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Understanding the Link Between Men's Alcohol Use and Sexual Violence Perpetration: The Mediating Role of Sexual Objectification

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Abstract

Objective: This study provided a novel consideration of the relations between alcohol consumption, sexual objectification, and sexual violence, because evidence for the links between sexual objectification and alcohol consumption as well as objectification and sexual violence are almost nonexistent in the published literature. We also developed a measure of interpersonal sexual objectification perpetration (ISOS-P) because there are no existing self-report measures of this construct. We hypothesized that these variables would be associated positively and that sexual objectification (including evaluating women's bodies and making sexual advances toward women) would mediate the relation between alcohol use and sexual violence.

Method: To test these possibilities, undergraduate men completed measures assessing their alcohol use, sexual objectification, and sexual violence.

Results: Positive relations emerged between alcohol consumption frequency, alcohol consumption quantity, body evaluation, sexual advances, and sexual violence. A path analysis revealed that the combined effect of body evaluation and sexual advances was a significant mediator of the alcohol quantity and sexual violence link. As well, body evaluation was a significant mediator of the alcohol quantity and sexual advances link.

Conclusion: This study provides a novel contribution to the literature by developing a measure of sexual objectification perpetration and showing that this construct mediates the frequently documented association between heavy drinking and sexual violence. These findings have implications for the prevention of alcohol-related sexual assault on college campuses.

Keywords: alcohol consumption, sexual objectification, violence, aggression, heavy drinking, dehumanization, alcohol myopia

Heavy drinking and sexual violence among college students represent serious societal and personal issues. Alcohol use on college campuses is high with more than 80% of college students drinking alcohol (Engs, Diebold, & Hansen, 1996) and 45% of college students reporting binge drinking in the past two weeks (Hingson, Zha, & Weitzman, 2009). Furthermore, 19% of college students meet the criteria for alcohol abuse or dependence (National Institute on Alcohol Abuse & Alcoholism, 2002). At the same time, sexual violence on college campuses is remarkably common. The Centers for Disease Control and Pre-

vention (CDC, 2010) define sexual violence as "any sexual act that is perpetrated against someone's will." Whereas 11% percent of women indicate experiencing forced sex at some point in their lives and 3% of women report experiencing unwanted sexual activity in the past year (Basile, Chen, Black, & Saltzman, 2007), 20%–25% of women report experiencing an attempted or completed rape during their college careers (Fisher, Daigle, Cullen, & Turner, 2003). Corresponding to college women's reported experiences with sexual violence from men, 25% of college men report some involvement with sexual aggression in-

cluding 4% of men forcing a woman to engage in sex against her wishes (Koss, Gidycz, & Wisniewski, 1987). With expanded definitions of sexual violence (e.g., including oral sex, lack of consent, verbal coercion), more than one third of college men report perpetrating some form of sexual violence toward a woman (e.g., Abbey, McAuslan, Zawacki, Clinton, & Buck, 2001; DeGue & DiLillo, 2004). The purpose of the present work was to examine the link between alcohol use and sexual violence in college men and to explore whether sexual objectification is a significant mediator of the relation between the two.

Given the frequency of both heavy drinking and sexual violence on college campuses, researchers have examined whether alcohol consumption contributes to sexual violence among college men toward college women. Consistent with this possibility, approximately half of all sexual assaults of college women involve alcohol consumption by the perpetrator, victim, or both (see Abbey, 2002 for a review). In a nationally representative sample of college students, for example, Koss (1988) found that 74% of rape perpetrators and 55% of rape victims had been drinking alcohol. As well, there appears to be a dose-response effect; heavier drinking on the part of the perpetrator is associated with more serious incidents of assault (e.g., involving physical force) that result in more severe outcomes for victims (Parkhill, Abbey, & Jacques-Tiura, 2009).

Despite the strong relation between alcohol consumption and sexual violence, relatively little work has examined the various mechanisms that might explain how alcohol use specifically contributes to sexual assault (Testa, 2002; Abbey, 2011). From these studies, it appears that major cognitive impairments and related misperception of women's sexual motives and intent, such as assuming that friendliness is an indicator that women want to have sex (Abbey, Zawacki, & McAuslan, 2000) or that women are sexually aroused (Davis, Schraufnagel, Jacques-Tiura, Norris, George, & Kiekel, 2012) represent important explanations for sexual assault involving alcohol (see Abbey, 2002 for a review). These mechanisms suggest that alcohol-related impairment in perpetrators (i.e., cognitions or perceptions), and related sexual misperception may lead to sexual violence. Less is known, however, about the specific factors that directly intensify the sexual salience of the woman in the eyes

of an intoxicated man. This study examined the degree to which reducing a woman to her sexual body parts (i.e., sexual objectification)—thereby increasing the sexual salience of a woman—might help elucidate why alcohol use is related to sexual violence. To consider this possibility, we first developed a measure of interpersonal sexual objectification perpetration. We then measured alcohol use, objectification perpetration, and sexual violence perpetration, posited a model with sexual objectification as a mediator of the relation between alcohol use and sexual violence, and provided empirical support for this model using bivariate correlations and path analysis. Our review of literatures on sexual objectification, sexual violence, and alcohol myopia revealed several points of convergence from which we derived testable hypotheses.

