, she is more open and responsive to sexual invitations and advances (George et al., 1995). This expectancy can lead to misinterpretations of other people's willingness and consent to engage in sexual behavior and may consequently result in sexual assault perpetration. Therefore, the present study also assessed perpetrators' beliefs about victims' alcohol use in incidents of sexual assault where the victim was drinking or was intoxicated at the time of the sexual assault event.

Drinking Contexts

College students typically consume alcohol at bars and parties (Clapp et al., 2006; Harford et al., 2002). These contexts and settings also attract people who are looking to "hook up," and as such, these settings promote increased sexual activity (Testa & Cleveland, 2017). Consequently, the environment and "mood" of these drinking contexts may increase the

likelihood of sexual assault occurring, independent of any alcohol use. In fact, studies indicate that high frequency bar and party attendance is associated with sexual assault victimization among college women (Cranney, 2015; Franklin et al., 2012), independent of drinking alcohol (Pino & Johnson-Johns, 2009). Furthermore, Thompson and Cracco (2008) found that more than 90% of college men reported employing sexually aggressive tactics in a bar or party setting, and this often involved intentional sexual invasiveness or persistent unwanted sexual advances (Graham et al., 2014). As such, attending bars, clubs, parties, and similar drinking contexts may be a greater risk factor for sexual assault perpetration than actual alcohol use.

To be sure, given that alcohol is usually consumed when attending these drinking contexts, it is difficult to separate the impact of these settings on sexual assault perpetration from alcohol use *per se*. Nevertheless, in a longitudinal study conducted by Testa and Cleveland (2017), the researchers found that although the association between heavy alcohol use and sexual assault perpetration was not statistically significant after accounting for various other risk factors for sexual assault perpetration, frequency of bar or party attendance remained significantly associated with sexual assault perpetration even after accounting for those other risk factors.

To further investigate this finding and get a better understanding of the role of these drinking contexts and settings in sexual assault perpetration, another goal of the present study was to examine the association between sexual assault perpetration and contexts in which alcohol is usually consumed, such as bars, clubs, parties, and large social gatherings. Moreover, although Testa and Cleveland (2017) found that general frequency of bar and party attendance (i.e., distal bar/party attendance) was strongly associated with sexual assault perpetration, that study did not assess whether incidents of sexual assault were actually more likely to occur at a bar, party, or similar drinking context (i.e., proximal bar/party attendance; see Abbey, 2017). As

such, the present study sought to further our understanding of the role of proximal bar/party attendance in sexual assault perpetration by assessing whether incidents of sexual assault were more likely than not to have occurred at a bar, party, or similar drinking context or immediately after leaving such a context.

Preliminary Study

In a preliminary study, Censor (2021) recruited a modestly sized sample of participants (N = 150) to evaluate many of the factors that were investigated in the present study. Participants were undergraduate university students who were at least 18 years old and identified as cisgender or transgender men. Participants completed a confidential online survey consisting of various questionnaires, including a demographics questionnaire, a general alcohol use questionnaire, a general bar/part attendance questionnaire, a general alcohol expectancies questionnaire, and a sexual assault perpetration questionnaire. In addition, participants who reported a history of engaging in at least one sexual assault perpetration behavior were presented with additional questions about one of the reported sexual assault events, including questions about whether they consumed alcohol around the time of the event, whether the victim consumed alcohol around the time of the event, and whether the event occurred at a bar, party, or similar drinking context, or soon after leaving one of these drinking contexts.

Thirty-six participants (24%) did not endorse engaging in any form of sexual assault perpetration behavior since age 14 (non-perpetration group); 77 participants (51%) endorsed engaging in at least one sexual assault perpetration behavior since age 14, with the most severe type of behavior being nonconsensual sexual contact, attempted sexual penetration using verbal coercion, or actual sexual penetration using verbal coercion (contact/coercion perpetration group); and 37 participants (25%) endorsed engaging in at least one sexual assault perpetration

behavior since age 14, with the most severe behavior being attempted sexual penetration or actual sexual penetration using physical force, threatening to use physical force, or while the victim was intoxicated or incapacitated (rape perpetration group).

The results of this preliminary study indicated that more frequent alcohol use and higher heavy episodic drinking during the past 12 months were individually reliable in distinguishing between endorsing a history of sexual assault perpetration or not (Censor, 2021). This was found for both levels of sexual assault severity (i.e., contact/coercion perpetration and rape perpetration). However, the odds ratio results suggested that more frequent alcohol use and higher heavy episodic drinking were more predictive of endorsing more severe forms of sexual assault (i.e., rape perpetration) than less severe forms of sexual assault (i.e., contact/coercion perpetration).

The results also indicated that frequency of bar/party attendance during the past 12 months was reliable in distinguishing between endorsing a history of sexual assault perpetration or not. Further, the results indicated that higher endorsement of alcohol expectancies related to sexual enhancement was statistically reliable in distinguishing between endorsing a history of sexual assault perpetration or not. These results were found for both levels of sexual assault severity (i.e., contact/coercion perpetration and rape perpetration), but odds ratios were higher for more severe forms of sexual assault (i.e., rape perpetration) than for less severe forms of sexual assault (i.e., contact/coercion perpetration).

Although general problematic alcohol use, general bar/party attendance, and general alcohol expectancies related to sexual enhancement were all individually reliably predictive of endorsing a history of sexual assault, a follow-up multinomial regression analysis with all these alcohol-related risk factors for sexual assault perpetration revealed that alcohol expectancies

related to sexual enhancement showed the strongest predictive power for both contact/coercion perpetration and rape perpetration. Moreover, once alcohol expectancies related to sexual enhancement were used to predict endorsement of a history of sexual assault perpetration, almost none of the other alcohol-related risk factors provided any significant additional predictive value. The only exception to this was frequency of bar/party attendance, which provided additional predictive value, but only for rape perpetration and not for contact/coercion perpetration (Censor, 2021). Considering the modest sample size of Censor's (2021) preliminary study, the present study sought to further investigate the association between these alcohol-related factors in a larger sample of participants.

The preliminary study by Censor (2021) also investigated potential proximal risk factors for sexual assault perpetration, including proximal alcohol use and proximal bar/party attendance. The results found that incidents of rape were more likely to involve alcohol use by the perpetrator at the time of the assault than not. In fact, 84% of perpetrators of rape reported having consumed alcohol at the time of the assault. By contrast, less than 50% of contact/coercion perpetrators reported having consumed alcohol at the time of the assault (Censor, 2021).

The results of Censor's (2021) preliminary study also indicated that incidents of sexual assault perpetration were actually significantly less likely to have taken place at or immediately after leaving a bar, club, party, or large social gathering. This was particularly the case for contact/coercion perpetrations, where 79% of reported assaults did not occur at a bar, party, etc., and 75% of reported assaults did not occur immediately after leaving a bar, party, etc. Furthermore, even in cases of rape perpetration where the data showed a trend toward a higher

percentage of incidents occurring at a bar, party, etc. (65%) than not (35%), the observed percentage was not statistically different from the expected percentage (Censor, 2021).

As noted above, one limitation of Censor's (2021) preliminary study was its modest sample size. Another limitation noted by Censor (2021) was that 26 participants (17%) categorized as perpetrators in that study only endorsed engaging in a sexual assault perpetration behavior more than 12 months ago but not within the past 12 months. Consequently, responses to questions about these events (i.e., proximal alcohol use and proximal bar/party attendance) that occurred more than 12 months ago may have been subject to recall bias. As such, the present study sought to further investigate proximal alcohol use and proximal bar/party attendance with a larger sample of participants and limiting data analyses to sexual assault perpetrations that occurred during the past 12 months.

Furthermore, although Censor (2021) assessed the association between general alcohol expectancies and a history of sexual assault perpetration, it remained unclear whether participants who used alcohol at the time of the sexual assault perpetration did so with specific alcohol expectancies in mind. As such, the present study also sought to advance Censor's (2021) earlier study by providing further understanding of whether alcohol expectancies related to social facilitation and sexual enhancement are specifically drawn upon in alcohol-involved incidents of sexual assault perpetration.

Aims and Hypotheses

The primary aim of the present study was to gain a deeper and better understanding of the role of various alcohol-related risk factors in sexual assault perpetration. These factors included various types of problematic alcohol use, alcohol expectancies, and drinking contexts, such as bars, parties, etc. To do this, the present study investigated whether these alcohol-related factors

significantly predicted engagement in sexual assault perpetration during the past 12 months in a substantial sample of participants. Two levels of sexual assault severity were investigated separately— contact/coercion perpetration (lower severity) and rape perpetration (higher severity) (see Abbey et al., 1996; Testa & Dermen, 1999). Furthermore, the present study first assessed each of these factors separately in univariate analyses and then assessed the unique predictive value of each of these factors using multivariate analysis. Additionally, the present study evaluated whether or not these are general (i.e., distal) risk factors for sexual assault perpetration and whether or not they play a proximal role in incidents of sexual assault perpetration.

Many of the hypotheses in the present study were continuations of Censor's (2021) preliminary study, and primarily expanded on that study by increasing the sample of participants and by only including data about events that occurred during the past 12 months. However, some of the hypotheses in the present study, specifically the hypotheses related to proximal alcohol expectancies, were new to the present study. The hypotheses for the present study were as follows:

1. Alcohol Use Hypotheses

Hypothesis 1a. Individuals who report more frequent alcohol use during the past 12 months (i.e., distal frequent alcohol use) will be more likely to also report engaging in sexual assault perpetration behavior (contact/coercion perpetration or rape perpetration) during the past 12 months, relative to those who report less frequent alcohol use during the past 12 months. This hypothesis was a continuation of Censor's (2021) preliminary study.

Hypothesis 1b. Individuals who report heavier episodic drinking during the past 12 months (i.e., distal heavy episodic drinking) will be more likely to also report engaging in sexual

assault perpetration behavior (contact/coercion perpetration or rape perpetration) during the past 12 months, relative to those who report less heavy episodic drinking during the past 12 months. This hypothesis was a continuation of Censor's (2021) preliminary study.

Hypothesis 1c. Reported incidents of sexual assault perpetration behavior (contact/coercion perpetration or rape perpetration) will be significantly more likely than not to involve alcohol use by the perpetrator at the time of the assault (i.e., proximal alcohol use). This hypothesis was a continuation of Censor's (2021) preliminary study.

Hypothesis 1d. Reported incidents of sexual assault perpetration behavior (contact/coercion perpetration or rape perpetration) will be more likely to involve alcohol use by both the perpetrator and the victim compared to alcohol use by just one party, whether victim alone or perpetrator alone. This hypothesis was a continuation of Censor's (2021) preliminary study.

2. Alcohol Expectancies Hypotheses

Hypothesis 2a. Individuals who report higher endorsement of alcohol expectancies related to social facilitation (i.e., distal social facilitation alcohol expectancies) will be more likely to also report engaging in sexual assault perpetration behavior (contact/coercion perpetration or rape perpetration) during the past 12 months, relative to those who report lower endorsement of such alcohol expectancies. This hypothesis was a continuation of Censor's (2021) preliminary study.

Hypothesis 2b. Individuals who report higher endorsement of alcohol expectancies related to sexual enhancement (i.e., distal sexual enhancement alcohol expectancies) will be more likely to also report engaging in sexual assault perpetration behavior (contact/coercion perpetration or rape perpetration) during the past 12 months, relative to those who report lower

endorsement of such alcohol expectancies. This hypothesis was a continuation of Censor's (2021) preliminary study.

Hypothesis 2c. Individuals who report using alcohol at the time of engaging in sexual assault perpetration behavior (contact/coercion perpetration or rape perpetration) will more likely than not report using the alcohol for the purpose of social facilitation (i.e., proximal social facilitation alcohol expectancies). This hypothesis was new to the present study.

Hypothesis 2d. Individuals who report using alcohol at the time of engaging in sexual assault perpetration behavior (contact/coercion perpetration or rape perpetration) will more likely than not report using the alcohol for the purpose of sexual enhancement (i.e., proximal sexual enhancement alcohol expectancies). This hypothesis was new to the present study.

Hypothesis 2e. Individuals who report alcohol use by the victim at the time of engaging in sexual assault perpetration behavior (contact/coercion perpetration or rape perpetration) will more likely than not endorse the belief that when someone consumes alcohol, they are more open and responsive to sexual advances. This hypothesis was new to the present study.

3. Drinking Context Hypotheses

Hypothesis 3a. Individuals who report higher frequency of attending bars, parties, clubs, or similar contexts during the past 12 months (i.e., distal bar/party attendance) will be more likely to also report engaging in sexual assault perpetration behavior (contact/coercion perpetration or rape perpetration) during the past 12 months, relative to those who report less frequent distal bar/party attendance during the past 12 months. This hypothesis was a continuation of Censor's (2021) preliminary study.

Hypothesis 3b. Reported incidents of sexual assault perpetration behavior (contact/coercion perpetration or rape perpetration) will be significantly more likely than not to

have taken place at, or soon after leaving, a bar, party, club, or similar context (i.e., proximal bar/party attendance). This hypothesis was a continuation of Censor's (2021) preliminary study.

METHOD

Participants

Participants were undergraduate students from a few colleges and universities in the Midwestern region of the United States. Inclusion criteria for participating in the study were as follows: (a) being at least 18 years old; (b) self-identifying as a man/male, whether cisgender or transgender; and (c) being a matriculated undergraduate student. Participants were recruited through various methods, including via informational fliers about the study posted around college and university campuses; study participation invitation emails sent out by university instructors, academic departments, and student clubs and organizations; and through one university's Sona Experiment Management System (Sona System). Participants included the sample previously recruited for the preliminary study by Censor (2021; here referred to as Phase 1) in addition to newly recruited participants for the present study (here referred to as Phase 2). Participants were offered a $20 Amazon eGift card for their participation, in addition to course credit when applicable.

The study participant flow is presented in Figure 1. A total of 434 individuals completed the online study screener (179 in Phase 1 and 255 in Phase 2). Based on responses to the screener questions, 63 individuals (26 in Phase 1 and 37 in Phase 2) were excluded from participating in the study survey, due to not meeting the study's inclusion criteria (49 self-identified as a woman/female, one identified as a transgender female, two identified as gender variant/non-conforming, three did not provide gender information, and eight were graduate students). Thus, 371 individuals (153 in Phase 1 and 218 in Phase 2) were eligible to participate in the study. Of these, 14 individuals did not begin the survey and 22 did not provide sufficient information to identify their outcome variable group membership (i.e., past sexual assault perpetration status).

Consequently, these participants were excluded from data analyses. Additionally, 60 participants (26 in Phase 1 and 34 in Phase 2) who completed the study survey endorsed engaging in some level of sexual assault perpetration prior to 12 months ago, but not during the past 12 months. As mentioned previously, data from these participants were not included in data analyses in the present study. Thus, data from a total of 275 participants (124 in Phase 1 and 151 in Phase 2) were included in data analyses and are presented here.

Based on participants' responses to the Sexual Assault Perpetration Questionnaire administered, 127 (46.18%) participants (36 in Phase 1 and 91 in Phase 2) did not endorse engaging in any sexual assault perpetration behavior and were thus classified as non-perpetrators. The other 148 (53.82%) participants (88 in Phase 1 and 60 in Phase 2) endorsed engaging in at least one sexual assault perpetration behavior during the past 12 months and were classified as perpetrators. The perpetrator group was further divided into two groups based on the most severe sexual assault perpetration behavior endorsed. The first group, classified as the contact/coercion perpetrator group, included 104 (37.82%) participants (56 in Phase 1 and 48 in Phase 2) and comprised individuals whose most severe sexual assault perpetration behavior endorsed was engagement at least once during the past 12 months in either nonconsensual sexual contact, attempted sexual penetration, or actual sexual penetration using verbal coercion, their older age or authority, or other enticement strategies. The second group, classified as the rape perpetrator group, included 44 (16%) participants (32 in Phase 1 and 12 in Phase 2) and comprised individuals who endorsed engaging at least once during the past 12 months in either attempted sexual penetration or actual sexual penetration using physical force, threatening to use physical force, or while the victim was intoxicated or incapacitated.

Demographic information for the full participant sample, as well as for each of the three groups described above, is presented in Table 1. The mean age of the full participant sample was 22.62 (ranging from 18–52, *SD* = 4.80); 97.1% of participants (*n* = 267) self-identified as male/man, 2.5% (*n* = 7) self-identified as transgender male/man, and 0.4% (*n* = 1) self-identified as a non-binary man. Participants varied across race, with 0.7% (*n* = 2) identifying as American Indian or Alaska Native, 12.4% (*n* = 34) identifying as Asian or Asian-American, 10.9% (*n* = 30) as Black or African American, 69.8% (*n* = 192) as White or Caucasian, 4.4% (*n* = 12) identified as multiracial or other (e.g., Afro-Caribbean and Middle-Eastern), and 1.8% (*n* = 5) chose not to report their race. About 10% of participants (*n* = 29) self-identified as Hispanic or Latino, the majority of whom (*n* = 19) also identified their race as White or Caucasian. With regard to sexual orientation, 10.2% (*n* = 28) self-identified as bisexual, 11.7% (*n* = 32) self-identified as gay, 75.6% (*n* = 208) as heterosexual, 0.7% (*n* = 2) as other (e.g., asexual and heteroflexible), and 1.8% (*n* = 5) chose not to report their sexual orientation.

Participants varied across year in college: 18.5% (*n* = 51) indicated being a freshman/first year, 22.9% (*n* = 63) a sophomore/second year, 27.3% (*n* = 75) a junior/third year, 25.8% (*n* = 71) a senior/fourth year, and 5.5% (*n* = 15) indicated being beyond their fourth year in their undergraduate studies. About 18% of participants (*n* = 48) reported being a member of at least one all-male group (e.g., fraternity, all-male organized sports team, etc.). About 40% of participants (*n* = 109) reported currently being in a long-term relationship (e.g., married, engaged, living with a partner, in a long-term monogamous relationship, etc.), 32.7% (*n* = 90) reported dating casually or hooking up, and 27.3% (*n* = 75) reported they are currently not in a long-term relationship and are not dating at all. The mean lifetime consensual sexual partners reported by the full participant sample was 5.4 (ranging from 0–11 or more, *SD* = 4.29), and the

mean number of consensual sexual partners participants reported having during the past year was 1.76 (ranging from 0–11 or more, *SD* = 1.93).

Measures

General Alcohol Use

The General Alcohol Use Questionnaire used in the present study is presented in Appendix C. The first three items from the Alcohol Use Disorders Identification Test (AUDIT; Babor et al., 2001) were used to assess frequency and quantity of alcohol use during the past 12 months. Response options for the frequency of use item were on an 8-point scale (ranging from *Daily or almost daily* to *Never*). This was a slight modification from the original AUDIT which only has five response options for the frequency of alcohol use item (ranging from *Never* to *4 or more times a week*) in order to obtain more detailed information about participants' frequency of alcohol use and to allow for more direct comparisons between frequency of alcohol use and frequency of bar/party attendance described below. Responses were reverse scored and higher scores indicated more frequent alcohol use. Response options for the other two alcohol use items that measured quantity of alcohol use (i.e., "How many standard drinks containing alcohol did you consume on a typical day when you were drinking?" and "How often did you have six or more standard drinks on one occasion?") were the same as on the original AUDIT and were on a 5-point scale. Higher scores on these items indicated heavier episodic alcohol use.

In addition, the Problems Related to Alcohol subscale from the Student Alcohol Questionnaire (SAQ; Engs, 1975) was adapted and included in the General Alcohol Use Questionnaire for the purpose of secondary analyses. The Problems Related to Alcohol subscale lists 18 common negative consequences of alcohol use among college students, and participants were asked to indicate the frequency that they have experienced each. Response options were on

a 6-point scale (0 = *Never* to 5 = *Daily or almost daily*). Responses to the 18 items were summed to obtain a total Problems Related to Alcohol score. Higher scores indicated more problems related to alcohol use. The SAQ was specifically designed to assess for problematic drinking among college students and has been used in national longitudinal studies assessing college student drinking patterns (e.g., Engs & Hanson, 1988; Hanson & Engs, 1992) and other alcohol-related studies (Engs & Hanson, 1994). The Problems Related to Alcohol subscale demonstrated excellent reliability in the present sample with Cronbach's $\alpha = .91$.

General Bar/Party Attendance

The General Bar/Party Attendance Questionnaire used in the present study is presented in Appendix D. Participants were asked the following four questions adapted from Testa and Cleveland (2017): (1) During the past 12 months, how often did you attend a party? (2) During the past 12 months, how often did you go to a bar? (3) During the past 12 months, how often did you go to a club? (4) During the past 12 months, how often did you attend a large social gathering? Response options for each of the four frequency of bar/party attendance questions were on an 8-point scale (ranging from *Daily or almost daily* to *Never*), similar to the frequency of alcohol use question described earlier. Responses were reverse scored and higher scores indicated more frequent bar/party attendance. Scores from each of the four frequency of bar/party attendance items were summed to obtain a total frequency of bar/party attendance score. The General Bar/Party Attendance Questionnaire was found to have good reliability in the present study with Cronbach's $\alpha = .84$.

General Alcohol Expectancies

The Expectancy Questionnaire (EQ; Leigh & Stacy, 1993) was used to assess participants' general alcohol expectancies, and is presented in Appendix E. The EQ consists of

34 items measuring both positive (19 items) and negative (15 items) expectancies related to alcohol consumption. In addition to an overall alcohol expectancy score, the EQ includes four positive expectancy subscales and four negative expectancy subscales. The positive expectancy subscales are social facilitation, fun (positive affect), sex (sexual enhancement), and tension reduction; the negative expectancy subscales are social (antisocial), emotional (negative emotional states), physical (undesirable physical effects), and cognitive/performance (impairment). Each item on the EQ is prefaced with the stem, "When I drink alcohol…," followed by the positive or negative expectancy. Participants are instructed to indicate the likelihood that they experience the specific effect or consequence when they drink alcohol. If participants do not drink alcohol at all, they are instructed to respond to the items according to what they think would happen to them if they did drink alcohol. Response options are on a 6-point Likert scale, ranging from 1 (*No chance*) to 6 (*Certain to happen*), with some items reverse scored. Higher scores indicate higher endorsement of alcohol expectancies. Given the scope of the present study, only total scores from the social facilitation subscale (consisting of items 1, 20, 23, 26, 28, 32) and the sexual enhancement subscale (consisting of items 16, 22, 25, 29) described above were analyzed in the present study.

The advantages of the EQ over other available alcohol expectancy measures include its relative brevity while still maintaining comprehensiveness as it includes both positive and negative expectancies with several types of expectancies within each of these expectancy domains (Camacho et al., 2013). Further, the EQ was developed for use among young adults and has also been used successfully with adolescents (Catanzaro & Laurent, 2004; Leigh & Stacy, 2004; Urbán et al., 2008). Additionally, the EQ and its subscales have demonstrated good discriminant and convergent validity and excellent reliability (Leigh & Stacy, 1993). Cronbach's

alphas for the social facilitation subscale and the sexual enhancement subscale in the present study were .89 and .90, respectively.

Sexual Assault Perpetration

The Sexual Assault Perpetration Questionnaire used in the present study to assess for history of sexual assault perpetration is presented in Appendix F. This questionnaire consisted of three slightly modified sexual assault perpetration scales, including (1) the revised Sexual Experiences Survey-Short Form Perpetration (SES-SFP; Koss et al., 2007; 2008), (2) the Sexual Strategies Scale (SSS; Peterson et al., 2010; Strang et al., 2013), and (3) the Sexual Coercion (SC) subscale from the revised Conflict Tactics Scale (CTS2; Straus et al., 1996).

The SES-SFP (Koss et al., 2007; 2008) was designed to measure the occurrence and frequency of perpetrating various unwanted sexual acts and the methods or tactics used to carry out these acts. It is one of the most commonly used measures of sexual assault perpetration among college students and has demonstrated good validity and reliability among male samples (Anderson et al., 2017; Johnson et al., 2017; Porat et al., 2024). As the present study was conducted with only male participants, the gender-neutral language of the SES-SFP was slightly modified to reflect the perspective and relevant behaviors of men (see Koss et al., 2007). The present study included the first seven critical items of the SES-SFP, which ask respondents to indicate how many times (0, 1, 2, or 3+) they have perpetrated various unwanted sexual acts (including sexual contact, completed oral sex, completed vaginal penetration, completed anal penetration, attempted oral sex, attempted vaginal penetration, and attempted anal penetration) using five (a–e) general types of tactics (such as lying, showing displeasure, victim being drunk, threatening physical harm, or using physical force) during two separate time frames: (1) in the past 12 months and (2) from the age of 14 until 12 months ago. A response of 1 or above to any

of the tactics (a–e) on item 1 of the SES-SFP (i.e., nonconsensual contact) or a response of 1 or above to tactics a or b (verbal coercion) on items 2-7 was categorized as contact/coercion perpetration. A response of 1 or above to tactics c–e on items 2-7 was categorized as rape perpetration.

In addition to the SES-SFP, a slightly modified version of the Sexual Strategies Scale (SSS; Peterson et al., 2010; Strang et al., 2013) was administered to further assess for history of sexual assault perpetration. The SSS is a 22-item scale that asks respondents whether they have employed various types of strategies to convince someone to have sex (oral, anal, or vaginal) after they initially said "no." Response options were *Yes* or *No* during two separate time frames: (1) the past 12 months and (2) from the age of 14 until 12 months ago. Items on the SSS can be grouped into five categories based on the nature and severity of the strategy described in the item, including use of enticement, use of verbal coercion, use of older age or authority, use of victim's intoxication, and use of threats or force (Peterson et al., 2010; Strang et al., 2013). Endorsement of at least one item in the enticement, verbal coercion, or age or authority category was categorized as contact/coercion perpetration. Endorsement of at least one item in the intoxication or threats or force category was categorized as rape perpetration.

The reason for including the SSS in the study survey in addition to the SES-SFP was that, despite similar content in the two scales, several studies have found that the SSS yielded higher rates of participant endorsement of various types of sexual aggression compared to the SES-SFP (Strang et al., 2013; Testa et al., 2015). It has been suggested that the simpler structure of the SSS compared to the SES-SFP makes it easier for participants to interpret items and provide more accurate responses (Testa et al., 2015). In addition, the nonhierarchical structure of the SSS may result in higher and more accurate reporting compared to the hierarchical structure of the

SES-SFP (Testa et al., 2015). As such, the SSS was included to capture instances of sexual assault perpetration that may not have been obtained with the SES-SFP.

Additionally, several items of the Sexual Coercion (SC) subscale from the revised Conflict Tactics Scales (CTS2; Straus et al., 1996) were also included in the present survey. The CTS2-SC consists of seven paired items (14 items total) that assess for sexual violence in intimate partner relationships. Each pair of items asks about the frequency that the participant has either perpetrated or been a victim of a specific form of sexual aggression. As the present study focused only on assessing sexual assault perpetration, only the seven perpetration items were included in the survey. In addition, nine randomly selected items from the remainder of the full revised CTS2 were also included between the seven aforementioned SC subscale items. However, only data from the SC subscale items were used in data analyses. Past research has demonstrated evidence of convergent validity and reliability for the full CTS2 (Simpson & Christensen, 2005).

Response options on the CTS2-SC were on an 8-point scale, ranging from 0 (*This has never happened*) to 6 (*More than 20 times in the past year*), with an additional response option that the event never occurred in the past year but did happen at some point in the relationship. Thus, similar to the two previously mentioned sexual assault scales, the CTS2-SC assessed past sexual violence during two time frames: (1) the past 12 months and (2) prior to 12 months ago.

The seven items of the CTS2-SC can also be grouped into three categories based on sexual assault type and severity, including use of verbal coercion, use of threat of force, and use of actual force. A response of 1 or above on any of the items in the verbal coercion category was categorized as contact/coercion perpetration. A response of 1 or above on any of the threat of force or actual use of force items was categorized as rape perpetration.

It is important to note that one of the items on the CTS2-SC is potentially ambiguous and may thus result in over-endorsement of sexual assault perpetration. Specifically, Item 3 states, "I made my partner have sex without a condom." The word "made" may be interpreted in several ways, including being convinced using nonthreatening means and resulting in valid consent, or by way of verbal or physical intimidation or force. As such, two additional items were added to the CTS2-SC items in the present study: (A) "I convinced my partner to have sex without a condom," and (B) "I forced my partner to have sex without a condom." Item A was presented at the beginning of the CTS2-SC items and Item B was presented at the end of the CTS2-SC items. A response of 1 or above on Item 3 of the CTS2-SC without endorsement of Item A and Item B, was categorized as contact/coercion perpetration. However, a response of 1 or above on Item 3 of the CTS2-SC and on Item A of the newly added items was not categorized as perpetration at all. A response of 1 or above on Item B of the newly added items was categorized as rape perpetration.

The reason for including the CTS2-SC in the present study survey in addition to the SES-SFP and SSS is that in an analysis comparing responses on the SES-SFP and the CTS2-SC, Anderson et al. (2019) found that the CTS2-SC identified significantly more cases of sexual violence perpetration compared to the SES-SFP. The researchers provided two possible explanations for the discordance between the two scales. First, the general structure of the CTS2, such as the nonhierarchical arrangement of items, the presentation of items (i.e., presenting the tactic first followed by the behavior), the response option format, the language of the items, and/or the normalization of conflicts in intimate relationships, may encourage greater responding by participants (see also Ramirez & Straus, 2006). Second, given the existence of various stereotypes about sexual violence in intimate relationships and myths that a romantic partner,

especially in a marital relationship, cannot be raped (Ferro et al., 2008), a significant number of participants may not report perpetration of sexual assault toward an intimate partner without being specifically cued to do so, as is done on the CTS2 (Anderson et al., 2019). As such, the CTS2-SC was included to capture instances of sexual assault perpetration that may not have been identified with the other two sexual assault perpetration scales.

Data from the three sexual assault perpetration scales were used to determine participants' categorization into one of three groups, as described earlier. The highest level of perpetration severity reported by a participant was used to determine their categorization into one of these three groups. One group, labeled the non-perpetrator group, included participants who did not endorse any item during the past 12-month time frame across all three sexual assault perpetration scales. The second group, labeled the contact/coercion perpetrator group, included participants who endorsed at least one item categorized as contact/coercion perpetration during the past 12-month time frame on a least one of the three sexual assault perpetration scales, but did not endorse any item categorized as rape perpetration. In other words, the contact/coercion perpetrator group consisted of participants whose most severe sexual assault perpetration behavior during the past 12 months was either nonconsensual sexual contact, attempted or actual sexual penetration using verbal coercion, attempted or actual sexual penetration using their older age or authority, or attempted or actual sexual penetration using other enticement strategies. The third group, labeled the rape perpetrator group, included participants who endorsed at least one item categorized as rape perpetration during the past 12-month time frame on any one of the three sexual assault perpetration scales. In other words, the rape perpetrator group consisted of participants whose most severe sexual assault perpetration behavior during the past 12 months was either attempted or actual sexual penetration using physical force, threatening to use

physical force, or while the victim was intoxicated or incapacitated. As noted earlier, participants who only endorsed an item on the sexual assault perpetration scales during the time frame prior to 12 months ago, were not included in data analyses in the present study.

Event-Related Follow-Up Questionnaire

Participants who endorsed at least one item during the past 12-month time frame on the Sexual Assault Perpetration Questionnaire (i.e., participants in the contact/coercion perpetrator group or the rape perpetrator group) were administered the Event-Related Follow-Up Questionnaire to assess proximal alcohol use, proximal alcohol expectancies, and proximal bar/party attendance with regard to one reported sexual assault event. Details for how the specific sexual assault event was selected for these event-related follow-up questions when more than one sexual assault event was endorsed are provided in the Procedures section below. Participants who did not endorse any item on the Sexual Assault Perpetration Questionnaire (i.e., participants in the non-perpetrator group), were not administered the Event-Related Follow-Up Questionnaire. The Event-Related Follow-Up Questionnaire is presented in Appendix G.

