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# Review of Survey and Experimental Research That Examines the Relationship Between Alcohol Consumption and Men's Sexual Aggression Perpetration

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## Abstract

This article systematically reviews empirical studies that examine associations between alcohol consumption and men's sexual aggression with the goal of identifying major findings; gaps in current knowledge; and directions for future research, practice, and policy. We identified 25 cross-sectional surveys, 6 prospective studies, and 12 alcohol administration experiments published between 1993 and August 2013 with male college students and young adult (nonincarcerated) samples. Many cross-sectional surveys have demonstrated that distal and proximal measures of men's alcohol consumption are positively associated with sexual assault perpetration, although very few of these studies evaluated how alcohol interacts with other risk and protective factors to exacerbate or inhibit sexual aggression. There are surprisingly few surveys that examine alcohol's effects at the event level and over short-time intervals to identify how changes in alcohol consumption are associated with changes in perpetration status. Alcohol administration studies suggest some important mechanisms that warrant additional investigation.

### Keywords

sexual aggression; sexual assault; perpetration; alcohol; research methods

## Scope of Sexual Aggression

Kanin's (Kanin, 1969, 1984; Kirkpatrick & Kanin, 1957) groundbreaking research identified several key aspects of sexual aggression on college campuses, which are lamentably still true more than 50 years later: (1) it is extremely common; (2) it is seldom reported to the authorities; (3) it typically occurs in dating situations (ranging from casual to long-term partners) that include some consensual sexual activity; and (4) it usually involves a man using false promises, verbal pressure, and alcohol to make a woman have sex. In this article, the terms “sexual aggression” and “sexual assault perpetration” are used interchangeably to



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describe the use of any tactic to make someone engage in sexual activity when that individual is unwilling or unable to consent. As in the general aggression literature (Anderson & Bushman, 2002), the focus is on the intentional harm of another person, which can be manifested through verbal and physical strategies. Not all of the acts of sexual aggression studied by researchers meet legal definitions of criminal sexual conduct; however, perpetrators cause harm through their callous disregard for their victims' right to control access to their own bodies (United Nations, 2008). Although women can be sexually aggressive, most acts of sexual aggression are committed by men against a woman they know (Black et al., 2011).

Campus sexual violence received little attention until Koss and colleagues developed and validated self-report measures of sexual assault victimization and perpetration that used behaviorally specific language to describe men's sexually aggressive acts against women without labeling them as sex crimes (Koss & Gidycz, 1985). The findings from a large nationally representative sample of 3,187 female and 2,972 male college students from 32 representative institutions revealed that 27.9% of women in college had been victims of acts that appeared to meet legal definitions of attempted or completed rape since age 14, with an additional 26.5% experiencing other forms of sexual victimization (Koss, Gidycz, & Wisniewski, 1987). Furthermore, 24.4% of the male college students reported that they had committed an act of sexual aggression since age 14, with 7.8% of these acts seeming to meet legal definitions of attempted or completed rape. Studies that expanded Koss, Gidycz, and Wisniewski's (1987) original measure to include additional examples of tactics (e.g., having sex with someone too incapacitated to consent) have found even higher self-reported rates of sexual perpetration in adolescence and adulthood among men in college and community samples (Abbey, Jacques-Tiura, & LeBreton, 2011; DeGue & DiLillo, 2004; Wheeler, George, & Dahl, 2002; White & Smith, 2004).

In several prospective studies, male college students have reported *annual* prevalence rates of sexual aggression in the range of 10–15% (Abbey & McAuslan, 2004; Hall, DeGarmo, Eap, Teten, & Sue, 2006; Thompson, Swartout, & Koss, 2013). White and Smith (2004) followed a sample of 184 male college undergraduates through 4 years of college and 34.5% reported at least one act of sexual aggression by the end of the study. Thus, despite increased attention in recent years, men's sexual aggression against women occurs at disturbingly high levels on college campuses, on military bases, and in communities throughout the United States (Black et al., 2011; Turchik & Wilson, 2010).

## Perpetrators' Alcohol Consumption: Prevalence, Concerns, and Mechanisms

This special issue addresses threats to women's safety on college campuses. This article addresses women's safety by examining alcohol's role in male college students' sexual assault perpetration. Approximately half of the sexual assaults reported by college students occur when the perpetrator, the victim, or both have been drinking alcohol, although estimates from individual studies range from approximately 40% to 75% (Abbey, McAuslan, & Ross, 1998; Gidycz, Warkentin, & Orchowski, 2007; Kanin, 1984; Muehlenhard & Linton, 1987; Nicholson et al., 1998). Because these incidents typically

occur on dates, at parties, and at other social events where alcohol is frequently consumed, usually if either the perpetrator or victim consumed alcohol, they drank together prior to the assault. The prevalence of perpetrators' alcohol consumption is similar to the rates reported in the criminology literature, in which approximately half of rapists and perpetrators of other violent crimes report being under the influence of alcohol during the incident (Collins & Messerschmidt, 1993).

Some practitioners have expressed concern about research that focuses on alcohol's role in sexual aggression because they believe this information can be used to exonerate intoxicated perpetrators and blame intoxicated victims. Although societal double standards about men's and women's intoxication and sexual behavior make such concerns understandable (Abbey, 2011a), it is irresponsible to ignore a risk factor associated with half of all sexual assaults. Many reviews of sexual assault etiology emphasize that there is no one profile that fits all perpetrators and that it usually requires a confluence of societal, individual, and situational risk factors for sexual aggression to occur in a specific situation (Gannon, Collie, Ward, & Thakker, 2008; Lalumiere, Harris, Quinsey, & Rice, 2005; Malamuth, 2003). Relatedly, we are guided by the Lewinian tradition in social psychology, which explains behavior as a function of characteristics of the person in combination with characteristics of the environment (French, Rogers, & Cobb, 1974). Based on the data reviewed in the following sections of this article, we argue that alcohol increases the likelihood of sexual aggression occurring in a specific situation among men who are already predisposed to be sexually aggressive. Thus, alcohol works in conjunction with other risk factors, not in isolation.

There are a number of theoretical and review articles that describe in depth the pharmacological and psychological mechanisms through which alcohol consumption can increase the likelihood of sexual violence perpetration (Abbey, 1991, 2002, 2011b; Seto & Barbaree, 1995; Testa, 2002). The relevant research is briefly reviewed subsequently.

## Pharmacological effects

Alcohol impairs a large number of higher order cognitive functions associated with people's capacity to integrate multiple sources of information when making a decision including working memory, planning, and response inhibition (Curtin & Fairchild, 2003; Giancola, 2000; Sayette, 1999). Cognitive deterioration is measurable at blood–alcohol concentrations (BACs) as low as .04 (achieved with two drinks consumed in 2 hr by an average weight man) and is sizable for most people at blood alcohol levels of .08 and above (Carey & Hustad, 2005). Intoxicated individuals tend to focus on the most immediate and salient cues in a situation rather than distal and embedded cues. Thus, a potential perpetrator's sexual arousal, sense of entitlement, and anger are likely to be much more salient when intoxicated than are any concerns about the victim or later negative consequences. For a man predisposed to committing sexual violence, cognitive impairments induced by alcohol may encourage him to act on this impulse without considering the consequences (Abbey, 2002).

## Psychological effects

In the United States and many other countries, alcohol is consistently linked to positive sexual outcomes. Male college students frequently report that alcohol increases their sexual

desire and performance, reduces sexual disinhibitions, and encourages risk-taking and aggression (Cooper, 2002; Fromme, Stroot, & Kaplan, 1993). Many men also believe that alcohol makes women more sexually disinhibited and more sexually available (Abbey, McAuslan, Ross, & Zawacki, 1999; George, Cue, Lopez, Crowe, & Norris, 1995). Numerous studies have documented the power of expectancies; people tend to see what they want to see in others and then act based on their perceptions (Snyder & Stukas, 1999). Psychological expectancies about alcohol's effects work synergistically with its pharmacological effects (George & Stoner, 2000). Thus, an intoxicated man who wants to have sex may interpret almost any response from a woman to whom he is sexually attracted as a sign of sexual interest (e.g., even a direct refusal can be viewed as token resistance).