Sexual Objectification and Sexual Violence

Sexual objectification is a type of appearance-focus concentrated on sexual body parts. According to objectification theory, when people sexually objectify women, they separate women's sexual body parts or functions from the entire person, reduce the sexual body parts to the status of mere instruments, or regard the sexual body parts as capable of representing the entire person. Sexual objectification represents a form of body reduction (Langton, 2009), which focuses on sexual body parts more than the entire body and face (e.g., Gervais, Vescio, Förster, Maass, & Suitner, 2012; Loughnan, Haslam, Murnane, Vaes, Reynolds, & Suitner, 2010; Vaes, Paladino, & Puvia, 2011). Although sexual objectification is a prevalent phenomenon that occurs across multiple contexts (Bartky, 1990), it also may manifest in more extreme behavior such as unwanted sexual advances and in less extreme behavior such as objectifying gazes (i.e., staring at women's bodies and sexual body parts, Fredrickson & Roberts, 1997).

Sexual objectification is associated with several adverse consequences. In response to the objectifying gaze, for example, women report more body image concerns (Calogero, 2004; Kozee, Tylka, Augustus-Horvath, & Denchik, 2007), show decrements in cognitive functioning (Gervais, Vescio, & Allen, 2011), and are more likely to silence themselves (Saguy, Quinn, Dovidio, & Pratto, 2010). Focusing people's

attention on the sexual body parts of women also has negative consequences for how perceivers view women, including decreased mind attribution and agency (Cikara, Erberhardt, & Fiske, 2011; Loughnan et al., 2010), a biased focus on sexual body parts (Bernard, Gervais, Allen, Campomizzi, & Klein, 2012; Gervais, Vescio, Forster, Maass, & Suitner, 2012), and dehumanization (Vaes et al., 2011).

Negative social perceptions and decreased moral treatment of sexually objectified women is theorized to set the stage for more extreme acts of sexual aggression (Fredrickson & Roberts, 1997), including sexual violence in which men attempt to coerce, threaten, or force a woman to engage in sexual acts against her will (Testa, 2002). In the only published study to examine this potential link, Rudman and Mescher (2012) found that people who implicitly associated women with objects were more likely to report sexually aggressive attitudes toward women (see also Cikara et al., 2011); when men more quickly associated women with objects (e.g., objects, tools, things) in an implicit association test, they responded higher on rape proclivity. Extending this finding, in the present study we examined behavioral manifestations of sexual objectification in the form of objectifying gazes and sexual advances. Although related to sexual violence, sexually objectifying behaviors may or may not be implemented against a woman's will. Women sometimes report enjoyment of sexual objectification from men (Liss, Erchull, & Ramsey, 2011), but these seemingly innocuous behaviors have direct negative consequences for women (Moradi & Huang, 2008) and may set the stage for more extreme and unwanted acts of sexual violence from men.

Despite the adverse consequences of sexual objectification and the potential for sexual violence, researchers know very little about what causes people to sexually objectify and subsequently aggress against women in the first place. One reason for this dearth of research is that no self-report measures exist to assess interpersonal sexual objectification perpetration. Rather, existing studies have assessed unconscious objectification through implicit association tests (Rudman & Mescher, 2012) or through attention and recognition tasks for women's sexual body parts (Gervais, Vescio, Forster, Maass, & Suitner, 2012). This represents a significant limitation in the field, as models of the antecedents (e.g., heavy drinking) and

consequences (violence) of objectification perpetration require means for assessing this important construct. In the present work, we took a first step toward addressing this critical gap in the literature by developing the interpersonal sexual objectification perpetration scale (ISOS-P).

Sexual Objectification, Alcohol Myopia, and Extreme Behaviors

We suggest that alcohol consumption may be an important contributor to sexual objectification and related sexual violence as a result of alcohol myopia (Steele & Josephs, 1990; Steele & Southwick, 1985, see also see Hull & Bond, 1986). Alcohol myopia theory suggests that intoxication often produces disinhibited behaviors because of a two-pronged biased response to cues in the situation (see Giancola, Josephs, Parrott, & Duke, 2010 for a review). First, alcohol intoxication restricts the range of cues that are perceived in a situation. When people drink, they attend to and encode fewer available internal and external cues, focusing only on the most salient cues in the situation. Second, intoxication reduces people's ability to process and extract meaning from the cues and information that they do perceive. When people are drunk they are less able to elaborate on incoming information, to relate it to existing knowledge, and thereby to extract meaning from it (Huntley, 1973). Alcohol myopia has been linked to disinhibited behaviors such as risky sexual behavior, disinhibited eating, and alcohol-related aggression through a number of mechanisms including more negative affect, angry affect, hostile cognition ruminations, as well as less self-awareness and empathy (Giancola et al., 2010).