To assess proximal alcohol use, participants were asked whether they consumed alcohol immediately before, during, or immediately following the sexual assault event. Participants who responded affirmatively to any one of these three questions were then asked additional questions relating to the quantity of alcohol they consumed and whether they believe they were intoxicated/drunk at the time. Response options for all of these questions were *Yes* or *No*.

Further, in order to assess proximal alcohol expectancies, participants who reported that they consumed alcohol immediately before, during, or immediately following the sexual assault event, were presented with several questions regarding expectations of their alcohol use at the time of the sexual assault event. Specifically, items from the social facilitation and sexual

enhancement subscales of the EQ (Leigh & Stacy, 1993) that were used in the General Alcohol Expectancies Questionnaire (see above) were adapted, and participants were asked whether they consumed alcohol at the time of the sexual assault event with the expectation of these effects or consequences. Response options for all of these questions were *Yes*, *No*, or *Maybe*. A response of *Yes* to at least one of the social facilitation expectancy items (Items 3c, 3e, 3g, 3i, 3j, 3l) was considered as proximal alcohol expectancies related to social facilitation being present. A response of *Yes* to at least one of the sexual enhancement expectancy items (Items, 3d, 3f, 3h, 3k) was considered as proximal alcohol expectancies related to sexual enhancement being present. A response of *Maybe* to any of the proximal alcohol expectancies questions was considered as a *No* response. Cronbach's alphas for the proximal social facilitation expectancy items and the proximal sexual enhancement items were .90 and .85, respectively. Of note, the proximal alcohol expectancies questions described here were only administered in Phase 2 of the present study but were not included in Phase 1 of the present study.

To assess proximal bar/party attendance, the Event-Related Follow-Up Questionnaire included several event-related follow-up questions regarding the context of the sexual assault event, as follows: (1) Did this experience occur at a party? (2) Did this experience occur at a bar? (3) Did this experience occur at a club? (4) Did this experience occur at a large social gathering? (5) Did this experience occur close in time after leaving a party together with the individual the experience was done to? (6) Did this experience occur close in time after leaving a bar together with the individual the experience was done to? (7) Did this experience occur close in time after leaving a club together with the individual the experience was done to? (8) Did this experience occur close in time after leaving a large social gathering together with the individual the experience was done to? Response options for all of these questions were *Yes* or *No*.

In addition to the aforementioned event-related follow-up questions regarding perpetrators' proximal alcohol use, alcohol expectancies, and bar/party attendance, participants were asked several questions regarding the victim of the sexual assault. First, participants were asked to identify the gender of the victim and their relationship to the victim (e.g., dating partner, long-term partner, spouse, non-romantic friend, stranger, etc.). After that, they were asked whether the individual to whom this experience was done had consumed alcohol immediately before, during, or immediately following the sexual assault event. Response options for these questions were *Yes* or *No*. Participants who responded affirmatively to any one of these three questions were then asked additional questions relating to whether the participant served the alcohol to the victim and whether they did so with the intent to incapacitate the victim or not. Finally, participants were asked whether they believed the person they did this to was open or responsive to sexual advances or was indicating consent to engage in sexual behavior because they were drinking alcohol at the time of the sexual assault event. Response options for these questions were *Yes*, *No*, or *Maybe*. A response of *Maybe* to any of these questions was considered as a *No* response. Of note, the latter questions regarding participants' beliefs about victims' openness, responsiveness, and consent to sexual behavior were administered in Phase 2, but not in Phase 1, of the present study.

General Aggression

The Buss-Perry Aggression Questionnaire (BPAQ; Buss & Perry, 1992) was included in the survey to evaluate other forms of aggression besides sexual aggression for the purpose of secondary analyses. The BPAQ is presented in Appendix H and consists of 29 items asking respondents how uncharacteristic or characteristic each statement is in describing them. Responses are on a 5-point scale, ranging from 1 (*Extremely uncharacteristic*) to 5 (*Extremely*

characteristic), with some items reverse scored. Higher scores indicate higher levels of general aggression. The item statements are divided into four subareas of aggression, including physical aggression, verbal aggression, anger, and hostility. Physical aggression and verbal aggression both involve hurting or harming others either physically or verbally and represent the instrumental component of aggression. Anger involves physiological arousal and preparation for aggression, representing the affective component of aggression. Hostility consists of beliefs of ill will, resentment, or injustice, and represents the cognitive component of aggression. Separate total scores can be calculated for each of these four subareas of aggression. However, only the overall score was used for data analysis in the present study. The BPAQ demonstrated excellent reliability in the present sample with Cronbach's $\alpha = .91$.

General Substance Use

To assess participants' use of various psychotropic substances besides alcohol, for the purpose of secondary analyses, nine questions were included in the present survey asking participants to indicate their frequency of using various psychotropic substances without a medical prescription or using more than their prescribed dosage during the past 12 months. This General Substance Use Questionnaire is presented in Appendix I. Substances assessed include cannabis (e.g., marijuana, pot, grass, hash, etc.), cocaine (e.g., coke, crack, etc.), stimulants (e.g., Ritalin, Concerta, Dexedrine, Adderall, diet pills, etc.), methamphetamine (e.g., speed, crystal meth, ice, etc.), inhalants (e.g., nitrous oxide, glue, gas, paint thinner, etc.), sedatives or sleeping pills (e.g., Valium, Serepax, Ativan, Xanax, Librium, Rohypnol, GHB, etc.), hallucinogens (e.g., LSD, acid, mushrooms, PCP, Special K, ecstasy, etc.), street opioids (e.g., heroin, opium, etc.), and prescription opioids (e.g., fentanyl, oxycodone [OxyContin, Percocet], hydrocodone [Vicodin], methadone, buprenorphine, etc.). Participants were also able to indicate the frequency

of using two additional "other" substances. Response options were on an 8-point scale ranging from *Daily or almost daily* to *Never*, similar to the response options for the frequency of alcohol use question described above. Responses were reverse scored and higher scores indicated more frequent substance use.

Social Desirability

Given that the present study assessed for various types of beliefs, behaviors, and experiences that are potentially socially unacceptable, immoral, unethical, or criminal, the Marlow-Crowne Social Desirability Scale (MCSDS; Crowne & Marlowe, 1960) was included in the survey to check for the possibility of socially desirable responding by participants. The MCSDS is presented in Appendix J and consists of 33 socially desirable statements that have a low probability of occurring. Participants were asked to indicate whether each statement is *False* or *True* for them. Some of the items are reverse scored and high scores suggest that the participant may have been seeking to present themselves in a socially desirable manner and thus their responses to the other questions in the survey may be invalid. Lambert et al. (2016) found that despite newer measures to assess for socially desirable responding, the MCSDC consistently performed better in identifying fakers.

Procedure

The flow for the survey procedure is depicted in Figure 2. Upon accessing the study website, participants were first screened by being presented with questions about their age, gender identity, and year in college to ensure that they met the study's inclusion criteria (see Participants section above). The Screener Questionnaire is presented in Appendix A. Participants who did not meet the study's inclusion criteria were disqualified from continuing to the study survey. All other participants continued to the study informed consent page that included a brief

general overview of the study, a request that participants respond to survey questions as honestly and accurately as possible, and an assurance that study data will not be directly linked to any identifying personal information.

After indicating their consent to participate in the study, participants advanced to the first section of the survey, which collected general demographic information. The Demographics Questionnaire used in the present study is presented in Appendix B. After that, participants were presented with the General Alcohol Use Questionnaire (Appendix C), the General Bar/Party Attendance Questionnaire (Appendix D), the General Alcohol Expectancies Questionnaire (Appendix E), and the Sexual Assault Perpetration Questionnaire (Appendix F). The three sexual assault perpetration scales in the Sexual Assault Perpetration Questionnaire (i.e., SES-SFP, SSS, CTS2-SC) were counterbalanced across participants to account for any potential order effects.

Participants who endorsed at least one item on the Sexual Assault Perpetration Questionnaire (i.e., participants who were categorized in the contact/coercion perpetrator group or the rape perpetrator group, as described above in the Measures section) were then presented with the Event-Related Follow-Up Questionnaire (Appendix G) to assess proximal alcohol use, proximal alcohol expectancies, and proximal bar/party attendance with regard to one specific sexual assault event they endorsed. In selecting the one specific sexual assault event participants were asked to refer to in answering these event-related follow-up questions, the following rules were used in the presented order:

1. *Number of events endorsed.* If only one sexual assault event was endorsed during the past 12-month time frame, the event-related follow-up questions were asked with regard to that one event.
2. *Sexual assault perpetration scale endorsed.* If more than one sexual assault event was

endorsed during the past 12-month time frame, events that were endorsed on the SES-SFP were prioritized over events endorsed on both the CTS2-SC and the SSS, and events endorsed on the CTS2-SC were prioritized over events endorsed on the SSS. In other words, if one sexual assault event was endorsed on the SES-SFP, then that event was the focus of the event-related follow-up questions regardless of what was endorsed on the CTS2-SC or the SSS. If no sexual assault events were endorsed on the SES-SFP, but an event was endorsed on the CTS2-SC, then the CTS2-SC event was the focus of the event-related follow-up questions regardless of what was endorsed on the SSS. A sexual assault event that was endorsed on the SSS was the focus of the event-related follow-up questions only if no sexual assault events were endorsed on both the SES-SFP and the CTS2-SC. The rationale for prioritizing the SES-SFP over the other two sexual assault perpetration scales and for prioritizing the CTS2-SC over the SSS is based on the relative popularity and frequency of use of these three scales in the sexual assault literature.

3. *Severity of event endorsed*. If more than one sexual assault event was endorsed in the same sexual assault perpetration scale, the most severe event on the given scale was prioritized over a less severe event. Each of the three sexual assault perpetration scales asks about a range of assaultive behaviors and coercive tactics that vary in their degree of severity, although each scale does so in different ways. For example, the SES-SFP distinguishes between the following five categories in increasing order of severity: sexual contact, attempted coercion (i.e., the behavior was attempted but not successfully accomplished), coercion, attempted rape, and rape (see Koss et al., 2007; 2008). Similarly, the CTS2-SC distinguishes between use of verbal coercion, use of threats, and use of force (Straus et al., 1996), and the SSS distinguishes between use of enticement,

use of verbal coercion, use of older age or authority, use of the victim being intoxicated, and use of threats of force (Peterson et al., 2010; Strang et al., 2013). Thus, when more than one sexual assault event was endorsed in the same scale, the event-related follow-up questions were asked with regard to the most severe event endorsed on the prioritized sexual assault perpetration scale.

4. *Event best remembered*. If more than one sexual assault event was endorsed in the same sexual assault perpetration scale (rule 2) and at the same severity level (rule 3), participants were instructed to focus on the one sexual assault event that they best remembered from among the above type of events when responding to the event-related follow-up questions.

Before being presented with the Event-Related Follow-Up Questionnaire, participants were presented with a prompt to orient them to the one specific sexual assault event they should refer to in answering the event-related follow-up questions. The survey software was programmed to evaluate participants' responses to the three sexual assault perpetration scales and select one specific event for the event-related follow-up questions based on the aforementioned rules and present a corresponding specific text prompt (see Table in Appendix G). Participants who did not endorse any sexual assault event across all three sexual assault perpetration scales (i.e., participants categorized in the non-perpetrator group), were not presented with the Event-Related Follow-Up Questionnaire.

After completing the Event-Related Follow-Up Questionnaire (or for the non-perpetrator group, after completing the Sexual Assault Perpetration Questionnaire), participants were presented with the Social Desirability Questionnaire (Appendix J), the General Aggression Questionnaire (Appendix H), and the General Substance Use Questionnaire (Appendix I). After

that, a page was displayed confirming completion of the survey and providing debriefing information. Participants were then asked to click a button to be redirected to another website where they were able to enter their name and a university-affiliated email address to provide them with compensation for their participation.

Each of the questionnaires included in the study survey were presented on a separate web page and included instructions for responding to that particular questionnaire. Besides the specific response options to each question included in the survey, every question also included a response option of "*Prefer not to answer*," and each questionnaire had a pre-programmed forced-response requirement before being able to advance to the next questionnaire. This approach afforded a balance between ensuring that participants do not inadvertently miss answering any questions while safeguarding their autonomy to provide or withhold information. Additionally, participants were given the option to discontinue the survey at any point by selecting the Discontinue Survey button presented on each page of the survey, which then brought them to another web page asking them to confirm that they did, indeed, want to discontinue the survey, or they rather wanted to return to completing the survey. If they confirmed that they wanted to discontinue the survey, a page was displayed with debriefing information, and they were then asked to click a button to be redirected to another website where they were able to enter their name and a university-affiliated email address to provide them with compensation for their participation.

In order to increase confidence that participants read the questions and answer options of the survey and did not simply select response options at random without reading and considering the questions and answer options, several "integrity items" were included throughout the survey. Examples of integrity items included in the survey were, "Select Never to answer this question,"

"Select Likely to answer this question," "Select False to answer this question," "Select Yes to answer this question," etc. Data from participants who did not respond correctly to at least half of the integrity items were not included in data analyses.

All the data were collected via an online survey using Qualtrics survey software (Research Core) on a secure website. Given that participants were asked to provide information about potentially criminal or socially unacceptable activity, steps were taken to protect participants' identities as follows: (1) IP addresses were not collected; (2) an IRB exemption to document informed consent was obtained; and (3) collection of identifying information for the purpose of participation compensation occurred through a separate web site, and no list directly linking identifying information with study data was created. The study was approved by the local university Institutional Review Board (IRB).

Power Analyses

During the planning stage of the present study, a series of *a priori* power analyses were conducted using G*Power software (Faul et al., 2009) to determine the level of power expected given the originally proposed sample size of 270 participants for the present study (i.e., the proposed sample size to be included in data analyses, excluding participants who endorsed having engaged in sexual assault perpetration behaviors at some point in the past, but not during the past 12 months). Power analyses were first conducted for the distal factors (i.e., general alcohol use, general alcohol expectancies, and general bar/party attendance) which included the total sample size of 270 participants. The results of these power analyses indicated power to be .38, assuming a conservative odds-ratio of 1.5; .62, assuming an odds-ratio of 1.75; and .80, assuming an odds-ratio of 2.0. As a point of reference, Censor's (2021) preliminary study evaluating the same distal factors as in the present study found odds-ratios between 1.184 –

2.162 for specific analyses. Further, as reported in the Results section below, odds-ratios for distal factors in the present study ranged between 1.064 – 2.133 for specific analyses. Additionally, as reported earlier in the Participants section, the present study sample ultimately comprised 275 participants, which is five more participants than originally expected.

A priori power analyses were also conducted for the proximal factors in the present study (i.e., proximal alcohol use, proximal alcohol expectancies, and proximal bar/party attendance). As the analyses for the proximal factors only included participants who reported engaging in some form of sexual assault perpetration during the past 12 months, it was expected that 120 of the total originally proposed 270 participants would be eligible for data analyses involving the proximal factors. The results of the power analyses for the chi-square goodness-of-fit tests for proximal hypotheses consisting of two categories (i.e., hypotheses 1c, 2c, 2d, 2e, and 3b) indicated power to be .19, assuming Cohen's w = .10; .59, assuming Cohen's w = .20; and .91, assuming Cohen's w = .30.

Additionally, an *a priori* power analysis was conducted for the planned chi square goodness-of-fit test for the proximal hypothesis consisting of three categories (i.e., hypothesis 1d), assuming the observed proportion for one group would be at least .49 with the rest equally distributed across the other two groups. This assumption was based on Censor's (2021) finding with a similar analysis, in which 52% of sexual assaults involved alcohol use by both the perpetrator and the victim. The results of this power analysis indicated power to be > .99 and Cohen's w = .55.

Of note, as reported earlier in the Participants section, the present study sample ultimately comprised 148 participants who endorsed engaging in some form of sexual assault perpetration behavior during the past 12 months (either contact/coercion or rape perpetration). Thus, 28 more

participants than originally expected were eligible to be included in data analyses involving the proximal factors.

Data Inspection

As indicated earlier, participants were categorized into one of three groups (non-perpetrators, contact/coercion perpetrators, or rape perpetrators) based on their responses to the Sexual Assault Perpetration Questionnaire. Only data from participants who provided sufficient responses on the Sexual Assault Perpetration Questionnaire to determine their categorization into one of these three groups were included in data analyses. Specifically, participants who did not endorse any item on the Sexual Assault Perpetration Questionnaire and selected the "*Prefer not to answer*" response option on one or more items of the Sexual Assault Perpetration Questionnaire, were excluded from data analyses, as it is unknown if these participants are non-perpetrators or perpetrators who chose not to report their perpetration. Twenty-two participants did not provide sufficient information to identify their categorization into one of these three groups and were thus excluded from data analyses. Additionally, as noted earlier, 60 participants who endorsed engaging in one or more sexual assault perpetration behaviors prior to 12 months ago and did not endorse engaging in any sexual assault perpetration behaviors during the past 12 months across all three sexual assault scales, were also excluded from data analyses.

Questionnaires that involved calculation of a total scale or subscale score (i.e., the Problems Related to Alcohol subscale of the SAQ, the Expectancy Questionnaire, the Social Facilitation and the Sexual Enhancement subscales of the Expectancy Questionnaire, the Buss-Perry Aggression Questionnaire, and the Marlow-Crowne Social Desirability Scale), required responses to at least 75 percent of items on that questionnaire. Data from participants who did not respond to at least 75 percent of items on these questionnaires, were excluded from data

analyses involving that questionnaire. As such, one participant was excluded from data analysis with the Problems Related to Alcohol subscale of the SAQ (75% of items = 14/18 items); three participants were excluded from data analysis with the full Expectancy Questionnaire (75% of items = 26/34 items); two participants were excluded from data analysis with the Social Facilitation subscale of the Expectancy Questionnaire (75% of items = 5/6 items); two participants were excluded from data analysis with the Sexual Enhancement subscale of the Expectancy Questionnaire (75% of items = 3/4 items); two participants were excluded from data analysis with the Buss-Perry Aggression Questionnaire (75% of items = 22/29 items); and three participants were excluded from data analysis with the Marlow-Crowne Social Desirability Scale (75% of items = 25/33 items).

The results of the Marlow-Crowne Social Desirability Scale (MCSDS; Crowne & Marlowe, 1960) indicated that not a single participant endorsed more than 30 of the 33 scale items; 95% of participants did not endorse more than 23 of the 33 scale items; 75% of participants did not endorse more than 18 of the 33 scale items; and about 59% of participants did not endorse more than 16 of the 33 scale items (i.e., about half of the total scale). These data suggest that despite the fact that the present study survey asked questions about various types of behaviors, beliefs, and experiences that are potentially socially unacceptable, immoral, unethical, or criminal, there is no significant indication that participants were seeking to present themselves in a socially desirable manner. Thus, participants' responses to the survey questions are likely to be valid and reflective of participants' experiences.

Statistical significance for all analyses were determined by setting $\alpha = 0.05$. Statistical analyses were conducted with IBM SPSS Statistics software (Version 29).

RESULTS

Data Analytic Strategy

Data analyses and results were divided into three main categories. The first category, presented in the Preliminary Analyses section below, describes some of the important features of the variables investigated in the present study, including general alcohol use, general alcohol expectancies, general bar/party attendance, and sexual assault perpetration. The purpose of the analyses in this section was to characterize the sample as a whole relative to these variables. The second category of data analyses and results is presented in the Primary Analyses section below and describes the analyses and results of the specific hypotheses investigated in the present study, namely, the association between the various distal and proximal alcohol-related factors included in the present study and sexual assault perpetration during the past 12 months.

The third category of data analyses and results is presented in the Secondary Analyses section below and reports on the analyses conducted with additional factors that are closely related to the primary factors investigated in the present study, including general aggression and general psychotropic substance use (besides alcohol). The purpose of these analyses was to evaluate the association between alcohol use and other forms of aggression besides sexual aggression, to evaluate the association between general aggression and sexual assault perpetration, and to evaluate the association between general psychotropic substance use other than alcohol and sexual assault perpetration.

Preliminary Analyses

General Alcohol Use

The median frequency of alcohol use during the past 12 months for the full sample (N = 274) was 2-3 times a month. Specifically, 15% of participants (n = 41) reported not consuming

any alcohol; 14.6% (*n* = 40) reported consuming alcohol several times, but less than once a month; 8.4% (*n* = 23) reported consuming alcohol about once a month; 17.2% (*n* = 47) reported consuming alcohol 2-3 times a month; 9.8% (*n* = 27) reported consuming alcohol once a week; 16% (*n* = 44) twice a week; 13.5% (*n* = 37) 3-6 times a week; and 5.5% (*n* = 15) reported drinking alcohol daily or almost daily.

Of the participants who reported consuming alcohol in the past 12 months, the median quantity of standard drinks of alcohol typically consumed while drinking during the past 12 months (*N* = 230) was 3-4 standard drinks. Specifically, 26.5% of participants (*n* = 61) reported consuming 1-2 drinks; 27% (*n* = 62) reported consuming 3-4 drinks; 23.9% (*n* = 55) reported consuming 5-6 drinks; 14.8% (*n* = 34) reported consuming 7-9 drinks; and 7.8% (*n* = 18) reported typically consuming 10 or more standard drinks of alcohol when drinking.

Additionally, of the participants who reported consuming alcohol in the past 12 months, the median frequency of consuming six or more drinks on one occasion during the past 12 months (*N* = 233) was less than monthly. Specifically, 19% (*n* = 44) of participants indicated that they never consumed six or more standard drinks of alcohol on one occasion during the past 12 months; 40.3% (*n* = 94) reported consuming six or more drinks on one occasion less than monthly; 23.6% (*n* = 55) reported doing so monthly; 16.7% (*n* = 39) reported doing so weekly; and 0.4% (*n* = 1) reported doing so daily or almost daily.

Bivariate Pearson correlation analyses showed a large positive correlation between frequency of alcohol use and the quantity of standard drinks of alcohol typically consumed while drinking during the past 12 months, $r(269) = .59$, $p < .001$. Additionally, a large positive correlation was found between frequency of alcohol use and frequency of consuming six or more drinks on one occasion during the past 12 months, $r(271) = .65$, $p < .001$. Finally, a large positive

correlation was found between the quantity of standard drinks of alcohol typically consumed while drinking and the frequency of consuming six or more drinks on one occasion during the past 12 months, $r(268) = .64$, $p < .001$.

Functional Impact of Alcohol Use. Among participants who reported consuming alcohol during the past 12 months ($N = 232$), the level of functional impact of alcohol use, as assessed with the Problems Related to Alcohol subscale from the Student Alcohol Questionnaire (SAQ; Engs, 1975), ranged from 0-52, with a mean of 7.48 and median of 5. The results of bivariate Pearson correlation analyses indicated a medium positive correlation between the frequency of alcohol use and the level of functional impact of alcohol use during the past 12 months, $r(230) = .39$, $p < .001$. Additionally, results indicated a medium positive correlation between the quantity of standard drinks of alcohol typically consumed while drinking and the level of functional impact of alcohol use during the past 12 months, $r(228) = .33$, $p < .001$. Finally, results indicated a medium to large positive correlation between the frequency of consuming six or more drinks on one occasion and the level of functional impact of alcohol use during the past 12 months, $r(230) = .49$, $p < .001$.

General Alcohol Expectancies

The mean number of total alcohol expectancies endorsed for the full sample ($N = 272$) was 19.96 out of the 34 alcohol expectancies assessed. Bivariate Pearson correlation analyses indicated a small positive correlation between the level of endorsement of all the alcohol expectancies assessed and the frequency of alcohol use during the past 12 months, $r(270) = .18$, $p < .01$. Additionally, results indicated a small positive correlation between the level of endorsement of all the alcohol expectancies assessed and the quantity of standard drinks of alcohol typically consumed while drinking during the past 12 months, $r(267) = .17$, $p < .01$.

Finally, results showed a small positive correlation between the level of endorsement of all the alcohol expectancies assessed and the frequency of consuming six or more standard drinks of alcohol on one occasion during the past 12 months, $r(269) = .28$, $p < .001$.

Of the six alcohol expectancies related to social facilitation, the mean number of expectancies endorsed for the full sample ($N = 273$) was 5.07. Specifically, 4% of participants ($n = 11$) did not endorse any of these six expectancies; 1.8% ($n = 5$) endorsed only one of the six expectancies; 4.4% ($n = 12$) endorsed two of the six expectancies; 3.3% ($n = 9$) endorsed three of the six expectancies; 5.5% ($n = 15$) endorsed four of the six expectancies; 21.6% ($n = 59$) endorsed five of the six expectancies; and 59.4% ($n = 162$) endorsed all of the six expectancies related to social facilitation. Furthermore, 10.6% of participants ($n = 29$) indicated that one of the six alcohol expectancies related to social facilitation was either very likely or certain to happen to them; 11% ($n = 30$) indicated that two of the six expectancies were either very likely or certain to happen to them; 11.7% ($n = 32$) indicated that three of the six expectancies were either very likely or certain to happen to them; 11% ($n = 30$) indicated that four of the six expectancies were either very likely or certain to happen to them; 14.7% ($n = 40$) indicated that five of the six expectancies were either very likely or certain to happen to them; and 13.2% ($n = 36$) indicated that all of the six alcohol expectancies related to social facilitation were either very likely or certain to happen to them.

Additionally, of the four alcohol expectancies related to sexual enhancement, the mean number of expectancies endorsed for the full sample ($N = 273$) was 2.13. Specifically, 32.2% of participants ($n = 88$) did not endorse any of these four expectancies; 8.4% ($n = 23$) endorsed only one of the four expectancies; 10.3% ($n = 28$) endorsed two of the four expectancies; 12.5% ($n = 34$) endorsed three of the four expectancies; and 36.6% ($n = 100$) endorsed all four expectancies

related to sexual enhancement. Furthermore, 12.1% of participants (n = 33) indicated that one of the four alcohol expectancies related to sexual enhancement was either very likely or certain to happen to them; 7.7% (n = 21) indicated that two of the four expectancies were either very likely or certain to happen to them; 8.4% (n = 23) indicated that three of the four expectancies were either very likely or certain to happen to them; and 5.1% (n = 14) indicated that all of the four alcohol expectancies related to sexual enhancement were either very likely or certain to happen to them.

General Bar/Party Attendance

The median frequency of attending a bar, party, club, or large social gathering during the past 12 months for the full sample (N = 275) was 2-3 times a month. Specifically, close to 6.5% of participants (n = 18) reported not attending a bar, party, club, or large social gathering at all during the past 12 months; 23.3% (n = 64) reported attending at least one of these venues several times during the past 12 months, but less than once a month; 17.1% (n = 47) reported attending at least one of these venues about once a month during the past 12 months; 21.1% (n = 58) reported attending at least one of these venues 2-3 times a month; 17.8% (n = 49) reported attending at least one of these venues once a week; 9.8% (n = 27) reported attending at least one of these venues twice a week; 4% (n = 11) reported attending at least one of these venues 3-6 times per week; and 0.4% (n = 1) reported attending at least one of these venues daily or almost daily.

Bivariate Pearson correlation analyses indicated a large positive correlation between frequency of bar/party attendance and frequency of alcohol use during the past 12 months, $r(272) = .51$, $p < .001$. Additionally, results indicated a medium positive correlation between frequency of bar/party attendance and the quantity of standard drinks of alcohol typically consumed while

drinking during the past 12 months, $r(269) = .47$, $p < .001$. Finally, results indicated a large positive correlation between frequency of bar/party attendance and frequency of consuming six or more standard drinks of alcohol on one occasion during the past 12 months, $r(271) = .52$, $p < .001$.

Sexual Assault Perpetration

As noted in the Method section above, the 275 participants who were included in data analyses in the present study were categorized into one of three groups (i.e., no perpetration, contact/coercion perpetration, and rape perpetration), based on their responses to the Sexual Assault Perpetration Questionnaire (see Figure 1). Accordingly, the non-perpetrator group comprised 127 participants (46.18%) who did not endorse engaging in any sexual assault perpetration behavior in the past. The other 148 participants (53.82%) who endorsed engaging in at least one sexual assault perpetration behavior during the past 12 months, were categorized as sexual assault perpetrators and were divided into two groups (i.e., contact/coercion perpetration and rape perpetration) based on the most severe sexual assault perpetration behavior they endorsed.

The contact/coercion perpetrator group comprised 104 participants (37.82%) whose most severe sexual assault perpetration behavior endorsed was engagement at least once during the past 12 months in either nonconsensual sexual contact, attempted sexual penetration, or actual sexual penetration using verbal coercion, their older age or authority, or other enticement strategies. The rape perpetrator group comprised 44 participants (16%) who endorsed engaging at least once during the past 12 months in either attempted sexual penetration or actual sexual penetration using physical force, threatening to use physical force, or while the victim was intoxicated or incapacitated. The 60 participants who only endorsed items on the Sexual Assault

Perpetration Questionnaire during the time frame prior to 12 months ago (49 participants endorsed an item considered contact/coercion perpetration prior to 12 months ago and 11 participants endorsed an item considered rape perpetration prior to 12 months ago), were not included in data analyses in the present study.

Additionally, as described earlier, participants who endorsed engaging in at least one sexual assault perpetration behavior during the past 12 months were presented with the Event-Related Follow-Up Questionnaire to obtain detailed information about one specific sexual assault perpetration event they endorsed. As described in the Procedure section above, the selected event was based on the number of events endorsed (one versus more than one event), the sexual assault perpetration scale endorsed (SES-SFP, CTS2-SC, or SSS), and the severity of the sexual assault perpetration event endorsed. Further, as noted above, each of the three sexual assault perpetration scales used in the present study categorizes the severity of sexual assault perpetration items in a slightly different way. The frequencies of the different sexual assault perpetration categories endorsed across the three sexual assault perpetration scales and their respective severity levels are presented in Table 2.

Fifty-four percent of participants (n = 80) classified as perpetrators across the two perpetrator groups (N = 148) did not endorse any item on the SES-SFP but did endorse an item on the CTS2-SC or the SSS. An additional 25.7% of participants (n = 38) classified as perpetrators across the two perpetrator groups did not endorse any item on the SES-SFP or the CTS2-SC but did endorse an item on the SSS. However, within the rape perpetration group (N = 44), 72.7% of participants (n = 32) were categorized based on their responses to the SES-SFP, 9.1% (n = 4) were categorized based on their responses to the CTS2-SC, and 18.2% (n = 8) were categorized based on their responses on the SSS. Of note, 98.1% of participants (n = 262) in the

full sample (N = 267) responded “no” to the question on the SES-SFP, “Do you think you may have ever raped someone?” Further, even in the rape perpetrator group (N = 41), 95.1% of participants (n = 39) responded “no” to this question.

Among participants who endorsed perpetrating a sexual assault behavior during the past 12 months (N = 138), 91% (n = 125) identified the gender of the person to whom this experience was done as a woman/female, and 9% (n = 13) identified the gender of the person to whom this experience was done as a man/male. There was no significant difference in the gender of the victim between the two perpetration groups (i.e., contact/coercion perpetration and rape perpetration), χ^2 (1, N = 138) = 0.44, p = .509.

Additionally, with regard to the relationship between the perpetrator and the victim, 37% (n = 51) identified the person to whom this experience was done as a dating partner, including a first date; 29.7% (n = 41) identified them as a long-term partner; 10.4% (n = 14) identified them as a casual acquaintance; 7.9% (n = 11) identified them as a fellow student; 6.5% (n = 9) identified them as a non-romantic friend; 5% (n = 7) identified them as a stranger; 1.4% (n = 2) identified them as a family friend; 0.7% (n = 1) identified them as their friend’s girlfriend; 0.7% (n = 1) indicated it was their neighbor; and 0.7% (n = 1) reported the event occurred with their spouse. The percentage of the varying types of relationships between the perpetrator and victim across the two perpetrator groups is presented in Figure 3.