## Focus of Review

This article reviews survey and experimental studies that examine alcohol consumption as a risk factor for men's sexual assault perpetration. A variety of different key words were used in multiple combinations in the Psych Info and Web of Science databases to identify relevant empirical studies (e.g., sexual assault, sexual aggression, sexual violence, and rape with alcohol, intoxication, perpetrator, and assailant). Only articles published in the last 20 years (1993 to August 2013) are included, which asked men about their sexual aggression against women (in surveys) or assessed their likelihood of sexually aggressing against a woman (in alcohol administration studies). Although there is a great deal of exciting research occurring in countries throughout the world, we omitted studies with samples outside the United States and Canada to avoid complex issues regarding cultural differences in alcohol use, alcohol expectancies, gender roles, and dating and sexual norms. Although this special issue is focused on college students, relevant studies with young adult male community samples are also included to evaluate the generalizability of the results from college studies to young adult populations. Among those studies that reported educational status, a sizable proportion of participants were current or past college students. Studies conducted with adolescents and incarcerated offenders are not included in this review.

The first five sections of Table 1 summarize the relevant findings from different types of cross-sectional and prospective survey research; the last three sections summarize the relevant findings from alcohol administration studies. Within each subsection, studies are displayed in ascending year of publication. Samples described in more than one publication have the same superscript. The columns in the table provide basic information about each study's sample, data analyses, how sexual aggression was operationalized, whether or not main effects of alcohol were found, how alcohol was operationalized, and findings associated with any significant mediators or moderators. For the purposes of this review, mediation refers to circumstances in which another variable mediates the relationship between alcohol and sexual aggression; not when alcohol serves as the mediator. Unless otherwise noted, interactions take the form that alcohol exacerbates the effects of a risk factor or dampens the effects of a protective factor.

## Survey Research Findings

Most of the studies included other risk and protective factors that are not described in this review. Although these other variables are ignored in the table (unless they mediated or moderated alcohol's effects), it is important to keep in mind that alcohol typically works in concert with other common risk factors including childhood emotional, physical, or sexual abuse; personality traits including impulsivity, narcissism, and lack of empathy; adolescent delinquency; hostile beliefs about women; enjoyment of casual sexual relationships; and perceived peer approval or pressure (see Tharp et al., 2012 for a review).

### Issues Associated With Operationalizing Alcohol Consumption

Alcohol researchers have distinguished between distal, proximal, and event-level effects of alcohol (Abbey et al., 2004; Testa, 2002). Distal measures include questions about men's general alcohol consumption in the past month or year (National Institute on Alcohol Abuse and Alcoholism, 2003), ope rationalized as frequency of alcohol consumption, usual number of drinks consumed, total consumption (frequency × quantity), and frequency of heavy drinking (typically operationalized as five or more drinks consumed in a 2-hr time interval). Distal measures also include alcohol-dependence symptoms and other negative consequences associated with alcohol consumption. If a positive association is found between distal indicators of alcohol consumption and sexual assault perpetration, researchers may want to infer that these men were likely to be under the influence of alcohol during the incident and that their alcohol consumption played a causal role. However, it is also possible that this association is due to other factors such as impulsivity or a history of childhood abuse that may cause both heavy drinking and sexual assault perpetration (DeGue & DiLillo, 2004; Merrill, Thomsen, Gold, & Milner, 2001; Ouimette, 1997; White & Smith, 2004). In cross-sectional studies, this association also may be explained by reverse causation. Although few researchers have systematically examined this hypothesis, some men who are motivated to engage in sexual aggression may drink because it provides the liquid courage they need to act aggressively or the excuse they rely on later to justify their actions (Kanin, 1984; Scully, 1991).

Proximal indicators of alcohol consumption have been operationalized as frequency, quantity, and total alcohol consumption in dating and consensual sexual situations. Although these measures are moderately correlated with general alcohol consumption (Abbey et al., 1998; Zawacki, Abbey, Buck, McAuslan, & Clinton-Sherrod, 2003), they provide additional useful information about the extent to which drinking in dating and sexual situations is associated with men's likelihood of committing sexual aggression. A positive association between drinking in potential sexual situations and sexual assault perpetration supports the hypothesis that alcohol influences how men interpret and respond to women's cues in sexual situations, increasing the likelihood that they later feel angry and entitled (Willan & Pollard, 2003). As discussed previously, reverse causality and third-variable explanations remain tenable if these findings rely on cross-sectional survey data.

Survey researchers also assess perpetrators' alcohol consumption at the event level by asking about their drinking during the sexual assault incident. Although the same threats to validity apply to all surveys, hypotheses about a direct relationship between intoxication and sexual

aggression are better supported by findings based on alcohol consumption during an incident as compared to proximal or distal measures of consumption. Some researchers also ask participants to estimate the woman's alcohol consumption. These estimates are usually highly positively correlated with men's estimates of their own alcohol consumption (Abbey, Clinton-Sherrod, McAuslan, Zawacki, & Buck, 2003; Abbey & Jacques-Tiura, 2011; Lyndon, White, & Kadlec, 2007; Ullman, Karabatsos, & Koss, 1999); thus, typically only the man's alcohol consumption is included in multivariate analyses. Some researchers have used standardized measures of alcohol and some have developed their own questions. In Table 1, we use general labels (e.g., heavy, problem, quant date/sex, and incident) rather than the specific words used by each investigator.

## Issues Associated With Operationalizing Perpetration

The most common sampling procedure involves recruiting a large number of men to participate in a study of men's health or dating experiences. These procedures also ensure that only a subset of the sample will be perpetrators; therefore, prevalence rates can be estimated and a comparison group is available for data analyses. Most of the relevant studies used the Sexual Experiences Survey (Koss et al., 1987, 2007) or a modified version of it and assessed sexually aggressive acts toward any woman in adolescence and adulthood. A few authors used the sexual aggression items in the revised Conflict Tactics Scale (Straus, Hamby, Bony-McCoy, & Sugarman, 1996) and assessed sexual aggression toward a steady dating partner in the past year. Most of the studies treated sexual aggression as an ordinal-level scale based on either the severity of the worst act (with penetration and the use of physical force conceptualized as most severe) or the total number of acts.

The only way to compare perpetrators with nonperpetrators using event-level measures of alcohol consumption is to ask nonperpetrators to describe a different type of situation such as a bad date or their most recent date (Abbey, McAuslan, Zawacki, Clinton, & Buck, 2001; Lyndon et al., 2007). When event-level data are collected, if participants reported more than one act of sexual aggression, they are usually asked to describe the most severe one.

## Cross-Sectional Findings

**Cross-sectional studies that compare perpetrators' and nonperpetrators' alcohol consumption—**Among these 20 studies, only 1 did not hypothesize or examine main effects of alcohol. For those 19 studies that examined main effects, 16 found some significant main effects and 3 did not. Two of the three studies with nonsignificant results had the smallest sample sizes, suggesting they might not have had sufficient power. Most of the significant main effects involved distal and proximal indicators of alcohol consumption. Two of these studies examined event-level alcohol consumption. Abbey, McAuslan, Zawacki, Clinton, and Buck (2001) found that perpetrators and their victims consumed more alcohol during a sexual assault than did non-perpetrators and their dating partners during a comparison interaction. Lyndon, White, and Kadlec (2007) found that perpetrators who used force as a tactic were more likely to be intoxicated during the incident than were perpetrators who used other tactics or nonperpetrators during a consensual sexual interaction.