Alcohol use may contribute to more extreme and excessive acts of sexual aggression including sexual violence when drinkers sexually objectify women. Sexual body parts are often salient in interactions with women, with people attending to and remembering women's sexual body parts (Bernard et al., 2012; Gervais, Vescio, & Allen, 2012; Gervais, Vescio, Forster, Maass, & Suitner, 2012) rather than focusing on their less observable attributes (including their thoughts, feelings, and agency, Heflick, Goldenberg, Cooper, & Puvia, 2010; Loughnan et al., 2011). Because alcohol use is also associated with a narrowing

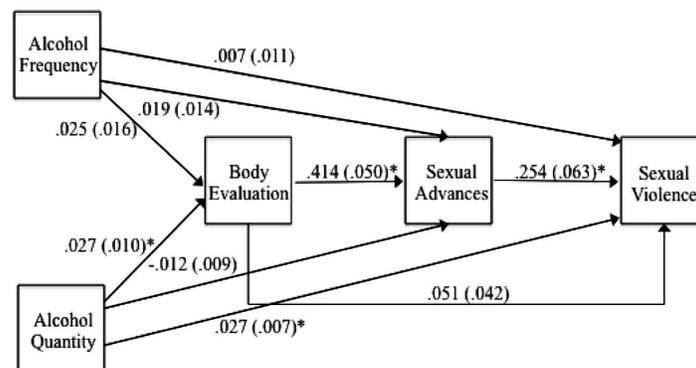
of the perceptual field with a focus on the most salient cues in a situation, drinking may be associated with a stronger tendency to focus on women's salient sexual attributes compared to women's less salient attributes (e.g., thoughts, desires, feelings; Gervais, Bernard, Klein, & Allen, 2013; Gervais, Vescio, Forster, Maass, & Suitner, 2012). This may be particularly likely when college students are drinking due to a hookup culture. On college campuses, uncommitted sexual encounters—hookups—have become normative and are often marked by heavy drinking presumably because alcohol use provides a justification for engaging in casual sex (Garcia, Reiber, Massey, Merriwether, 2012). Objectification may be another key aspect of hookup cultures with men more likely to initiate a hookup when they are drinking because they are more focused on what their partner can offer them sexually and less focused on the consequences of casual sex for their partner's thoughts and feelings. Yet, sexual objectification does not always manifest in more extreme sexual aggression, due to cues that inhibit such behaviors (e.g., concern about negative reactions from the woman or getting caught). When they are drinking, however, diminished cognitive capacity may make men less able to search out, become aware of, or understand these less prominent cues, and thus be less likely to inhibit sexually objectifying behavior. If this rationale holds, we should also find milder sexual objectification behaviors such as objectifying gazes (i.e., looking, but not touching) set the stage for more extreme objectification behaviors such as explicit sexual advances (i.e., unwanted touching, degrading gestures).

An Integrated Model: Alcohol Use, Sexual Objectification, and Sexual Violence

Based on our integration of theory and research on alcohol myopia, sexual objectification, and sexual violence, we propose that sexual objectification may be an important mechanism through which heavy drinking is associated with sexual aggression (see Figure 1). To initially consider this possibility, we conducted a cross-sectional study that examined the global relations between alcohol use, sexual objectification, and sexual violence in college men; that is, the frequency and degree to which college men engage in these behaviors in their everyday lives. If we find evidence that these factors are related and that sexual objectification is a significant mediator of the alcohol use and sexual violence relation, this would provide the foundation for next tests of the model, including examining the relations among these factors in the same situation (e.g., a bar, party, or social gathering), testing causal models, and considering whether these same associations and this mediational model holds for noncollegiate samples of men.

Bivariate Correlations (Hypotheses 1 - 3)

Hypothesis 1: Based on this rationale, we examined two research questions in this work. First, by examining bivariate correlations we considered the degree to which alcohol use, sexual objectification, and sexual violence were associated with one another. Although a positive link between alco-



Note: * $p < .006$

Figure 1. Direct effects in proposed mediation model.

hol use and sexual violence has been documented in previous research (Abbey, 2011), we are aware of no published studies that have examined the relation between alcohol use and sexual objectification, and only one investigation that has examined links between objectifying cognitions and sexually aggressive attitudes (Rudman & Mescher, 2012). We therefore predicted significant positive relations to emerge between drinking (both alcohol frequency—how frequently men drink—and alcohol quantity—how much men drink in one setting) and objectification. Specifically, we hypothesized positive bivariate correlations between alcohol frequency and body evaluation (Hypothesis 1a), alcohol frequency and sexual advances (Hypothesis 1b), alcohol quantity and body evaluation (Hypothesis 1c), and alcohol quantity and sexual advances (Hypothesis 1d).