Of note, in the contact/coercion perpetration group (N = 94), 78% of respondents (n = 73) reported an existing romantic relationship between the perpetrator and the victim (i.e., the victim was a dating partner, long-term partner, or spouse), whereas in the rape perpetration group (N = 44), only 45% (n = 20) of respondents reported an existing romantic relationship between the perpetrator and the victim. A 2x2 chi-square analysis showed a significant difference in the type

of relationship between the perpetrator and victim (i.e., an existing romantic relationship between the perpetrator and the victim or not) across the two perpetration groups (i.e., contact/coercion perpetration and rape perpetration), χ^2 (1, N = 138) = 14.15, $p < .001$.

Primary Analyses

Distal Factors

A series of five separate univariate multinomial logistic regression analyses were first conducted to assess whether each of the distal factors significantly predicted sexual assault perpetration during the past 12 months. The independent variables were all continuous and included (1) general frequency of alcohol use (hypothesis 1a); (2) general heavy episodic drinking (i.e., quantity of standard drinks of alcohol typically consumed while drinking; hypothesis 1b); (3) general alcohol expectancies related to social facilitation (hypothesis 2a); (4) general alcohol expectancies related to sexual enhancement (hypothesis 2b); and (5) general frequency of bar/party attendance (hypothesis 3a). The dependent categorical variable for each of these analyses was perpetration category (no perpetration, contact/coercion perpetration during the past 12 months, and rape perpetration during the past 12 months). The no perpetration group was used as the reference category for all of these analyses.

Regression results supported the hypotheses and indicated that general frequent alcohol use during the past 12 months [-2 Log Likelihood = 65.75, χ^2 (2, N = 274) = 49.30, $p < .001$, Nagelkerke R^2 = .19], general heavy episodic drinking during the past 12 months [-2 Log Likelihood = 55.45, χ^2 (2, N = 271) = 41.69, $p < .001$, Nagelkerke R^2 = .16], general alcohol expectancies related to social facilitation [-2 Log Likelihood = 132.24, χ^2 (2, N = 270) = 18.02, $p < .001$, Nagelkerke R^2 = .07], general alcohol expectancies related to sexual enhancement [-2 Log Likelihood = 120.07, χ^2 (2, N = 271) = 77.81, $p < .001$, Nagelkerke R^2 = .29], and general

frequency of bar/party attendance during the past 12 months [-2 Log Likelihood = 125.04, χ^2 (2, N = 275) = 82.14, $p < .001$, Nagelkerke $R^2 = .30$], were each individually statistically reliable in distinguishing between perpetrating sexual assault during the past 12 months or not, including both levels of perpetration (i.e., contact/coercion perpetration and rape perpetration). Regression coefficients for each of these analyses are presented in Table 3. In all cases, higher endorsement of the predictor variable was associated with a small to modest increased likelihood of also reporting engaging in sexual assault perpetration during the past 12 months, with odds ratios ranging between 1.07 – 2.13 for specific comparisons.

Following the univariate multinomial logistic regression analyses, a forward entry stepwise multinomial logistic regression analysis was conducted to determine which of the above five independent factors (i.e., general frequent alcohol use, general heavy episodic drinking, general alcohol expectancies related to social facilitation, general alcohol expectancies related to sexual enhancement, and general bar/party attendance) could reliably and uniquely predict whether someone perpetrated sexual assault during the past 12 months. All of the aforementioned continuous factors were entered as independent variables. The dependent categorical variable was perpetration category (no perpetration, contact/coercion perpetration, rape perpetration). The no perpetration group was used as the reference category for this multivariate analysis.

The results indicated that only three of the predictor factors were significant to be included in the final model. In order of statistical significance, these were general alcohol expectancies related to sexual enhancement [χ^2 (2, N = 265) = 40.07, $p < .001$], general bar/party attendance [χ^2 (2, N = 265) = 22.33, $p < .001$], and general frequent alcohol use [χ^2 (2, N = 265) = 9.53, $p < .01$]. The overall model consisting of these three variables was statistically

significant, -2 Log Likelihood = 408.22, χ^2 (6, N = 265) = 128.22, p < .001, Nagelkerke R^2 = .44. The model was able to correctly classify 63.4% of cases. Regression coefficients for each level of sexual assault perpetration (i.e., contact/coercion perpetration and rape perpetration) for all three predictor factors included in the model are presented in Table 4. Odds ratios ranged from 1.12 – 1.42 for specific comparisons, with higher odds ratios across all three distal factors with regard to rape perpetration compared to contact/coercion perpetration. Of note, while general frequent alcohol use showed slightly higher odds ratios compared to general sexual enhancement alcohol expectancies, this appears to be due to greater variability in the former compared to the latter, as shown in Table 4.

Proximal Factors

As described earlier, proximal factors were only relevant to participants who endorsed engaging in at least one instance of sexual assault perpetration during the past 12 months. Two chi-square analyses were conducted for each of the proximal factors assessed in the present study. The first was a chi-square goodness-of-fit analysis conducted with all of the participants who endorsed an instance of perpetration during the past 12 months (i.e., the combination of both contact/coercion perpetration and rape perpetration) to determine whether reported incidents of any type of sexual assault perpetration were more likely than not to involve the specific proximal factor. The second analysis was a 2x2 chi-square analysis which assessed whether the given proximal factor varied across the two perpetrator groups (i.e., contact/coercion perpetration and rape perpetration).

Proximal Alcohol Use.

Proximal Perpetrator Alcohol Use. A chi-square goodness-of-fit analysis was conducted to determine whether reported incidents of sexual assault perpetration were more likely than not

to involve alcohol use by the perpetrator at the time of the assault (i.e., hypothesis 1c). The results are presented in the top three rows in Table 5 and indicate that contrary to the hypothesis, incidents of perpetration were not significantly more likely than not to involve alcohol use by the perpetrator either immediately before or during the sexual assault event, χ^2 (1, N = 147) = 3.00, p = .083. Similarly, incidents of perpetration were not significantly more likely to involve alcohol use by the perpetrator even when considering alcohol use either immediately before, during, or immediately after the sexual assault event, χ^2 (1, N = 147) = 0.82, p = .364. Moreover, when only considering alcohol use by the perpetrator immediately before the sexual assault event, significantly less than 50% of sexual assault events involved alcohol use by the perpetrator prior to the sexual assault event, χ^2 (1, N = 147) = 4.96, p < .05.

Follow-up 2x2 chi-square analyses were conducted to assess whether alcohol use by the perpetrator at the time of the sexual assault event (i.e., proximal alcohol use by the perpetrator) varied across the two perpetrator groups (i.e., contact/coercion perpetration and rape perpetration). The results are presented in the top three panels of Table 6 and indicate a significant difference between the two perpetrator groups. Specifically, the rape perpetrator group was significantly more likely to have used alcohol immediately before or during the sexual assault event (75%) compared to the contact/coercion perpetrator group (29%), χ^2 (1, N = 147) = 26.49, p < .001. This result is depicted graphically in Figure 4. Similar results were found when considering alcohol use by the perpetrator only immediately before the sexual assault event, χ^2 (1, N = 147) = 30.38, p < .001, and when considering alcohol use by the perpetrator either immediately before, during, or immediately after the sexual assault event, χ^2 (1, N = 147) = 24.30, p < .001.

Additionally, among participants who reported using alcohol either immediately before,

during, or immediately after the sexual assault event, a chi-square goodness-of-fit analysis showed that significantly more participants reported believing they were intoxicated or drunk at the time of the sexual assault event, χ^2 (2, N = 68) = 26.15, p < .001. These results are presented in the bottom row of Table 5. Further, as shown in the bottom panel of Table 6, a 2x3 chi-square analysis indicated that although this was the case across both perpetrator groups, χ^2 (2, N = 68) = 13.00, p < .01, it was markedly pronounced in the rape perpetration group, where 82% of participants reported they were intoxicated or drunk (compared to 41% in the contact/coercion perpetration group), 15% reported maybe being intoxicated or drunk (compared to 35% in the contact/coercion perpetration group), and only 3% reported they were not intoxicated or drunk at the time of the sexual assault event (compared to 24% in the contact/coercion perpetration group).

An independent-samples median test with Yates's continuity correction was conducted to assess whether there was a difference between the two perpetrator groups (i.e., contact/coercion perpetration and rape perpetration) with regard to the amount of alcohol consumed when participants endorsed alcohol use during the sexual assault event. The results indicated that the grand median of proximal alcohol use by the perpetrator was 5 or 6 standard drinks. No significant difference in the amount of proximal alcohol use by the perpetrator was observed between the two groups, χ^2 (1, N = 67) = 0.41, p = .522.

Proximal Victim Alcohol Use. Similar analyses were conducted to determine whether reported incidents of sexual assault perpetration were more likely than not to involve alcohol use by the victim at the time of the assault. Results of the chi-square goodness-of-fit analyses with the whole perpetrator group (i.e., combined contact/coercion perpetration and rape perpetration) are presented in the top three rows in Table 7. These results were mostly similar to the results of

proximal alcohol use by the perpetrator described above, and indicate that based on perpetrators' reports, incidents of perpetration were not significantly more likely than not to involve alcohol use by the victim immediately before the sexual assault event [χ^2 (1, N = 143) = 2.02, p = .155], either immediately before or during the sexual assault event [χ^2 (1, N = 143) = 0.57, p = .452], and even when considering victim alcohol use either immediately before, during, or immediately after the sexual assault event [χ^2 (1, N = 143) = 0.01, p = .933].

The results of follow-up 2x2 chi-square analyses assessing whether alcohol use by the victim at the time of the sexual assault event (i.e., proximal alcohol use by the victim) varied across the two perpetrator groups (i.e., contact/coercion perpetration and rape perpetration) showed a significant difference between the two perpetrator groups, similar to the results of proximal alcohol use by the perpetrator described above. These results are presented in the top three panels in Table 8 and indicate that events of rape perpetration were significantly more likely to involve alcohol use by the victim compared to events of contact/coercion perpetration. This was the case when assessing victims' alcohol use immediately before the sexual assault event [χ^2 (1, N = 143) = 17.97, p < .001], either immediately before or during the sexual assault event [χ^2 (1, N = 143) = 20.22, p < .001], and when considering victim alcohol use either immediately before, during, or immediately after the sexual assault event [χ^2 (1, N = 143) = 19.40, p < .001]. In each case, the percentage of proximal alcohol use by the victim was 70% or higher in the rape perpetration group compared to 37% or below in the contact/coercion perpetration group. The percentage of alcohol use and no alcohol use by the victim immediately before or during the sexual assault event across the two perpetrator groups is also presented graphically in Figure 5.

Additionally, among participants who reported victim alcohol use either immediately

before, during, or immediately after the sexual assault event, a chi-square goodness-of-fit analysis showed that significantly more participants reported believing that victims were or maybe were intoxicated or drunk at the time of the sexual assault event (relative to definitely not intoxicated or drunk), χ^2 (2, N = 71) = 13.38, $p < .01$. These results are presented in the bottom row of Table 7. Further, as shown in the bottom panel of Table 8, a 2x3 chi-square analysis indicated that this was the case across both perpetrator groups, χ^2 (2, N = 71) = 12.34, $p < .01$. However, whereas in events of contact/coercion perpetration, participants were most likely to believe that victims were possibly intoxicated or drunk at the time of the event, in events of rape perpetration, participants were most likely to believe with certainty that victims were intoxicated or drunk at the time of the event.

Proximal Alcohol Use by Perpetrator and Victim. In order to evaluate whether reported incidents of sexual assault perpetration were more likely to involve alcohol use by both the perpetrator and the victim compared to alcohol use by just one party, whether victim alone or perpetrator alone (hypothesis 1d), a chi-square goodness-of-fit analysis was conducted with participants who reported alcohol use by either the perpetrator or the victim immediately before or during the sexual assault event looking at the pattern of alcohol use across the three possible scenarios (i.e., alcohol use by both the perpetrator and the victim, alcohol use by the perpetrator alone, and alcohol use by the victim alone). The results were statistically significant, χ^2 (2, N = 72) = 72.58, $p < .001$, thus supporting the hypothesis. Specifically, 81% (n = 58) of sexual assaults involved alcohol use by both the perpetrator and the victim and only 19% (n = 14) of sexual assaults involved alcohol use by just one party (7% consisted of perpetrator only proximal alcohol use and 12% consisted of victim only proximal alcohol use).

A 2x3 chi-square analysis was then conducted across the two perpetrator groups (i.e.,

contact/coercion perpetration and rape perpetration) to assess whether this pattern differed across the two perpetrator groups. The results indicated that across both perpetrator groups, incidents of sexual assault perpetration were significantly more likely to involve alcohol use by both the perpetrator and the victim compared to alcohol use by one party alone, χ^2 (2, N = 72) = 14.706, $p < .001$. However, this was especially the case in the rape perpetration group where 100% of assaults (n = 33) involved alcohol use by both the perpetrator and the victim, whereas in the contact/coercion perpetration group (n = 39), 64% of assaults (n = 25) involved alcohol use by both the perpetrator and the victim. The percentage of the three different combinations of alcohol use by the perpetrator and the victim immediately before or during the sexual assault event across the two perpetrator groups is also presented in Figure 6.

Perpetrator Involvement in Victim Proximal Alcohol Use. Notably, among participants who reported victim alcohol use immediately before, during, or immediately after the sexual assault event, or among participants who reported believing that the victim was or maybe was intoxicated or drunk at the time of the sexual assault event, a chi-square goodness-of-fit analysis indicated that 46% (n = 24) reported that they served the alcohol to the victim with the intent to incapacitate them; an additional 37% (n = 19) reported that they served the alcohol to the victim, but without the intent to incapacitate them; and only 17% (n = 9) reported that they did not serve the alcohol to the victim but they took advantage of the victim's self-entered state of intoxication, χ^2 (2, N = 52) = 6.73, $p < .05$.

A follow-up 2x3 chi-square analysis assessing whether this pattern differed across the two types of sexual assault perpetration (i.e., contact/coercion perpetration and rape perpetration) was significant, χ^2 (2, N = 52) = 12.63, $p < .01$, and showed that these results were especially noteworthy in the rape perpetration group (N = 31), where 61% (n = 19) reported that they

served the alcohol to the victim with the intent to incapacitate them, 36% (*n* = 11) reported that they served the alcohol to the victim but without the intent to incapacitate them, and only 3% (*n* = 1) reported that they did not serve the alcohol to the victim but they took advantage of the victim's self-entered state of intoxication. By contrast, in the contact/coercion perpetration group (*N* = 21), 24% (*n* = 5) reported that they served the alcohol to the victim with the intent to incapacitate them, 38% (*n* = 8) reported that they served the alcohol to the victim but without the intent to incapacitate them, and 38% (*n* = 8) reported that they did not serve the alcohol to the victim but they took advantage of the victim's self-entered state of intoxication. These results are presented in Figure 7.

Proximal Alcohol Expectancies. Analyses were conducted to assess whether participants who reported using alcohol around the time of the sexual assault event (i.e., before, during, or immediately after the sexual assault event) also reported that they used the alcohol at the time with specific alcohol expectancies in mind, as described below. Additionally, analyses were conducted to assess whether participants who reported alcohol use by the victim around the time of the sexual assault event (i.e., before, during, or immediately after the sexual assault event) also endorsed beliefs and expectancies about victims' openness, responsiveness, or consent to sexual advances or sexual behavior when victims are consuming alcohol.

It should be noted that these analyses included only a small number of participants, as the proximal alcohol expectancies questions were only presented to participants who endorsed engaging in at least one sexual assault perpetration behavior during the past 12 months and they also reported that they or the victim used alcohol before, during, or immediately after the sexual assault event. Additionally, as noted earlier, only participants who were recruited during Phase 2 of the present study were presented with the proximal alcohol expectancies questions. As such,

these results are primarily exploratory.

Proximal Social Facilitation Alcohol Expectancies. A chi-square goodness-of-fit analysis was conducted to assess whether participants who reported using alcohol at the time of the sexual assault event (i.e., before, during, or immediately after the sexual assault event) also endorsed using the alcohol for purposes of social facilitation (i.e., proximal social facilitation alcohol expectancies; hypothesis 2c). The results are presented in the top row of Table 9 and indicate that while the trend was in the direction of participants endorsing using the alcohol for purposes of social facilitation, the difference between the observed distribution and the expected distribution did not reach statistical significance, χ^2 (1, N = 13) = 3.77, p = .052. This is likely due to the small sample size included in this analysis, as stated above.

A follow-up 2x2 chi-square analysis was conducted to assess whether proximal social facilitation alcohol expectancies varied across the two perpetrator groups (i.e., contact/coercion perpetration and rape perpetration). The results are presented in the top row of Table 10 and indicate that whereas only a slightly higher percentage of participants in the contact/coercion perpetration group endorsed proximal social facilitation expectancies (57%, n = 4) than not (43%, n = 3), in the rape perpetration group, 100% (n = 6) of participants endorsed proximal social facilitation expectancies. However, the result did not reach statistical significance, χ^2 (1, N = 13) = 3.34, p = .067, which is likely due to the small sample size included in this analysis, as stated above. The percentage of endorsement of proximal social facilitation alcohol expectancies across the two perpetrator groups is also depicted graphically in Figure 8.

Of note, among the 10 participants who endorsed proximal social facilitation alcohol expectancies, nine participants also endorsed five or six of the total six general, distal social facilitation alcohol expectancies. Only one of the participants who endorsed proximal social

facilitation alcohol expectancies did not endorse any on the general, distal social facilitation alcohol expectancies. Furthermore, all three participants who denied any proximal social facilitation alcohol expectancies did endorse two or more of the six general, distal social facilitation alcohol expectancies. These results suggest that endorsement of general, distal alcohol expectancies does not necessarily mean that these expectancies are present proximally to alcohol use.

Proximal Sexual Enhancement Alcohol Expectancies. A chi-square goodness-of-fit analysis was conducted to assess whether participants who reported using alcohol at the time of the sexual assault event (i.e., before, during, or immediately after the sexual assault event) also endorsed using the alcohol for purposes of sexual enhancement (i.e., proximal sexual enhancement alcohol expectancies; hypothesis 2d). The results are presented in the second row of Table 9 and indicate that contrary to the hypothesis, participants were not more likely to endorse using the alcohol for purposes of sexual enhancement, χ^2 (1, N = 13) = 0.69, p = .405. Furthermore, the trend appears to suggest that participants were more likely not to endorse using alcohol for purposes of sexual enhancement by 62% to 38%. A follow-up 2x2 chi-square analysis assessing whether proximal sexual enhancement alcohol expectancies varied across the two perpetrator groups (i.e., contact/coercion perpetration and rape perpetration) indicated no significant difference between the two perpetrator groups, χ^2 (1, N = 13) = 0.12, p = .725. These results are presented in the second row of Table 10 and are depicted graphically in Figure 9.

Of note, among the five participants who endorsed using alcohol at the time of the sexual assault event for purposes of sexual enhancement (i.e., endorsement of proximal sexual enhancement alcohol expectancies), three participants also endorsed all four of the general, distal sexual enhancement alcohol expectancies. One of the participants who endorsed proximal sexual

enhancement alcohol expectancies endorsed one of the four general, distal sexual enhancement alcohol expectancies, and one did not endorse any of the general, distal sexual enhancement alcohol expectancies. Furthermore, of the eight participants who denied any proximal sexual enhancement alcohol expectancies, seven did endorse three or four of the total four general, distal sexual enhancement alcohol expectancies (one did not endorse any of the general, distal sexual enhancement alcohol expectancies). These results further suggest that endorsement of general, distal alcohol expectancies does not necessarily mean that these expectancies are acted on proximal to alcohol use.

Sex-Related Expectancies About Victim Alcohol Use. A chi-square goodness-of-fit analysis was conducted to evaluate whether individuals who perpetrate sexual assault and report victim alcohol use during the sexual assault (i.e., before, during, or immediately after the sexual assault event) also endorse beliefs and expectancies about victims' openness, responsiveness, or consent to sexual advances or sexual behavior when victims are consuming alcohol (i.e., hypothesis 2e). The results are presented in the bottom row of Table 9 and indicate that contrary to the hypothesis, participants were not more likely to endorse believing or expecting that victims' alcohol use suggested they were more open, responsive, or indicating consent to sexual advances or sexual behavior, χ^2 (1, N = 17) = 0.59, p = .808. However, the results did show that 47% of participants (n = 8) did endorse such beliefs or expectations.

A follow-up 2x2 chi-square analysis assessing whether proximal sex-related expectancies of victim alcohol use varied across the two perpetrator groups (i.e., contact/coercion perpetration and rape perpetration) indicated no significant difference between the two perpetrator groups, χ^2 (1, N = 17) = 0.03, p = .858. These results are presented in the bottom row of Table 10 and are depicted graphically in Figure 10.

Proximal Bar/Party Attendance. A chi-square goodness-of-fit analysis was conducted to determine whether reported incidents of sexual assault perpetration were more likely than not to have taken place at, or immediately after leaving, a bar, party, club, or large social gathering (i.e., proximal bar/party attendance; hypothesis 3b). The results are presented in Table 11 and indicate that contrary to the hypothesis, incidents of sexual assault perpetration were actually significantly less likely to have taken place at [χ^2 (1, N = 146) = 18.52, p < .001] or immediately after leaving [χ^2 (1, N = 146) = 24.66, p < .001] a bar, party, club, or large social gathering. Furthermore, even when assessing incidents of perpetration taking place at or immediately after leaving one of these contexts in combination, results indicated that incidents of sexual assault perpetration were not significantly more likely to occur at or immediately after leaving one of these contexts, χ^2 (1, N = 146) = 0.99, p = .321.

Follow-up 2x2 chi-square analyses were conducted to assess whether proximal bar/party attendance varied across the two perpetrator groups (i.e., contact/coercion perpetration and rape perpetration). The results are presented in Table 12 and suggest a significant difference between the two groups, χ^2 (1, N = 146) = 12.66, p < .001, where incidents of sexual assault perpetration in the contact/coercion perpetration group were less likely to have taken place at a bar, party, etc. (with 77% of assaults not occurring at a bar, party, etc.), whereas in the rape perpetration group, incidents of perpetration were slightly more likely to have taken place at a bar, party, etc. (53% of assaults occurring at a bar, party, etc.). A similar significant difference between the two perpetrator groups was found when assessing incidents of perpetration taking place at or immediately after leaving a bar, party, club, or large social gathering in combination (bottom row in Table 12), χ^2 (1, N = 146) = 7.01, p < .01. This analysis indicated that whereas only 39% (n = 40) of contact/coercion perpetrations occurred at or immediately after leaving a bar, party, club,

or large social gathering, 63% (n = 27) of rape perpetrations occurred at or immediately after leaving one of these contexts. The percentage of sexual assault events occurring at or immediately after leaving a bar, party, club, or large social gathering (i.e., proximal bar/party attendance) across the two perpetrator groups is also presented in Figure 11.

Proximal Bar/Party Attendance and Proximal Alcohol Use. A 2x2 chi-square analysis was conducted to evaluate the relationship between incidents of perpetration taking place at or immediately after leaving a bar, party, club, or large social gathering (i.e., proximal bar/party attendance) and incidents involving alcohol use by the perpetrator either immediately before or during the sexual assault event (i.e., proximal perpetrator alcohol use). The results indicated a significant relationship between these two variables, χ^2 (1, N = 145) = 32.21, p < .001, and are depicted graphically in Figure 12. Specifically, 32% of participants (n = 46) endorsed proximal bar/party attendance and proximal perpetrator alcohol use. However, only 14% of participants (n = 21) endorsed proximal bar/party attendance but denied proximal perpetrator alcohol use, and only 12% of participants (n = 17) denied proximal bar/party attendance but endorsed perpetrator proximal alcohol use. Forty-two percent of participants (n = 61) denied both proximal bar/party attendance and proximal perpetrator alcohol use.

A similar 2x2 chi-square analysis was conducted looking at incidents of perpetration taking place at or immediately after leaving a bar, party, club, or large social gathering (i.e., proximal bar/party attendance) and incidents involving alcohol use by the victim either immediately before or during the sexual assault event (i.e., proximal victim alcohol use). The results indicated a similar significant relationship between these two variables, χ^2 (1, N = 142) = 30.45, p < .001, and are depicted in Figure 13. Specifically, 34% of participants (n = 48) endorsed proximal bar/party attendance and proximal victim alcohol use. However, only 13% of

participants (n = 19) endorsed proximal bar/party attendance but denied proximal victim alcohol use, and another 13% of participants (n = 19) denied proximal bar/party attendance but endorsed proximal victim alcohol use. Forty percent of participants (n = 56) denied both proximal bar/party attendance and proximal victim alcohol use.

Secondary Analyses

General Aggression

General Aggression and Alcohol Use. The level of general aggressive tendencies for the full sample (N = 273), as assessed with the Buss-Perry Aggression Questionnaire (BPAQ; Buss & Perry, 1992), ranged from 31-124, with a mean of 74.78 and median of 7. Results of bivariate Pearson correlation analyses showed no significant correlation between the frequency of alcohol use during the past 12 months and participants' reported level of aggressive tendencies, $r(270) = .07$, $p = .238$. Additionally, results showed no significant correlation between the quantity of standard drinks of alcohol typically consumed while drinking during the past 12 months and participants' reported level of aggressive tendencies, $r(267) = .10$, $p = .118$. However, results showed a small positive correlation between the frequency of consuming six or more standard drinks of alcohol on one occasion during the past 12 months and participants' reported level of aggressive tendencies, $r(269) = .21$, $p < .001$.

General Aggression and Sexual Assault Perpetration. A univariate multinomial logistic regression analysis was conducted to assess whether general aggressive tendencies significantly predicted sexual assault perpetration during the past 12 months. The dependent categorical variable was perpetration category (no perpetration, contact/coercion perpetration during the past 12 months, and rape perpetration during the past 12 months). The no perpetration group was used as the reference category for this analysis.

Results indicated that general aggression was statistically reliable in distinguishing between perpetrating sexual assault during the past 12 months or not, including both levels of perpetration (i.e., contact/coercion perpetration and rape perpetration), -2 Log Likelihood = 280.10, χ^2 (2, N = 273) = 28.79, $p < .001$, Nagelkerke R^2 = .12. However, regression coefficients for the two levels of sexual assault perpetration (i.e., contact/coercion perpetration and rape perpetration) indicated that general aggression was only significantly predictive of rape perpetration during the past 12 months, B = .05, $p < .001$, Odds ratio = 1.05, but not of contact/coercion perpetration, B = .004, p = .605.

General Substance Use

The frequency of using various psychotropic substances (besides alcohol) during the past 12 months across the three groups in the present study (i.e., no perpetration, contact/coercion perpetration, and rape perpetration) is presented in Table 13. Notably, only unprescribed cannabis (e.g., marijuana, pot, grass, hash, etc.) had a median frequency of use several times during the past 12 months but less than once a month. All other substances assessed had a median of no use at all during the past 12 months.

With regard to unprescribed cannabis use during the past 12 months (N = 271), 37.6% of participants (n = 102) reported not using any cannabis; 18.1% (n = 49) reported using cannabis several times, but less than once a month; 4.4% (n = 12) reported using cannabis about once a month; 7% (n = 19) reported using cannabis 2-3 times a month; 5.5% (n = 15) reported using cannabis once a week; 4.8% (n = 13) twice a week; 8.9% (n = 24) 3-6 times a week; and 13.7% (n = 37) reported using cannabis daily or almost daily.

Additionally, only one other substance was used during the past 12 months by more than 20% of participants, namely hallucinogens (e.g., LSD, acid, mushrooms, PCP, Special K,

ecstasy, etc.). Specifically, 73.5% of participants (n = 200) reported not using any hallucinogens during the past 12 months; 13.2% (n = 36) reported using hallucinogens several times, but less than once a month; 6.3% (n = 17) reported using hallucinogens about once a month; 5.2% (n = 14) reported using hallucinogens 2-3 times a month; 1.1% (n = 3) reported using hallucinogens once a week; and 0.7% (n = 2) reported using hallucinogens twice a week.

For all other substances assessed (besides alcohol), more than 80% of participants reported not using the substance at all during the past 12 months. Specifically, 80.7% of participants (n = 222) reported never using unprescribed stimulants (e.g., Ritalin, Concerta, Dexedrine, Adderall, diet pills, etc.) during the past 12 months; 85.1% of participants (n = 234) reported never using cocaine (e.g., coke, crack, etc.) during the past 12 months; 86.2% of participants (n = 237) reported never using unprescribed sedatives or sleeping pills (e.g., Valium, Serepax, Ativan, Xanax, Librium, Rohypnol, GHB, etc.) during the past 12 months; 91.3% of participants (n = 251) reported never using methamphetamine (e.g., speed, crystal meth, ice, etc.) during the past 12 months; 92% of participants (n = 253) reported never using inhalants (e.g., nitrous oxide, glue, gas, paint thinner, etc.) during the past 12 months; and 95.3% of participants (n = 262) reported never using street opioids (e.g., heroin, opium, etc.) or unprescribed prescription opioids (e.g., fentanyl, oxycodone [OxyContin, Percocet], hydrocodone [Vicodin], methadone, buprenorphine, etc.) during the past 12 months.

General Substance Use and Alcohol Use. Bivariate Pearson correlation analyses were conducted to assess the relationship between frequency of alcohol use and frequency of using each of the other nine psychotropic substances assessed in the present study during the past 12 months. Results showed a significant medium positive correlation between frequency of alcohol use and both frequency of unprescribed cannabis use, $r(269) = .41$, $p < .001$, and frequency of

hallucinogen use, $r(269) = .31$, $p < .001$. Further, a bivariate Pearson correlation indicated a medium positive correlation between frequency of unprescribed cannabis use and frequency of hallucinogen use during the past 12 months, $r(268) = .38$, $p < .001$.

Additionally, results showed a significant small positive correlation between frequency of alcohol use and both frequency of unprescribed sedative use [$r(268) = .24$, $p < .001$] and frequency of unprescribed stimulant use [$r(268) = .19$, $p < .01$]. However, no significant correlation was found between frequency of alcohol use and frequency of using the other psychotropic substances assessed, including cocaine [$r(266) = .09$, $p = .142$], methamphetamines [$r(269) = .08$, $p = .189$], inhalants [$r(270) = .03$, $p = .601$], street opioids [$r(267) = -.01$, $p = .870$], and unprescribed prescription opioids [$r(268) = -.10$, $p = .098$].

General Substance Use and Sexual Assault Perpetration. In order to assess whether frequency of using these psychotropic substances during the past 12 months significantly predicted sexual assault perpetration during the past 12 months, a series of univariate multinomial logistic regression analyses were conducted with each of these substances as independent variables. The dependent categorical variable for each of these analyses was perpetration category (no perpetration, contact/coercion perpetration during the past 12 months, and rape perpetration during the past 12 months). The no perpetration group was used as the reference category for all of these analyses.

Regression results indicated that unprescribed cannabis use [-2 Log Likelihood = 78.95, χ^2 (2, $N = 271$) = 30.04, $p < .001$, Nagelkerke $R^2 = .12$], cocaine use [-2 Log Likelihood = 32.42, χ^2 (2, $N = 269$) = 46.97, $p < .001$, Nagelkerke $R^2 = .18$], unprescribed stimulant use [-2 Log Likelihood = 46.70, χ^2 (2, $N = 271$) = 9.30, $p < .05$, Nagelkerke $R^2 = .04$], methamphetamine use [-2 Log Likelihood = 20.12, χ^2 (2, $N = 272$) = 51.37, $p < .001$, Nagelkerke $R^2 = .20$],

unprescribed sedative use [-2 Log Likelihood = 33.67, χ^2 (2, N = 271) = 20.95, p < .001, Nagelkerke R^2 = .09], hallucinogen use [-2 Log Likelihood = 33.86, χ^2 (2, N = 272) = 38.84, p < .001, Nagelkerke R^2 = .15], and street opioid use [-2 Log Likelihood = 15.84, χ^2 (2, N = 270) = 13.62, p < .01, Nagelkerke R^2 = .06] during the past 12 months were each individually statistically reliable in distinguishing between perpetrating sexual assault during the past 12 months or not, including both levels of perpetration (i.e., contact/coercion perpetration and rape perpetration). Additionally, inhalant use during the past 12 months [-2 Log Likelihood = 37.54, χ^2 (2, N = 273) = 12.64, p < .01, Nagelkerke R^2 = .05] was reliable in distinguishing between no perpetration and rape perpetration during the past 12 months but not between no perpetration and contact/coercion perpetration.