Only four of these studies hypothesized that all or some of alcohol's effects on sexual aggression would be indirect and mediated through another variable. All four found significant effects with alcohol's effects mediated by the likelihood of committing sexual assault if unpunished, frequency of misperceiving a woman's sexual intent, sexual dominance, impersonal sex, and peer pressure to have sex (multiple mediators in each study). Using path analysis, Parkhill and Abbey (2008) found that usual drinking was positively associated with drinking in dating and sexual situations, which in turn was positively associated with the number of sexual assaults perpetrated when participants were drinking during the incident (but not the number committed by these same participants when they were sober).

Five studies hypothesized that some of alcohol's effects would occur in interaction with another variable. Three of the five studies found significant interactions, with alcohol's relationship to sexual aggression being the strongest among men with strong sexual alcohol expectancies, low mindfulness, and high hostile sexism (but not benevolent sexism).

**Cross-sectional studies that include only perpetrators in their examination of alcohol consumption—**Three studies restricted their sample to perpetrators and examined relationships between alcohol consumption and the severity of the sexual assault. Two of these studies included distal measures of alcohol consumption and both found that perpetrators' usual alcohol consumption was positively associated with committing a more serious act of sexual aggression. Two studies included event-level measures of *both* perpetrators' and victims' alcohol consumption and reported conflicting findings. Ullman, Karabatsos, and Koss (1999) included perpetrators' and victims' alcohol consumption (coded as any consumption or none) in multivariate analyses. Only victims' drinking during the incident predicted assault severity, although there was 95% overlap in perpetrators' and victims' alcohol consumption. Abbey, Clinton-Sherrod, McAuslan, Zawacki, and Buck (2003) extended Ullman et al. by assessing the number of drinks consumed by the perpetrator and the victim during the incident. In multivariate analyses, perpetrators' alcohol consumption was positively associated with increased use of aggression during the incident; whereas victims' alcohol consumption was not associated with the perpetrators' aggressiveness (perpetrators' and victims' alcohol consumption were correlated .81). In additional analyses, a curvilinear relationship was found between perpetrators' alcohol consumption during the incident and assault severity such that severity increased between zero and four drinks, then it plateaued and declined for perpetrators who consumed nine or more drinks during the incident. The third study only included perpetrators' alcohol consumption and found that perpetrators who drank heavily during the incident used the most force and committed the most severe assaults (Parkhill, Abbey, & Jacques-Tiura, 2009).

**Cross-sectional studies that compare perpetrators who use alcohol tactics or other tactics—**The last set of cross-sectional studies take a different perspective on alcohol's role in sexual aggression by grouping perpetrators based on the type of tactics they used such that alcohol-related tactics could be contrasted with the use of other tactics. The two studies that examined tactics found evidence for distal (both) and event-level (in the one

that assessed it) effects. For example, Abbey and Jacques-Tiura (2011) found that perpetrators who used the victims' impairment due to alcohol as their primary tactic drank more during the incident and were with a woman who drank more during the incident than did perpetrators who used verbally coercive tactics or nonperpetrators during their worst date. As hypothesized, perpetrators scored higher than nonperpetrators on other common risk factors, regardless of the tactics they used.

## Prospective Findings

Most of the studies described in the previous section examined sexual aggression that occurred at some point in adolescence or adulthood. This may explain why distal factors such as adolescent delinquency are common predictors, as well as distal alcohol consumption. Prospective surveys have great potential because they can identify risk and protective factors associated with current perpetration status. We identified six studies that examined alcohol's prospective effects on sexual aggression; all but one of these studies used college samples. The follow-up time interval ranged from 3 months to 4 years.

### Alcohol consumption as a prospective predictor of perpetration

Two studies used logistic regression to examine perpetration since the last interview. Not surprisingly, when past perpetration was included as a predictor, there were no effects of distal measures of alcohol consumption (or most other risk factors) on recent perpetration because past perpetration explained most of the variance in recent perpetration (Gidycz et al., 2007; Loh, Gidycz, Lobo, & Luthra, 2005). In the one study that examined mediation effects, perceptions of peer approval of forced sex at baseline mediated the relationship between heavy drinking at baseline and severity of sexual assault perpetration 1 year later (Thompson, Koss, Kingree, Goree, & Rice, 2011).

**Alcohol consumption as a predictor of patterns and trajectories of perpetration—**Three studies examined patterns of perpetration over time; two of these studies included two assessments conducted 1 year apart and the third study surveyed students through 4 years of college. All three of these studies included some unexpected findings, suggesting the need for further hypothesis development and additional research. Both of the two-wave studies found that men who reported committing acts of sexual aggression at both time points (persisters) drank more in sexual situations than did nonperpetrators at the initial assessment (with some other group differences summarized in Table 1, which varied by study). Abbey, Wegner, Pierce, and Jacques-Tiura (2012) found that men who reported their first sexually aggressive act at the follow-up interview (initiators) reported drinking more in sexual situations than did nonperpetrators at the follow-up interview, suggesting that their alcohol consumption was increasing at the point they engaged in sexual aggression. Counterintuitively, Thompson, Swartout, and Koss (2013) found that college men who were on a decreasing sexual aggression trajectory engaged in heavy drinking at the final assessment. The authors noted that drinking was not assessed every year and was strongly associated with peer norms, suggesting that there may have been suppressor effects (personal communication, September 10, 2013).

## Experimental Research

The major strength of experimental research is the ability to make causal conclusions when differences are found in the responses of participants randomly assigned to drink alcohol as compared to participants randomly assigned to drink a nonalcoholic beverage (Shadish, Cook, & Campbell, 2002). The major challenge in experimental research is to develop a proxy for sexual aggression that evokes the thoughts, feelings, and actions that participants would experience in a natural situation (see Abbey & Wegner, in press for further discussion of proxy development). Alcohol administration studies have used three types of proxies: written vignettes, videotapes, and audiotapes. Although videotapes are often considered the most realistic and engrossing because they include audio and visual cues, written vignettes allow participants to use their imagination and mentally visualize a woman and situation that fits their personal experience. The stimulus materials used in these studies typically depict a date rape scenario in which a man and woman in the early stages of a dating relationship spend some time together, usually at a party or bar, and then go to his or her apartment. They usually engage in some consensual sexual activity (e.g., kissing), but the woman refuses when the man tries to go further sexually. The man initially uses verbal coercion and as the woman continues to resist, he begins to use threats and physical force. Often the scenario ends with the man physically forcing the woman to have sex despite her vigorous protests, although some stimulus materials end ambiguously allowing the participant to decide how it ends. Most researchers describe formative research and pilot testing they conducted to ensure that the target audience found the materials realistic and involving (Abbey et al., 2003; Marx, Gross, & Adams, 1999; Noel, Maisto, Johnson, & Jackson, 2009). Many researchers also address construct validity by reporting moderate correlations between responses to their proxy and self-report measures of sexual aggression and common risk factors (Abbey, Parkhill, Jacques-Tiura, & Saenz, 2009; Marx et al., 1999; Noel et al., 2009; Norris, George, Davis, Martell, & Leonesio, 1999; 2001).

There are sampling restrictions associated with alcohol administration studies that are intended to protect participants' health and safety, although they do potentially limit the generalizability of the findings. Participants must be of the legal drinking age, they must have previously consumed the amount of alcohol that they will consume in the study, they cannot have any serious past or current drinking problems, nor can they have health conditions or take medications that contraindicate alcohol consumption (National Institute on Alcohol Abuse and Alcoholism, 2004). Due to the age requirement, most researchers included a mix of college and community residents. Among those studies that reported educational status, the percentage of the sample that reported currently being a student ranged from 36% to 85%.