Hypothesis 2: Replicating previous research on alcohol-related sexual assault, we also predicted significant positive relations between drinking and sexual violence. Specifically, we hypothesized positive bivariate correlations between alcohol frequency and sexual violence (Hypothesis 2a) and alcohol quantity and sexual violence (Hypothesis 2b). Although we expected positive relations to emerge between heavy alcohol use—including drinking frequency and drinking quantity—we explored whether stronger relations emerged for alcohol quantity compared to alcohol frequency because greater quantities of alcohol consumption in one setting should be related to more myopia (Steele & Josephs, 1990; see also Parkhill et al., 2009) and therefore more sexual objectification and sexual violence.

Hypothesis 3: We also predicted significant positive relations to emerge between sexual objectification and sexual violence. Specifically, we hypothesized positive bivariate correlations between body evaluation and sexual violence (Hypothesis 3a) and sexual advances and sexual violence (Hypothesis 3b). Finally, we hypothesized a positive bivariate correlation between body evaluation and sexual advances (Hypothesis 3c).

Mediation Analyses (Hypothesis 4 - 5)

Hypothesis 4: Next, we examined our proposed mediational model (see Figure 1) using multivariate path analysis. We hypothesized that sexual objectification perpetration would mediate relations between alcohol use and sexual violence. We examined this possibility in two complementary ways: First, we expected the indirect effect of sexual objectification to be a significant mediator of the relation between heavy episodic drinking and sexual violence. Specifically, we hypothesized a combined indirect effect of body evaluation and sexual advances between alcohol quantity and sexual violence (Hypothesis 4).

Hypothesis 5: As well, we assessed varying degrees of sexual objectification including milder body evaluation (e.g., objectifying gazes) and more severe sexual advances (e.g., making degrading sexual gestures), and therefore we also considered whether milder forms of sexual objectification mediated the relation between heavy episodic drinking and more severe forms of sexual objectification. Specifically, we hypothesized an indirect effect of body evaluation between alcohol quantity and sexual advances (Hypothesis 5). We explored whether these effects would emerge for alcohol quantity, but not for (or at least to a lesser degree) alcohol frequency because the alcohol myopia model suggests that narrowed attention to women's sexual body parts should emerge more strongly when men are intoxicated.

Method

Participants

A sample of 502 male undergraduates from a U.S. Midwestern university participated for course credit. Participants ranged in age from 17- 40 years ($M = 19.32$, $SD = 1.90$) and primarily identified as European American (431, 85.9%), but also African American (10, 2.0%), Asian American (22, 4.4%), Latino/a (21, 4.2%), or another race/ethnic-

ity (18, 3.6%). Approximately half of participants reported perpetrating sexual aggression against women (257, 51%, see below for measurement information).

Procedure

Institutional Review Board approval was obtained before participant recruitment. Participants were recruited through an online advertisement in the psychology department subject pool to receive course credit. Following informed consent procedures, participants completed an online survey via SurveyMonkey or Qualtrics software that included a battery of psychological measures and took approximately one hour to complete. Embedded within the survey were measures of alcohol use, sexual objectification, and sexual violence. Following the survey, participants were asked to report demographic information, including race and age.

Alcohol Use

We assessed two aspects of heavy alcohol use with two questions. We measured the frequency of current alcohol use, which was defined as the average number of days per week a person drank (1 item, *How many days per week do you drink alcohol?* $M = 1.36$, $SD = 1.43$, $range = 0 - 7$). We also measured alcohol quantity, which was defined as the average number of standard drinks a person consumed on a typical day when they drank alcohol (1 item, *On a typical day when you drink alcohol, how many standard drinks do you have?* $M = 4.67$, $SD = 4.35$, $range = 0-20$). Regarding validity, these questions are consistent with recommendations on assessing alcohol patterns (e.g., O'Malley & Johnston, 2002; NIAAA, 2004) and they are predictive of alcohol-related risks (Greenfield & Rogers, 1999), including mortality risk (Rehm, Greenfield & Rogers, 2001). This assessment may be more conservative than 12-month estimates because it does not necessarily capture a longer pattern of drinking (Rehm et al., 1999). Nevertheless, our estimates are consistent with high-risk drinking within a typical week (Rehm et al., 1999).