With each of these substances, higher frequency of using the substance during the past 12 months was associated with a greater likelihood of perpetrating sexual assault during the past 12 months. However, frequency of unprescribed prescription opioid use during the past 12 months was not reliable in distinguishing between perpetrating sexual assault during the past 12 months or not, including both contact/coercion perpetration and rape perpetration, -2 Log Likelihood = 22.46, χ^2 (2, N = 271) = 3.99, p = .136, Nagelkerke R^2 = .02.

Following the univariate multinomial logistic regression analyses, a forward entry stepwise multinomial logistic regression analysis was conducted to determine which of the above substances could reliably and uniquely predict whether someone perpetrated sexual assault during the past 12 months. All of the eight substances mentioned above that were individually statistically reliable in distinguishing between perpetrating sexual assault during the past 12 months or not were entered as independent variables. The dependent categorical variable was perpetration category (no perpetration, contact/coercion perpetration, rape perpetration). The no

perpetration group was used as the reference category for this multivariate analysis.

The results indicated that four of these substances were significant to be included in the final model. In order of statistical significance, these were methamphetamine use [χ^2 (2, N = 263) = 44.30, $p < .001$], unprescribed cannabis use [χ^2 (2, N = 263) = 17.32, $p < .001$], cocaine use [χ^2 (2, N = 263)= 12.53, $p < .01$], and unprescribed sedative use [χ^2 (2, N = 263) = 7.13, $p < .05$]. The overall model consisting of these four substances was statistically significant, -2 Log Likelihood = 217.37, χ^2 (8, N = 263) = 81.27, $p < .001$, Nagelkerke R^2 = .31. The model was able to correctly classify 57.8% of cases. Additionally, all four of these substances were able to uniquely predict whether someone perpetrated sexual assault during the past 12 months across both levels of perpetration (i.e., contact/coercion perpetration and rape perpetration).

Another forward entry stepwise multivariate multinomial logistic regression analysis was conducted with the above mentioned eight substances, as well as alcohol, to determine which of these substances could reliably and uniquely predict whether someone perpetrated sexual assault during the past 12 months beyond the predictive power of frequency of alcohol use during the past 12 months. Like the previous analyses, the dependent categorical variable was perpetration category (no perpetration, contact/coercion perpetration, rape perpetration), and the no perpetration group was used as the reference category.

The results showed that only two of the substances were significant to be included in the final model in addition to alcohol. In order of statistical significance, these were alcohol use [χ^2 (2, N = 263) = 46.35, $p < .001$], methamphetamine use [χ^2 (2, N = 263) = 37.50, $p < .001$], and cocaine use [χ^2 (2, N = 263) = 11.62, $p < .01$]. The overall model comprising these three substances was statistically significant, -2 Log Likelihood = 317.25, χ^2 (6, N = 263) = 95.46, $p < .001$, Nagelkerke R^2 = .35. The model was able to correctly classify 58.9% of cases.

Of note, while alcohol use and methamphetamine use were able to uniquely distinguish between perpetrating sexual assault during the past 12 months or not, across both levels of perpetration (i.e., contact/coercion perpetration and rape perpetration), cocaine use was only able to uniquely distinguish between no perpetration and rape perpetration during the past 12 months, $B = 1.47$, $p < .05$, Odds ratio = 4.34, but not between no perpetration and contact/coercion perpetration, $B = 1.07$, $p = .090$, Odds ratio = 2.91. In addition, the odds ratios for cocaine use among the rape perpetration group ranged from 1.23 – 15.35, indicating substantially large variability.

DISCUSSION

The aim of the present study was to gain a deeper and more comprehensive understanding of the role of various alcohol-related factors in sexual assault perpetration. These alcohol-related factors included different types of problematic alcohol use, alcohol expectancies, and drinking contexts, such as bars, clubs, parties, and large social gatherings. Although a number of studies have previously investigated the association between these factors and sexual assault perpetration, the aim of the present study was to gain a better and more nuanced understanding of these associations, as discussed in the Introduction of this report.

Sexual Assault Severity

As noted earlier, contact sexual assault can range in severity from nonconsensual physical contact of a sexual nature to nonconsensual completed vaginal, anal, or oral penetration (i.e., rape) using physical force (Cortina et al., 2018). Many studies investigating risk factors for sexual assault perpetration do not evaluate whether there are varying risk factors depending on the severity of the sexual assault perpetrated. However, failure to evaluate potential risk factors for sexual assault perpetration across different levels of sexual assault severity may result in drawing erroneous conclusions. For example, although a factor may be found to increase the risk for employing verbal coercion tactics to engage in sexual behavior, this factor might not increase the risk for perpetrating rape, and vice versa. Consequently, assuming that any factor found to be a risk factor for sexual assault perpetration applies to all levels of sexual assault severity may result in concluding a false positive (i.e., a Type I error).

On the other hand, although data results may suggest that a particular factor is not significantly associated with sexual assault perpetration broadly defined, this may actually be because different levels of sexual assault severity are inversely associated with the particular

factor, thus obscuring the varying significant associations between the factor and different levels of sexual assault severity. Consequently, failure to evaluate the association of potential risk factors for sexual assault perpetration across different levels of sexual assault severity may result in concluding a false negative (i.e., a Type II error).

As such, in the present study, sexual assault perpetration was divided into two levels of severity (see Abbey et al., 1996; Testa & Dermen, 1999). The lower level of sexual assault perpetration severity, labeled contact/coercion perpetration, comprised behaviors such as nonconsensual sexual contact, attempted sexual penetration, or actual sexual penetration using verbal coercion, older age or authority, or other enticement strategies. The higher level of sexual assault perpetration severity, labeled rape perpetration, comprised behaviors such as attempted sexual penetration or actual sexual penetration using physical force, threatening to use physical force, or while the victim was intoxicated or incapacitated.

In order to demonstrate the important point described here, all data analyses conducted in the present study and presented here consisted of first evaluating sexual assault perpetration as a single, monolithic outcome variable (i.e., contact/coercion perpetration and rape perpetration combined), followed by evaluating sexual assault perpetration across the two levels of sexual assault severity. It is crucial to emphasize that the different levels of sexual assault severity described here are not indications of the severity of the effects and consequences to the victims of varying types of sexual assault, rather they are classifications of the level of severity of the behavior committed by the perpetrator.

Distal Factors

General Alcohol Use

One of the important potential risk factors for sexual assault perpetration investigated in

the present study was general problematic alcohol use, including general high frequency alcohol use and general heavy drinking during episodes of alcohol use. The results of univariate analyses showed that participants who reported more frequent alcohol use during the past 12 months (i.e., distal frequent alcohol use) were more likely to also report engaging in sexual assault perpetration behavior during the past 12 months, relative to participants who reported less frequent alcohol use during the past 12 months. Additionally, participants who reported heavier episodic drinking during the past 12 months (i.e., distal heavy episodic drinking) were more likely to also report engaging in sexual assault perpetration behavior during the past 12 months, relative to participants who reported less heavy episodic drinking during the past 12 months. These associations were statistically significant across both levels of sexual assault severity (i.e., contact/coercion perpetration and rape perpetration), although the odds ratios were higher with regard to rape perpetration compared to contact/coercion perpetration. Further, the odds ratios for both levels of sexual assault perpetration were higher with regard to general heavy episodic drinking compared to general frequency of alcohol use.

These results support hypotheses 1a and 1b of the present study and suggest that both distal frequent alcohol use and distal heavy episodic drinking are associated with perpetrating various levels of sexual assault. Further, these results provide additional support to many previous study findings that general problematic alcohol use is significantly associated with sexual assault perpetration (e.g., Abbey et al., 2014; Carr & VanDeusen, 2004; Kingree & Thompson, 2013; Locke & Mahalik, 2005; Parkhill & Abbey, 2008; Schwartz et al., 2001; Thompson et al., 2011; Tuliao, & McChargue, 2014; White et al., 2008). Additionally, the results of the present study indicate that among different types of problematic alcohol use, general heavy episodic drinking is more predictive of sexual assault perpetration compared to general

high frequency alcohol use. Furthermore, problematic alcohol use appears to be especially predictive of more severe forms of sexual assault perpetration (i.e., rape perpetration) compared to less severe forms of sexual assault perpetration (i.e., contact/coercion perpetration).

Of note, secondary analyses indicated that general high frequency alcohol use and general heavy episodic drinking were not significantly associated with general aggression. This finding reveals that problematic alcohol use is particularly associated with sexual aggression rather than general aggression, including physical aggression, verbal aggression, anger, and hostility. Additionally, secondary analyses indicated that although high frequency alcohol use is more strongly associated with sexual assault perpetration than high frequency use of other psychotropic substances, some substances are uniquely predictive of sexual assault perpetration beyond the predictive value of high frequency alcohol use. Specifically, high frequency methamphetamine use was uniquely predictive of both levels of sexual assault severity (i.e., contact/coercion perpetration and rape perpetration) and high frequency cocaine use was further uniquely predictive of rape perpetration, but not of contact/coercion perpetration.

General Alcohol Expectancies

A second potential risk factor for sexual assault perpetration investigated in the present study was holding particular beliefs and expectations about the effects of alcohol use (i.e., alcohol expectancies), particularly beliefs and expectations related to social facilitation and sexual enhancement. The results of univariate analyses showed that participants who reported higher endorsement of alcohol expectancies related to social facilitation (i.e., distal social facilitation alcohol expectancies) were more likely to also report engaging in sexual assault perpetration behavior during the past 12 months, relative to participants who reported lower endorsement of such alcohol expectancies. Additionally, participants who reported higher

endorsement of alcohol expectancies related to sexual enhancement (i.e., distal sexual enhancement alcohol expectancies) were more likely to also report engaging in sexual assault perpetration behavior during the past 12 months, relative to participants who reported lower endorsement of such alcohol expectancies. These associations were statistically significant across both levels of sexual assault severity (i.e., contact/coercion perpetration and rape perpetration), although the odds ratios were higher with regard to rape perpetration compared to contact/coercion perpetration.

These results support hypotheses 2a and 2b of the present study and suggest that both distal social facilitation alcohol expectancies and distal sexual enhancement alcohol expectancies are associated with perpetrating various levels of sexual assault. Further, these results provide support to previous studies that have found a positive association between alcohol expectancies, especially sex-related alcohol expectancies, and sexual assault perpetration (e.g., Davis, 2010; Gross et al., 2001; Tuliao & McChargue, 2014; Wilson et al., 2002; Zawacki et al., 2003). Additionally, the results of the present study indicate that both distal social facilitation alcohol expectancies and distal sexual enhancement alcohol expectancies appear to be especially predictive of more severe forms of sexual assault perpetration (i.e., rape perpetration) compared to less severe forms of sexual assault perpetration (i.e., contact/coercion perpetration).

General Drinking Contexts

Finally, a third potential risk factor for sexual assault perpetration investigated in the present study was general frequency of attending places where alcohol is commonly used (i.e., drinking contexts), such as bars, clubs, parties, and large social gatherings. These drinking contexts attract people who are looking to “hook up” and facilitate increased sexual activity (Testa & Cleveland, 2017), and may thus increase the likelihood of the occurrence of sexual

assault, independent of any alcohol use. The results of univariate analysis showed that participants who reported higher frequency of attending bars, parties, clubs, or similar contexts during the past 12 months (i.e., distal bar/party attendance) were more likely to also report engaging in sexual assault perpetration behavior during the past 12 months, relative to participants who reported less frequent distal bar/party attendance during the past 12 months. This association was statistically significant across both levels of sexual assault severity (i.e., contact/coercion perpetration and rape perpetration), although the odds ratio was higher with regard to rape perpetration compared to contact/coercion perpetration.

These results support hypotheses 3a of the present study and provide further support to the findings of Testa and Cleveland (2017) that general frequency of bar/party attendance is associated with sexual assault perpetration. Additionally, the results of the present study indicate that general frequency of bar/party attendance appears to be especially predictive of more severe forms of sexual assault perpetration (i.e., rape perpetration) compared to less severe forms of sexual assault perpetration (i.e., contact/coercion perpetration).

Multivariate Analysis

Although the results of univariate analyses with these alcohol-related factors were significant and provide further support to previous studies that have found positive associations between these factors and sexual assault perpetration, this is not sufficient. Finding that several factors are each individually significantly associated with a given behavior does not demonstrate the unique predictive value of any one of these factors over the other factors. Consequently, it is left unknown whether addressing all of the identified risk factors are needed to reduce the risk of the behavior occurring or if addressing one of these risk factors alone, specifically the risk factor with the strongest association and highest predictive value, would eliminate the risk posed by the

other factors, and would thus be sufficient to reduce the risk of the behavior occurring.

As such, the present study also assessed the aforementioned alcohol-related factors in combination by conducting a multivariate analysis with all of the alcohol-related factors together, to determine whether one or more of these alcohol-related factors is uniquely predictive of sexual assault perpetration beyond the predictive value of the other alcohol-related factors. This is an important contribution of the present study and goes further than previous studies that have mostly investigated these alcohol-related factors in isolation; that is, evaluating each alcohol-related factor alone.

The results of the multivariate analysis in the present study showed that of all the alcohol-related factors, higher endorsement of distal sexual enhancement alcohol expectancies was most strongly associated with engaging in sexual assault behavior during the past 12 months. Additionally, high frequency of distal bar/party attendance and high frequency of distal alcohol use were also uniquely predictive of engaging in sexual assault behavior during the past 12 months above and beyond the predictive value provided by higher endorsement of distal sexual enhancement alcohol expectancies. These results were statistically significant across both levels of sexual assault severity (i.e., contact/coercion perpetration and rape perpetration). That said, as was the case in the univariate analyses, odds ratios were higher with regard to rape perpetration compared to contact/coercion perpetration. In contrast, distal heavy episodic drinking and high endorsement of distal social facilitation alcohol expectancies did not provide any unique statistically significant predictive value beyond what was provided by the aforementioned three factors.

The results showing a stronger association between high frequency of general bar/party attendance and sexual assault perpetration compared to high frequency of general alcohol use,

provide support to the finding of Testa and Cleveland (2017) that high frequency attendance at bars, clubs, parties, and similar drinking contexts, is uniquely and more strongly associated with sexual assault perpetration than general problematic alcohol use. Additionally, these results indicating the unique predictive value of sexual enhancement alcohol expectancies, frequency of distal bar/party attendance, and frequency of distal alcohol use suggest that among the potential alcohol-related risk factors for sexual assault perpetration, these three factors ought to be the primary focus of interventions aimed at reducing sexual assault perpetration.

Furthermore, the results of the present study demonstrate the importance of evaluating potential risk factors in multivariate analyses to determine which specific factor or factors have unique predictive value over other individual risk factors. In the present study, univariate analyses found that all of the alcohol-related factors assessed were individually significantly associated with sexual assault perpetration, as was also found in previous studies. However, some of these factors lost their predictive value when evaluating them together with the other risk factors in a multivariate analysis. This finding may also explain why some previous studies have not found a significant association between problematic alcohol use and sexual assault perpetration (e.g., Calhoun et al., 1997; Gidycz et al., 2007; Loh et al., 2005; Lyndon et al., 2007). For as suggested by Tharp et al. (2013), factors that are found to increase risk for the occurrence of a behavior when assessed in isolation may be obscured by stronger predictive factors when assessing the factor in combination with other potential risk factors in multivariate analyses.

Proximal Factors

When considering potential risk factors for the occurrence of any behavior, it is important to differentiate between distal and proximal risk factors. Distal factors are risk factors that take

place or are experienced temporally distant from the occurrence of the behavior. Proximal factors, on the other hand, are risk factors that take place or are experienced close in time to the occurrence of the behavior. Although the time frame for differentiating between distal and proximal risk factors is relative and may vary from behavior to behavior and from situation to situation, the distinction between distal and proximal risk factors is important in order to better understand the controlling variables and functions of a given behavior. Furthermore, interventions aimed at reducing the risk for the occurrence of a given behavior may vary depending on whether the target of the intervention is a distal risk factor or a proximal risk factor. As such, the present study also evaluated the role of the aforementioned alcohol-related factors proximally to the sexual assault event.

Proximal Alcohol Use

With regard to alcohol use by the perpetrator at the time of the sexual assault event (i.e., proximal perpetrator alcohol use), the results of the present study indicated that incidents of rape perpetration were significantly more likely (75%) than not (25%) to involve alcohol use by the perpetrator immediately before or during the sexual assault event. This result is consistent with the report by Koss (1988) who found that 74% of perpetrators of rape in a nationally representative sample of college students reported having consumed alcohol at the time of the assault. Additionally, several previous studies have found that alcohol consumption is proximally involved in more than half of sexual assaults (Abbey, 2002; Abbey et al., 2004; Abbey et al., 2014; Testa, 2002).

However, in the present study, incidents of contact/coercion perpetration, were significantly less likely (29%) than not (71%) to involve alcohol use by the perpetrator immediately before or during the sexual assault event. This finding only partially supports

hypothesis 1c of the present study and indicates that the likelihood of alcohol use by the perpetrator proximally to the sexual assault event depends on the type of sexual assault perpetrated. This is consistent with previous findings that perpetrators' consumption of alcohol around the time of the sexual assault was associated with more severe acts of aggression used in the assault (Abbey et al., 2003; Abbey et al., 2014).

Notably, although distal problematic alcohol use was found to be significantly associated with sexual assault perpetration across both levels of sexual assault severity (i.e., contact/coercion perpetration and rape perpetration), as reported earlier, the results of the present study indicate that proximal alcohol use is only associated with rape perpetration and not contact/coercion perpetration. This finding reinforces the argument by Testa and Cleveland (2017) that, although many studies have found that general problematic alcohol use is a risk factor for sexual assault perpetration, more data is needed to determine the actual involvement of perpetrator alcohol use at the time of the sexual assault event.

Moreover, in the present study, when analyzing the perpetrator group as a whole (i.e., contact/coercion perpetration and rape perpetration combined), the results indicated that incidents of perpetration were not significantly more likely to involve alcohol use by the perpetrator at the time of the sexual assault event. Only when analyzing the two levels of sexual assault severity separately did it become apparent that incidents of rape perpetration were significantly more likely than not to involve alcohol use by the perpetrator at the time of the sexual assault. This underscores the point made earlier in this discussion that different levels of sexual assault severity may have varying risk factors (see Abbey et al., 1996; Testa & Dermen, 1999), and that this information may be obscured when evaluating all types of sexual assault perpetration as one, monolithic group.

The results of the present study also indicated that in incidents of sexual assault that involved proximal alcohol use, it was significantly more likely that alcohol was used by both the perpetrator and the victim compared to alcohol use by just one party, whether victim alone or perpetrator alone. These results were statistically significant across both levels of sexual assault severity (i.e., contact/coercion perpetration and rape perpetration), thus supporting hypothesis 1d of the present study. However, this was especially the case in the rape perpetration group, where 100% of assaults involved alcohol use by both the perpetrator and the victim, whereas in the contact/coercion perpetration group, 64% of assaults involved alcohol use by both the perpetrator and the victim. The results of the present study provide further support to previous studies that have found that it is very common for victims of sexual assault to have consumed alcohol around the time of the assault (Abbey, 2002; 2011; Anderson & Clement, 2015; Lorenz & Ullman, 2016; Orchowski et al., 2013; Testa, 2002) and that alcohol use is a significant risk factor for sexual assault victimization (Mouilso et al., 2012; Neal & Fromme, 2007; Testa & Hoffman, 2012).

Of note, among participants who reported victim alcohol use at the time of the sexual assault event, a significant number of them reported that they served the alcohol to the victim with the intent to incapacitate them. This was especially the case in the rape perpetration group, where 61% reported that they served the alcohol to the victim with the intent to incapacitate them, whereas in the contact/coercion perpetration group, 24% of them reported that they served the alcohol to the victim with the intent to incapacitate them. Additionally, 36% of the rape perpetration group and 38% of the contact/coercion perpetration group reported that they served the alcohol to the victim but without the intent to incapacitate them. Only 3% of the rape perpetration group and 38% of the contact/coercion perpetration group reported that they did not

serve the alcohol to the victim, but they took advantage of the victim's self-entered state of intoxication. This suggests that perpetrators, and especially perpetrators of rape, play an important role in victims' alcohol use around the time of the sexual assault.

Proximal Alcohol Expectancies

With regard to perpetrators' beliefs and expectations about their alcohol use at the time of the sexual assault event (i.e., proximal alcohol expectancies), the results of the present study indicated that participants who reported using alcohol at the time of the sexual assault were not significantly more likely than not to report using the alcohol for the purpose of social facilitation (i.e., proximal social facilitation alcohol expectancies). This finding is contrary to hypothesis 2c of the present study. However, as noted in the Results section above, this is likely due to the small sample size (N = 13) included in this analysis. Indeed, the trend of the observed data was in the direction of participants more likely than not reporting that they used the alcohol at the time of the sexual assault event for the purpose of social facilitation. This was especially the case in the rape perpetration group, where 100% of participants (n = 6) endorsed proximal social facilitation alcohol expectancies, whereas in the contact/coercion perpetration group, only 57% of participants (n = 4) endorsed proximal social facilitation alcohol expectancies and 43% (n = 3) did not endorse proximal social facilitation alcohol expectancies.

Of note, although nine of the 10 participants who endorsed proximal social facilitation alcohol expectancies also endorsed five or six of the total six general, distal social facilitation alcohol expectancies, one of the participants who endorsed proximal social facilitation alcohol expectancies did not endorse any of the general, distal social facilitation alcohol expectancies. Furthermore, all three participants who denied proximal social facilitation alcohol expectancies did endorse two or more of the six general, distal social facilitation alcohol expectancies.

This finding suggests that generally held alcohol expectancies (i.e., distal alcohol expectancies) might not necessarily be drawn upon in every situation (i.e., proximal alcohol expectancies), and provides some support to the distinction between state and trait features of beliefs, motivations, behavioral tendencies, and emotional experience previously discussed in the literature (e.g., Patrick & Zuckerman, 1977; Patrick et al., 1974; Zuckerman, 1976; Zuckerman, 1983). Further, this finding highlights the point made at the beginning of this section that it is important to differentiate between distal and proximal risk factors for a given behavior. However, any conclusion based on the results of the proximal social facilitation alcohol expectancies analyses reported here are questionable due to the small sample size included in these analyses, as mentioned above.

Additionally, the results of the present study indicated that participants who reported using alcohol at the time of the sexual assault event were not significantly more likely than not to report using the alcohol for the purpose of sexual enhancement (i.e., proximal sexual enhancement alcohol expectancies). This finding is contrary to hypothesis 2d of the present study. Furthermore, the trend of the observed data suggested that participants were more likely not to endorse using alcohol for purposes of sexual enhancement by 62% to 38%. This was the case across both levels of sexual assault severity (i.e., contact/coercion perpetration and rape perpetration).

It should be noted here, as well, that although four of the five participants who endorsed proximal sexual enhancement alcohol expectancies also endorsed at least one of the general, distal sexual enhancement alcohol expectancies, one of the participants who endorsed proximal sexual enhancement alcohol expectancies did not endorse any of the general, distal sexual enhancement alcohol expectancies. Furthermore, of the eight participants who denied any

proximal sexual enhancement alcohol expectancies, seven did endorse three or four of the total four general, distal sexual enhancement alcohol expectancies.

These results further suggest that generally held alcohol expectancies (i.e., distal alcohol expectancies) might not necessarily be drawn upon in every situation (i.e., proximal alcohol expectancies), and further highlight the importance of differentiating between distal and proximal risk factors for a given behavior, as discussed above. However, as noted earlier, conclusions based on the results of the proximal sexual enhancement alcohol expectancies analyses reported here are questionable due to the small sample size included in these analyses.

The results of the present study also indicated that contrary to hypothesis 2e, participants who reported alcohol use by the victim at the time of the sexual assault event were not significantly more likely than not to endorse the belief that when someone consumes alcohol, they are more open, responsive, or indicating consent to sexual advances or sexual behavior (i.e., sex-related expectancies of victim alcohol use). This was the case across both levels of sexual assault severity (i.e., contact/coercion perpetration and rape perpetration). However, it is remarkable that still 50% of participants (n = 3) in the rape perpetration group and 45% of participants (n = 5) in the contact/coercion perpetration group did endorse such beliefs. As noted above, conclusions based on these results should be made with caution due to the small sample size (N = 17) included in these analyses.

As discussed in the Introduction of this report, there are two widely discussed theories of how alcohol use might causally lead to sexual assault perpetration. One theory, often referred to as the alcohol myopia theory (Steele & Josephs, 1988; 1990), implicates the pharmacological effects of alcohol on psychophysiology and information processing (Abbey, 2011; Cooper, 2002). The second theory, referred to as the alcohol expectancy theory, implicates the

psychological effects of people's beliefs and expectations about what alcohol does for them (Abbey, 2011; Abbey et al., 1998; Fromme et al., 1999; Lang, 1985).

The present study found that although incidents of rape perpetration were significantly more likely than not to involve alcohol use by the perpetrator, participants did not significantly endorse using the alcohol at the time of the sexual assault event with the expectation of social facilitation or sexual enhancement effects. This would appear to support the alcohol myopia theory over the alcohol expectancy theory, as participants denied any expectancies related to social facilitation or sexual enhancement as a result of their alcohol use. However, as stated several times here, no conclusion can be drawn from the proximal alcohol expectancies analyses in the present study, due to the small sample size included in these analyses.

Proximal Drinking Contexts

Finally, with regard to the role of proximal bar/party attendance, the results of the present study indicated that incidents of rape perpetration were significantly more likely (63%) than not (37%) to have taken place at, or soon after leaving, a bar, party, club, or similar drinking context. In contrast, incidents of contact/coercion perpetration, were significantly more likely (61%) to not have taken place at, or soon after leaving, a bar, party, club, or similar drinking context. This finding only partially supports hypothesis 3b of the present study and indicates that the likelihood of sexual assault occurring at, or soon after leaving, a bar, party, club, or similar drinking context depends on the type of sexual assault perpetrated.

These results are noteworthy as Abbey (2017) has argued that while Testa and Cleveland (2017) found that general frequency of bar and party attendance (i.e., distal bar/party attendance) was strongly associated with sexual assault perpetration, a finding that has been shown in the present study as well, the study by Testa and Cleveland (2017) did not assess whether incidents

of sexual assault were actually more likely to occur at a bar, party, or similar context (i.e., proximal bar/party attendance). However, the present study found that, indeed, incidents of rape perpetration were more likely than not to occur at, or soon after leaving, a bar, party, or similar context, but incidents of contact/coercion perpetration were not more likely to occur at, or soon after leaving, these contexts.

This finding is important for two reasons. First, although higher frequency of general, distal bar/party attendance was found to be significantly associated with sexual assault perpetration across both levels of sexual assault severity (i.e., contact/coercion perpetration and rape perpetration), as discussed earlier and as reported by Testa and Cleveland (2017), the results of the present study indicated that proximal bar/party attendance was associated with rape perpetration but not contact/coercion perpetration. This reinforces the point made several times in this discussion regarding the importance of differentiating between distal and proximal risk factors for a given behavior.

Second, in the present study, when analyzing the perpetrator group as a whole (i.e., contact/coercion perpetration and rape perpetration combined), the results indicated that incidents of sexual assault were not significantly more likely to occur at, or soon after leaving, a bar, party, club, or similar drinking context. Only when evaluating the two levels of sexual assault severity separately did it become apparent that incidents of rape perpetration were significantly more likely than not to involve proximal bar/party attendance. This reinforces another point made several times in this discussion that different levels of sexual assault severity may have varying risk factors (Abbey et al., 1996; Testa & Dermen, 1999), and that this information can be obscured when evaluating all types of sexual assault perpetration as one group.

Of note, the results found a strong association between proximal bar/party attendance and proximal perpetrator alcohol use across both levels of sexual assault severity (i.e., contact/coercion perpetration and rape perpetration). Specifically, 55% of participants endorsed both proximal bar/party attendance and proximal perpetrator alcohol use, whereas 25% endorsed only proximal bar/party attendance and 20% endorsed only proximal perpetrator alcohol use. Similarly, the results found a strong association between proximal bar/party attendance and proximal victim alcohol use across both levels of sexual assault severity. Specifically, 56% of participants endorsed both proximal bar/party attendance and proximal victim alcohol use, whereas 22% endorsed only proximal bar/party attendance and 22% endorsed only proximal victim alcohol use. This suggests that incidents of sexual assault that involve alcohol use by either the perpetrator or the victim are more likely than not to occur at, or immediately after leaving, a bar, party, or similar drinking context. Alternatively, incidents of sexual assault that occur at, or immediately after leaving, a bar, party, or similar drinking context, are more likely than not to involve alcohol use by either the perpetrator, the victim, or both.

Research Implications

The results of the present study have several important implications for research on sexual assault generally, and particularly research investigating risk factors for sexual assault perpetration. First, as noted earlier, contact sexual assault can range in severity from nonconsensual physical contact of a sexual nature to nonconsensual completed vaginal, anal, or oral penetration (i.e., rape) using physical force (Cortina et al., 2018). In the present study, sexual assault perpetration was divided into two levels of sexual assault severity, contact/coercion perpetration and rape perpetration, and the results demonstrate that different levels of sexual assault severity can have different associated risk factors (see Abbey et al., 1996; Testa &

Dermen, 1999). For example, as discussed earlier, the various alcohol-related risk factors assessed in the present study were more strongly predictive of rape perpetration than contact/coercion perpetration. Additionally, proximal alcohol use and proximal bar/party attendance were only significantly more likely to be involved in rape perpetration but not in contact/coercion perpetration.

Moreover, the latter finding in the present study was learned only because different levels of sexual assault severity were specifically assessed. In fact, this information would not have been known if sexual assault perpetration had been assessed as a binary outcome variable (i.e., any type of perpetration versus no perpetration at all) and had ignored different severity levels of sexual assault perpetration. Furthermore, if sexual assault perpetration had been assessed as a binary outcome variable, we would have concluded that proximal alcohol use and proximal bar/party attendance were not likely to be involved in sexual assault perpetration at all, as analyses looking at the whole perpetrator group together (i.e., contact/coercion perpetration and rape perpetration combined) suggested that incidents of perpetration were not significantly more likely to involve proximal alcohol use or proximal bar/party attendance. Only when analyzing the two levels of sexual assault severity separately in the present study did it become apparent that the two types of sexual assault varied with regard to the involvement of these two proximal factors, and that only rape perpetration was significantly more likely than not to involve proximal alcohol use and proximal bar/party attendance. Thus, by assessing the two levels of sexual assault severity separately, a false negative conclusion (i.e., a Type II error) was avoided.

Many studies investigating risk factors for sexual assault perpetration do not evaluate whether there are varying risk factors depending on the severity of the sexual assault perpetrated. One reason for this may be that in order to assess various levels of sexual assault severity, a

larger sample size of participants is needed to provide an adequate number of participants for each sexual assault severity level group. However, failure to evaluate potential risk factors for sexual assault perpetration across different levels of sexual assault severity may result in drawing erroneous conclusions, including Type I and Type II errors, as discussed above. Furthermore, the findings of the present study demonstrate that it is critical for studies investigating risk factors for sexual assault perpetration to assess different levels of sexual assault severity separately. As such, studies investigating risk factors for sexual assault perpetration should recruit a sample of participants that would have reasonable power to assess multiple levels of sexual assault severity.