### Findings

This review focuses on the effects of alcohol *consumption*; however, most of the studies included other independent variables. In an effort to disentangle alcohol's psychological and pharmacological effects, many researchers include a placebo cell (tell participants they are drinking alcohol but give them a nonalcoholic beverage) and some include an antiplacebo cell (tell participants they are drinking a nonalcoholic beverage but give them an alcoholic

beverage). The antiplacebo cell only works at low BAC levels of .05 or less (Rohsenow & Marlatt, 1981), thus it is not always included. A few researchers have contrasted low and high doses of alcohol (Davis et al., 2012; Noel et al., 2009). Other researchers have measured self-reported alcohol expectancies to evaluate the hypothesis that alcohol should only increase sexual aggression among participants who expect alcohol to make them more aggressive and sexually disinhibited (Davis, 2010; Norris, Davis, George, Martell, & Heiman, 2002). Additional examples of manipulated independent variables include whether the man and woman are drinking in the story, the woman's response to the force (distress vs. pleasure), and situational cues embedded in the story (Noel et al., 2009; Norris et al., 1999). Several researchers have included self-report measures of risk factors such as hypermasculinity and hostility toward women (Abbey et al., 2009; Norris & Kerr, 1993). The last column of the table, which indicates whether any of these other independent variables significantly mediated or moderated alcohol's effects, includes codes that denote whether the mediator or moderator had significant (SIG ME) or nonsignificant (NS ME) main effects on the sexual assault outcome measure.

**Written vignettes—**In six alcohol administration studies, participants read a story about a potential date rape situation. Researchers assessed participants' likelihood of behaving like the male character if they were in a similar situation. Most of these studies included a variety of other questions regarding the female characters' and male characters' cognitions and emotions. These measures are not discussed in this summary unless they were used as mediators or moderators of alcohol's effects. Targeted BACs ranged from .04 to .10, with all but two of the studies including a placebo condition.

Five of these six vignette studies predicted main effects of alcohol consumption on participants' self-reported likelihood of behaving like the male character and none found them. Across four studies, there were eight hypothesized mediated effects of alcohol and seven were significant. Two studies found that alcohol consumption increased the perceptions that the woman was sexually aroused and/or enjoyed the sex, which in turn was positively associated with participants' likelihood of behaving like the male character. Three studies found that alcohol consumption influenced participants' feelings or perceptions of the situation (e.g., increased their sexual arousal or anger), which in turn were positively associated with participants' likelihood of behaving like the male character.

Five of the six vignette studies predicted interactions between alcohol and other risk factors. Two studies predicted that placebo participants would express greater willingness to behave like the male character than sober participants but the interactions with expectancy set were not significant. Two studies evaluated interactions involving sex-related and aggression-related alcohol expectancies (with one being mediated moderation); both were significant. Two studies examined hypermasculinity and neither found interactions with alcohol consumption. Finally, one study found a counterintuitive finding in which the characters' alcohol consumption in the story did not affect drinkers' likelihood of behaving like the male character; however, sober participants who read about characters who were drinking expressed greater willingness to act like the male character (Norris & Kerr, 1993).

**Videotapes—**In three alcohol administration studies, participants watched videotapes of a man and a woman in a potential sexual assault situation and then answered a variety of questions, with the key outcome measures being their willingness to force sex (questions phrased slightly differently in each study). All three studies included placebo, control, and high BAC conditions; two also included a low BAC condition. All three studies predicted main effects of alcohol consumption and two found them. None of these studies examined mediation effects; however, they all examined interactions and found significant effects. Two of the studies examined the effects of several common risk factors as moderators and found that willingness to use force in a similar situation was highest for drinkers who strongly accepted interpersonal violence in heterosexual relationships, who had a strong need for sexual dominance, who had high levels of hostility toward women, and who frequently misperceived women's sexual intentions.

**Audiotapes—**In three alcohol administration studies, participants listened to an audiotape of a date rape in which there was a gradual escalation of the man's use of force and the woman's resistance. Participants were asked to stop the tape when they thought the man should stop making sexual advances. All three of these studies used a balanced placebo design in which what participants were told they were drinking (expect alcoholic beverage vs. nonalcoholic beverage) was crossed with what they actually did drink (receive alcoholic beverage vs. nonalcoholic beverage). All three of these studies found main effects of expect and receive alcohol but no interaction. Participants who drank alcohol were slower to decide the man should quit making sexual advances than were nondrinkers and participants who thought they drank alcohol were slower than men who thought they drank a nonalcoholic beverage. One of these studies found a counterintuitive interaction between past perpetration and alcohol expectancy set; however, it was not replicated in a second study with an independent data set. The only significant interaction found with actual alcohol consumption occurred in the one study that asked participants to rate the woman's sexual arousal at four different points. As compared to nondrinkers, drinkers perceived the woman as being significantly more sexually aroused early in the interaction (prior to the escalation of force). None of these studies tested for mediation effects.

## Summary of Findings and Gaps in Current Knowledge

Table 2 provides a synthesis of the major findings from each type of study reviewed. Table 3 builds on this summary by suggesting implications for practice, policy, and research. Past research has established that men who drink heavily in general and in dating and sexual situations commit more sexual assaults and more severe sexual assaults than other men. Heavy drinking tends to co-occur with many other identified risk factors for sexual aggression (e.g., impulsivity, narcissism, lack of empathy, delinquency, enjoyment of casual sex, hostile masculinity, and peer norms that encourage forced sex) and risks have cumulative and synergistic effect (Malamuth, 2003). It is surprising that so few surveys examine mediating and moderating effects. Well-documented cognitive impairments associated with intoxication include a reduced ability to process complex, conflicting information; an overreliance on immediate salient cues; and difficultly stopping a line of action once it is initiated (Curtin & Fairchild, 2003; Giancola, 2000; Sayette, 1999). Thus, it is reasonable to hypothesize that alcohol will exacerbate the effects of most risk factors,

making it harder for individuals who are impulsive, narcissistic, sexually dominant, comfortable treating women as sexual objects and who are sexually aroused and anticipating a sexual release to stop themselves from making a woman have sex with them. Research which identifies the risk factors that are most exacerbated by alcohol is needed to focus prevention and treatment efforts.

There were too few studies of any one type to allow comparisons between college and community samples. The traditional college environment has unique features that encourage students to view it as a “time out” from normal adult responsibilities. With the average age of marriage and childbearing now in the late 20s, many young adults' lifestyles may be more similar to those of traditional college students than that in past generations. Also, many college students do not fit the traditional profile, working full time and attending college part time.

It is surprising that so few studies have asked in-depth questions about incident characteristics and how they vary with alcohol consumption. Several studies have found that alcohol-involved assaults are more likely to occur in casual relationships, to involve some time spent at a party or bar, and to involve more severe acts of sexual aggression (Abbey et al., 2003; Ullman et al., 1999), but little else is known. Studies are needed that explore the characteristics of the social and physical environment that can exacerbate or inhibit sexual aggression, both in general and when the perpetrator is intoxicated. Muehlenhard and Linton (1987) conducted the only study of which we are aware that treated perpetrators as their own controls by asking male college students to describe their worst date involving sexual aggression and their most recent date, finding that heavy drinking was more frequently associated with sexually aggressive dates. Many perpetrators commit multiple acts of sexual aggression, some when sober and some when intoxicated, so within-person analyses comparing characteristics of different types of incidents committed by the same individual should help identify circumstances that uniquely trigger intoxicated sexual aggression. These studies also need to systematically examine the effects of different doses of alcohol. The extensive motor and cognitive impairments that occur at extremely high BACs limit potential perpetrators' ability to engage in any planful action (Carey & Hustad, 2005).

Understanding how victims' intoxication affects perpetrators' behavior is another important avenue for future research. Some researchers have assumed that perpetrators who use the victim's impairment due to alcohol and/or other drugs to obtain sex will be sober and calculating; however, the few studies that have been conducted suggest that these perpetrators are quite impaired themselves (Abbey & Jacques-Tiura, 2011; Parkhill et al., 2009; Tyler Hoyt, & Whitbeck, 1998). Their impairment does not excuse their behavior, but it suggests that interventions focused on reducing men's drinking could reduce the use of this tactic.