Sexual Objectification

To assess sexual objectification perpetration, participants completed the Interpersonal Sexual Objectification Scale-Perpetrator Version (ISOS-P), which is a modified version of the Interpersonal Sexual Objectification Scale (ISOS; Kozee et al., 2007) that we developed. Modifications in wording were made to the original ISOS because no existing self-report instruments of sexual objectification exist. Instead, current literature has assessed unconscious objectification through implicit association tests (Rudman & Mescher, 2012) or through attention and recognition tasks for women's sexual body parts (Gervais, Vescio, Forster, Maass, & Suitner, 2012). Specifically, the original 15-item ISOS includes two subscales that assess the frequency with which women have experienced sexual objectification during interactions with other people, including body evaluation (11 items, e.g., *noticed someone leering at your body*) and explicit unwanted sexual advances (4 items, e.g., *someone made a degrading sexual gesture toward you*). There is empirical evidence that the body evaluation and explicit unwanted sexual advances subscales of the ISOS are reliable and valid measures of the frequency of interpersonal sexual objectification experiences (Kozee et al., 2007). Scores on the original ISOS have shown strong internal consistency reliability for women on the total scale ($\alpha = .92$), body evaluation subscale ($\alpha = .91$), and unwanted explicit sexual advances subscale ($\alpha = .78$; Kozee et al., 2007). Additionally, scores on the ISOS have demonstrated acceptable 3-week test-retest stability for the total scale ($r = .90$), body evaluation subscale ($r = .89$), and unwanted explicit sexual advances subscale ($r = .80$), as well as convergent and discriminant validity with subscales on the Schedule of Sexist Events in a sample of women (Kozee et al., 2007). In the present study, the same items were used, but slightly reworded to assess sexual objectification perpetration. That is, the items measured the frequency with which people engaged in (vs. experienced) body evaluation (11 items, e.g., *leered at someone's body*) and explicit unwanted sexual advances (15 items, e.g., *made a degrading sexual gesture toward someone?*). As with the original ISOS, all items on the ISOS-P were rated on a 5-point Likert-type scale (1 = *never*, 2 = *rarely*, 3 = *occasionally*, 4 = *frequently*, 5 = *almost always*). Mean body evaluation ($M = 2.30$, $SD =$

.70, range = 1 – 5, $\alpha = .90$) and explicit unwanted sexual advances scores were calculated ($M = 1.22$, $SD = .51$, range = 1 – 5, $\alpha = .88$).

Sexual Violence

To assess sexual violence, participants completed the Sexual Experiences Survey–Male Version (SES; Koss et al., 1987). As noted in Kolivas and Gross' (2007) review, "The male version of the SES is also considered the measure of choice for identifying perpetrators of sexual aggression against women" (p. 321). It contains 13-items that ask respondents to self-report their engagement in behaviors reflecting sexual assault perpetration since the age of 14 (e.g., *Have you ever had sexual intercourse with a woman/man because you pressured her/him with continual arguments? Have you ever succeeded in obtaining sexual intercourse with a woman/man when she/he did not want to, by using physical force?*) on a 5-point Likert-type scale (1 = never, 3 = occasionally, 5 = often). As in previous research, the individual items were averaged to obtain a mean sexual violence score ($M = 1.27$, $SD = 0.40$, range = 1 – 5, $\alpha = .86$). Empirical evidence supports the use of the SES as a measure of male sexual aggression. Koss and Gidycz (1985) reported high internal consistency ($\alpha = .89$) and item agreement (93%) across two administrations of the SES (Koss & Oros, 1982) with a sample of college males over a 1-week period. The correlation between respondents' level of sexual aggression on the self-report version and their reports of these same behaviors to an interviewer was .61, with men tending to endorse lower levels of sexual aggression in the presence of the interviewer.

The raw values for alcohol consumption, objectification, and sexual violence were log transformed to correct for positive skew. Log transformed data were

analyzed in the bivariate correlations and path analysis, but the raw means, standard deviations, and ranges are reported for ease of interpretability. Analyses conducted on the raw data revealed a parallel pattern of effects.

Results

Bivariate Correlations (Hypotheses 1 – 3)

To test our first research question, we examined the bivariate correlations across all variables (see Table 1 for correlations and descriptive statistics). Regarding relations between heavy drinking and sexual objectification (Hypothesis 1), more frequent alcohol use was associated positively with more body evaluation (consistent with Hypothesis 1a) and more sexual advances (consistent with Hypothesis 1b). Alcohol quantity was also associated positively with more body evaluation (consistent with Hypothesis 1c) as well as more sexual advances (consistent with Hypothesis 1d). Regarding heavy drinking and sexual violence (Hypothesis 2), alcohol frequency and alcohol quantity were associated positively with sexual violence (consistent with Hypotheses 2a and 2b). Finally, regarding relations between sexual objectification and sexual violence (Hypothesis 3), both body evaluation and sexual advances were associated positively with sexual violence (consistent with Hypothesis 3a and 3b) and body evaluation was associated positively with sexual advances (consistent with Hypothesis 3c). Thus, the pattern of bivariate correlations was consistent with hypotheses and our proposed model. We next examined the unique effects of these predictors, as well as the mediating role of sexual objectification in the relation between alcohol use and sexual violence.