A second implication for studies investigating sexual assault perpetration is that in the present study, a relatively large number of participants endorsed engaging in some form of sexual assault perpetration behavior. In fact, 148 (54%) out of the 275 participants whose data were included in data analyses in the present study, endorsed engaging in some form of sexual assault perpetration behavior during the past 12 months. One reason for this might be that the present study employed three different sexual assault perpetration scales. In addition, to the revised Sexual Experiences Survey-Short Form Perpetration (SES-SFP; Koss et al., 2007; 2008), which is one of the most commonly used measures of sexual assault perpetration among college students and has demonstrated good validity and reliability among male samples (Anderson et al., 2017; Johnson et al., 2017; Porat et al., 2024), the Sexual Strategies Scale (SSS; Peterson et al., 2010; Strang et al., 2013) and the Sexual Coercion (SC) subscale from the revised Conflict Tactics Scale (CTS2; Straus et al., 1996) were also administered. These additional scales were included in the present study precisely in order to capture all forms and instances of sexual assault perpetration behavior, as discussed in the Method section above.

Indeed, several studies have found that the SSS yielded higher rates of participant endorsement of various types of sexual aggression compared to the SES-SFP (Strang et al., 2013; Testa et al., 2015). Similarly, Anderson et al. (2019) found that the CTS2-SC identified significantly more cases of sexual violence perpetration compared to the SES-SFP. In fact, in the present study, 54% of participants (n = 80) classified as perpetrators across the two perpetrator groups did not endorse any item on the SES-SFP but did endorse an item on the CTS2-SC or the SSS. An additional 25.7% of participants (n = 38) classified as perpetrators across the two perpetrator groups did not endorse any item on the SES-SFP or the CTS2-SC but did endorse an item on the SSS.

As such, studies investigating sexual assault perpetration should consider including more than one sexual assault perpetration scale in order to obtain higher and potentially more accurate rates of participant endorsement of engaging in various types of sexual assault perpetration behavior. This is especially the case where the language, structure, and focus of the questions in one sexual assault perpetration scale could capture instances of sexual assault perpetration behavior that might not be obtained from a different sexual assault perpetration scale.

Another reason that a substantial number of participants in the present study reported engaging in some form of sexual assault perpetration behavior could be that participants were provided with assurances that the survey data they provided would remain confidential and would not be directly linked to identifying personal information (i.e., their name and a university-affiliated email address) they provided on a separate website for compensation purposes. Further, participants were given autonomy to provide or withhold any information they wanted and each question in the study survey included an answer option of "*Prefer not to answer*." When provided with assurances of confidentiality and autonomy to provide or withhold

information, participants may be willing to respond honestly about their behaviors and experiences in an anonymous online survey, even when the behaviors and experiences may be socially unacceptable or potentially criminal.

As such, studies investigating sexual assault, and especially studies investigating sexual assault perpetration which ask about potentially criminal or socially unacceptable activity, should take reasonable steps to protect participants' identities. Additionally, participants should be informed about the processes and safeguards that have been put in place to protect their identities, and they should be repeatedly assured of these protections throughout the survey, especially at points where sensitive questions are being presented.

While the reliability and validity of online survey data have sometimes been questioned, online surveys that take steps to protect participants' identities and inform potential participants about these safeguards may actually be the best method available for obtaining information about sexual behavior and experiences, including sexual assault perpetration behavior. In fact, Turner et al. (1998) found that people are more likely to report private, sensitive information when responding to a computer-based survey compared to a pen-and-pencil questionnaire.

Additionally, several studies have found that social desirability was not a significant threat to self-reporting of sexual assault perpetration on the Sexual Experiences Survey (Cook, 2002; Walker et al., 1993). Indeed, as reported in the Method section above, the results of the Marlow-Crowne Social Desirability Scale (MCSDS; Crowne & Marlowe, 1960) in the present study demonstrated that despite the fact that participants in the present study were asked questions about various types of behaviors, beliefs, and experiences that are potentially socially unacceptable, immoral, unethical, or criminal, there was no significant indication that participants were seeking to present themselves in a socially desirable manner.

However, it should be noted that in the present study, 98.1% of participants in the full sample (N = 267) responded "no" to the question on the SES-SFP, "Do you think you may have ever raped someone?" Furthermore, even in the rape perpetrator group (N = 41), 95.1% of participants (n = 39) responded "no" to this question. This does raise the question of whether participants responded "no" to this question because they wanted to present themselves in a socially desirable manner or whether the majority of participants were simply not aware that the behaviors they endorsed engaging in are considered rape. If the latter is the case, it certainly points to the need to continue educating people about the types of sexual behaviors that constitute rape. However, even if the former is the case, it may be that when presented with a direct question about perpetrating such a severe crime with potentially harsh social and legal consequences, it is very hard for people to admit engaging in such behavior, even though they generally would be willing to respond honestly about their engagement in such behavior if they were asked about it more indirectly. Nevertheless, this is certainly a question worthy of further investigation.

The relatively large number of participants that reported engaging in some form of sexual assault perpetration behavior in the present study supports the viability and feasibility of conducting additional research on sexual assault perpetration among college men using confidential online surveys. By including various scales of sexual assault perpetration and providing potential participants with autonomy, assurances of data confidentiality, and adequate compensation for participation, such research should continue to be feasible.

Another important implication of the present study for research investigating risk factors for sexual assault perpetration is that, as noted earlier, although several factors may be associated with a given behavior, some of these factors may be more strongly associated with the given

behavior than others. Furthermore, although each of several factors may be individually associated with a given behavior, some of these factors may not provide any unique predictive value beyond the predictive value of other associated factors. Indeed, although all of the alcohol-related distal factors assessed in the present study were found in univariate analyses to be individually significantly associated with sexual assault perpetration, some of these factors lost their predictive value when evaluating them together with the other risk factors in a multivariate analysis.

This demonstrates the importance of evaluating potential risk factors in multivariate analyses to determine which specific factors have unique predictive value over other individual risk factors. As such, studies investigating risk factors for sexual assault perpetration, and indeed, studies investigating risk factors for any given behavior, should not only assess potential risk factors in isolation (i.e., assessing one factor at a time in univariate analyses), but also in combination with other potential risk factors (i.e., in multivariate analyses), to determine which factors are most strongly associated with, and uniquely predictive of, sexual assault perpetration or the outcome behavior under investigation.

A final implication for research investigating risk factors for sexual assault perpetration is that, as mentioned several times throughout this discussion, when considering potential risk factors for the occurrence of any behavior, including sexual assault perpetration, it is important to differentiate between distal and proximal risk factors. This distinction is important in order to better understand the controlling variables and functions of a given behavior.

For example, the results of the present study indicated that although general, distal frequency of alcohol use and general, distal frequency of bar/party attendance were significantly associated with sexual assault perpetration across both levels of sexual assault severity (i.e.,

contact/coercion perpetration and rape perpetration), incidents of sexual assault were more likely than not to involve proximal alcohol use and proximal bar/party attendance only with regard to rape perpetration but not contact/coercion perpetration. This suggests that whereas proximal alcohol use and proximal bar/party attendance may be a significant risk factor for rape perpetration, they are not significant risk factors for contact/coercion perpetration, despite these factors distally being significantly associated with sexual assault perpetration. Rather, there are likely other proximal factors, such as miscommunication or misunderstandings regarding consent to engage in sexual behavior (Abbey et al., 1998; Baldwin-White, 2021; Dardis et al., 2021; Muehlenhard, 1988), that increase the risk for contact/coercion perpetration.

This demonstrates the importance of not assuming that just because a distal factor is shown to be significantly associated with a given behavior, it necessarily also plays a significant role proximal to the given behavior. As such, studies investigating risk factors for sexual assault perpetration, or any given behavior, should evaluate the role of potential risk factors both distally and proximally to the sexual assault event or the behavior under investigation.

Intervention Applications

The results of the present study have several important ramifications and applications for intervention purposes as well. It has long been reported that the prevalence rates of both sexual assault perpetration (Abbey et al., 1998; Thompson et al., 2013; Zinzow & Thompson, 2015) and alcohol use (SAMHSA, 2015) are higher among college students compared to the general population. Additionally, numerous studies, some of which have been reviewed in the Introduction of this report, have found that problematic alcohol use and other alcohol-related factors, such as alcohol expectancies and frequently attending drinking contexts, such as bars, clubs, parties, and large social gatherings, are associated with sexual assault perpetration. The

present study provides further support to these findings and provides a deeper and more comprehensive understanding of these associations, as discussed above.

Furthermore, the alcohol-related factors investigated in the present study, including frequent alcohol use, heavy episodic drinking, high endorsement of alcohol expectancies related to social facilitation and sexual enhancement, frequent attendance at drinking contexts, such as bar, clubs, parties, and large social gatherings, are particularly relevant to college students and are potentially modifiable. As such, interventions aimed at reducing sexual assault in general, and among college students in particular, should focus on targeting these alcohol-related factors and their harmful effects. This may result in significant reductions in rates of sexual assault, especially the more severe forms of sexual assault, such as attempted and completed rape.

However, as noted earlier, different levels of sexual assault severity can have different associated risk factors (see Abbey et al., 1996; Testa & Dermen, 1999). For example, the results of the present study found that proximal alcohol use and proximal bar/party attendance were significantly more likely to be involved in rape perpetration but not in contact/coercion perpetration. This has important implications and applications for the development of intervention programs aimed at reducing sexual assault perpetration. Rather than developing one-size-fits-all intervention programs, such programs should be individualized in a way that specific sets of factors are addressed and stressed depending on the type and severity level of the sexual assault perpetration behavior being targeted and the risk factors that have been found to be associated with that specific type of sexual assault perpetration behavior (Testa & Cleveland, 2017; Thompson et al., 2013). For example, interventions aimed at preventing rape perpetration may focus on discussing the role of alcohol use and bar/party attendance in rape perpetration, whereas interventions aimed at preventing contact/coercion perpetration may focus on other

factors that may play a role in contact/coercion perpetration, such as miscommunication or misunderstandings regarding consent to engage in sexual behavior (Abbey et al., 1998; Baldwin-White, 2021; Dardis et al., 2021; Muehlenhard, 1988).

Another important application for intervention purposes is that although there may be many risk factors for a given behavior, including sexual assault perpetration, targeting all of these risk factors in intervention programs may be costly, time consuming, and unnecessary. Rather, intervention programs should focus on targeting the most predictive risk factors for the given behavior. This would make the best use of available resources and would likely be most effective in reducing the overall risk of the given behavior. Moreover, addressing the most predictive risk factors may also generalize to the other lower-level risk factors, thus minimizing their impact on the given behavior. One way of identifying the most predictive risk factors for a given behavior is by assessing the various risk factors in combination using multivariate analysis and seeing which one or more of these factors provides unique predictive value beyond the other risk factors.

As discussed earlier, although the results of univariate analyses found that all of the distal alcohol-related factors assessed in the present study were significantly associated with sexual assault perpetration, only three of these factors were shown in multivariate analysis to have unique predictive value, including distal sexual enhancement alcohol expectancies, distal frequent bar/party attendance, and distal frequent alcohol use. Additionally, these three factors were uniquely statistically significant across both levels of sexual assault severity (i.e., contact/coercion perpetration and rape perpetration), although the odds ratios were higher with regard to rape perpetration compared to contact/coercion perpetration on all three factors. In contrast, distal heavy episodic drinking and distal social facilitation alcohol expectancies were

not found to have unique predictive value beyond the aforementioned three factors. As such, intervention programs aimed at reducing sexual assault perpetration should focus primarily on targeting these three distal alcohol-related factors, especially with regard to preventing rape perpetration.

Of note, in a critical review of studies that have administered alcohol expectancy challenge interventions, Labbe and Maisto (2011) found that these interventions were most effective in lowering alcohol expectancies and reducing alcohol consumption when they were administered in male-only groups. These results suggest that at least alcohol expectancy challenge interventions, and perhaps other sexual assault prevention programs as well, are more effective when they are presented in single-gendered groups.

Additionally, in a meta-analysis conducted by Scott-Sheldon et al. (2012) examining the efficacy of alcohol expectancy challenge interventions in reducing alcohol consumption, the researchers found that this intervention was indeed effective in lowering positive alcohol expectancies, reducing general alcohol use, and reducing the frequency of heavy episodic drinking among college students. However, these effects were not maintained at follow-up assessments conducted more than four weeks after administering the intervention.

One reason that expectancy challenge intervention effects were not maintained may be because people's beliefs and expectancies about alcohol are developed early in childhood (Kuntsche, 2017; Miller et al., 1990; Smit et al., 2018) and are so ingrained in people's minds that a brief intervention challenging these expectancies is not sufficient to affect long-term changes in beliefs and expectations. Miller et al. (1990) reported that the bulk of the increase in alcohol expectancy development was observed in the third and fourth grades. As such, expectancy challenge interventions may need to begin in elementary school as early as second or

third grade, significantly before people have their first alcoholic drink. In addition, "booster interventions" throughout the middle school and high school years and consistent repetition of information about the significant contribution of alcohol use and alcohol expectancies to alcohol- and sex-related problems, such as alcohol addictions, risky sexual behaviors, sexual assault, etc. may be more effective in lowering these alcohol expectancies and the associated negative consequences.

A final application for intervention purposes is that in developing interventions aimed at reducing the risk for the occurrence of a given behavior, including sexual assault perpetration, it is important to be clear about whether the intervention is targeting a distal risk factor or a proximal risk factor. In fact, for prevention purposes, it would arguably be more effective to target proximal risk factors rather than distal risk factors, as proximal risk factors likely play a more impactful and consequential role in the occurrence of the behavior.

Additionally, it is important to ensure that a specific factor is indeed a proximal risk factor for the given behavior, and not assume that it is a proximal risk factor simply because it has been found to be a distal risk factor for the behavior. For example, the results of the present study indicated that although distal frequency of alcohol use and distal frequency of bar/party attendance were significantly associated with sexual assault perpetration across both levels of sexual assault severity (i.e., contact/coercion perpetration and rape perpetration), incidents of sexual assault were more likely than not to involve proximal alcohol use and proximal bar/party attendance only with regard to rape perpetration but not contact/coercion perpetration.

This finding shows that although distal alcohol use and distal bar/party attendance are associated with contact/coercion perpetration, these two factors are not significant proximal risk factors for contact/coercion perpetration. Rather, there are likely other proximal factors that may

not be alcohol-related that increase the risk for contact/coercion perpetration, such as miscommunication or misunderstandings regarding consent to engage in sexual behavior (Abbey et al., 1998; Baldwin-White, 2021; Dardis et al., 2021; Muehlenhard, 1988), and those proximal risk factors ought to be the focus of interventions aimed at reducing rates of contact/coercion perpetration. However, interventions aimed at reducing rates of rape perpetration would benefit from targeting proximal alcohol use and proximal bar/party attendance, as these factors have been shown in the present study to be associated with rape perpetration.

Limitations

There are several limitations to the present study that should be noted. First, the participants in the present study were recruited from a few colleges and universities in the Midwestern region of the United States. Additionally, these colleges and universities are set primarily in urban areas, they do not have highly active fraternities, and the majority of students commute to school and do not live on campus or in university housing. As such, the results of the present study may not be generalizable to the college population in other regions of the United States, colleges with highly active fraternities, or colleges with a high percentage of on-campus living. Nevertheless, as reported earlier, a substantial number of participants in the present study endorsed many of the high-rate behaviors common among college students generally, such as frequent alcohol use, frequent bar/party attendance, and engagement in various sexual assault perpetration behaviors.

Second, although the overall sample size in the present study was substantial, the number of participants that were included in the proximal alcohol expectancies analyses was limited to between 13 and 17, depending on the specific analysis. The reason for this is that the proximal alcohol expectancies questions were only presented to participants who endorsed engaging in at

least one sexual assault perpetration behavior during the past 12 months and they also reported that they or the victim used alcohol before, during, or immediately after the sexual assault event. Additionally, as noted earlier, only participants who were recruited during Phase 2 of the present study were presented with the proximal alcohol expectancies questions. Given the small number of participants that were presented with the proximal alcohol expectancies questions, in addition to the other inclusion criteria for the present study, these analyses consisted of a small sample of participants. Consequently, no conclusions can be drawn from the results of the alcohol expectancies analyses, and they are primarily exploratory.

Future research should include a larger sample size and ensure that an adequate number of participants are presented with the proximal alcohol expectancies questions, in order to better understand the role of proximal alcohol expectancies in alcohol-involved sexual assault perpetration. Further, in addition to proximal alcohol expectancies related to social facilitation and sexual enhancement, future research should also include questions about proximal expectancies related to alcohol's disinhibitory effects to evaluate the role these types of alcohol expectancies have in events of sexual assault perpetration (Abbey et al., 1998). By obtaining more data about proximal alcohol expectancies, it may be possible to better evaluate the two different theories that have been posited to explain the causal relationship between alcohol use and sexual assault perpetration, namely, the alcohol myopia theory and the alcohol expectancy theory (Abbey, 2011; Abbey et al., 1998; Cooper, 2002), as discussed earlier.

Third, as noted above, it is essential for studies investigating sexual assault, including studies on the risk factors for sexual assault perpetration, to assess different levels of sexual assault severity rather than assessing sexual assault as a binary outcome variable (i.e., any type of sexual assault versus no sexual assault at all). Therefore, in the present study, sexual assault

perpetration was divided into two levels of severity, contact/coercion perpetration and rape perpetration (see Abbey et al., 1996; Testa & Dermen, 1999). However, sexual assault can be divided into many more levels of severity, such as, nonconsensual physical contact of a sexual nature, attempted sexual penetration using verbal coercion, completed sexual penetration using verbal coercion, attempted sexual penetration using threats or actual physical force, and completed sexual penetration using threats or actual physical force. Assessing multiple levels of sexual assault severity would provide a better understanding of the different characteristics of, and factors associated with, the varying levels of sexual assault. Future studies should seek to recruit a sample of participants large enough to have reasonable power to assess multiple levels of sexual assault severity.

Fourth, it is often difficult to recall details about past events. Indeed, one of the improvements of the present study over Censor's (2021) preliminary study was that the present study only included data regarding events that occurred within the past 12 months, as data about events that occurred more than 12 months ago may be subject to recall bias. However, even details about events that occurred within the past 12 months, or even the past month, can be difficult to remember, especially if alcohol was used during the event. As such, the accuracy and validity of the data presented here regarding the proximal details of sexual assault behaviors that occurred anytime within the past 12 months, especially the details regarding proximal alcohol expectancies, is questionable. Future research using sophisticated methodological tools, such as ecological momentary assessment (EMA; Shiffman, 2009; Shiffman et al., 2008; Wray et al., 2016) that assesses behaviors and experiences in real time, would likely provide more accurate and valid information regarding the various proximal factors associated with sexual assault perpetration while minimizing problems related to recall bias.

Finally, the present study was a retrospective study, and as such it is not able to determine even the temporal relationship between the alcohol-related distal factors assessed in the present study and the occurrence of sexual assault perpetration. For example, although the present study found a significant association between distal sexual enhancement alcohol expectancies and sexual assault perpetration, it remains unknown whether these alcohol expectancies preceded the sexual assault perpetration event or were developed after the sexual assault perpetration. As such, no statement can be made, based on the results of the present study, as to whether or not high endorsement of sexual enhancement alcohol expectancies is a risk factor for sexual assault perpetration. We can only state that these two factors are associated with each other.

Longitudinal studies investigating how the various alcohol-related factors assessed here may predict sexual assault perpetration prospectively are needed in order to determine the temporal relationship between potential risk factors and sexual assault perpetration. Studies of risk factors for sexual assault perpetration using longitudinal methodology are currently few and should be the focus of future research in order to at least determine the temporal relationship between potential risk factors and sexual assault perpetration (Abbey, 2017; Tharp et al., 2013). Nevertheless, the results of the present study regarding the alcohol-related proximal factors involved in events of sexual assault perpetration are highly informative and provide a better understanding of the role that these factors may play in the occurrence of sexual assault perpetration.

Significance and Future Directions

Despite the limitations noted above, the present study is significant in several ways. The primary aim of the present study was to gain a deeper and more comprehensive understanding of the role of various alcohol-related risk factors in sexual assault perpetration. To do so, the

present study assessed different types of problematic alcohol use, including frequent alcohol use and heavy episodic drinking, different types of alcohol expectancies, including alcohol expectancies related to social facilitation and alcohol expectancies related to sexual enhancement, and frequent attendance at drinking contexts, such as bars, clubs, parties, and large social gatherings. These different alcohol-related factors broadly represent the various potential influences of alcohol on sexual assault perpetration behavior, including the behavioral, pharmacological, and physiological influences of alcohol (i.e., alcohol use), the cognitive influences of alcohol (i.e., alcohol expectancies), and the social-environmental influences of alcohol (i.e., drinking contexts). Additionally, these factors are particularly relevant to college students and are amenable to change, thus making them appropriate targets for intervention programs aimed at reducing rates of sexual assault perpetration.

Additionally, the present study assessed the relationship between each of these alcohol-related factors and sexual assault perpetration both individually utilizing univariate analyses, and in combination using multivariate analysis. This is important in identifying which of these factors are most strongly associated with sexual assault perpetration and which ones provide unique predictive value beyond the other factors. The present study also assessed these factors both distally from the sexual assault perpetration event and proximally to the sexual assault perpetration event. Doing so provides a deeper and more comprehensive understanding of how these factors play a role in sexual assault perpetration and whether they play a role distally, proximally, or both distally and proximally.

Furthermore, the present study assessed sexual assault perpetration on two levels of sexual assault severity (see Abbey et al., 1996; Testa & Dermen, 1999). The lower level of sexual assault perpetration severity (i.e., contact/coercion perpetration) comprised individuals

whose most severe sexual assault perpetration behavior endorsed was engagement at least once during the past 12 months in either nonconsensual sexual contact, attempted sexual penetration, or actual sexual penetration using verbal coercion, their older age or authority, or other enticement strategies. The higher level of sexual assault perpetration severity (i.e., rape perpetration) comprised individuals who endorsed engaging at least once during the past 12 months in either attempted sexual penetration or actual sexual penetration using physical force, threatening to use physical force, or while the victim was intoxicated or incapacitated. Doing so provided more nuanced information about how the various alcohol-related factors are associated with different levels of sexual assault perpetration severity, in isolation and in combination, and distally and proximally to the sexual assault perpetration event.

Moreover, the present study was conducted with a diverse and substantial sample of college men and employed robust methodology and procedures to ensure, as much as possible, the collection of accurate and valid data. Additionally, by including various scales of sexual assault perpetration and providing potential participants with assurances of data confidentiality, autonomy, and adequate compensation for participation, a substantial number of participants reported engaging in some form of sexual assault perpetration behavior. This demonstrates feasibility of conducting additional research on sexual assault perpetration among college men using confidential online surveys.

Future research should continue to build on the present study, especially in collecting more data on the role of proximal alcohol expectancies in sexual assault perpetration. Additionally, larger samples of participants should be recruited to have reasonable power to assess multiple levels of sexual assault severity, as discussed above. Furthermore, longitudinal studies should be conducted with all of the alcohol-related factors included in the present study

to assess how these various alcohol-related factors may predict sexual assault perpetration prospectively. By utilizing, and further improving upon, the robust methodology and procedures employed in the present study, such research should continue to be feasible.

Sexual assault is a major public health and criminal justice problem worldwide, in our society, and particularly among college students. The need for effective interventions to reduce the occurrence of sexual assault is clear. Intervention programs could be enhanced by specifically targeting individuals who are at increased risk for perpetrating sexual assault based on identified factors that have evidence demonstrating that they increase the likelihood of sexual assault perpetration. Additionally, intervention programs could make the best use of limited resources and would likely be most effective when they are focused on targeting specific risk factors that are relevant for a particular individual or group of people rather than having an entire specified population (e.g., all college students) receive a one-size-fits-all, universal intervention program (Testa & Cleveland, 2017; Thompson et al., 2013). The detailed and comprehensive knowledge gained from the present study, and other similar studies, will hopefully promote additional research on this subject and inform the development of effective intervention programs to significantly reduce and prevent all forms of sexual assault perpetration.

Figure 1
Participant Flow Diagram

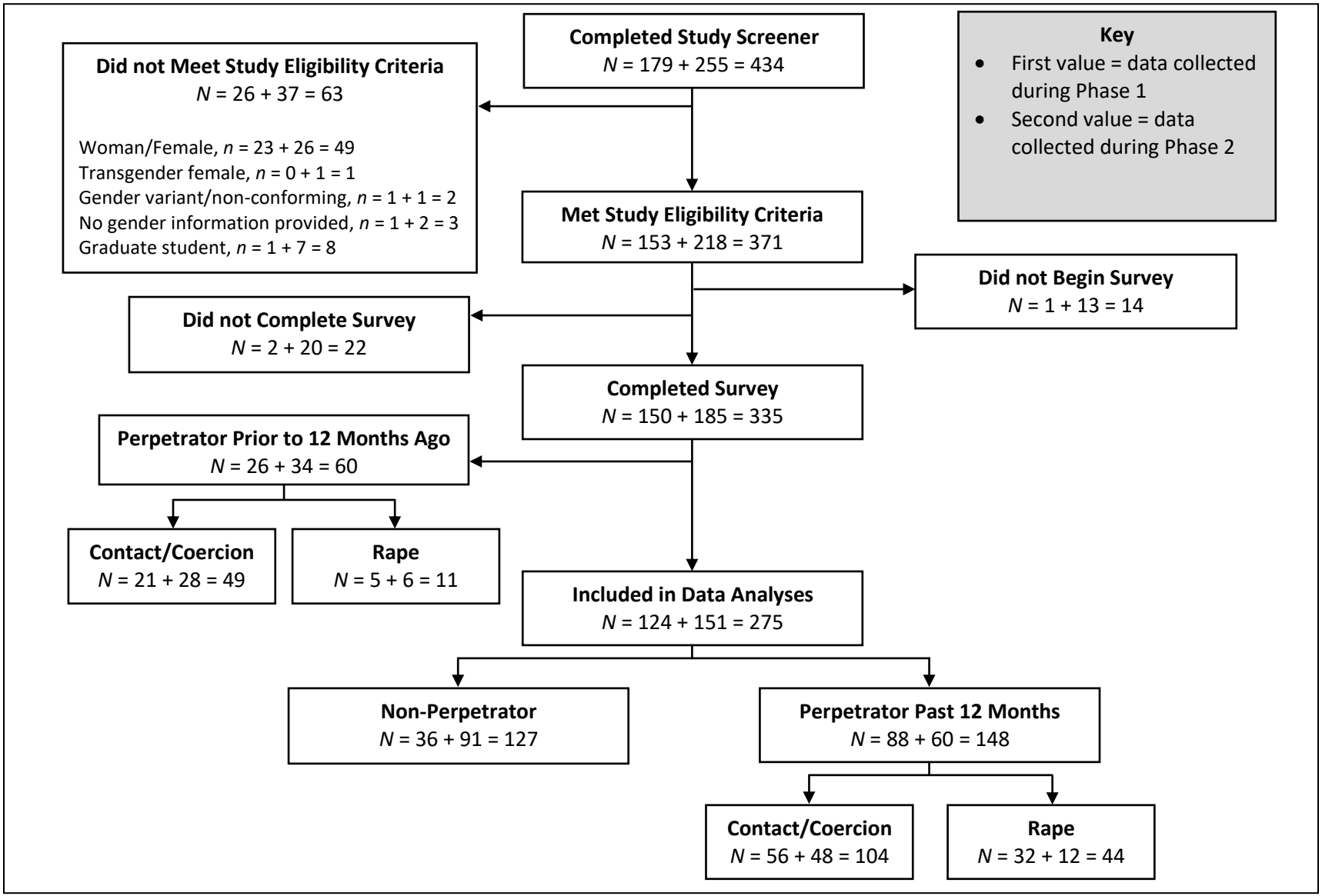


Figure 2
Survey Flow Diagram

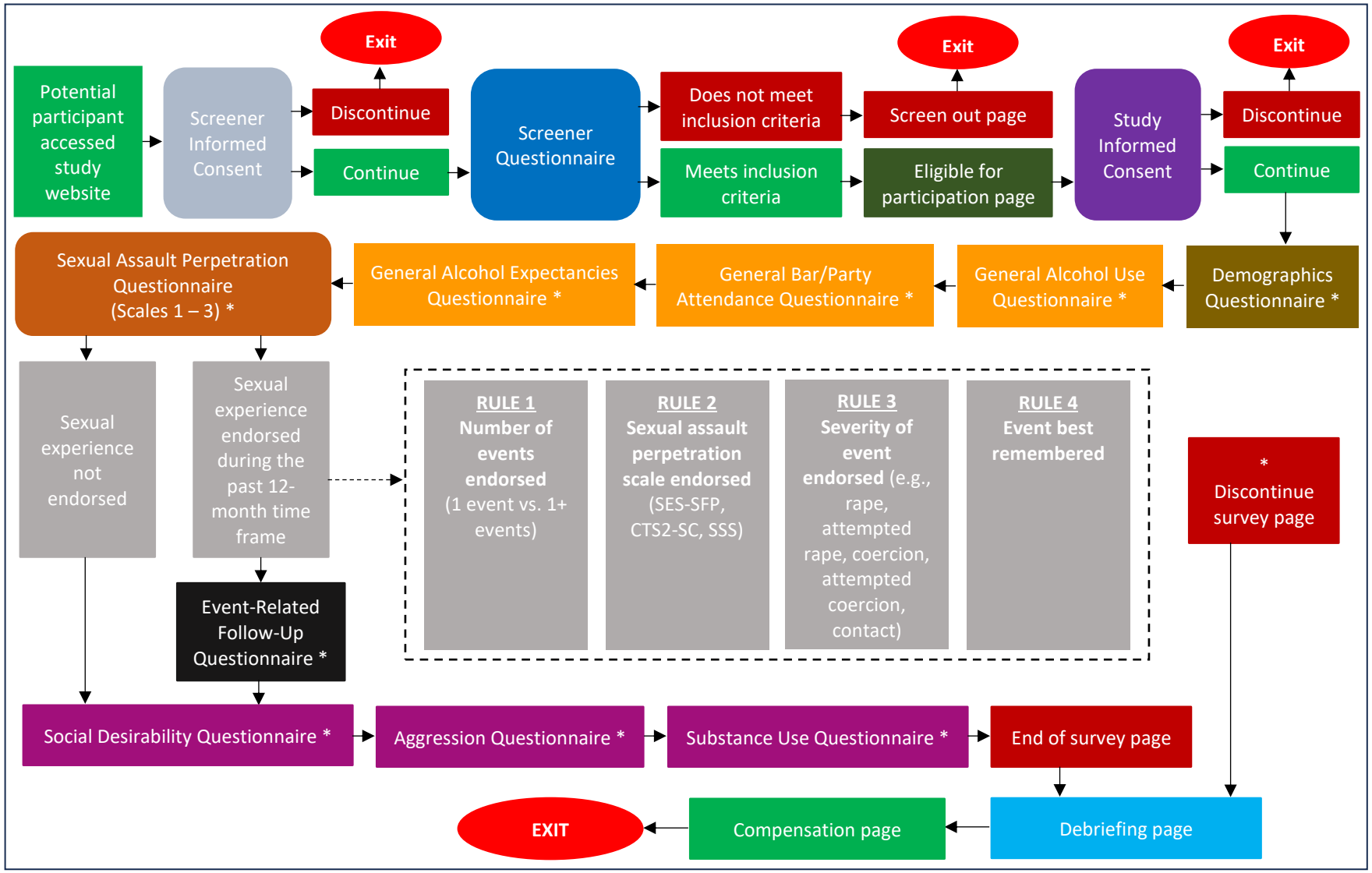
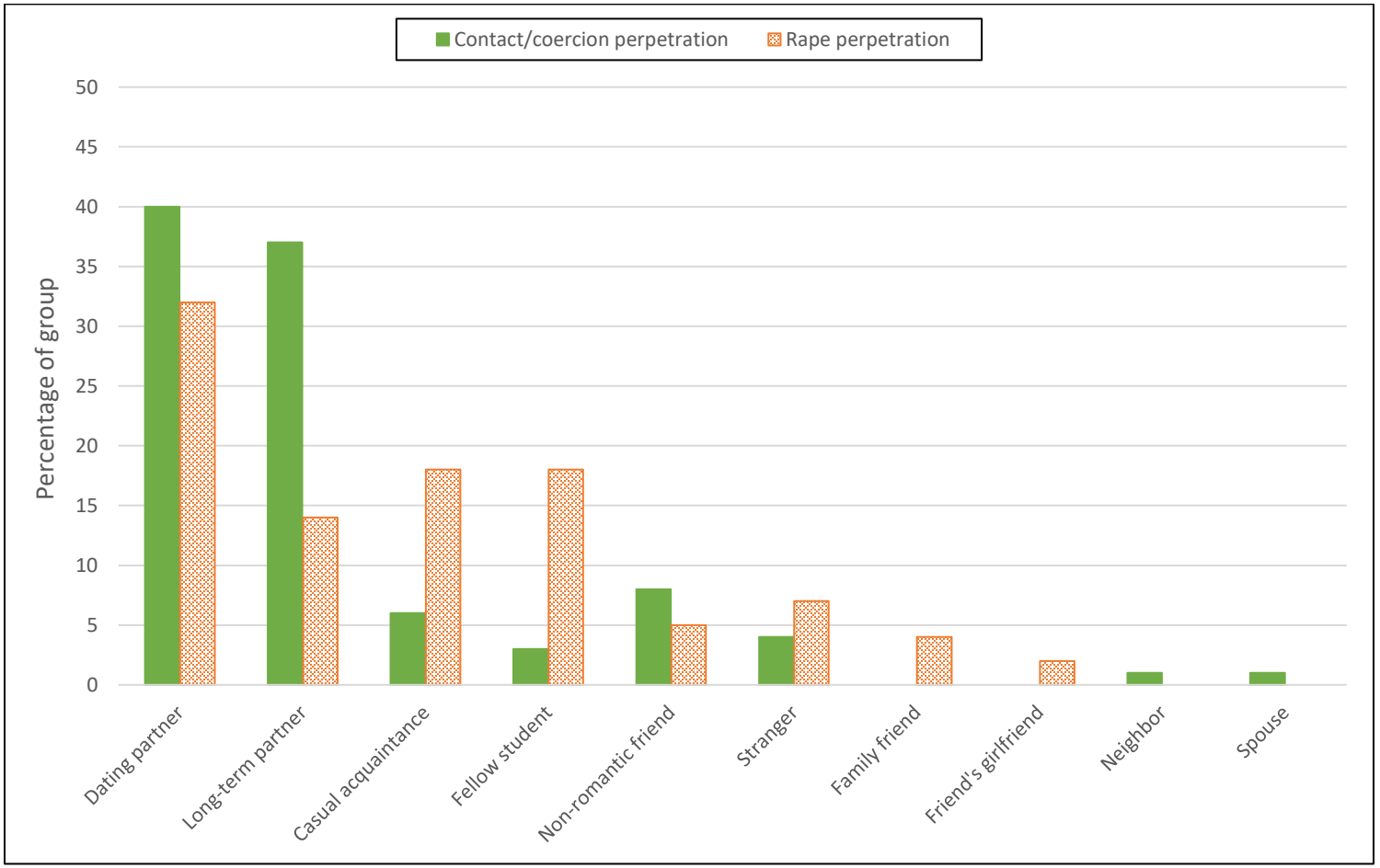