Many sexual assault researchers measure sexual aggression since age 14. Although many perpetrators commit multiple assaults, there is also evidence for change, with some men stopping and other men starting to commit acts of sexual aggression in college and young adulthood (Abbey & McAuslan, 2004; Abbey et al. 2012; Gidycz et al., 2007; Hall et al., 2006; Loh et al., 2005; Thompson et al., 2013). Sexual assault researchers have borrowed

and adapted theories from the criminology and delinquency literature to develop hypotheses about risk factors associated with change (e.g., Moffitt, Caspi, Harrington, & Milne, 2002). Alcohol can be differentially related to different patterns of perpetration. For example, men who commit multiple sexual assaults over an extended period of time often have a constellation of abusive childhood experiences, psychopathy-related personality traits, hostile beliefs about women, and a history of heavy drinking that are well ingrained and resistant to change. Some men who commit sexual aggression in adolescence and emerging adulthood do so as part of a larger pattern of acting out, risk taking, and experimentation that diminishes with time. Additionally, there are men who feel compelled to demonstrate their sexual prowess to their male peer group and force sex to enhance their masculine group identity (Ott, 2010). A handful of the studies reviewed here suggest that changes in perceptions of peer norms condoning forced sex, frequency of casual sexual relationships, and drinking in these sexual situations may be tied to changes in sexual aggression status. If these findings are replicated, then these pressures can be addressed in prevention and treatment programs.

Alcohol administration studies can contribute a great deal to our understanding of the mechanisms through which alcohol consumption increases sexual aggression. We find particularly useful the findings that alcohol indirectly increases men's self-reported likelihood of acting like a sexually aggressive male character by increasing men's perceptions of the female character's sexual arousal and increasing their own sexual arousal, anger, and sense of being entitled to sex (Davis, Norris, George, Martell, & Heiman, 2006; 2012; Gross et al., 2001; Norris et al., 2002). These findings suggest that prevention programs need to directly address these emotions and cognitions.

Our ability to form conclusions based on alcohol administration studies is limited by the small number of studies, with most using unique stimulus materials and outcome measures. There is a much larger body of evidence, demonstrating that men randomly assigned to drink alcohol behave more aggressively in competition paradigms than do sober men, particularly when provoked and when they have characteristics linked to aggression (Giancola, 2000). These studies provide a good road map for future directions that can be explored by sexual aggression alcohol administration researchers. Giancola, Josephs, Dewall, and Gunn (2009) argue that researchers should use their understanding of alcohol's effects on cognitive processing to develop strategies to distract angry individuals from provocation in order to short circuit an aggressive response. This mechanism may explain why mindfulness dampened sexual aggression among heavy drinkers in one promising study (Gallagher, Hudepohl, & Parrott, 2010). Giancola et al. (2009) suggest “cool-down” rooms (p. 1270) and large mirrors in bars to distract angry patrons from acting on their aggression. Although different strategies are likely needed to address sexual aggression, these suggestions should stimulate discussions between researchers and providers (alcohol and sexual assault prevention and treatment) about novel approaches to include in existing programs. The integration of what is known about alcohol's distal, proximal, and “in the moment” event-level effects into campus sexual assault and alcohol prevention programs creates new avenues for the development of evidence-based programs.

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## Biographies

**Antonia Abbey** is a professor of psychology at Wayne State University. She received her PhD in social psychology from Northwestern University. She has a long-standing interest in women's health and reducing violence against women. Her research interests in the domain of sexual assault include understanding the causes of sexual assault, alcohol's role in sexual assault, and sexual assault measurement issues. This research has primarily been funded by

the National Institute on Alcohol Abuse and Alcoholism. She has published more than 100 journal articles and book chapters and has served on a variety of national advisory committees.

**Rhiana Wegner** is a social health psychology octoral student at Wayne State University. Her research interests focus on understanding the causes and consequences of men's sexual assault perpetration against women. She is specifically interested in understanding the role of alcohol, misperceptions of sexual intent, and the victim–perpetrator relationship in sexual assault perpetration. She is also interested in further exploring the individual and situational factors that contribute to misperceptions of sexual intent.

**Jacqueline Woerner** is a social health doctoral student at Wayne State University. Her research interests focus on examining sexual assault perpetration and risky sexual behavior. She is specifically interested in the role of alcohol and normative influence in sexual aggression. She is also interested in the etiological factors of casual sex and risky sexual behavior as well as the effects of HIV/AIDS on mental health.

**Sheri E. Pegram** is a social health psychology doctoral student at Wayne State University. Her research interests focus on etiological factors in sexual assault perpetration. Specifically, she is interested in understanding how alcohol interacts with individual and situational

factors to predict sexual aggression. She is also interested in the effects of sexual assault victimization on women's mental and physical health.

**Jennifer Pierce** is a social health psychology doctoral student at Wayne State University. She is interested in the antecedents and consequences of sexual assault and dating violence. Her research interests related to the perpetration of sexual aggression and dating violence include understanding the cognitive, behavioral, and situational factors that contribute to the propensity to perpetrate aggression against women. In the domain of victimization, she is interested in understanding the factors that influence recovery as well as the mental and physical health effects of victimization.

**Table 1**

Findings Regarding Alcohol's Effects on Men's Sexual Aggression Against Women.

| **Study information** | | | | | | | |
|---|---|---|---|---|---|---|---|
| **Authors** | **Sample** | **Method of analysis** | **Sexual aggression** | **Main effects** | **Alcohol** | **Mediator and moderator effects** | |
| **SURVEY DESIGN** | | | | | | | |
| **Cross-sectional studies** | | | | | | | |
| (1) *Cross-sectional studies that compare perpetrators' and nonperpetrators' alcohol consumption* | | | | | | | |
| Koss and Gaines (1993) | 530 Coll, Psych, Ath, *M* age = 18.9 | SMR | mSES: Severity | SIG<br>SIG | 1) Heavy<br>2) Freq | Med: N/A | |
| | | | | | | Mod: N/A | |
| Ouimette (1997) | 103 Coll, *M* age = 21 | $\chi^2$, MANOVA, ANOVA | SES: Rape/attempt | SIG<br>SIG | 1) Problem dependence<br>2) Problem symptoms | Med: N/A | |
| | | | | | | Mod: N/A | |
| Lackie and de Man (1997) | 86 Coll, Ath, Canada, ages = 18–24 | Corr, SMR | mSES: Number | NS | 1) Freq | Med: N/A | |
| | | | | | | Mod: N/A | |
| Calhoun, Bernat, Clum, and Frame (1997) | 65 Comm, RepReg, *M* age = 19.9 | SMR, ANOVA | mSES: Number | NS | 1) Quant date/sex | Med: N/A | |
| | | | | | | Mod: N/A | |
| Abbey, McAuslan, and Ross (1998) | 798 Coll, RepCW, *Mdn* age = 22 | SEM, HMR | mSES: Number | N/A | 1) Latent factor: R and Partner freq date/sex, and R freq, quant, heavy | Med: SIG<br>Med: SIG | 1) Likelihood of committing SA if unpunished<br>2) Misperception |
| | | | | | | Mod: NS<br>Mod: NS<br>Mod: NS<br>Mod: NS | 1) Dating and sexual experiences<br>2) Rape supportive beliefs<br>3) Misperception<br>4) Aggression/sex AE |
| Abbey, McAuslan, Zawacki, Clinton, and Buck[a] (2001) | 343 Coll, RepCW, *Mdn* age = 21 | MANCOVA, ANCOVA | mSES: Severity, incident | SIG<br>SIG | 1) Q × F date/sex<br>2) Combined R and partner incident | Med: N/A | |
| | | | | | | Mod: N/A | |
| Schwartz, DeKeseredy, Tait, and Alvi (2001) | 1,307 Coll, RepNat, Canada, *Mdn* age = 22.3 | $\chi^2$, LR | SES: Severity (past year) | SIG<br>SIG | 1) Freq<br>2) Freq date/sex | Med: N/A | |
| | | | | | | Mod: N/A | |
| Merrill, Thomsen, Gold, and Milner (2001) | 7,850 Military, *M* age = 19.87 | LR | SES: Severity | SIG | 1) Problem | Med: N/A | |
| | | | | | | Mod: N/A | |