Table 1. Descriptive Statistics and Correlations for All Variables

	<i>M (SD)</i>	Range	1	2	3	4
1. Alcohol frequency ($N = 483$)	1.36 (1.43)	0–7	–			
2. Alcohol quantity ($N = 472$)	4.67 (4.35)	0–20	.80***	–		
3. Body evaluation ($N = 500$)	2.30 (0.70)	1–5	.28***	.29***	–	
4. Sexual advances ($N = 499$)	1.22 (0.51)	1–5	.15**	.10*	.45***	–
5. Sexual violence ($N = 500$)	1.27 (0.40)	1–5	.34***	.34***	.27***	.36***

* $p < .05$; ** $p < .01$; *** $p < .0001$

Mediation Analysis (Hypotheses 4 – 5)

We examined the mediating role of sexual objectification perpetration (including both body evaluation and sexual advances) for the association between alcohol use and sexual violence (Hypothesis 4). We also examined body evaluation as a mediator of the association between alcohol use and sexual advances (Hypothesis 5). Again, we explored whether these effects emerged (or were stronger) for alcohol quantity compared to alcohol frequency. Toward this end, we estimated a path model using maximum likelihood within Mplus Version 6.0 (Muthén & Muthén, 1998–2010).

The estimated path model is shown in the Figure 1. Alcohol frequency (X1) and alcohol quantity (X2) were the predictors, body evaluation (M1) and explicit unwanted sexual advances (M2) were the mediators, and sexual violence was the outcome (Y). This allowed us to consider each variable's unique direct effects, as well as the extent of indirect effects of alcohol use (frequency and quantity) to sexual violence through body evaluation and explicit unwanted sexual advances (Hypotheses 4) and alcohol use (frequency and quantity) to sexual advances through body evaluation (Hypotheses 5). Following recent recommendations for testing mediation (Mallinckrodt, Abraham, Wei, & Russell, 2006), we used 10,000 bootstrap samples to obtain empirical standard errors and 95% bias-corrected confidence intervals with which to assess the significance of indirect effects (Williams & MacKinnon, 2008). Accordingly, an indi-

rect effect is significant and indicates mediation if the 95% confidence interval does not contain zero (see Mallinckrodt et al., 2006). Figure 1 provides unstandardized parameter estimates and standard errors for the direct effects, and Table 2 provides the unstandardized parameter estimates and standard errors for the indirect effects. Because path analysis estimates all of the paths in the model (similar to hierarchical linear regression), indexes of fit are irrelevant. That is, residual correlations were estimated among all mediators; the model was saturated (i.e., all possible relationships were estimated, no degrees of freedom remained), and thus fit perfectly, as in traditional linear regression (Klein, 2011).

As shown in the Figure 1, as expected given the bivariate correlations, a direct path between alcohol quantity and body evaluation emerged (X2 to M1) with more drinking associated with more body evaluation. A direct path between alcohol quantity and sexual violence also emerged (X2 to Y), with more drinking associated with more sexual violence. A direct path between body evaluation and explicit unwanted sexual advances (M1 to M2) revealed that more body evaluation was associated with more explicit unwanted sexual advances. Finally, a direct path between explicit unwanted sexual advances and sexual violence (M2 to Y) also revealed that more explicit unwanted sexual advances were associated with more sexual violence.

Providing the critical test for the hypotheses regarding our second research question, with respect to the indirect effects of sexual objectification for al-

Table 2. Bootstrap Analysis of Magnitude and Significance of Indirect Effects

Predictor	Mediator	Criterion	B	SE	95% Confidence	
					Lower bound	Upper bound
Alcohol frequency	Body evaluation	Sexual advances	.010	.007	-.003	.024
Alcohol frequency	Body evaluation	Sexual violence	.001	.001	-.002	.004
Alcohol frequency	Sexual advances	Sexual violence	.005	.004	-.003	.012
Alcohol frequency	Body evaluation/ Sexual advances	Sexual violence	.003	.002	-.001	.006
Alcohol quantity	Body evaluation	Sexual advances	.011	.004*	-.001	.005
Alcohol quantity	Body evaluation	Sexual violence	.001	.001	-.001	.004
Alcohol quantity	Sexual advances	Sexual violence	-.003	.002	-.008	.002
Alcohol quantity	Body evaluation/ Sexual advances	Sexual violence	.003	.001*	-.003	.019

* Confidence intervals that do not contain zero are considered significant (Mallinckrodt et al., 2006), $ps = .031-.006$.

cohol use and sexual violence, the combined indirect effect of body evaluation and explicit unwanted sexual advances was significant for alcohol quantity and sexual violence (see Table 2), consistent with Hypothesis 4. This indirect effect did not emerge for alcohol frequency and sexual violence. Also, consistent with Hypothesis 5 and our proposed model, the indirect effect through body evaluation was significant for alcohol quantity and explicit unwanted sexual advances. Again, this indirect effect did not emerge when alcohol frequency.