Figure 3

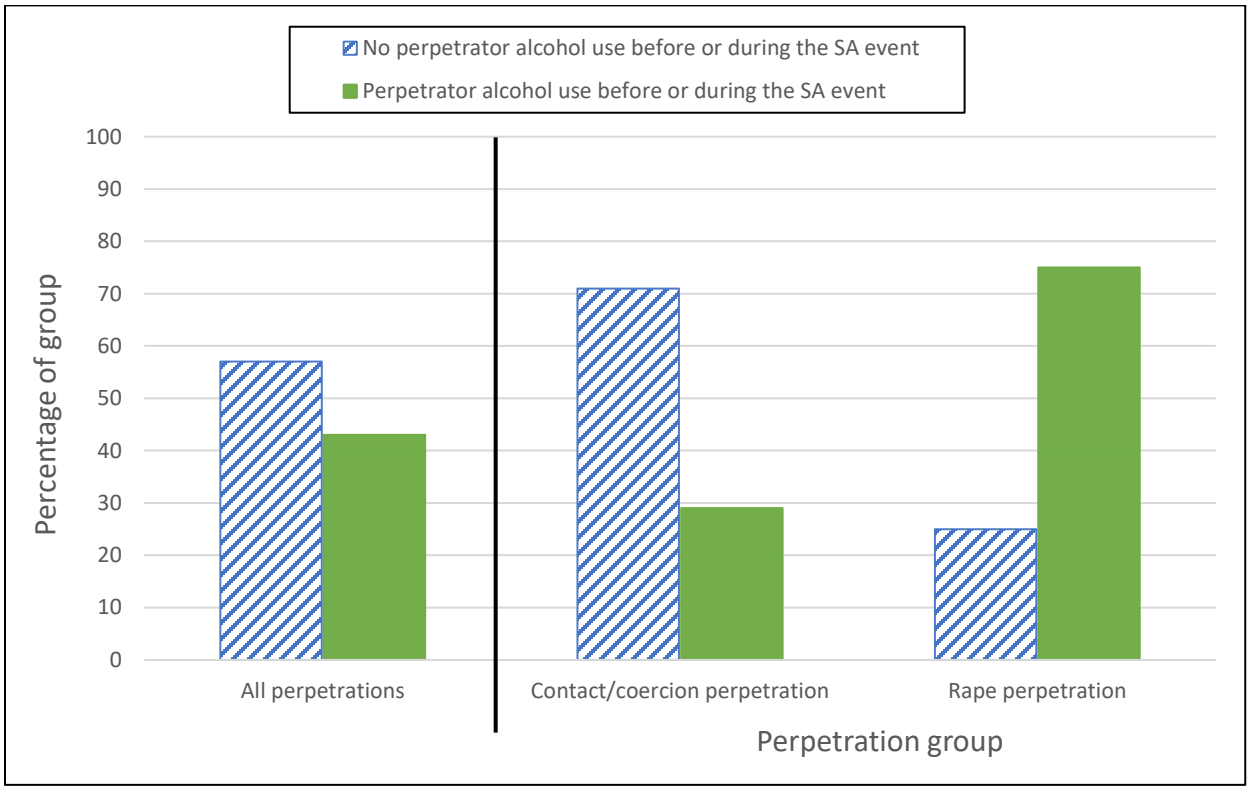
Relationship Between Perpetrator and Victim Across Perpetrator Groups



Note. *n* for the contact/coercion perpetration group = 95; *n* for the rape perpetration group = 44.

Figure 4

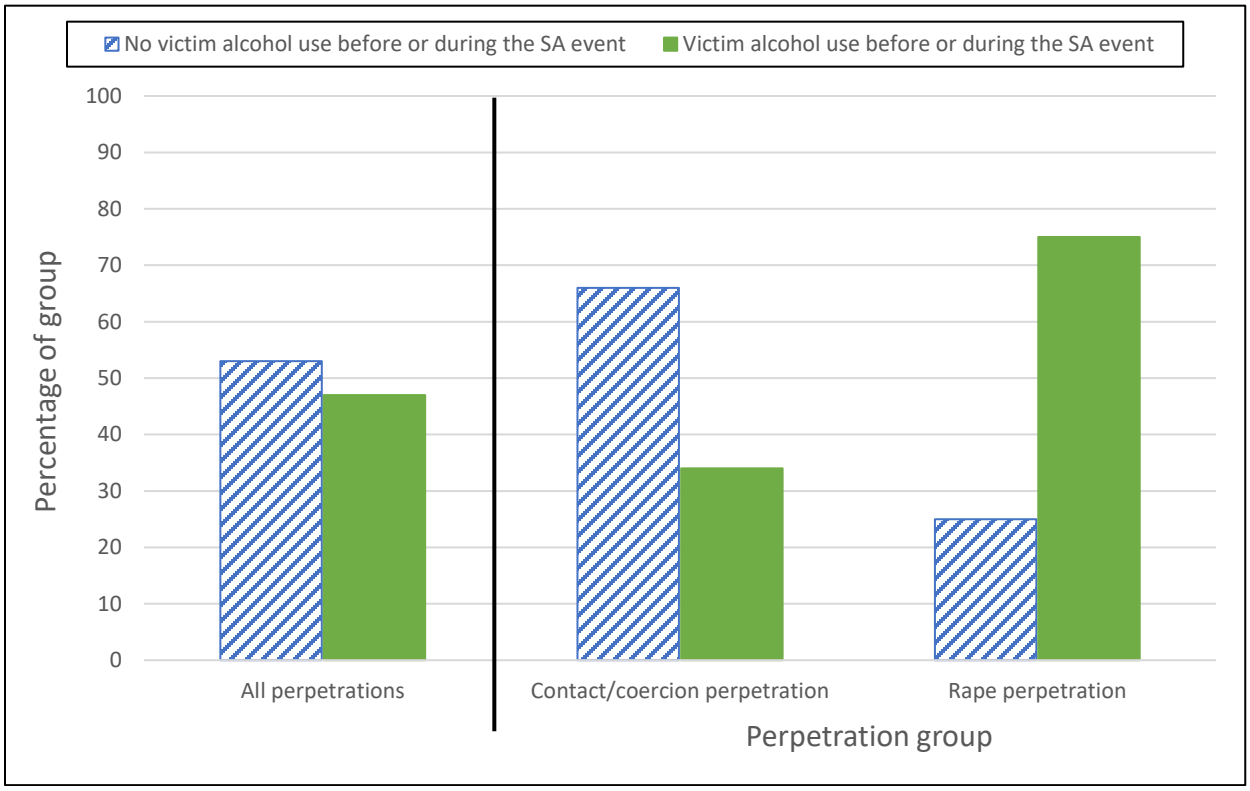
Percentage of Proximal Perpetrator Alcohol Use



Note. SA = Sexual assault.

Figure 5

Percentage of Proximal Victim Alcohol Use



Note. SA = Sexual assault.

Figure 6

Percentage of Proximal Alcohol Use by Perpetrator and Victim

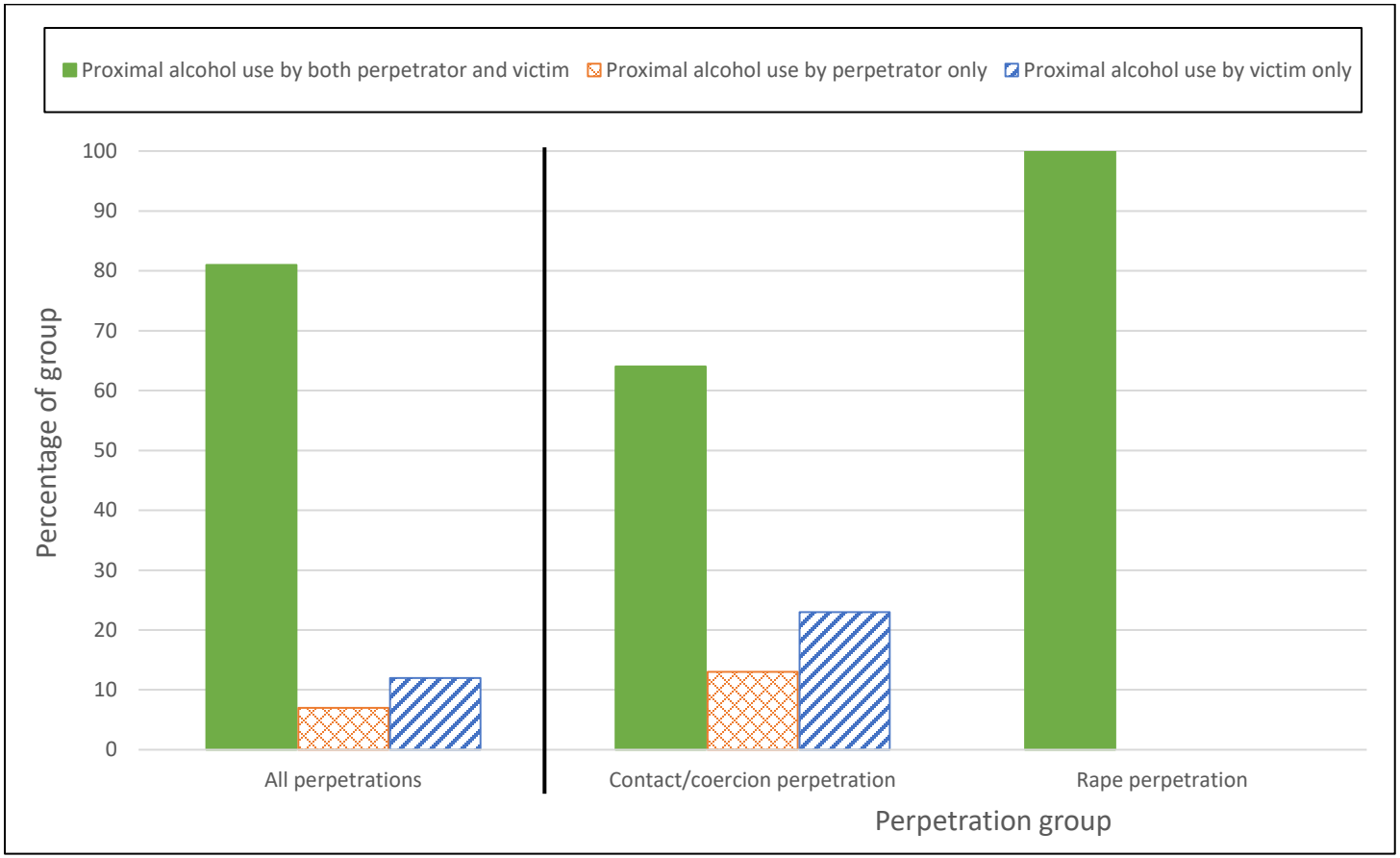


Figure 7

Percentage of Perpetrator Involvement in Proximal Victim Alcohol Use

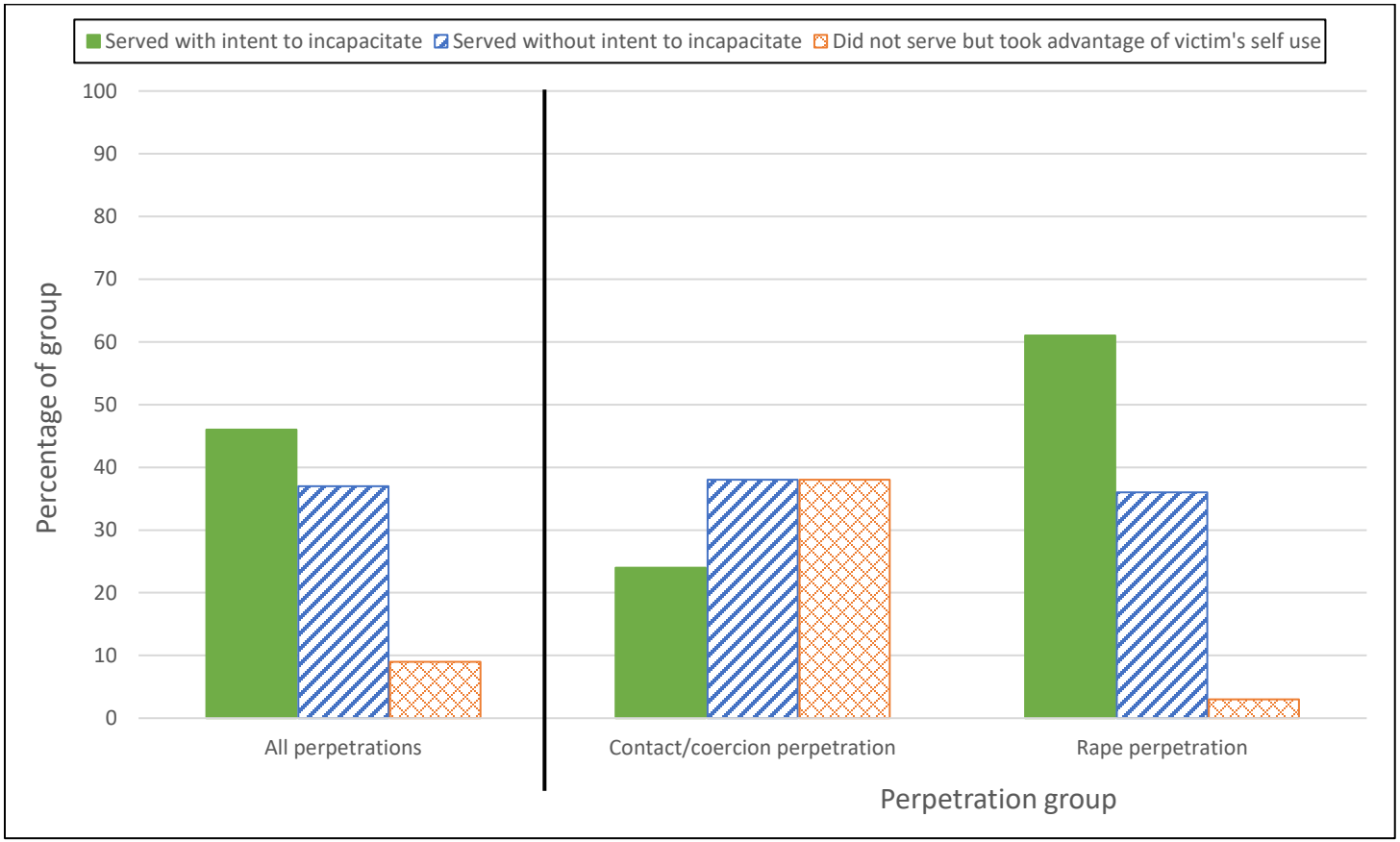


Figure 8

Percentage of Endorsing Proximal Social Facilitation Alcohol Expectancies

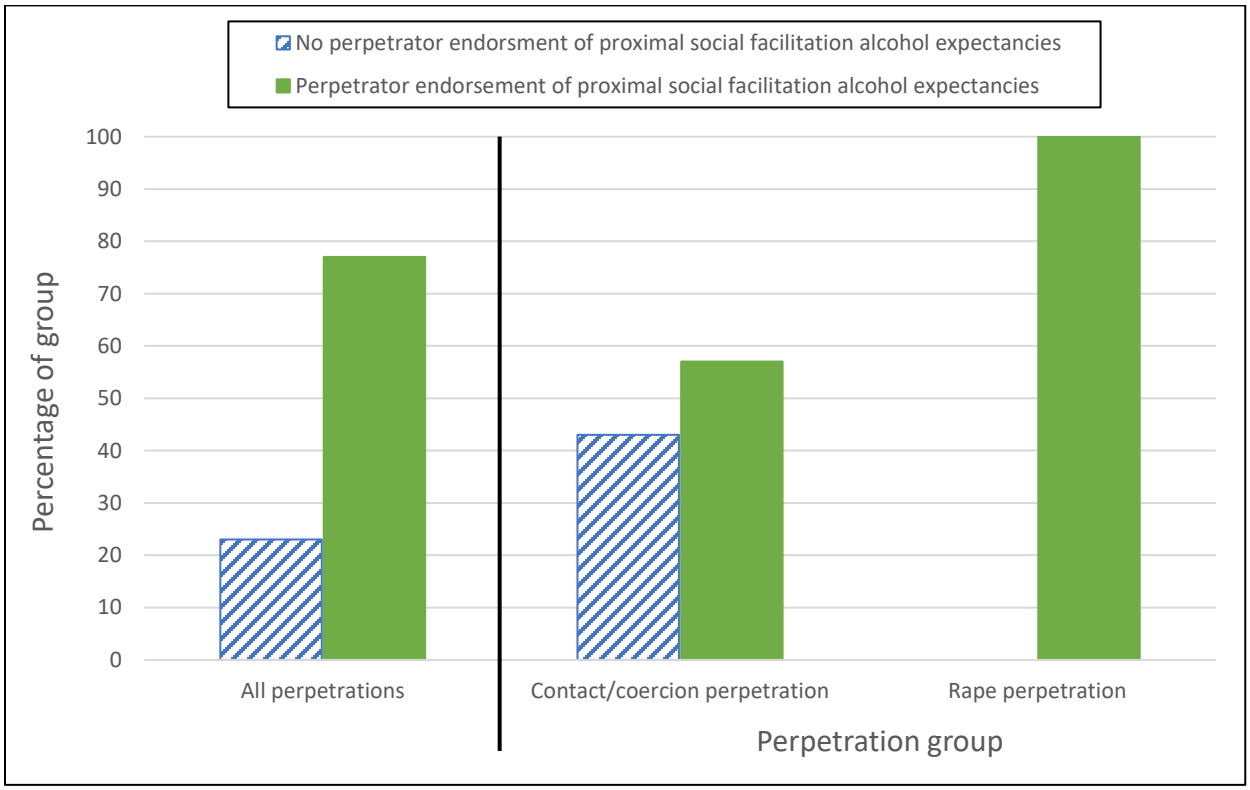


Figure 9

Percentage of Endorsing Proximal Sexual Enhancement Alcohol Expectancies

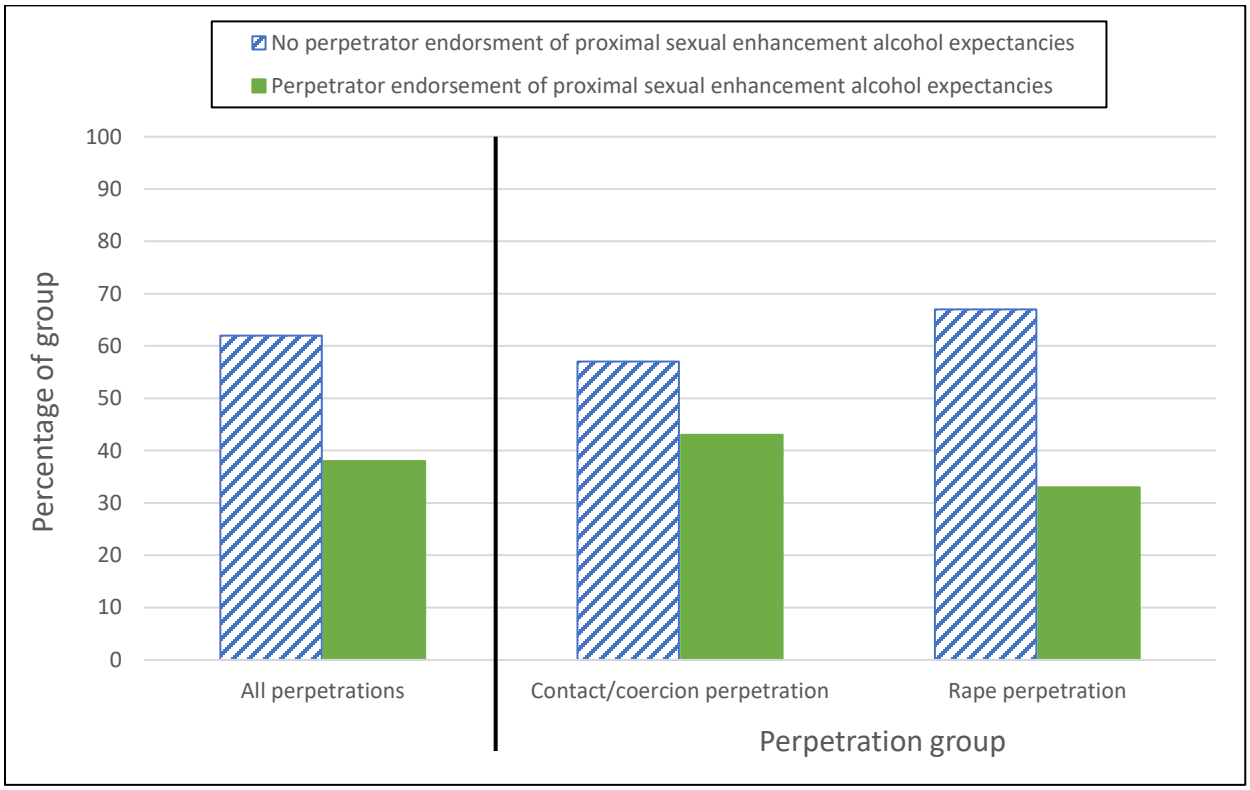


Figure 10

Percentage of Endorsing Sex-Related Expectancies of Victim Alcohol Use

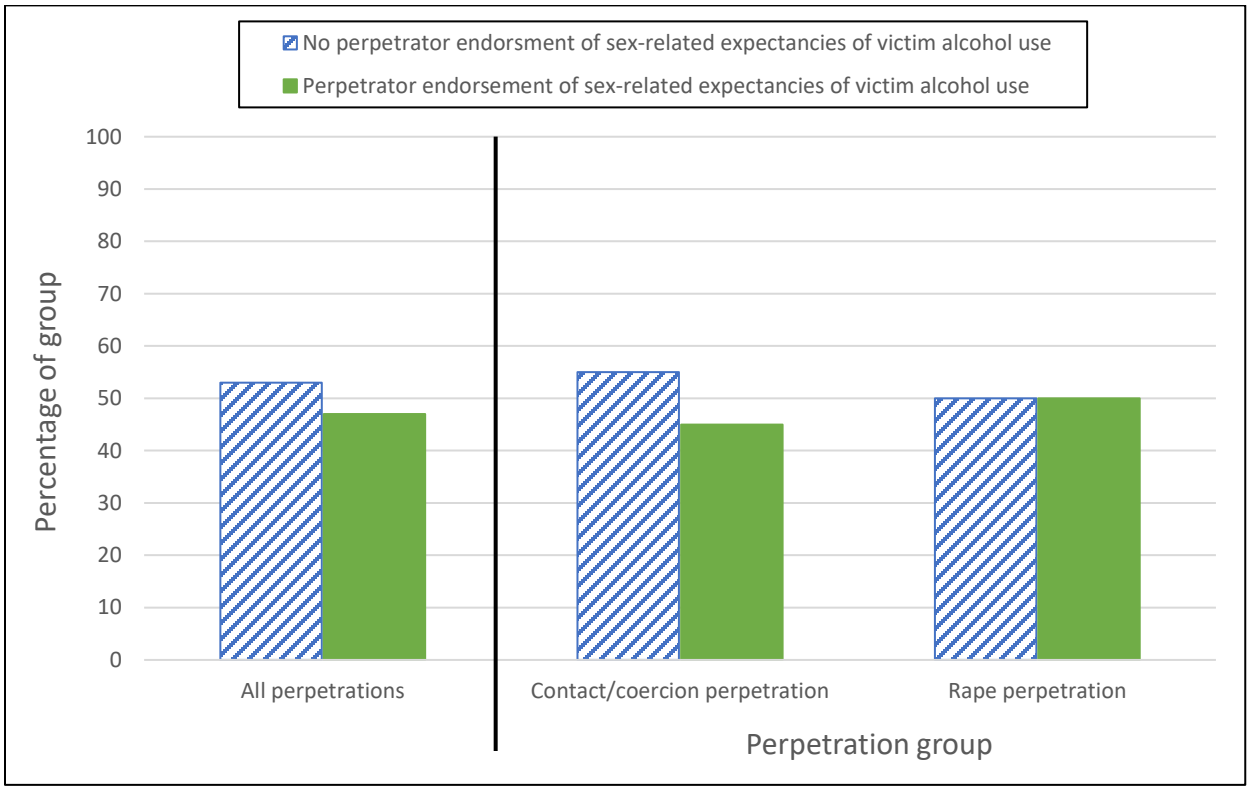
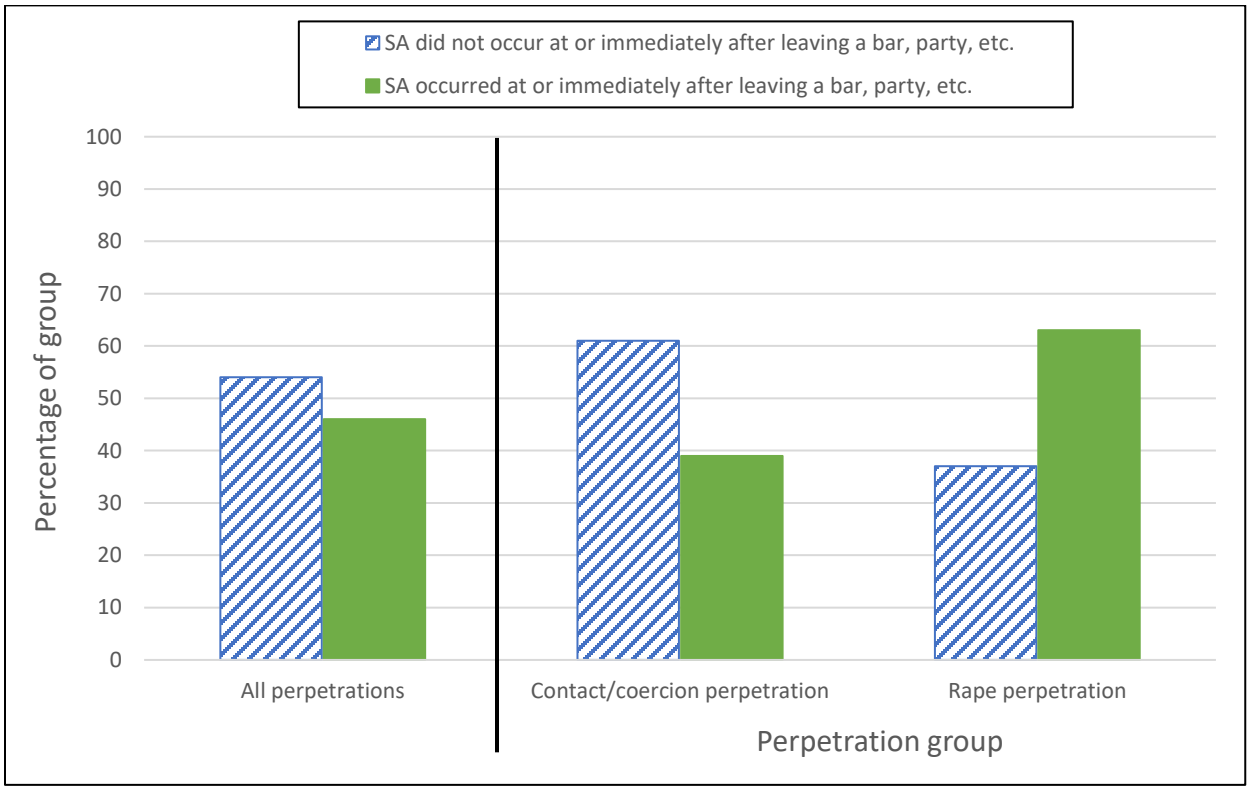


Figure 11
Percentage of Proximal Bar/Party Attendance



Note. SA = Sexual assault.

