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Using Experimental Paradigms to Examine Alcohol’s Role in Men’s Sexual Aggression: Opportunities and Challenges in Proxy Development

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Abstract

The goals of this article are to review the major findings from alcohol administration studies that use sexual aggression proxies and to encourage additional experimental research that evaluates hypotheses about the role of alcohol in the etiology of men’s sexual aggression. Experiments allow participants to be randomly assigned to drink conditions, therefore ensuring that any differences between drinkers and nondrinkers can be attributed to their alcohol consumption. One of the biggest challenges faced by experimental researchers is the identification of valid operationalizations of key constructs. The tension between internal and external validity is particularly problematic for violence researchers because they cannot allow participants to engage in the target behavior in the laboratory. The strengths and limitations associated with written vignettes, audiotapes, videotapes, and confederate proxies for sexual aggression are described. Suggestions are made for future research to broaden the generalizability of the findings from experimental research.

Keywords

sexual assault perpetration; experiments; alcohol administration; proxy measures; aggression

Approximately half of all sexual assaults experienced by women occur when a male perpetrator has consumed alcohol (see Abbey, 2011; Testa, 2002 for reviews). Many cross-sectional and prospective surveys have made important contributions to knowledge about the etiology of sexual aggression (see Tharp et al., 2012 for a review); however, surveys cannot establish a causal connection between alcohol and sexual assault (Shadish, Cook, & Campbell, 2002). Thus, one major goal of this article is to encourage experimental research in which men are randomly assigned to drink an alcoholic or nonalcoholic beverage and then exposed to a proxy that allows them to respond in a sexually aggressive or nonaggressive manner. The development of evidence-based prevention and treatment

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programs will be advanced by a more nuanced understanding of both the types of men and the types of situations most affected by alcohol.

Characteristics of Good Experimental Proxies

One of the biggest challenges faced by experimental researchers is the identification of valid operationalizations of key constructs. How can sexual aggression be ethically measured in a laboratory setting? What types of experimental proxies are likely to create the same internal states and behavioral responses as those experienced by potential perpetrators in “real life?” This section provides a brief overview of two major methodological concerns: experimental realism and construct validity.

Experimental Realism

Experimental studies are often criticized for being artificial, sterile, and simplistic (Highhouse, 2009; Wilson, Aronson, & Carlsmith, 2010). This criticism has been applied to alcohol administration studies, which have to balance concerns with standardization and participants’ safety with concerns about generalizability to natural drinking situations. For example, participants typically drink alone, at a pace that is set by the experimenter to standardize blood alcohol concentrations (BAC) as much as possible (Sayette, Smith, Breiner, & Wilson, 1992). Sometimes participants are in a laboratory setting that looks like a bar, but typically, they are seated at a desk and complete their tasks on a computer. Clearly, these experimental settings do not match the circumstances in which most people consume alcohol in natural settings.

Mundane realism exists when the experimental situation corresponds to natural situations on surface characteristics (Wilson et al., 2010). In contrast, experimental realism exists when participants become so caught up in the premises of the study that they feel, think, and respond in ways that correspond to their behavior in natural settings. For example, a competitive shock paradigm has repeatedly demonstrated its experimental realism when used as a proxy for general aggression, despite its low mundane realism (Giancola & Parrott, 2007).

Construct Validity

Construct validity addresses questions about how well researchers’ operationalizations of their independent and dependent variables correspond to the underlying constructs of interest (Shadish et al., 2002). An important first step involves defining constructs, such as “sexual assault perpetration,” “sexual aggression,” and “intoxication.” Typically, researchers’ conceptual definitions are much broader than their operationalizations. Most sexual assault proxies use only one operationalization of sexual aggression, whether it is a story about a physically forceful rape that occurs between casual acquaintances or a decision about showing a female confederate sexually violent or neutral slides (these types of studies are described in later sections). Although using only a single operationalization of key constructs is common, this mono-operationalization bias is a serious threat to validity because researchers do not know whether their findings generalize beyond it. Would comparable results emerge if the perpetrator in a story used only verbal coercion to obtain

sex or if participants had to decide which slides to show their girlfriend? Researchers should be cautious when drawing conclusions about the generalizability of their findings if they only use a single operationalization of sexual aggression.