| Study information | | | | | | | |
|---|---|---|---|---|---|---|---|
| **Authors** | **Sample** | **Method of analysis** | **Sexual aggression** | **Main effects** | **Alcohol** | **Mediator and moderator effects** | |
| Wilson, Calhoun, and McNair (2002) | 186 Coll, Psych, *M* age = 19.8 | ANOVA, MR | SES: Number, Y/N | SIG | 1) Quant × Freq | Med: N/A | |
| | | | | | | Mod: SIG | 1) Sex alcohol expectancy |
| Carr and VanDeusen (2004) | 99 Coll, *M* age = 20 | Corr, SMR | SES, likelihood of raping if unpunished | SIG | 1) Problem | Med: N/A | |
| | | | | | | Mod: N/A | |
| Locke and Mahalik (2005) | 254 Coll, RepReg, *M* age = 19.70 | Corr | SES: Number | SIG | 1) Problem | Med: N/A | |
| | | | | | | Mod: N/A | |
| Abbey, Parkhill, BeShears, Clinton-Sherrod, and Zawacki[b] (2006) | 163 Comm, RDD, *Mdn* age = 29 | Corr, path analysis | mSES: Number | SIG | 1) Problem | Med: SIG<br>Med: SIG | 1) SexDom to CasSex Relationships to SA<br>2) SexDom to Peer Pressure to SA |
| | | | | | | Mod: N/A | |
| Abbey, Parkhill, Clinton-Sherrod, and Zawacki[b] (2007) | 163 Comm, RDD, *Mdn* age = 29 | DFA, ANOVA | mSES: Severity: rape/attempt, verbal coercion, nonperp | SIG | Rape/attempt > nonperp on date/sex | Med: N/A | |
| | | | | | | Mod: N/A | |
| Lyndon, White, and Kadlec (2007) | 621 Coll, Ist Yr, T1 ages 18–20 | DFA, ANOVA, $\chi^2$ | SES: nonperps, manipulation, force | NS<br>SIG | 1) Heavy general in DFA<br>2) R and Partner heavy drinking in incident: Force > manipulation and nonperps in $\chi^2$ | Med: N/A | |
| | | | | | | Mod: N/A | |
| Parkhill and Abbey (2008) | 356 Coll, CW, 21 or older and social drinker, *M* age = 25.2 | Path analysis | mSES: Number when R sober<br>mSES: Number when R drinking | SIG | 1) Q × F date/sex only to SA when R drinking | Med: SIG | 1) Quant × Freq |
| | | | | | | Mod: NS<br>Mod: NS | 1) HM × Q × F date/sex<br>2) Impersonal Sex × Q × F date/sex |
| Rapoza and Drake (2009) | 164 Coll, Couples, Psych, ages 17-34 | Cluster | CTS2: Number | SIG | Cluster 2 with all heavy drinkers > Cluster 1 with majority normal drinkers | Med: N/A | |
| | | | | | | Mod: N/A | |
| Gallagher, Hudepohl, and Parrott (2010) | 167 Comm, *M* age = 26.35 | HMR | CTS2: Number | SIG<br>SIG | 1) Freq<br>2) Quant | Med: N/A | |
| | | | | | | Mod: SIG<br>Mod: NS | 1) Freq: Mindfulness<br>2) Quant: Mindfulness |
| Abbey, Jacques-Tiura, and Lebreton[c] (2011) | 470 Comm, Rep, *M* age = 23.67 | Corr, SEM | mSES: Number | SIG<br>SIG<br>N/A | 1) Corr: Heavy<br>2) Corr: Q × F date/sex<br>3) SEM: latent factor | Med: SIG<br>Med: SIG | 1) Impersonal sex<br>2) Misperception |
| | | | | | | Mod: N/A | |
| Greene and Davis (2011) | 289 Comm, Nat, ages 18-35 | LPA, ANOVA | mSES: Number | SIG | High quant associated with “High AN” risk | Med: N/A | |
| | | | | | | **Mod: N/A** | |

| Study information | | | | | | | |
|---|---|---|---|---|---|---|---|
| **Authors** | **Sample** | **Method of analysis** | **Sexual aggression** | **Main effects** | **Alcohol** | **Mediator and moderator effects** | |
| | | | | | factor profile. "High AN" > Other Profiles<br>factor profile. "High AN" > Other Profiles | | |
| Lisco, Parrott, and Tharp (2012) | 205 Comm, *M* age = 24.96 | HMR | CTS2: Number | NS | 1) Quant | **Med: N/A** | |
| | | | | | | Mod: SIG<br>Mod: NS | 1) Hostile sexism<br>2) Benevolent sexism |
| (2) *Cross-sectional studies that include only perpetrators* | | | | | | | |
| Ullman, Karabatsos, and Koss (1999) | 694 Coll, RepNat, Perp, *M* age = 21 | HMR, path analysis | SES: Severity | SIG<br>NS<br>SIG | 1) Heavy<br>2) R Y/N incident<br>3) Partner Y/N incident | Med: N/A | |
| | | | | | | Mod: NS<br>Mod: NS<br>Mod: NS<br>Mod: NS | R Y/N Incident by<br>1) R aggression<br>2) Relationship with partner<br>3) Heavy<br>4) Planned interaction vs. not |
| Abbey, Clinton-Sherrod, McAuslan, Zawacki, and Buck[a] (2003) | 113 Coll, perp, *M* age = 23 | HMR, path analysis | mSES: Severity | SIG<br>SIG<br>SIG | 1) Freq<br>2) R quant incident: Curvilinear<br>3) Partner quant incident | Med: N/A | |
| | | | | | | Mod: N/A | |
| Parkhill, Abbey, and Jacques-Tiura[b] (2009) | 107 Comm, RDD, perp, *M* age = 31.6 | DFA, MANCOVA | mSES: Severity | SIG | Incident Heavy > Light or No | Med: N/A | |
| | | | | | | Mod: N/A | |
| (3) *Cross-sectional studies that compare perpetrators who use alcohol or other tactics* | | | | | | | |
| Tyler, Hoyt, and Whitbeck (1998) | 189 Coll, Family studies, ages 21–24 | Corr, MR | Own Scale: Verbal coercion, Alc/Drug tactics, Physical force | SIG | 1) Heavy drinking (usual) related to alc/drug tactics, but not verbal coercion or physical force | Med: N/A | |
| | | | | | | Mod: N/A | |
| Abbey and Jacques-Tiura[c] (2011) | 457 Comm, RepReg, *M* age = 23.67 | DFA, MANCOVA | mSES: Verbal coercion, Alcohol tactic, NonPerps | SIG<br>SIG<br>SIG<br>SIG | Alcohol tactic > Others<br>1) Problem<br>2) Quant<br>3) R and partner quant incident<br>4) R and partner heavy incident | Med: N/A | |
| | | | | | | Mod: N/A | |
| **Prospective studies** | | | | | | | |
| (4) *Alcohol consumption as a prospective predictor of perpetration* | | | | | | | |
| Loh, Gidycz, Lobo, and Luthra (2005) | 278 Coll, SA program, 71% ages 18–19 Baseline, 3 Mo and 7 Mo | LR | SES: Y/N<br>1) Baseline SA<br>2) 3 Mo SA<br>3) 7 Mo SA | NS<br>NS<br>NS | 1) T1 Q ×F<br>2) T1 Q × F<br>3) T1 Q × F | Med: N/A | |
| | | | | | | Mod: N/A | |