Discussion

To our knowledge, this is the first study to consider relations between alcohol use, sexual objectification, and sexual violence. Consistent with hypotheses, we found that heavy drinking was associated positively with college men's sexual objectification (Hypothesis 1) and sexual violence (Hypothesis 2). Replicating previous research (Abbey, 2011; Testa, 2002), the frequency with which college men drank alcohol and the more alcohol men consumed per occasion was associated with sexual violence; that is, heavy drinking (more frequently and greater quantity) was associated with more sexual violence perpetration, including rape, coercion, and sex without consent. Also consistent with expectations, alcohol use was associated positively with college men's sexual objectification. A greater quantity of alcohol consumed was associated with college men engaging in more body evaluation of women, as well as more unwanted explicit sexual advances toward them, although it remains unclear whether heavy drinking and objectification are occurring in the same setting. Similarly, more frequent drinking was associated with more evaluation of women's bodies and more explicit unwanted sexual advances. Finally, contributing to the limited evidence positing relations between sexual objectification and sexual aggression (Rudman & Mescher, 2012), more body evaluation and more explicit unwanted sexual advances were associated with more sexual violence (Hypothesis 3). In sum, we replicated research showing the link between alcohol use and sexual violence, but also extended these findings to sexual objectification, showing that more sexual objectification of women was

associated with more drinking and more sexual violence among college men.

These findings provided the foundation for testing our proposed model with sexual objectification as a mediator of the association between alcohol use and sexual violence for college men. The indirect effect through both body evaluation and sexual advances was significant for alcohol quantity and sexual violence, indicating that sexual objectification is one of the mediators of the association between heavy drinking and sexual aggression (consistent with Hypothesis 4). Also, the indirect effect through body evaluation was significant for alcohol quantity and sexual advances (consistent with Hypothesis 5), indicating that less severe forms of sexual objectification such as objectifying gazes are mediators of the association between heavy drinking and more severe forms of sexual objectification such as sexual harassment. This same model did not hold for alcohol frequency, suggesting that sexual objectification mediates the relation between heavy episodic drinking and sexual violence, rather than simply drinking often. Although this pattern is consistent with the alcohol myopia model, future research should directly consider whether alcohol frequency and alcohol amount are significantly different in predicting sexual objectification and violence and should directly measure alcohol myopia.

Limitations

Although we have posited a mediational model that integrates current research on alcohol use, sexual objectification, and sexual violence, our study suffers from limitations inherent in cross-sectional surveys regarding lack of causal inferences. It is possible that alcohol use increases sexual objectification and, in turn, sexual violence, but it is also possible that men seeking sexual partners may perpetrate assault in part based on their expectation that drinking leads to sex. It is also possible that alcohol use and objectification could be associated with violence because people with different personality traits (e.g., antisocial) who perpetrate sexual violence drink more heavily and objectify women more often than their nonsexually violent peers. Further research is required to examine questions of causality and directionality using experimental or longitudinal designs with a variety of

measures. For example, future experimental research may randomize participants to alcohol consumption or placebo conditions (Abbey et al., 2000; Davis et al., 2012), measure a host of objectifying cognitions and behaviors (some self-report and some not), and assess sexual aggression using laboratory analogues.

There are also limitations with the self-report measures. For example, men may be hesitant to report substance use, objectification, or violence, as a result of social desirability concerns. Although participants knew that their responses were confidential and the measures used in this study were embedded within a larger survey, the frequency of these behaviors may be underestimated. There is also subjectivity with the objectification and sexual violence measures (e.g., some might think that engaging in sexual coercion once per week represents "frequent" perpetration, whereas others may think the same frequency represents "occasional" perpetration).

A related issue is that the global associations examined in the present study do not account for the likelihood that alcohol use, sexual objectification, and sexual violence often occur in conjunction with one another, particularly for college students (e.g., at bars or parties). Although it is likely that men are drinking heavily, "checking out" women, and aggressing against them in the same contexts, because the measures used in the current study did not explicitly assess whether the alcohol consumption, objectification, and aggression occurred at the same point in time or in the same context, this is still an area that begs for future research.

A final issue is the use of a sample of college men. It remains unclear whether similar associations would emerge with noncollegiate samples. The relations from this study may be limited to college campuses where the social environment is often linked to drinking and sex (e.g., "hookup" culture, Garcia et al., 2012), and potentially objectification. These relations may not appear in settings with other dynamics with regard to drinking and sexual behavior. The applicability of this model to other people and contexts requires more research.