A common way to provide evidence for the construct validity of a proxy is to correlate it with an established measure of the construct assessed through another modality (Shadish et al., 2002). Many of the studies described in later sections have compared participants' responses to the proxy with self-report measures of sexual aggression (Abbey, Parkhill, Jacques-Tiura, & Saenz, 2009; Bernat, Stolp, Calhoun, & Adams, 1997; Hall & Hirschman, 1994; Marx, Gross, & Adams, 1999). Some researchers have established convergent validity by examining the association between participants' responses to the proxy with their scores on common risk factors for sexual aggression (Abbey et al., 2009; Bernat et al., 1997; Marx et al., 1999; Noel, Maisto, Johnson, & Jackson, 2009; Norris, George, Davis, Martell, & Leonesio, 1999; Norris, Martell, & George, 2001). Behavior on any one occasion is determined by multiple factors, and thus moderate effect sizes are accepted as good evidence of construct validity (Anderson & Bushman, 1997; Cohen, 1988).

Types of Proxies Commonly Used in the Sexual Aggression Literature

There are two important dimensions to consider when developing a proxy: the stimulus materials and participants' response. Four types of stimulus materials have been used: (a) written vignettes, (b) videotapes, (c) audiotapes, and (d) female confederates. Participants respond to these proxies in two different ways: (a) self-reports of their thoughts, feelings, and likely behavior if they were in that situation and (b) direct behavioral response to the stimulus. Typically, when participants are presented with a story about a sexual assault, their sexual aggression propensity is assessed in a questionnaire. However, the audiotape paradigm described in a later section requires a behavioral response (Gross, Bennett, Sloan, Marx, & Juergens, 2001). When participants interact with a confederate, their sexual aggression propensity is typically assessed by their immediate behavioral response to the confederate, although some of these studies also include self-report questionnaires.

Proxies that present a sexual assault scenario in written, audio, or video form put greater emphasis on mundane realism because they ask participants to respond to the situation as if they were in it. Most researchers who provide participants with sexual assault scenarios engage in extensive pilot testing to ensure that members of the target audience perceive them as realistic and credible (Abbey et al., 2009; Davis, 2010; Noel et al., 2008). In contrast, proxies that use a female confederate put greater emphasis on experimental realism because participants' responses are not intended on the surface to be similar to an act of sexual aggression, for obvious ethical reasons. However, participants' cognitions, feelings, and behavioral responses to the confederate are expected to mirror those that occur in actual sexually assaultive interactions.

The following sections describe alcohol administration studies that were located through searches of PsycInfo and the Web of Science. Only major relevant findings are highlighted in the brief summaries provided below.

Written Vignettes

Six alcohol administration studies were identified that assessed men's self-reported responses to written sexual aggression scenarios. Norris and colleagues published four studies that examined mechanisms through which violent pornography encourages some men to perceive the use of force to obtain sex as acceptable, particularly after drinking alcohol (Davis, Norris, George, Martell, & Heiman, 2006; Norris, Davis, George, Martell, & Heiman, 2002; Norris et al., 1999; Norris & Kerr, 1993). The first of these studies used a balanced placebo design (Norris & Kerr, 1993). With this paradigm, participants are randomly assigned to conditions that fully cross the information participants are given about what they are drinking (expectancy set) with what they are actually given to drink. This produces four drink conditions: intoxicated (told alcohol and given alcohol), sober (told no alcohol and not given alcohol), anti-placebo (told no alcohol but given alcohol), and placebo (told alcohol but not given alcohol). This is an elegant design, which allows the pharmacological and psychological effects of alcohol to be completely separated (George, Gilmore, & Stappenbeck, 2012). However, the anti-placebo condition only works at relatively low doses because the pharmacological impairments associated with alcohol cannot be hidden from participants beyond BACs of about .04 to .05 (Martin & Sayette, 1993; Rohsenow & Marlatt, 1981). Thus, many researchers omit the anti-placebo cell so that they can use higher doses (target BAC of .08 to .10), which tend to produce larger cognitive impairments (Carey & Hustad, 2005; Peterson, Rothfleisch, Zelazo, & Pihl, 1990).