| Study information | | | | | | | |
|---|---|---|---|---|---|---|---|
| **Authors** | **Sample** | **Method of analysis** | **Sexual aggression** | **Main effects** | **Alcohol** | **Mediator and moderator effects** | |
| Gidycz, Warkentin, and Orchowski (2007) | 341 Coll, Psych, 78% ages 18–19, 3 Mo | Corr, LR | T2 SES: Severity | SIG<br>NS<br>NS | Corr:<br>1) T1 problem LR analysis:<br>1) T1 quant<br>2) T1 problem | Med: N/A | |
| | | | | | | Mod: N/A | |
| Thompson, Koss, Kingree, Goree, and Rice[d] (2011) | 652 Coll, 1 st Y, T1 *M* age= 18.56, 2 Yr | Path analysis | mSES: Number and Severity Index | N/A | 1) T1 and T2 heavy | Med: SIG | 1) Perceived peer approval of forced sex |
| | | | | | | Mod: N/A | |
| (5) *Alcohol consumption as a predictor of patterns and trajectories of perpetration* | | | | | | | |
| Abbey and McAuslan[a] (2004) | 197 Coll, CW,T2 *M* age = 22.90, 1 Yr | MANCOVA, ANCOVA | SES: Any, nonperp, desister (T1), initiator (T2), persister (TI/T2) | NS<br>SIG-REV | 1) Persist > others on T1 heavy<br>2) Persist < desist on T1 date/sex | Med: N/A | |
| | | | | | | Mod: N/A | |
| Abbey, Wegner, Pierce, and Jacques-Tiura[c](2012) | 423 Comm, RepReg, T1 *M* age = 23, 1 Yr | DFA, ANOVA | SES: Any, nonperp, desister (T1), initiator (T2), persister (TI/T2) | SIG<br>SIG | 1) T1 Perps > T1 NonPerps: T1 R and Partner date/sex<br>2) Initiators > NonPerps: T2 R and Partner date/sex | Med: N/A | |
| | | | | | | Mod: N/A | |
| Thompson, Swartout, and Koss[d](2013) | 795 Coll, 1 st Y,T1 *M* age= 18.56, 4 Yr | LCGA, MLR | mSES: Index number × severity. Trajectories: Increasing, decreasing, and high | None as predicted | Heavy drinking with SA trajectory:<br>1) High TI, T4 for high SA<br>2) High T1, low T4 for decreasing SA<br>3) Low T4, high T1 for increasing SA | Med: N/A | |
| | | | | | | Mod: N/A | |
| **EXPERIMENTAL DESIGN** | | | | | | | |
| (6) *Written vignettes* | | | | | | | |
| Norris and Kerr (1993) | 96 Coll, *M* age = 25.4 | MANOVA | R behave like male char | NS | .04 BAC, balanced placebo design | Med: N/A | |
| | | | | | | Mod: SIG<br>Mod: NS<br>Mod: NS | 1) Alcohol in story (NS ME)<br>2) Alcohol expectancy set (NS ME)<br>3) Hypermasculinity (NS ME) |
| Norris, George, Davis, Martell, and Leonesio (1999) | 121 Comm, *M* age = 27.14 | HMR | R behave like male char | NS | .06 BAC, alcohol, placebo, sober | Med: N/A | |
| | | | | | | Mod: NS<br>Mod: NS<br>Mod: NS<br>Mod: NS | 1) Alcohol in story (NS ME)<br>2) Alcohol expectancy set (NS ME) |

| Study information | | | | | | | |
|---|---|---|---|---|---|---|---|
| **Authors** | **Sample** | **Method of analysis** | **Sexual aggression** | **Main effects** | **Alcohol** | **Mediator and moderator effects** | |
| | | | | | | | 3) Woman distressed or not (NS ME)<br>3) Woman distressed or not (NS ME)<br>4) Hypermasculinity (SIG ME) |
| Norris, Davis, George, Martell, and Heiman (2002) | 135 Comm, *M* age = 28.6 | ANOVA, path analysis | R behave like male char | NS | .06 BAC, alcohol, placebo, sober | Med: SIG | 1) Woman enjoyed forced sex (SIG ME) |
| | | | | | | Mod: SIG | 1) Sex-related AE (SIG ME) |
| Davis, Norris, George, Martell, and Heiman (2006) | 84 Comm, *M* age = 27.1 | HMR, path analysis | R behave like male char | NS | .07 BAC, alcohol vs. control | Med: SIG | 1) R sexual arousal |
| | | | | | | Mod: NS | 1) Woman distressed or not (NS ME) |
| Davis (2010) | 124 Comm, *M* age = 24.56 | Path analysis | R likelihood of forcing sex | NS | .08 BAC, alcohol vs. control | Med: SIG | 1) R's anger/arousal |
| | | | | | | Mod/Med: SIG | 1) Drink × Aggression AE mediates R's anger/arousal |
| Davis et al. (2012) | 227 Comm, History risky sex, *M* age = 25.5 | Path analysis, content effect, dosage effect | R likelihood of forcing sex | N/A | High .10 BAC, Low .05 BAC, placebo, control | Med: SIG<br>Med: SIG<br>Med: SIG<br>Med: NS | With content:<br>1) Woman's sexual arousal<br>2) R feels entitled to sex With dosage:<br>3) Woman's sexual arousal<br>4) R feels entitled to sex |
| | | | | | | Mod: N/A | |
| (7) *Videotapes* | | | | | | | |
| Johnson, Noel, and Sutter-Hernandez (2000) | 118 Coll, *M* age = 23.1 | ANOVA, content effect | R willing to force sex | SIG | High .07 BAC, low .03 BAC, placebo, control | Med: N/A | |
| | | | | | | Mod: SIG | 1) Woman friendly vs. cold (SIG ME) |
| Noel, Maisto, Johnson, and Jackson (2009) | 334 Comm, *M* age = 22.6 | LR, content effect | R would continue sex | SIG | High .08 BAC, low .04 BAC, (combined for analyses), placebo, control (combined for analyses) | Med: N/A | |
| | | | | | | Mod: NS<br>Mod: NS<br>Mod: SIG | 1) Antiforce cues (NS ME)<br>2) AIV (NS ME)<br>3) Anti-force cues × SexDom (NS ME) |
| Abbey, Parkhill, Jacque-Tiura, and Saenz (2009) | 72 Coll, *M* age = 25.21 | HMR | R feels justified using coercive strategies | NS | .08 BAC, alcohol, placebo, sober | Med: N/A | |
| | | | | | | Mod: SIG<br>Mod: SIG<br>Mod: NS | 1) Misperception history (NS ME)<br>2) HTW (NS ME) |

| Study information | | | | | | | |
|---|---|---|---|---|---|---|---|
| **Authors** | **Sample** | **Method of analysis** | **Sexual aggression** | **Main effects** | **Alcohol** | **Mediator and moderator effects** | |
| | | | | | | | 3) Perp status (SIG ME)<br>3) Perp status (SIG ME) |
| (8) *Audiotapes* | | | | | | | |
| Marx, Gross, and Juergens[e] (1997) | 153 Coll, Psych, *M* age = 22.3 | ANOVA | Decision latency (seconds) | SIG | .05 BAC, balanced placebo design | Med: N/A | |
| | | | | | | Mod: NS<br>Mod: NS | 1) Alcohol expectancy set (SIG ME)<br>2) Token resistance (NS ME) |
| Marx, Gross, and Adams[e] (1999) | 153 Coll, Psych, *M* age = 22.3 | ANCOVA | Decision latency (seconds) | SIG | .05 BAC, balanced placebo design | Med: N/A | |
| | | | | | | Mod: NS<br>Mod: NS | 1) Alcohol expectancy set (SIG ME)<br>2) SA history (NS ME) |
| Gross, Bennett, Sloan, Marx, and Juergens (2001) | 160 Coll, *M* age = 22.3 | ANOVA | Decision latency (seconds) | SIG | .05 BAC, balanced placebo design | Med: N/A | |
| | | | | | | Mod: NS<br>Mod: SIG | 1) Alcohol expectancy set (SIG ME)<br>2) Woman's perceived sexual arousal over time |

*Note*. Studies with the same superscript use the same sample. R = participant.