Research Implications

The present investigation makes some important contributions to literatures in sexual objectification, alcohol use, and sexual violence. First, this study

identifies an additional factor that is related to sexual objectification, namely alcohol use. Although many of the negative factors associated with sexual objectification have been well-established (e.g., Hefflick et al., 2011; Vaes et al., 2011; Loughnan et al., 2010), understanding why and when people sexually objectify women in the first place is much less well-understood (Gervais, Vescio, Forster, Maass, & Suitner, 2012). We reasoned that the narrowed attention manifested as myopia associated with alcohol use (Steele & Josephs, 1990) would be linked to sexual objectification, with heavy drinkers focusing more on women's sexual body parts and less on women's thoughts and feelings (Gervais et al., 2013). Consistent with this suggestion, the greater quantity of alcohol that college men drank was associated with more body evaluation and more unwanted explicit sexual advances. The same pattern of associations did not emerge for the frequency with which college men drank. This pattern is consistent with our alcohol myopia explanation because people who drink a greater quantity of alcohol on one occasion (e.g., heavy episodic drinking) should show more cognitive biases associated with myopia, whereas people who drink more frequently (e.g., more days per week or month) do not necessarily drink quantities sufficient to produce myopia. Finally, this work suggests a potential novel manifestation of alcohol myopia, namely sexual objectification. Although alcohol use has been associated with more extreme and excessive sexual aggression (Abbey, 2011; Lisco, Parrott & Tharp, 2012), this is the first study to document this with regard to college men's sexual objectification of women.

Additionally, this study used a new measure of sexual objectification perpetration, the ISOS-P, which we created from an existing measure of women's sexual objectification experiences (ISOS, Kozee et al., 2007). Although there are general measures of hostility toward women (e.g., Check, Malamuth, Elias, & Barton, 1985) and cognitive objectification tasks (Rudman & Mescher, 2012, see also Gervais, Vescio, Forster, Maass, & Suitner, 2012), there are no self-report measures of sexual objectification perpetration specifically. This advance represents a methodological contribution of the present work. In this initial investigation, the body evaluation and explicit unwanted sexual advances subscales showed good internal reliability consistency as evidenced by their

high Cronbach's alphas. Regarding the construct validity, the content of the items was not altered from the original ISOS (Kozee et al., 2007). Rather, items were slightly reworded to assess the frequency with which people perpetrated (vs. experienced) these behaviors toward others (e.g., leered at someone's body vs. noticed someone leering at your body). If sexual aggression is considered on a continuum with less severe behaviors, including body evaluations and sexual advances falling on one end and more severe behaviors including sexual coercion and forced sex on the other end, then we would expect less severe sexual objectification to be moderately associated with more severe sexual violence. Consistently, sexual objectification and sexual violence were moderately and positively associated (r s ranging from .27 - .36). We also found that body evaluation, a less severe form of objectification, was a significant mediator of the link between alcohol use and sexual advances, a more severe form of objectification. Thus, the ISOS-P may be a promising measure to assess men's sexual objectification perpetration; however, future research, using confirmatory and exploratory factor analysis, assessing test-retest reliability, and considering social desirability issues is still needed for the ISOS-P.

Finally, despite anecdotal evidence that sexual objectification may be associated with sexual violence, there is a dearth of research in this area. We reasoned that engaging in sexually objectifying and dehumanizing behaviors may be related to more severe acts of sexual violence. Consistent with the only published study that has examined this link, we found that objectification was associated with self-reports of sexually aggressive behavior. Our work extends Rudman and Mescher (2012) by including a self-report measure (vs. an implicit association measure) of objectification and by assessing objectifying behaviors (vs. cognitions).

Clinical and Policy Implications

These findings also have implications for the prevention of alarmingly high rates of sexual assault on college campuses (Abbey, 2002; Hingson et al., 2009). Recognizing this problem, the federal government mandates that all institutions of higher education take steps to reduce sexual assaults on campus (Campus Sexual Assault Victims' Bill of Rights,

1998). However, evaluations of rape prevention efforts suggest that programs targeting men are at best modestly effective (Lonsway et al., 2009). Although adages such as "you can look, as long as you don't touch" give the impression that sexual objectification is harmless, "checking out" women and evaluating their bodies not only has direct negative effects for women themselves (Kozee et al., 2007; Moradi & Huang, 2008), but as demonstrated here may also set the stage for violence in college men. Given that objectification provides one pathway through which alcohol use may contribute to sexual violence, interventions to reduce alcohol-involved sexual assault may be enhanced by including a focus on objectification. Specifically, existing programs aimed at modifying social norms or encouraging bystander intervention (e.g., Gidycz, Orchowski, & Berkowitz, 2011) could potentially be improved by teaching both men and women to identify, confront, and stop objectification. These efforts should include training to boost the salience of inhibitory information in order to counteract tendencies toward objectification that may be intensified by heavy drinking. If these relations hold in future studies, policymakers and clinicians should focus on reducing objectification to stop alcohol-related sexual assault.

Concluding Thoughts

The first purpose of the study was to provide a novel consideration of the relations between alcohol use, sexual objectification, and sexual violence, because evidence for these links, particularly with regard to sexual objectification, is almost nonexistent in the published literature. Our results supported expectations about relations between these variables in college men and extended these findings by identifying sexual objectification as a significant mediator of the link between alcohol use and violence. Thus, sexual objectification may help explain the frequently documented links between alcohol use and sexual violence on college campuses. If future research continues to support the mediational model outlined here, in which alcohol use intensifies the objectification of women in a manner that increases sexual violence risk, this would signal the need for interventions on college campuses designed to interrupt this process.

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