Participants in Norris and Kerr's (1993) study read a story based on the common themes in violent pornography in which the man uses physical force to subdue a woman whose initial negative response became positive. As compared with sober male participants, intoxicated male participants rated the female character as significantly more deviant and socially unacceptable and they were marginally more likely to report that they would act like the male character in a similar situation. There were no effects of alcohol expectancy set.

The other three studies conducted by Norris and colleagues varied the woman's affective response and the target BAC. In two of these studies, alcohol's effects on men's self-reports that they would act like the male character occurred through mediation. Men who were randomly assigned to drink alcohol thought the woman would enjoy sex more (Norris et al., 2002) or felt more sexually aroused themselves (Davis et al., 2006), both of which were positively associated with men's likelihood of acting like the male character in path analyses.

Moderator effects were also reported in two of these studies. Norris et al. (1999) found a significant interaction between drink condition and hypermasculinity. Among sober and placebo participants, there was no relationship between hypermasculinity and perceptions of the victim's distress. In contrast, among drinkers, increased hypermasculinity was negatively related to perceptions of the victim's distress. The authors argued that these findings support the hypothesis that the cognitive impairments induced by alcohol encourage men predisposed to sexual aggression to ignore signs of a woman's distress and focus on instigatory cues such as their perception of the woman's sexual interest or their own sexual arousal. Norris et al. (2002) found a significant interaction between drink condition and sexual alcohol expectancies. Among participants with weak sexual alcohol expectancies,

there was no relationship between drink condition and self-reported likelihood of being sexually aggressive. However, among participants with strong sexual alcohol expectancies, drinkers reported a greater likelihood of being sexually aggressive than did nondrinkers. The authors suggested that sex-related alcohol expectancies may act as self-fulfilling prophecies, justifying perpetrators' beliefs that they could not control themselves once aroused.

Davis and colleagues used a vignette to examine the effects of alcohol on men's self-reported willingness to force a woman to have sex without a condom (Davis, 2010; Davis et al., 2012). The man and woman had been casual sex partners in the past, run into each other at a party, and end up at her place. The woman willingly engages in some sexual activities but refuses to have sex once they realize that no condom is available. Similar to the studies described above, alcohol's effects on male participants' self-reported likelihood of acting like the male character occurred through mediation and moderation. Davis (2010) randomly assigned participants to one of two alcohol conditions (sober or intoxicated) and found a significant interaction between drink condition and self-reported aggression alcohol expectancies. Among sober participants, there was no relationship between the strength of participants' belief that alcohol made them act aggressively and an index of anger-related emotions after reading the story. In contrast, among drinkers, aggressive alcohol expectancies were positively associated with their anger-related emotions. In the second study, male participants were randomly assigned to one of four alcohol conditions (sober, placebo, low target BAC = .05 dose, or high target BAC = .10 dose of alcohol). As compared with sober and placebo participants, low and high dose alcohol participants thought the woman in the scenario was more sexually aroused and they felt more entitled to sex, and those judgments were positively associated with their self-report that they would have sex with her despite her refusals. These studies also support the hypothesis that among men predisposed to aggression, intoxication triggers perceptions of the woman and self that encourage a sexually aggressive response.

Videotapes

Three alcohol administration studies were identified that used videotapes to assess men's responses to a sexual aggression scenario. Johnson, Noel, and colleagues conducted two studies that used different videotapes, although they both evaluated hypotheses about alcohol's effects on men's interpretation of situational cues (Johnson, Noel, & Sutter-Hernandez, 2000; Noel et al., 2009). These authors argued that sober and intoxicated men should make different judgments when situational cues are ambiguous because under these circumstances, alcohol myopia allows them to focus on salient instigatory cues rather than less salient inhibitory cues. Male participants in Johnson et al. (2000) were randomly assigned to view one of two versions of a videotape of a man and woman at the beginning of a blind date. In one version, she was friendly and excited to meet the man, and in the other version, she was very distant and aloof. Participants were then asked if later that evening they would try to have sex with the woman even if it meant using force. As hypothesized, in the distant condition there were no effects of alcohol consumption. However, in the friendly condition, male participants who were randomly assigned to consume either a low (target BAC = .03) or moderate (target BAC = .07) dose of alcohol reported a greater willingness to

use force to obtain sex than did male participants randomly assigned to the sober and placebo conditions.