Figure 12

Percentage of Proximal Bar/Party Attendance by Proximal Perpetrator Alcohol Use

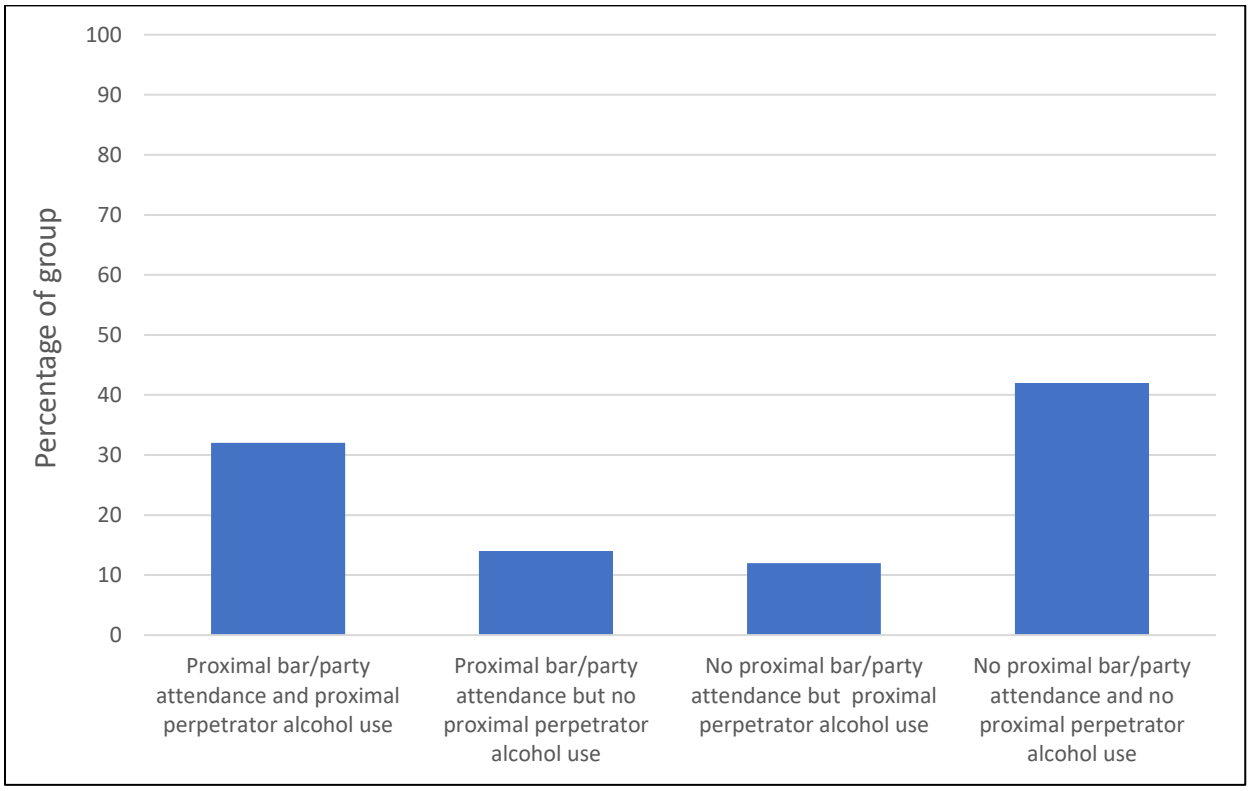


Figure 13

Percentage of Proximal Bar/Party Attendance by Proximal Victim Alcohol Use

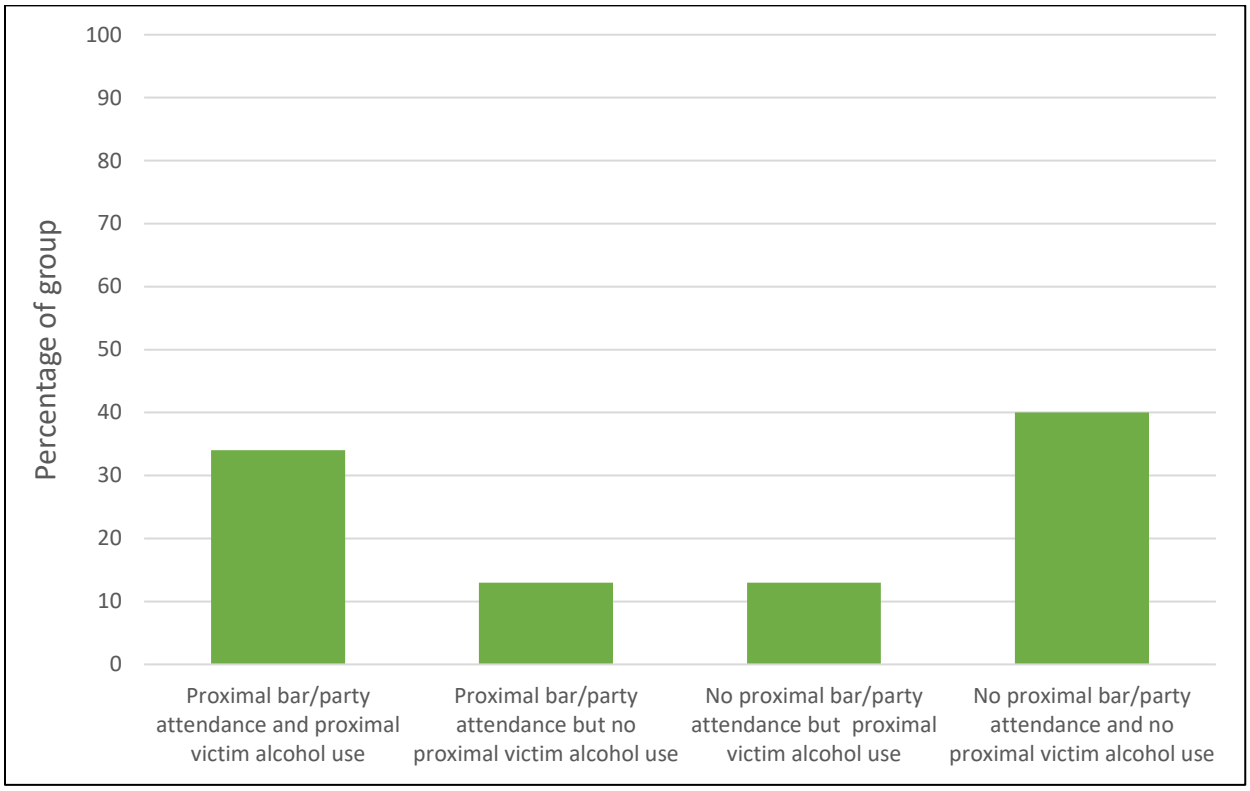


Table 1

Demographic Characteristics

Characteristic	Non-perpetrator		Contact/coercion		Rape		Full sample	
	n	*M*(*SD*) or %	*n*	*M*(*SD*) or %	*n*	*M*(*SD*) or %	*N*	*M*(*SD*) or %
Age	127	*22.03(4.68)*	104	*23.20(4.77)*	44	*22.95(5.13)*	275	*22.62(4.80)*
Gender								
Man/Male	121	95.3	103	99.0	43	97.7	267	97.1
Transgender man/male	5	3.9	1	1.0	1	2.3	7	2.5
Non-binary man	1	0.8	0	0	0	0	1	0.4
Race								
American Indian or Alaska Native	0	0	2	1.9	0	0	2	0.7
Asian or Asian American	16	12.6	12	11.5	6	13.6	34	12.4
Black or African American	3	2.4	18	17.3	9	20.5	30	10.9
White or Caucasian	97	76.4	66	63.5	29	65.9	192	69.8
Multiracial	5	3.9	4	3.8	0	0	9	3.3
Other	1	0.8	2	1.9	0	0	3	1.1
Prefer not to answer	5	3.9	0	0	0	0	5	1.8
Hispanic or Latino	19	15.0	10	9.6	0	0	29	10.5
Sexual orientation								
Bisexual	15	11.8	9	8.7	4	9.1	28	10.2
Gay	20	15.7	11	10.6	1	2.3	32	11.7
Heterosexual	88	69.3	83	79.8	37	84.1	208	75.6
Other	1	0.8	1	1.0	0	0	2	0.7
Prefer not to answer	3	2.4	0	0	2	4.5	5	1.8
Year in School								
Freshman/first year	31	24.4	12	11.5	8	18.2	51	18.5
Sophomore/second year	30	23.6	19	18.3	14	31.8	63	22.9
Junior/third year	32	25.2	33	31.7	10	22.7	75	27.3
Senior/fourth year	25	19.7	35	33.7	11	25.0	71	25.8
Other	9	7.1	5	4.8	1	2.3	15	5.5
Organization membership								
Greek organization (i.e., fraternity)	7	5.5	7	6.7	4	9.1	18	6.5

All-male organized sports team	1	0.8	8	7.7	17	38.6	26	9.5
Other all-male group	1	0.8	1	1.0	2	4.5	4	1.5
Relationship status								
Engaged	2	1.6	2	1.9	0	0	4	1.5
Married	9	7.1	2	1.9	1	2.3	12	4.4
Long-term monogamous relationship	35	27.5	46	44.2	12	27.3	93	33.8
Dating casually or hooking up	23	18.1	43	41.3	24	54.5	90	32.7
Not dating at all	57	44.9	11	10.6	7	15.9	75	27.3
Prefer not to answer	1	0.8	0	0	0	0	1	0.3
Number of consensual sex partners								
Lifetime	126	*3.37(3.99)*	102	*7.09(3.93)*	43	*7.35(3.23)*	271	*5.40(4.29)*
Past Year	126	*1.22(1.85)*	103	*2.18(2.05)*	43	*2.30(1.47)*	272	*1.76(1.93)*

Note. *n* = number of participants in the group. *M* = mean. *SD* = standard deviation.

Table 2

Frequency of Perpetration Categories Endorsed Across Scales and Severity Levels

Group	Sexual Assault Perpetration Scale	Item Severity Level	Frequency (*n*)
Contact/coercion perpetration (*n* = 104)			
	SES-SFP		
		Unwanted sexual contact	17
		Attempted verbal coercion	8
		Verbal coercion	11
	CTS2-SC		
		Verbal coercion	38
	SSS		
		Use of enticement strategies	11
		Verbal coercion	18
		Use of older age or authority	1
Rape perpetration (*n* = 44)			
	SES-SFP		
		Attempted rape	13
		Rape	19
	CTS2-SC		
		Use of threats	0
		Use of force	4
	SSS		
		Use of victim intoxication	4
		Use of threat or force	4

Note. SES-SFP = Sexual Experiences Survey-Short Form Perpetration; CTS2-SC = Revised Conflict Tactics Scales-Sexual Coercion subscale; SSS = Sexual Strategies Scale.

Table 3
Regression Coefficients for Individual Analyses of Distal Factors

	B	*Wald*	*df*	*p*	Odds Ratio
General frequent alcohol use (Hypothesis 1a)					
Contact/coercion perpetration (*n* = 104)	.33	23.74	1	< .001	1.39
Rape perpetration (*n* = 44)	.57	32.07	1	< .001	1.76
General heavy episodic drinking (Hypothesis 1b)					
Contact/coercion perpetration (*n* = 102)	.48	21.02	1	< .001	1.61
Rape perpetration (*n* = 43)	.76	28.89	1	< .001	2.13
Social facilitation alcohol expectancies (Hypothesis 2a)					
Contact/coercion perpetration (*n* = 104)	.06	5.36	1	< .05	1.07
Rape perpetration (*n* = 44)	.16	14.06	1	< .001	1.17
Sexual enhancement alcohol expectancies (Hypothesis 2b)					
Contact/coercion perpetration (*n* = 104)	.20	30.39	1	< .001	1.22
Rape perpetration (*n* = 43)	.41	42.29	1	< .001	1.51
General bar/party attendance (Hypothesis 3a)					
Contact/coercion perpetration (*n* = 104)	.20	27.40	1	< .001	1.22
Rape perpetration (*n* = 44)	.36	54.34	1	< .001	1.44

Table 4

Regression Coefficients for Multivariate Analysis of Distal Factors

	B	*Standard Error*	*Wald*	*df*	*p*	Odds Ratio	Lower Bound	Upper Bound
Contact/coercion perpetration (*n* = 102)								
Sexual enhancement alcohol expectancies	.18	.04	20.29	1	< .001	1.19	1.10	1.29
General bar/party attendance	.12	.04	7.30	1	< .01	1.12	1.03	1.22
General frequent alcohol use	.19	.078	5.56	1	< .05	1.20	1.03	1.41
Rape perpetration (*n* = 42)								
Sexual enhancement alcohol expectancies	.34	.07	25.45	1	< .001	1.41	1.23	1.61
General bar/party attendance	.24	.06	19.59	1	< .001	1.28	1.15	1.42
General frequent alcohol use	.35	.13	7.36	1	< .01	1.42	1.10	1.82

Note. Total *N* = 265; Lower Bound and Upper Bound = 95% Confidence Interval for Odds Ratio.

Table 5

Chi-Square Goodness-of-Fit Results for Proximal Perpetrator Alcohol Use (Hypothesis 1c)

Variable	Observed *N* (% of Group)			χ^2	*df*	*p*
	No	Yes	Maybe			
Perpetrator alcohol use before SA event (*N* = 147)	87 (59%)	60 (41%)	-	4.96	1	< .05
Perpetrator alcohol use before or during SA event (*N* = 147)	84 (57%)	63 (43%)	-	3.00	1	.083
Perpetrator alcohol use before, during, or after SA event (*N* = 147)	79 (54%)	68 (46%)	-	0.82	1	.364
Perpetrator intoxicated/drunk at time of SA event (*N* = 68)	9 (13%)	42 (62%)	17 (25%)	26.15	2	< .001

Note. SA = Sexual assault.

Table 6

Chi-Square Results for Proximal Perpetrator Alcohol Use Across Perpetrator Groups (Hypothesis 1c)

Variable	Observed *N* (% of Group)			χ^2	*df*	*p*
	No	Yes	Maybe			
Perpetrator alcohol use before SA event				30.38	1	< .001
Contact/coercion perpetration (*n* = 103)	76 (74%)	27 (26%)	-			
Rape perpetration (*n* = 44)	11 (25%)	33 (75%)	-			
Perpetrator alcohol use before or during SA event				26.49	1	< .001
Contact/coercion perpetration (*n* = 103)	73 (71%)	30 (29%)	-			
Rape perpetration (*n* = 44)	11 (25%)	33 (75%)	-			
Perpetrator alcohol use before, during, or after SA event				24.30	1	< .001
Contact/coercion perpetration (*n* = 103)	69 (67%)	34 (33%)	-			
Rape perpetration (*n* = 44)	10 (23%)	34 (77%)	-			
Perpetrator intoxicated/drunk at time of SA event				12.99	2	< .01
Contact/coercion perpetration (*n* = 34)	8 (24%)	14 (41%)	12 (35%)			
Rape perpetration (*n* = 34)	1 (3%)	28 (82%)	5 (15%)			

Note. SA = Sexual assault.

Table 7

Chi-Square Goodness-of-Fit Results for Proximal Victim Alcohol Use

Variable	Observed *N* (% of Group)			χ^2	*df*	*p*
	No	Yes	Maybe			
Victim alcohol use before SA event (*N* = 143)	80 (56%)	63 (44%)	-	2.02	1	.155
Victim alcohol use before or during SA event (*N* = 143)	76 (53%)	67 (47%)	-	0.57	1	.452
Victim alcohol use before, during, or after SA event (*N* = 143)	72 (50%)	71 (50%)	-	0.01	1	.933
Victim intoxicated/drunk at time of SA event (*N* = 71)	12 (17%)	37 (52%)	22 (31%)	13.38	2	< .01

Note. SA = Sexual assault.

Table 8

Chi-Square Results for Proximal Victim Alcohol Use Across Perpetrator Groups

Variable	Observed *N* (% of Group)			χ^2	*df*	*p*
	No	Yes	Maybe			
Victim alcohol use before SA event				17.97	1	< .001
Contact/coercion perpetration (*n* = 99)	67 (68%)	32 (32%)	-			
Rape perpetration (*n* = 44)	13 (30%)	31 (70%)	-			
Victim alcohol use before or during SA event				20.22	1	< .001
Contact/coercion perpetration (*n* = 99)	65 (66%)	34 (34%)	-			
Rape perpetration (*n* = 44)	11 (25%)	33 (75%)	-			
Victim alcohol use before, during, or after SA event				19.40	1	< .001
Contact/coercion perpetration (*n* = 99)	62 (63%)	37 (37%)	-			
Rape perpetration (*n* = 44)	10 (23%)	34 (77%)	-			
Victim intoxicated/drunk at time of SA event				12.34	2	< .01
Contact/coercion perpetration (*n* = 37)	8 (22%)	12 (32%)	17 (46%)			
Rape perpetration (*n* = 34)	4 (12%)	25 (73%)	5 (15%)			

Note. SA = Sexual assault.

Table 9

Chi-Square Goodness-of-Fit Results for Proximal Alcohol Expectancies (Hypotheses 2c, 2d, and 2e)

Variable	Observed *N* (% of Group)		χ^2	*df*	*p*
	No	Yes			
Proximal social facilitation alcohol expectancies (*N* = 13)	3 (23%)	10 (77%)	3.77	1	.052
Proximal sexual enhancement alcohol expectancies (*N* = 13)	8 (62%)	5 (38%)	0.69	1	.405
Sex-related expectancies of victim alcohol use (*N* = 17)	9 (53%)	8 (47%)	0.59	1	.808

Table 10

Chi-Square Results for Proximal Alcohol Expectancies Across Perpetrator Groups (Hypotheses 2c, 2d, and 2e)

Variable	Observed *N* (% of Group)		χ^2	*df*	*p*
	No	Yes			
Proximal social facilitation alcohol expectancies			3.34	1	.067
Contact/coercion perpetration (*N* = 7)	3 (43%)	4 (57%)			
Rape perpetration (*N* = 6)	0 (0%)	6 (100%)			
Proximal sexual enhancement alcohol expectancies			0.12	1	.725
Contact/coercion perpetration (*N* = 7)	4 (57%)	3 (43%)			
Rape perpetration (*N* = 6)	4 (67%)	2 (33%)			
Sex-related expectancies of victim alcohol use			0.03	1	.858
Contact/coercion perpetration (*N* = 11)	6 (55%)	5 (45%)			
Rape perpetration (*N* = 6)	3 (50%)	3 (50%)			

Table 11

Chi-Square Goodness-of-Fit Results for Proximal Bar/Party Attendance (Hypothesis 3b)

Variable	Observed *N* (% of Group)		χ^2	*df*	*p*
	No	Yes			
SA occurred at a bar, party, etc. (*N* = 146)	99 (68%)	47 (32%)	18.52	1	< .001
SA occurred after leaving a bar, party, etc. (*N* = 146)	103 (71%)	43 (29%)	24.66	1	< .001
SA occurred at or after leaving a bar, party, etc. (*N* = 146)	79 (54%)	67 (46%)	0.99	1	.321

Note. SA = Sexual assault.

Table 12

Chi-Square Results for Proximal Bar/Party Attendance Across Perpetrator Groups (Hypothesis 3b)

Variable	Observed *N* (% of Group)		χ^2	*df*	*p*
	No	Yes			
SA occurred at a bar, party, etc.			12.66	1	< .001
Contact/coercion perpetration (*N* = 103)	79 (77%)	24 (23%)			
Rape perpetration (*N* = 43)	20 (47%)	23 (53%)			
SA occurred after leaving a bar, party, etc.			4.52	1	< .05
Contact/coercion perpetration (*N* = 103)	78 (76%)	25 (24%)			
Rape perpetration (*N* = 43)	25 (58%)	18 (42%)			
SA occurred at or after leaving a bar, party, etc.			7.01	1	< .01
Contact/coercion perpetration (*N* = 103)	63 (61%)	40 (39%)			
Rape perpetration (*N* = 43)	16 (37%)	27 (63%)			

Note. SA = Sexual assault.

Table 13

Frequency of Psychotropic Substance Use During the Past 12 Months

Substance	Never	Several times, but less than once a month	About once a month	2-3 times a month	Once a week	Twice a week	3-6 times a week	Daily or almost daily
Cannabis use (*N* = 271)								
No perpetration	69	21	5	8	3	3	4	13
Contact/coercion perpetration	26	23	4	10	7	2	12	17
Rape perpetration	7	5	3	1	5	8	8	7
Cocaine use (*N* = 269)								
No perpetration	124	3	0	0	0	0	0	0
Contact/coercion perpetration	87	9	2	0	0	0	0	1
Rape perpetration	23	10	2	4	3	0	1	0
Stimulant use (*N* = 271)								
No perpetration	113	5	5	0	1	1	0	1
Contact/coercion perpetration	75	8	8	4	2	0	3	1
Rape perpetration	34	2	3	1	0	2	2	0
Methamphetamine use (*N* = 272)								
No perpetration	127	0	0	0	0	0	0	0
Contact/coercion perpetration	96	4	0	1	0	0	0	0
Rape perpetration	28	6	6	2	1	0	1	0
Inhalant use (*N* = 273)								
No perpetration	125	1	0	0	0	0	1	0
Contact/coercion perpetration	95	4	2	1	0	0	0	0
Rape perpetration	33	6	1	2	1	1	0	0
Sedative use (*N* = 271)								

No perpetration	123	2	1	1	0	0	0	0
Contact/coercion perpetration	83	9	3	3	1	0	0	1
Rape perpetration	31	7	2	2	0	0	1	1
Hallucinogen use (*N* = 272)								
No perpetration	110	13	3	1	0	0	0	0
Contact/coercion perpetration	68	18	8	5	1	1	0	0
Rape perpetration	22	5	6	8	2	1	0	0
Street opioid use (*N* = 270)								
No perpetration	126	0	0	0	0	0	0	0
Contact/coercion perpetration	97	3	1	0	0	0	0	0
Rape perpetration	39	2	0	1	0	0	1	0
Prescription opioid use (*N* = 271)								
No perpetration	124	3	0	0	0	0	0	0
Contact/coercion perpetration	97	2	0	1	0	0	0	1
Rape perpetration	41	0	0	0	0	2	0	0

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Appendix A:
Screener Questionnaire

1. What is your age (in years)? _____

2. With which gender identity do you most identify?
   - o Woman/Female
   - o Man/Male
   - o Transgender female
   - o Transgender male
   - o Gender variant/non-conforming
   - o Other (please specify) _____
   - o Prefer not to answer

3. What is your current year in school?
   - o Freshman/first year
   - o Sophomore/second year
   - o Junior/third year
   - o Senior/Fourth year
   - o Other (please specify) _____
   - o Prefer not to answer

4. Did you participate in this study before?
   - o Yes
   - o No

Appendix B:
Demographics Questionnaire

First, we would like to ask a few general background questions.

1. What is the race that best describes you? (Select all that apply)
   - ☐ American Indian or Alaska Native
   - ☐ Asian or Asian-American
   - ☐ Black or African-American
   - ☐ Native Hawaiian or Pacific Islander
   - ☐ White or Caucasian
   - ☐ Other (Please specify) _____
   - ☐ Prefer not to answer

2. Are you Hispanic or Latino?
   - o Yes
   - o No
   - o Prefer not to answer

3. What is your sexual orientation?
   - o Bisexual
   - o Heterosexual
   - o Homosexual
   - o Other (please specify) _____
   - o Prefer not to answer

4. What is your major? (Please specify) _____
   - o Still have not decided
   - o Prefer not to answer

5. Are you a member of any of the following groups? (Select all that apply)
   - ☐ Greek organization (i.e., fraternity)
   - ☐ All-male organized sports team
   - ☐ Other all-male group (Please specify) _____
   - ☐ None
   - ☐ Prefer not to answer

6. Approximately what is your annual household income?
   - o Under $10,000
   - o $10,000 - $20,000
   - o $21,000 - $30,000
   - o $31,000 - $40,000
   - o $41,000 - $50,000
   - o $51,000 - $75,000
   - o $76,000 - $100,000

- Over $100,000
- Prefer not to answer

7. Where do you currently live?
   - University housing
   - Off campus apartment/house - alone
   - Off campus apartment/house - with friends
   - Off campus apartment/house - with partner/spouse
   - With parents
   - Other (Please specify) _____
   - Prefer not to answer

8. What is your current marital status?
   - Never married
   - Not married but living with a partner
   - Engaged
   - Married
   - Separated
   - Divorced
   - Widowed
   - Other (Please specify) _____
   - Prefer not to answer

   [If B, C, or D selected for Question 8]
   8a. What is the gender of your partner/spouse?
   - Woman/Female
   - Man/Male
   - Other (Please specify) _____
   - Prefer not to answer

   [If A, B, E, F, G, or H selected for Question 8]
   8b. What is your current dating status?
   - Not dating at all
   - Dating casually or hooking-up
   - In a long-term monogamous relationship (more than 6 months)
   - Other (Please specify) _____
   - Prefer not to answer

      [If B or C selected for Question 8b]
      8c. What is the gender of your partner(s)?
      - ☐ Woman/Female
      - ☐ Man/Male
      - ☐ Other (Please specify) _____
      - ☐ Prefer not to answer

9. How old were you the first time you had consensual (not forced) ORAL sex?

- 13 years-old or younger
- 14
- 15
- 16
- 17
- 18
- 19 years-old or older
- I have never had oral sex
- I have only had non-consensual (forced) oral sex
- Prefer not to answer

10. How old were you the first time you had consensual (not forced) VAGINAL sex?
    - 13 years-old or younger
    - 14
    - 15
    - 16
    - 17
    - 18
    - 19 years-old or older
    - I have never had vaginal sex
    - I have only had non-consensual (forced) vaginal sex
    - Prefer not to answer

11. How old were you the first time you had consensual (not forced) ANAL sex?
    - 13 years-old or younger
    - 14
    - 15
    - 16
    - 17
    - 18
    - 19 years-old or older
    - I have never had anal sex
    - I have only had non-consensual (forced) anal sex
    - Prefer not to answer

12. How many consensual (not forced) sex partners have you had in your <u>lifetime</u>?
    - 0
    - 1
    - 2
    - 3
    - 4
    - 5
    - 6
    - 7
    - 8
    - 9

- 10
- 11 or more
- Prefer not to answer

13. How many consensual (not forced) sex partners have you had in the past year?
    - 0
    - 1
    - 2
    - 3
    - 4
    - 5
    - 6
    - 7
    - 8
    - 9
    - 10
    - 11 or more
    - Prefer not to answer

14. Approximately how often do you read, listen to, or watch sexually explicit material (i.e., pornographic material)?
    - 5-10 times per year
    - 1-2 times per month
    - 3-4 times per month
    - 1-2 times per week
    - 3-4 times per week
    - Almost daily
    - Never
    - Prefer not to answer

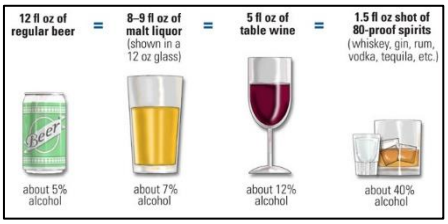
Appendix C:
General Alcohol Use Questionnaire

Now, we would like to ask some questions about your use of alcohol (for example, beer, wine, liquor, spirits, etc.):

1. During the past 12 months, how often did you have a drink containing alcohol?
   - o Daily or almost daily
   - o 3-6 times a week
   - o Twice a week
   - o Once a week
   - o 2-3 times a month
   - o About once a month
   - o Several times, but less than once a month
   - o Never
   - o Prefer not to answer

   [*If option "Never" is selected, discontinue the General Alcohol Use Questionnaire and proceed with the General Bar/Party Attendance Questionnaire below.]*

2. During the past 12 months, how many standard drinks containing alcohol did you have on a typical day when you were drinking? Refer to the figure below for standard drink information.
   - o 1 or 2
   - o 3 or 4
   - o 5 or 6
   - o 7 to 9
   - o 10 or more
   - o Prefer not to answer



Source: National Institute on Alcohol Abuse and Alcoholism (NIAAA)

3. During the past 12 months, how often did you have six or more standard drinks on one occasion?
   - o Never
   - o Less than monthly
   - o Monthly
   - o Weekly
   - o Daily or almost daily
   - o Prefer not to answer

Following is a list of common results of alcohol use that college students often report. Please indicate how often you have experienced these results during the past 12 months.

During the past 12 months, I have…	Never	Several times, but less than monthly	About once a month	2-3 times a month	1-2 times a week	Daily or almost daily	Prefer not to answer
1. had a hangover.	O	O	O	O	O	O	O
2. gotten nauseated and vomited from drinking.	O	O	O	O	O	O	O
3. driven a car after having several drinks.	O	O	O	O	O	O	O
4. driven a car when I knew I had too much to drink.	O	O	O	O	O	O	O
5. driven a car while drinking.	O	O	O	O	O	O	O
6. come to class after having several drinks.	O	O	O	O	O	O	O
7. “cut a class” after having several drinks.	O	O	O	O	O	O	O
8. missed a class because of a hangover.	O	O	O	O	O	O	O
9. been arrested for DWI (Driving While Intoxicated).	O	O	O	O	O	O	O
10. been criticized by someone I was dating because of my drinking.	O	O	O	O	O	O	O
11. had trouble with the law because of drinking.	O	O	O	O	O	O	O
12. lost a job because of drinking.	O	O	O	O	O	O	O
13. received a lower grade because of drinking.	O	O	O	O	O	O	O
14. gotten in trouble with school administration because of behavior resulting from drinking too much.	O	O	O	O	O	O	O
15. gotten into a fight after drinking.	O	O	O	O	O	O	O
16. thought I might have an alcohol problem.	O	O	O	O	O	O	O
17. damaged property, pulled a false alarm, or other such behavior after drinking.	O	O	O	O	O	O	O
18. participated in a drinking game.	O	O	O	O	O	O	O

Appendix D:
General Bar/Party Attendance Questionnaire

Now, we would like to ask a few questions about your attendance at bars, parties, etc.

1. During the past 12 months, how often did you attend a party?
   - Daily or almost daily
   - 3-6 times a week
   - Twice a week
   - Once a week
   - 2-3 times a month
   - About once a month
   - Several times, but less than once a month
   - Never
   - Prefer not to answer

2. During the past 12 months, how often did you go to a bar?
   - Daily or almost daily
   - 3-6 times a week
   - Twice a week
   - Once a week
   - 2-3 times a month
   - About once a month
   - Several times, but less than once a month
   - Never
   - Prefer not to answer

3. During the past 12 months, how often did you go to a club?
   - Daily or almost daily
   - 3-6 times a week
   - Twice a week
   - Once a week
   - 2-3 times a month
   - About once a month
   - Several times, but less than once a month
   - Never
   - Prefer not to answer

4. During the past 12 months, how often did you attend a large social gathering?
   - Daily or almost daily
   - 3-6 times a week
   - Twice a week
   - Once a week
   - 2-3 times a month
   - About once a month

- Several times, but less than once a month
- Never
- Prefer not to answer

Appendix E:
General Alcohol Expectancies Questionnaire

Here is a list of some effects or consequences that some people experience after drinking alcohol. How likely is it that these things happen to **you** when you drink alcohol? Please select the option that best describes how drinking alcohol would affect you.

If you do not drink at all, just answer according to what you think would happen to you if you **did** drink.

	How likely is it that this would happen?						
When I drink alcohol…	No chance	Very unlikely	Unlikely	Likely	Very likely	Certain to happen	Prefer not to answer
1. I am more accepted socially.	O	O	O	O	O	O	O
2. I become aggressive.	O	O	O	O	O	O	O
3. I am less alert.	O	O	O	O	O	O	O
4. I feel ashamed of myself.	O	O	O	O	O	O	O
5. I enjoy the buzz.	O	O	O	O	O	O	O
6. I become clumsy or uncoordinated.	O	O	O	O	O	O	O
7. I feel good.	O	O	O	O	O	O	O
8. I get into fights.	O	O	O	O	O	O	O
9. I can't concentrate.	O	O	O	O	O	O	O
10. I have a good time.	O	O	O	O	O	O	O
11. I have problems driving.	O	O	O	O	O	O	O
12. I feel guilty.	O	O	O	O	O	O	O
13. I get a hangover.	O	O	O	O	O	O	O
14. I feel happy.	O	O	O	O	O	O	O
15. I get a headache.	O	O	O	O	O	O	O
16. I am more sexually assertive.	O	O	O	O	O	O	O
17. It is fun.	O	O	O	O	O	O	O
18. I get mean.	O	O	O	O	O	O	O
19. I have problems with memory and concentration.	O	O	O	O	O	O	O
20. I am more outgoing.	O	O	O	O	O	O	O
21. It takes away my negative moods and feelings.	O	O	O	O	O	O	O
22. I have more desire for sex.	O	O	O	O	O	O	O
23. It is easier for me to socialize.	O	O	O	O	O	O	O
24. I feel pleasant physical effects.	O	O	O	O	O	O	O
25. I am more sexually responsive.	O	O	O	O	O	O	O
26. I feel more sociable.	O	O	O	O	O	O	O
27. I feel sad or depressed.	O	O	O	O	O	O	O
28. I am able to talk more freely.	O	O	O	O	O	O	O
29. I become more sexually active.	O	O	O	O	O	O	O
30. I feel sick.	O	O	O	O	O	O	O
31. I feel less stressed.	O	O	O	O	O	O	O
32. I am friendlier.	O	O	O	O	O	O	O
33. I experience unpleasant physical effects.	O	O	O	O	O	O	O
34. I am able to take my mind off my problems.	O	O	O	O	O	O	O

Appendix F:
Sexual Assault Perpetration Questionnaire

The following questions concern sexual experiences. We know that these are personal questions, so as a reminder, your name and other identifying information will not be connected to your responses. Your information is completely confidential. We hope this helps you feel comfortable answering these questions honestly.