**Sample Column:** Coll = college; Comm = community; Psych = psychology students; Ath = student athletes; 1st Y = First-year student sample; Rep = representative; CW = campus-wide; Reg = region; Nat = national; RDD = random digit dialing; SA program = control group for SA prevention program.

**Method of Analysis Column:** Corr = correlation; SEM = structural equation modeling; $\chi^2$ = chi-square analysis, MR = multiple regression; SMR = stepwise multiple regression; MANOVA = multivariate analysis of variance; DFA = discriminant function analysis; ANOVA = analysis of variance; ANCOVA = analysis of covariance; MANCOVA = multivariate analysis of covariance; HMR = hierarchical multiple regression; LR = logistic regression; MLR = multinomial logistic regression; LPA = latent profile analysis; LCGA = latent class growth analysis.

**Sexual Aggression Column:** SA = sexual aggression; SES = Sexual Experiences Scale (Koss, Gidycz, & Wisniewski, 1987) measures sexual aggression since the age of 14 (unless otherwise specified); mSES = modified version of SES; CTS2 = Conflict Tactics Scale-2 (Straus, Hamby, Bony-McCoy, & Sugarman, 1996) measures sexual aggression in the past year; Number = number of sexually aggressive acts, Y/N = yes or no sexual aggression perpetration; Frequency = frequency of sexual aggression; Severity = index of sexual aggression severity.

**Main Effect Column:** ME = main effect; SIG = significant; NS = nonsignificant; N/A = not examined or not reported, SIG-REV = finding opposite of what was hypothesized.

**Alcohol Column:** Y/N = does the participant drink ever; Freq = frequency; Quant: quantity; Q × F: quantity multiplied by frequency; Heavy = heavy drinking (e.g., drinking to intoxication, 5+ on one occasion, etc.); Problem = problem drinking (e.g., alcohol problems, dependence symptoms, and negative consequences); Date/sex = drinking during dating or sexual situations; Incident = drinking during the sexual assault incident. Experimental studies list the goal blood alcohol concentration (BAC) in the alcohol content condition, as well as all other experimental conditions.

**Mediator or moderator effects column:** HM = hostile masculinity; AE = alcohol expectancy, Alcohol Expectancy Set: experimentally manipulated alcohol expectancy set, SexDom = sexual dominance; CasSex: casual sexual; HTW = hostility toward women; AIV = acceptance of interpersonal violence.

## Table 2

Summary of Major Findings Regarding the Relationship Between Alcohol Consumption and Sexual Aggression Perpetration.

| | |
|---|---|
| **1** | Numerous cross-sectional studies have found a direct positive association between distal and proximal measures of alcohol consumption and sexual assault perpetration. |
| **2** | Although very few survey researchers have examined potential mediating effects, the results thus far are promising regarding sexual dominance, enjoyment of casual sexual relationships, misperception of women's sexual intentions, and perceived peer approval of forced sex as mediating the relationship between alcohol consumption and sexual assault perpetration. |
| **3** | Although very few survey researchers have examined variables that might interact with alcohol to exacerbate or diminish its relationship to sexual assault perpetration, the results thus far are promising for hostile sexism (exacerbate) and mindfulness (diminish). |
| **4** | Although very few survey researchers have examined the association between alcohol consumption during the incident and sexual assault severity, the results suggest that perpetrators' consumption is associated with more severe sexual assaults. |
| **5** | Only a few survey researchers have examined alcohol as a prospective predictor of sexual aggression and these studies have produced conflicting results, perhaps due to different analytic approaches and frequency of alcohol measurement. |
| **6** | Alcohol administration studies that use written vignettes have not found main effects of participants' alcohol consumption on self-reported willingness to use force if in a similar situation; however, several studies have found alcohol's effects are mediated by perceptions of the woman's sexual arousal and participants' anger. |
| **7** | Some alcohol administration studies that use videotapes have found main effects of participants' alcohol consumption on self-reported willingness to use force if in a similar situation. These studies have also found interactions of alcohol consumption with measures of sexual dominance, hostility toward women, and misperception of women's sexual cues, such that intoxicated men with high scores are most likely to say they would use force. |
| **8** | Alcohol administration studies that use an audiotape have found main effects of participants' alcohol consumption on the length of time it takes them to decide the man should quit pressuring the woman to have sex. These are the only studies that find effects of expecting to drink alcohol. |

## Table 3

Implications for Practice, Policy, and Research.

| | |
|---|---|
| **1** | Prospective studies are needed that assess risk and protective factors that are likely to change during life transitions (e.g., from high school to college, from living in first year dormitory to moving to a fraternity) to determine whether these factors change in conjunction with changes in sexual assault perpetration. Based on past research, these studies should include changes in alcohol consumption in dating and sexual situations, misperceiving women's sexual cues, frequency of casual dating, frequency of time spent at parties and bars where hooking up is common, and changing peer networks. |
| **2** | Alcohol administration studies provide important complementary information to surveys. There should be more cross-fertilization so that survey findings can be replicated under lab conditions that establish causality and lab findings can be examined in surveys to determine their generalizability. |
| **3** | The role of alcohol expectancies remains unclear and needs to be addressed in prospective surveys and alcohol administration studies. Despite strong theoretical rationales, empirical evidence is mixed regarding the extent to which expectancies motivate alcohol consumption in potential sexual assault situations and are later used by perpetrators to justify their actions. |
| **4** | Men who drink heavily, particularly in dating and sexual situations, are at risk for committing sexual assault. This risk is heightened if they have other risk factors associated with sexual aggression (e.g., hostile masculinity, impersonal sex, and peer approval). Alcohol interventions need to directly address sexual aggression as a potential negative consequence of heavy drinking. |
| **5** | Men need to understand that their sexual arousal and anger, which are due to their inaccurate perceptions about a woman's willingness to have sex with them, do not entitle them to nag, shame, lie, incapacitate, threaten, or physically force a woman to have sex with them. These situations are exacerbated by alcohol's effects on cognitive processing. Sexual communication and emotion regulation are basic skills that many college students lack and which can be developed through college programs. Open campus dialogues about the line between seduction and coercion and how to establish consent are needed so that everyone knows what behaviors will be adjudicated. |
| **6** | Sexual assaults that occur when the victim is too incapacitated to consent tend to occur when both the victim and perpetrator have been drinking heavily. Colleges need to look seriously at their alcohol policies and implement policies intended to reduce heavy drinking. |
| **7** | Sexual assault is more common on college campuses where there are higher rates of heavy drinking (Weschler, Moeykens, Davenport, Castillo, & Hansen, 1995). Colleges that ban or limit alcohol use on campus, or implement various alcohol control policies, such as keg registration and parent notification policies, have lower rates of heavy drinking (Nelson, Naimi, Brewer & Weschler, 2005). Colleges that want to seriously address alcohol-involved sexual aggression need to implement alcohol policies that reduce heavy drinking. |
| **8** | Sexual assault researchers and practitioners need to work together to develop programs that are based on current knowledge of risk and protective factors. From listening closely to campus practitioners about the types of situations they observe, researchers can develop more nuanced hypotheses about alcohol's role in sexual aggression and produce findings that are more meaningful for treatment and policy initiatives. |