Noel et al. (2009) evaluated the hypothesis that when the most salient cues in the situation are inhibitory, then intoxicated men should be less likely than sober men to report that they would be sexually aggressive. Two versions of the videotape were developed that depicted a man and a woman in a casual relationship at her apartment after spending time earlier that evening with friends at a bar. One version included feminist posters on the wall, women's studies books, and the woman changed into a Rape Crisis Center T-shirt. In the second version, there were posters of kittens and bands, psychology books, and she changed into a plain t-shirt. Male participants were randomly assigned to one of the two versions of the video and one of four alcohol conditions: sober, placebo, low dose (target BAC = .04), or moderate dose of alcohol (target BAC = .08). Contrary to the authors' hypotheses, participants who consumed a low or moderate dose of alcohol were more approving of the male character's use of force to obtain sex than were sober or placebo participants. They also found an interaction between drink condition and sexual dominance. Among sober and placebo participants, there was no relationship between sexual dominance and approval of using force to obtain sex. In contrast, among low and moderate dose drinkers, greater sexual dominance was associated with greater approval of the use of force to obtain sex.

The third alcohol administration study that used a videotape proxy to examine sexual aggression focused on individual difference characteristics (Abbey et al., 2009). These authors hypothesized that intoxication increases sexual aggression only among men predisposed to behave in a sexually aggressive manner. Male participants completed a survey that measured past sexual assault perpetration and several common risk factors approximately 1 month prior to an alcohol administration study. Participants were randomly assigned to one of three drink conditions: sober, placebo, or intoxicated (target BAC = .08) and then watched a video of man and woman talking on campus during the day, at a party that evening, and then later at his apartment. The video ends with the couple engaging in consensual kissing and touching. Participants were asked to imagine that the woman refused to have sex because no condom was available and then to rate how willing they would be to use a variety of coercive tactics to obtain sex with her. Contrary to hypothesis, past sexual assault perpetration did not interact with alcohol condition; it only had main effects on willingness to use coercive strategies. As hypothesized, alcohol consumption had interactive effects with two risk factors. For sober and placebo participants, hostility was unrelated to their willingness to use coercive strategies. However, for intoxicated participants, there was a positive relationship between hostility and willingness to use coercive strategies. A similar interaction was found for past frequency of misperception of women's sexual intent. For intoxicated participants only, the more frequently they had misperceived women's sexual intentions in the past, the greater their willingness to use coercive strategies to obtain sex.

Audiotapes

Marx, Gross, Bernat, and colleagues have used an audiotape of a sexual assault in a number of studies, some that involve alcohol administration and some that do not (Bernat et al., 1997; Gross et al., 2001; Marx et al., 1999; Marx, Gross, & Juergens, 1997). The tape begins

with a male and female college student entering the man's apartment after a movie date. They talk about the movie for about 30s, and then kiss with sound effects and conversation that demonstrate it is mutually enjoyable. After about 80s, the man asks to touch her breasts and she says no. Here, and at several later points, the man stops and they resume kissing, with the woman showing a positive response to this level of sexual activity. The man keeps trying and the woman's refusals and his tactics escalate. By the end of the approximately 6-min tape, he has made multiple threats and physically forces intercourse. The woman is crying and states that he raped her. Participants are asked to stop the tape at the point the man in the story should stop making sexual advances. Participants are told they can listen to the full tape later to ensure that they do not delay their response out of curiosity about the story's ending. Thus, sexual aggression is operationalized in this paradigm by the amount of time it takes for participants to decide the man should stop.