[*Beginning of Scale 1: SES-SFP*]

Please indicate the number of times each of the following experiences has happened.

If several experiences occurred on the same occasion, please select ALL of the experiences that apply. For example, if one night you told some lies and had sex with someone who was drunk, you would select both boxes a and c. The past 12 months refers to the past year going back from today. Since age 14 refers to your life starting on your 14th birthday and stopping one year ago today.

Note: Please respond to all of these questions even though you might have already responded to similar questions earlier in this survey. **As a reminder, your name and other identifying information will not be connected to your responses. Your information is completely confidential.**

			How many times in the past 12 months?					How many times since age 14?				
1.	I fondled, kissed, or rubbed up against the private areas of someone's body (lips, breast, crotch, or butt) or removed some of their clothes without their consent (*but did not attempt sexual penetration*) by:		0	1	2	3+	Prefer not to answer	0	1	2	3+	Prefer not to answer
	a.	Telling lies, threatening to end the relationship, threatening to spread rumors about them, making promises about the future I knew were untrue, or continually verbally pressuring them after they said they didn't want to.	O	O	O	O	O	O	O	O	O	O
	b.	Showing displeasure, criticizing their sexuality or attractiveness, getting angry but not using physical force, after they said they didn't want to.	O	O	O	O	O	O	O	O	O	O
	c.	Taking advantage when they were too drunk or out of it to stop what was happening.	O	O	O	O	O	O	O	O	O	O

	d.	Threatening to physically harm them or someone close to them.	O	O	O	O	O	O	O	O	O	O
	e.	Using force, for example holding them down with my body weight, pinning their arms, or having a weapon.	O	O	O	O	O	O	O	O	O	O

			How many times in the past 12 months?					How many times since age 14?				
2.	I had oral sex with someone or had someone perform oral sex on me without their consent by:		0	1	2	3+	Prefer not to answer	0	1	2	3+	Prefer not to answer
	a.	Telling lies, threatening to end the relationship, threatening to spread rumors about them, making promises about the future I knew were untrue, or continually verbally pressuring them after they said they didn't want to.	O	O	O	O	O	O	O	O	O	O
	b.	Showing displeasure, criticizing their sexuality or attractiveness, getting angry but not using physical force, after they said they didn't want to.	O	O	O	O	O	O	O	O	O	O
	c.	Taking advantage when they were too drunk or out of it to stop what was happening.	O	O	O	O	O	O	O	O	O	O
	d.	Threatening to physically harm them or someone close to them.	O	O	O	O	O	O	O	O	O	O
	e.	Using force, for example holding them down with my body weight, pinning their arms, or having a weapon.	O	O	O	O	O	O	O	O	O	O

			How many times in the past 12 months?					How many times since age 14?				
3.	I put my penis or I put my finger(s) or object(s) into a woman's vagina without her consent by:		0	1	2	3+	Prefer not to answer	0	1	2	3+	Prefer not to answer
	a.	Telling lies, threatening to end the relationship, threatening to spread rumors about them, making promises about the future I knew were untrue, or continually verbally pressuring them after they said they didn't want to.	O	O	O	O	O	O	O	O	O	O
	b.	Showing displeasure, criticizing their sexuality or attractiveness, getting angry but not using physical force, after they said they didn't want to.	O	O	O	O	O	O	O	O	O	O
	c.	Taking advantage when they were too drunk or out of it to stop what was happening.	O	O	O	O	O	O	O	O	O	O
	d.	Threatening to physically harm them or someone close to them.	O	O	O	O	O	O	O	O	O	O

	e.	Using force, for example holding them down with my body weight, pinning their arms, or having a weapon.	O	O	O	O	O	O	O	O	O	O

			How many times in the past 12 months?					How many times since age 14?				
4.	I put my penis or I put my finger(s) or object(s) into someone's butt without their consent by:		0	1	2	3+	Prefer not to answer	0	1	2	3+	Prefer not to answer
	a.	Telling lies, threatening to end the relationship, threatening to spread rumors about them, making promises about the future I knew were untrue, or continually verbally pressuring them after they said they didn't want to.	O	O	O	O	O	O	O	O	O	O
	b.	Showing displeasure, criticizing their sexuality or attractiveness, getting angry but not using physical force, after they said they didn't want to.	O	O	O	O	O	O	O	O	O	O
	c.	Taking advantage when they were too drunk or out of it to stop what was happening.	O	O	O	O	O	O	O	O	O	O
	d.	Threatening to physically harm them or someone close to them.	O	O	O	O	O	O	O	O	O	O
	e.	Using force, for example holding them down with my body weight, pinning their arms, or having a weapon.	O	O	O	O	O	O	O	O	O	O

			How many times in the past 12 months?					How many times since age 14?				
5.	Even though it did not happen, I TRIED to have oral sex with someone or make them have oral sex with me without their consent by:		0	1	2	3+	Prefer not to answer	0	1	2	3+	Prefer not to answer
	a.	Telling lies, threatening to end the relationship, threatening to spread rumors about them, making promises about the future I knew were untrue, or continually verbally pressuring them after they said they didn't want to.	O	O	O	O	O	O	O	O	O	O
	b.	Showing displeasure, criticizing their sexuality or attractiveness, getting angry but not using physical force, after they said they didn't want to.	O	O	O	O	O	O	O	O	O	O
	c.	Taking advantage when they were too drunk or out of it to stop what was happening.	O	O	O	O	O	O	O	O	O	O
	d.	Threatening to physically harm them or someone close to them.	O	O	O	O	O	O	O	O	O	O

	e.	Using force, for example holding them down with my body weight, pinning their arms, or having a weapon.	O	O	O	O	O	O	O	O	O	O

			How many times in the past 12 months?					How many times since age 14?				
6.	Even though it did not happen, I TRIED to put my penis or I tried to put my finger(s) or object(s) into a woman's vagina without her consent by:		0	1	2	3+	Prefer not to answer	0	1	2	3+	Prefer not to answer
	a.	Telling lies, threatening to end the relationship, threatening to spread rumors about them, making promises about the future I knew were untrue, or continually verbally pressuring them after they said they didn't want to.	O	O	O	O	O	O	O	O	O	O
	b.	Showing displeasure, criticizing their sexuality or attractiveness, getting angry but not using physical force, after they said they didn't want to.	O	O	O	O	O	O	O	O	O	O
	c.	Taking advantage when they were too drunk or out of it to stop what was happening.	O	O	O	O	O	O	O	O	O	O
	d.	Threatening to physically harm them or someone close to them.	O	O	O	O	O	O	O	O	O	O
	e.	Using force, for example holding them down with my body weight, pinning their arms, or having a weapon.	O	O	O	O	O	O	O	O	O	O

			How many times in the past 12 months?					How many times since age 14?				
7.	Even though it did not happen, I TRIED to put my penis or I tried to put my finger(s) or object(s) into someone's butt without their consent by:		0	1	2	3+	Prefer not to answer	0	1	2	3+	Prefer not to answer
	a.	Telling lies, threatening to end the relationship, threatening to spread rumors about them, making promises about the future I knew were untrue, or continually verbally pressuring them after they said they didn't want to.	O	O	O	O	O	O	O	O	O	O
	b.	Showing displeasure, criticizing their sexuality or attractiveness, getting angry but not using physical force, after they said they didn't want to.	O	O	O	O	O	O	O	O	O	O
	c.	Taking advantage when they were too drunk or out of it to stop what was happening.	O	O	O	O	O	O	O	O	O	O

	d.	Threatening to physically harm them or someone close to them.	O	O	O	O	O	O	O	O	O	O
	e.	Using force, for example holding them down with my body weight, pinning their arms, or having a weapon.	O	O	O	O	O	O	O	O	O	O

8. Do you think you may have ever raped someone?
   - o Yes
   - o No
   - o Prefer not to answer

[*End of Scale 1: SES-SFP*]

[*Beginning of Scale 2: SSS*]

Please indicate if you have used any of the following strategies to convince someone to have sex (oral, anal, or vaginal intercourse) after they initially said "no."

If you used several strategies on the same occasion, select ALL of the strategies you used. For example, if one night you told some lies and had sex with someone who was drunk, you would select BOTH of these strategies. The past 12 months refers to the past year going back from today. Since age 14 refers to your life starting on your 14th birthday and stopping one year ago today.

Note: Please respond to all of these questions even though you might have already responded to similar questions earlier in this survey. **As a reminder, your name and other identifying information will not be connected to your responses. Your information is completely confidential.**

	Past 12 months			Since age 14		
	Yes	No	Prefer not to answer	Yes	No	Prefer not to answer
1. Continuing to touch and kiss them in the hopes that they will give in to sex.	O	O	O	O	O	O
2. Telling them lies (e.g., saying "I love you" when you don't).	O	O	O	O	O	O
3. Using your older age to convince them.	O	O	O	O	O	O
4. Getting them drunk/high in order to convince them to have sex.	O	O	O	O	O	O
5. Threatening to tell others a secret or lie about them if they don't have sex (i.e., blackmail).	O	O	O	O	O	O
6. Asking them repeatedly to have sex.	O	O	O	O	O	O
7. Blocking them if they try to leave the room.	O	O	O	O	O	O
8. Threatening to harm them physically if they don't have sex.	O	O	O	O	O	O
9. Taking advantage of the fact that they are drunk/high.	O	O	O	O	O	O
10. Threatening to harm yourself if they don't have sex.	O	O	O	O	O	O
11. Using a weapon to frighten them into having sex.	O	O	O	O	O	O

12. Taking off their clothes in the hopes that they will give in to sex.	O	O	O	O	O	O
13. Taking off your clothes in the hopes that they will give in to sex.	O	O	O	O	O	O
14. Using physical restraint.	O	O	O	O	O	O
15. Threatening to break up with them if they don't have sex.	O	O	O	O	O	O
16. Questioning their sexuality (e.g., calling them a lesbian).	O	O	O	O	O	O
17. Using your authority to convince them (e.g., if you were their boss, their supervisor, their camp counselor, etc.).	O	O	O	O	O	O
18. Harming them physically.	O	O	O	O	O	O
19. Tying them up.	O	O	O	O	O	O
20. Questioning their commitment to the relationship (e.g., saying "if you loved me, you would").	O	O	O	O	O	O
21. Accusing them of "leading you on" or being "a tease."	O	O	O	O	O	O
22. Slipping them drugs (e.g., GHB or "Roofies") so that you can take advantage of them.	O	O	O	O	O	O

[*End of Scale 2: SSS*]

[*Beginning of Scale 3: CTS2-SC*]

No matter how well a couple gets along, there are times when they disagree, get annoyed with the other person, want different things from each other, or just have spats or fights because they are in a bad mood, are tired, or for some other reason. Couples also have many different ways of trying to settle their differences. Following is a list of things that might happen when you have differences. Please indicate how many times you did each of these things.

Note: Please respond to all of these questions even though you might have already responded to similar questions earlier in this survey. **As a reminder, your name and other identifying information will not be connected to your responses. Your information is completely confidential.**

Click here if you have never been in a relationship.
[If above option is selected, proceed either with next questionnaire of the Sexual Assault Perpetration Questionnaires (if not presented yet) or proceed with Event-related Follow-up Questionnaire (if already presented all other questionnaires of the Sexual Assault perpetration Questionnaires).]

	This has never happened	Once in the past year	Twice in the past year	3-5 times in the past year	6-10 times in the past year	11-20 times in the past year	More than 20 times in the past year	Not in the past year, but it did happen before	Prefer not to answer
1. I convinced my partner to have sex without a condom.	O	O	O	O	O	O	O	O	O
2. I insulted or swore at my partner.	O	O	O	O	O	O	O	O	O
3. I showed respect for my partner's feelings about an issue.	O	O	O	O	O	O	O	O	O
4. I made my partner have sex without a condom.	O	O	O	O	O	O	O	O	O
5. I pushed or shoved my partner.	O	O	O	O	O	O	O	O	O
6. I used force (like hitting, holding down, or using a weapon) to make my partner have oral or anal sex.	O	O	O	O	O	O	O	O	O
7. I shouted or yelled at my partner.	O	O	O	O	O	O	O	O	O
8. I used force (like hitting, holding down, or using a weapon) to make my partner have sex.	O	O	O	O	O	O	O	O	O
9. I stomped out of the room or house or yard during a disagreement.	O	O	O	O	O	O	O	O	O

10. I insisted on sex when my partner did not want to (but did not use physical force).	O	O	O	O	O	O	O	O	O
11. I slapped my partner.	O	O	O	O	O	O	O	O	O
12. I used threats to make my partner have oral or anal sex.	O	O	O	O	O	O	O	O	O
13. I burned or scalded my partner on purpose.	O	O	O	O	O	O	O	O	O
14. I insisted my partner have oral or anal sex (but did not use physical force).	O	O	O	O	O	O	O	O	O
15. I accused my partner of being a lousy lover.	O	O	O	O	O	O	O	O	O
16. I used threats to make my partner have sex.	O	O	O	O	O	O	O	O	O
17. I agreed to try a solution to a disagreement my partner suggested.	O	O	O	O	O	O	O	O	O
18. I forced my partner to have sex without a condom.	O	O	O	O	O	O	O	O	O

[*End of Scale 3: CTS2-SC*]

Appendix G:
Event-Related Follow-Up Questionnaire

[Present text prompt indicated in Table below based on rules outlined in Procedure section]

Sexual Assault Perpetration Scale	Item	Strategy	Severity Level	Text of Prompt
SES-SFP	2 – 4	c – e	Rape	Previously, you indicated that you had oral, vaginal, or anal sex with someone or had someone perform oral sex on you without their consent <u>at least once during the past 12 months,</u> by either: • Taking advantage when they were too drunk or out of it to stop what was happening. Or by • Threatening to physically harm them or someone close to them. Or by • Using force, for example holding them down with your body weight, pinning their arms, or having a weapon. Now we would like to ask you a few questions about that experience. If this happened on more than one occasion, please identify in your mind which occasion you remember best and answer the questions with regard to that occasion.
SES-SFP	5 – 7	c – e	Attempted rape	Previously, you indicated that even though it did not happen, you TRIED to have oral, anal, or vaginal sex with someone or made them have oral sex with you without their consent <u>at least once during the past 12 months,</u> by either: • Taking advantage when they were too drunk or out of it to stop what was happening. Or by • Threatening to physically harm them or someone close to them. Or by • Using force, for example holding them down with your body weight, pinning their arms, or having a weapon. Now we would like to ask you a few questions about that experience. If this happened on more than one occasion, please identify in your mind which occasion you remember best and answer the questions with regard to that occasion.
SES-SFP	2 – 4	a or b	Verbal coercion	Previously, you indicated that you had oral, vaginal, or anal sex with someone or had someone perform oral sex on you without their consent <u>at least once during the past 12 months</u>, by either: • Telling lies, threatening to end the relationship, threatening to spread rumors about them, making promises about the future you knew were untrue, or continually verbally pressuring them after they said they didn't want to. Or by

				• Showing displeasure, criticizing their sexuality or attractiveness, getting angry but not using physical force, after they said they didn't want to. Now we would like to ask you a few questions about that experience. If this happened on more than one occasion, please identify in your mind which occasion you remember best and answer the questions with regard to that occasion.
SES-SFP	5 – 7	a or b	Attempted verbal coercion	Previously, you indicated that even though it did not happen, you TRIED to have oral, anal, or vaginal sex with someone or make them have oral sex with you without their consent <u>at least once during the past 12 months,</u> by either: • Telling lies, threatening to end the relationship, threatening to spread rumors about them, making promises about the future you knew were untrue, or continually verbally pressuring them after they said they didn't want to. Or by • Showing displeasure, criticizing their sexuality or attractiveness, getting angry but not using physical force, after they said they didn't want to. Now we would like to ask you a few questions about that experience. If this happened on more than one occasion, please identify in your mind which occasion you remember best and answer the questions with regard to that occasion.
SES-SFP	1	a – e	Unwanted sexual contact	Previously, you indicated that you fondled, kissed, or rubbed up against the private areas of someone's body (lips, breast, crotch, or butt) or removed some of their clothes without their consent (but did not attempt sexual penetration) <u>at least once during the past 12 months.</u> Now we would like to ask a few questions about that experience. If this happened on more than one occasion, please identify in your mind which occasion you remember best and answer the questions with regard to that occasion.
CTS2-SC	6, 8, 18	N/A	Use of force	Previously, you indicated that you used physical force to get your partner to have sex (oral, anal, or vaginal intercourse) <u>at least once during the past 12 months</u>. Now we would like to ask you a few questions about that experience. If this happened on more than one occasion, please identify in your mind which occasion you remember best and answer the questions with regard to that occasion.
CTS2-SC	12, 16	N/A	Use of threats	Previously, you indicated that you used threats to get your partner to have sex (oral, anal, or vaginal intercourse) <u>at least once during the past 12 months</u>. Now we would like to ask you a few questions about that experience." If this happened on more than one occasion, please identify in your mind which occasion you remember best and answer the questions with regard to that occasion.

CTS2-SC	4, 10, 14	N/A	Verbal coercion	Previously, you indicated that you used verbal coercion to get your partner to have sex (oral, anal, or vaginal intercourse) at least once during the past 12 months. Now we would like to ask you a few questions about that experience." If this happened on more than one occasion, please identify in your mind which occasion you remember best and answer the questions with regard to that occasion.
SSS	7, 8, 11, 14, 18, 19	N/A	Use of threat or force	Previously, you indicated that you used threats or force as a strategy to convince a woman to have sex (oral, anal, or vaginal intercourse) after she initially said "no" at least once during the past 12 months. Now we would like to ask you a few questions about that experience. If this happened on more than one occasion, please identify in your mind which occasion you remember best and answer the questions with regard to that occasion.
SSS	4, 9, 22	N/A	Use of victim intoxication	Previously, you indicated that you used intoxication as a strategy to convince a woman to have sex (oral, anal, or vaginal intercourse) after she initially said "no" at least once during the past 12 months. Now we would like to ask you a few questions about that experience. If this happened on more than one occasion, please identify in your mind which occasion you remember best and answer the questions with regard to that occasion.
SSS	3, 17	N/A	Use of older age or authority	Previously, you indicated that you used older age or authority as a strategy to convince a woman to have sex (oral, anal, or vaginal intercourse) after she initially said "no" at least once during the past 12 months. Now we would like to ask you a few questions about that experience. If this happened on more than one occasion, please identify in your mind which occasion you remember best and answer the questions with regard to that occasion.
SSS	2, 5, 6, 10, 15, 16, 20, 21	N/A	Verbal coercion	Previously, you indicated that you used verbal coercion as a strategy to convince a woman to have sex (oral, anal, or vaginal intercourse) after she initially said "no" at least once during the past 12 months. Now we would like to ask you a few questions about that experience. If this happened on more than one occasion, please identify in your mind which occasion you remember best and answer the questions with regard to that occasion.
SSS	1, 12, 13	N/A	Use of enticement strategies	Previously, you indicated that you engaged in enticement strategies to convince a woman to have sex (oral, anal, or vaginal intercourse) after she initially said "no" at least once during the past 12 months. Now we would like to ask you a few questions about that experience. If this happened on more than one occasion, please identify in your mind which occasion you remember best and answer the questions with regard to that occasion.

1. Did you consume alcohol immediately before this experience?
   - Yes
   - No
   - Prefer not to answer

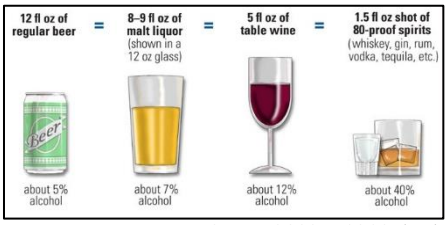
2. Did you consume alcohol during this experience?
   - Yes
   - No
   - Prefer not to answer

3. Did you consume alcohol immediately after this experience?
   - Yes
   - No
   - Prefer not to answer

[If response option "Yes" selected for any of questions 1-3]

3a. How many standard drinks containing alcohol did you consume? Refer to the figure below for standard drink information.

- 1 or 2
- 3 or 4
- 5 or 6
- 7 to 9
- 10 or more
- Prefer not to answer



Source: National Institute on Alcohol Abuse and Alcoholism (NIAAA)

3b. Do you believe you were intoxicated/drunk at the time of this experience?

- Yes
- No
- Maybe
- Prefer not to answer

The next few questions are about your expectations of the effects or consequences of drinking alcohol at the time of this experience.

3c. Did you consume alcohol at that time with the expectation that by doing so you would be more accepted socially?

- Yes
- No
- Maybe
- Prefer not to answer

3d. Did you consume alcohol at that time with the expectation that by doing so you would be more sexually assertive?

- Yes
- No

- Maybe
- Prefer not to answer

3e. Did you consume alcohol at that time with the expectation that by doing so you would be more outgoing?

- Yes
- No
- Maybe
- Prefer not to answer

3f. Did you consume alcohol at that time with the expectation that by doing so you would have more desire for sex?

- Yes
- No
- Maybe
- Prefer not to answer

3g. Did you consume alcohol at that time with the expectation that by doing so it would be easier for you to socialize?

- Yes
- No
- Maybe
- Prefer not to answer

3h. Did you consume alcohol at that time with the expectation that by doing so you would be more sexually responsive?

- Yes
- No
- Maybe
- Prefer not to answer

3i. Did you consume alcohol at that time with the expectation that by doing so you would feel more sociable?

- Yes
- No
- Maybe
- Prefer not to answer

3j. Did you consume alcohol at that time with the expectation that by doing so you would be able to talk more freely?

- Yes
- No
- Maybe
- Prefer not to answer

3k. Did you consume alcohol at that time with the expectation that by doing so you would become more sexually active?

- Yes
- No
- Maybe
- Prefer not to answer

3l. Did you consume alcohol at that time with the expectation that by doing so you would be friendlier?

- Yes
- No
- Maybe
- Prefer not to answer

4. What was the gender of the person to whom this experience was done to?
   - Woman
   - Man
   - Other (Please specify) _____
   - Prefer not to answer

5. What was your relationship with the person to whom this experience was done to?
   - Dating partner (even if first date)
   - Long-term partner
   - Spouse
   - Family member (besides spouse)
   - Family friend
   - Neighbor
   - Non-romantic friend
   - Fellow student
   - Casual acquaintance
   - Stranger
   - Other (Please specify) _____
   - Prefer not to answer

6. Did the individual whom this experience was done to consume alcohol immediately before the experience?
   - Yes
   - No
   - Prefer not to answer

7. Did the individual whom this experience was done to consume alcohol during the experience?
   - Yes
   - No
   - Prefer not to answer

8. Did the individual whom this experience was done to consume alcohol immediately after the experience?
   - Yes
   - No
   - Prefer not to answer

9. Do you believe the individual whom this experience was done to was intoxicated/drunk at the time of the experience?
   - Yes
   - No
   - Maybe
   - Prefer not to answer

   [*If response option "Yes" selected for any of questions 6-9, or response option "Maybe" selected for question 9]*

   9a. Did you serve alcohol to the individual whom this experience was done to <u>with</u> the intent to incapacitate them?
   - Yes
   - No
   - Prefer not to answer

   9b. Did you serve alcohol to the individual whom this experience was done to <u>without</u> the intent to incapacitate them?
   - Yes
   - No
   - Prefer not to answer

   9c. Did you take advantage of the self-entered state of intoxication of the individual whom this experience was done to?
   - Yes
   - No
   - Prefer not to answer

   9d. Did you believe that because the individual was drinking alcohol, they were more <u>open</u> to sexual advances?
   - Yes
   - No
   - Maybe
   - Prefer not to answer

   9e. Did you believe that because the individual was drinking alcohol, they were more <u>responsive</u> to sexual advances?
   - Yes
   - No
   - Maybe

- Prefer not to answer

9f. Did you believe that because the individual was drinking alcohol, they were indicating consent to engage in sexual behavior?
- Yes
- No
- Maybe
- Prefer not to answer

10. Did this experience occur at a party?
    - Yes
    - No
    - Prefer not to answer

11. Did this experience occur at a bar?
    - Yes
    - No
    - Prefer not to answer

12. Did this experience occur at a club?
    - Yes
    - No
    - Prefer not to answer

13. Did this experience occur at a large social gathering?
    - Yes
    - No
    - Prefer not to answer

14. Did this experience occur close in time after leaving a party together with the individual the experience was done to?
    - Yes
    - No
    - Prefer not to answer

15. Did this experience occur close in time after leaving a bar together with the individual the experience was done to?
    - Yes
    - No
    - Prefer not to answer

16. Did this experience occur close in time after leaving a club together with the individual the experience was done to?
    - Yes
    - No
    - Prefer not to answer

17. Did this experience occur close in time after leaving a large social gathering together with the individual the experience was done to?
    - Yes
    - No
    - Prefer not to answer

Appendix H:
General Aggression Questionnaire

Using the 5-point scale shown below, please indicate how uncharacteristic or characteristic each of the following statements is in describing you.

	Extremely uncharacteristic	Somewhat uncharacteristic	Neither uncharacteristic nor characteristic	Somewhat characteristic	Extremely characteristic	Prefer not to answer
1. Some of my friends think I am a hothead.	O	O	O	O	O	O
2. If I have to resort to violence to protect my rights, I will.	O	O	O	O	O	O
3. When people are especially nice to me, I wonder what they want.	O	O	O	O	O	O
4. I tell my friends openly when I disagree with them.	O	O	O	O	O	O
5. I have become so mad that I have broken things.	O	O	O	O	O	O
6. I can't help getting into arguments when people disagree with me.	O	O	O	O	O	O
7. I wonder why sometimes I feel so bitter about things.	O	O	O	O	O	O
8. Once in a while, I can't control the urge to strike another person.	O	O	O	O	O	O
9. I am an even-tempered person.	O	O	O	O	O	O
10. I am suspicious of overly friendly strangers.	O	O	O	O	O	O
11. I have threatened people I know.	O	O	O	O	O	O
12. I flare up quickly but get over it quickly.	O	O	O	O	O	O
13. Given enough provocation, I may hit another person.	O	O	O	O	O	O
14. When people annoy me, I may tell them what I think of them.	O	O	O	O	O	O
15. I am sometimes eaten up with jealousy.	O	O	O	O	O	O
16. I can think of no good reason for ever hitting a person.	O	O	O	O	O	O
17. At times I feel I have gotten a raw deal out of life.	O	O	O	O	O	O
18. I have trouble controlling my temper.	O	O	O	O	O	O
19. When frustrated, I let my irritation show.	O	O	O	O	O	O
20. I sometimes feel that people are laughing at me behind my back.	O	O	O	O	O	O
21. I often find myself disagreeing with people.	O	O	O	O	O	O
22. If somebody hits me, I hit back.	O	O	O	O	O	O
23. I sometimes feel like a powder keg ready to explode.	O	O	O	O	O	O
24. Other people always seem to get the breaks.	O	O	O	O	O	O
25. There are people who pushed me so far that we came to blows.	O	O	O	O	O	O
26. I know that "friends" talk about me behind my back.	O	O	O	O	O	O
27. My friends say that I'm somewhat argumentative.	O	O	O	O	O	O
28. Sometimes I fly off the handle for no good reason.	O	O	O	O	O	O
29. I get into fights a little more than the average person.	O	O	O	O	O	O

Appendix I:
General Substance Use Questionnaire

During the past 12 months, how often did you use the following substances without a medical prescription or more than your prescribed dosage?

	Daily or almost daily	3-6 times a week	Twice a week	Once a week	2-3 times a month	About once a month	Several times, but less than once a month	Never	Prefer not to answer
Cannabis (marijuana, pot, grass, hash, etc.)	O	O	O	O	O	O	O	O	O
Cocaine (coke, crack, etc.)	O	O	O	O	O	O	O	O	O
Stimulants (Ritalin, Concerta, Dexedrine, Adderall, diet pills, etc.)	O	O	O	O	O	O	O	O	O
Methamphetamine (speed, crystal meth, ice, etc.)	O	O	O	O	O	O	O	O	O
Inhalants (nitrous oxide, glue, gas, paint thinner, etc.)	O	O	O	O	O	O	O	O	O
Sedatives or sleeping pills (Valium, Serepax, Ativan, Xanax, Librium, Rohypnol, GHB, etc.)	O	O	O	O	O	O	O	O	O
Hallucinogens (LSD, acid, mushrooms, PCP, Special K, ecstasy, etc.)	O	O	O	O	O	O	O	O	O
Street opioids (heroin, opium, etc.)	O	O	O	O	O	O	O	O	O
Prescription opioids (fentanyl, oxycodone [OxyContin, Percocet], hydrocodone [Vicodin], methadone, buprenorphine, etc.)	O	O	O	O	O	O	O	O	O
Other: (Please specify) _____	O	O	O	O	O	O	O	O	O
Other: (Please specify) _____	O	O	O	O	O	O	O	O	O

Appendix J:
Social Desirability Questionnaire

Listed below are a number of statements concerning personal attitudes and traits. Please read each item and select "True" if the statement is true for you, or select "False" if the statement is false for you.

	True	False	Prefer not to answer
1. Before voting I thoroughly investigate the qualifications of all the candidates.	O	O	O
2. I never hesitate to go out of my way to help someone in trouble.	O	O	O
3. It is sometimes hard for me to go on with my work if I am not encouraged.	O	O	O
4. I have never intensely disliked anyone.	O	O	O
5. On occasions I have had doubts about my ability to succeed in life.	O	O	O
6. I sometimes feel resentful when I don't get my way.	O	O	O
7. I am always careful about my manner of dress.	O	O	O
8. My table manners at home are as good as when I eat out in a restaurant.	O	O	O
9. If I could get into a movie without paying and be sure I was not seen, I would probably do it.	O	O	O
10. On a few occasions, I have given up something because I thought too little of my ability.	O	O	O
11. I like to gossip at times.	O	O	O
12. There have been times when I felt like rebelling against people in authority even though I knew they were right.	O	O	O
13. No matter who I'm talking to, I'm always a good listener.	O	O	O
14. I can remember "playing sick" to get out of something.	O	O	O
15. There have been occasions when I have taken advantage of someone.	O	O	O
16. I'm always willing to admit it when I make a mistake.	O	O	O
17. I always try to practice what I preach.	O	O	O
18. I don't find it particularly difficult to get along with loudmouthed, obnoxious people.	O	O	O
19. I sometimes try to get even rather than forgive and forget.	O	O	O
20. When I don't know something, I don't mind at all admitting it.	O	O	O
21. I'm always courteous, even to people who are disagreeable.	O	O	O
22. At times, I have really insisted on having things my own way.	O	O	O
23. There have been occasions when I felt like smashing things.	O	O	O
24. I would never think of letting someone else be punished for my wrong doings.	O	O	O
25. I never resent being asked to return a favor.	O	O	O

26. I have never been irked when people expressed ideas very different from my own.	O	O	O
27. I never make a long trip without checking the safety of my car.	O	O	O
28. There have been times when I was quite jealous of the good fortune of others.	O	O	O
29. I have almost never felt the urge to tell someone off.	O	O	O
30. I'm sometimes irritated by people who ask favors of me.	O	O	O
31. I have never felt that I was punished without cause.	O	O	O
32. I sometimes think when people have a misfortune they only got what they deserved.	O	O	O
33. I have never deliberately said something that hurt someone's feelings.	O	O	O