We have located three alcohol administration studies conducted with this audiotape to assess men's sexual aggression propensity (Gross et al., 2001; Marx et al., 1999; Marx et al., 1997). All three used a balanced placebo design and found main effects of alcohol consumption such that drinkers (target BAC = .05) waited longer to stop the tape than did nondrinkers. All three studies also found main effects of alcohol expectancy set such that participants who thought they drank alcohol took longer to stop the tape than did participants who did not think they drank alcohol. There were no interactions between alcohol consumption and expectancy set. Gross et al. (2001) also asked participants how sexually aroused the woman was at four different points in the interaction. Participants who consumed alcohol perceived the woman as more sexually aroused in the early phases of the video as compared with nondrinkers. Although these authors did not test for mediation, they suggested that drinkers' perceptions of the woman's heightened sexual arousal increased their sexual disinhibition, making the male character's sexual advances seem appropriate.

Summary of Substantive Findings From Alcohol Administration Studies That Use Vignettes, Videotapes, and Audiotapes

None of the six studies that used a written vignette found a significant main effect of alcohol consumption on men's endorsement of the use of force by the male character. However, all six studies found that alcohol consumption influenced men's perceptions of the woman's character, woman's sexual arousal, their sexual arousal, their anger, and/or their entitlement to sex. Thus, with this paradigm, alcohol's effects on men's self-reported willingness to use force are primarily indirect, through its impact on proximal thoughts and feelings. None of these studies found effects of experimenter-manipulated alcohol expectancy set; participants who thought they were drinking alcohol but were not (placebo participants) responded similarly to sober (and knew it) participants. In contrast, two vignette studies that assessed participants' personal beliefs about alcohol's effects found interaction effects. Intoxicated participants who strongly believed that alcohol increased their sex drive (Norris et al., 2002) and intoxicated participants who strongly believed that alcohol made them more aggressive (Davis, 2010) were more likely than other participants to report that they would be sexually aggressive in a similar situation.

The three studies that used videotapes as proxies also found no placebo effects; they only found effects associated with actual alcohol consumption. The two videotape studies that varied situational cues both found that intoxicated participants were more willing than sober participants to view forced sex as acceptable under some cue conditions. The two videotape studies that included individual difference measures found that alcohol was related to sexual aggression intentions only among men with high scores on sexual dominance, hostility, and past misperception of women's sexual cues.

In contrast, the three audiotape studies all found main effects of alcohol consumption and alcohol expectancy set on the main outcome measure. These were the only studies that used a behavioral measure of sexual aggression likelihood, which was the point at which the male participant stopped the tape because he thought the male character should stop his sexual advances. These findings suggest that alcohol's effects may be manifested in different ways depending on the type of proxy. No firm conclusions can be drawn given how few studies have been conducted and how each method has been primarily used by one research team. Additional studies are needed to determine the situations under which alcohol consumption is most likely to produce direct effects on sexual aggression, indirect effects through affective and behavioral responses, or both, as well as how alcohol interacts with other common risk factors to increase the likelihood of sexual aggression. The studies conducted thus far, although limited, demonstrate that alcohol administration studies provide valuable information about alcohol's causal role that cannot be obtained in surveys.

Confederates

Although several paradigms with female confederates have been developed as proxies for sexual aggression, only one of them has been used in alcohol administration research. These paradigms are described in this article because information from this type of study would augment researchers' understanding of alcohol's effects on behavioral outcomes. The three types of proxies discussed thus far—written vignettes, videotapes, and audiotapes—all describe a potential sexual assault that occurs between characters in a story. Participants must have the ability and willingness to imagine themselves in that situation to respond in a manner that corresponds to how they would actually behave in a similar situation. Also, when participants are required to answer questions about how they would act in a similar situation, they have an opportunity to pause and reflect that is not typically available “in the heat of the moment” when these decisions are made. Even the latency measure used in the audiotape studies described above requires a response to a situation that is not directly happening to participants; thus, they can distance themselves from their response. Participants may not want to acknowledge to themselves or the researchers that they would act aggressively. In contrast, when male participants are asked to interact with a female confederate in the laboratory, then their actual behavior toward a woman can be assessed. As discussed in more detail below, there are obvious ethical limits to the types of behavior which researchers can observe. Thus, a major challenge for these studies involves identifying behavioral proxies that are relevant to sexual aggression but do not harm the confederate.

Several early alcohol administration studies used a paradigm in which the amount of time participants viewed sexually erotic slides provided an unobtrusive measure of their interest in the sexual material (Briddell & Wilson, 1976; George & Marlatt, 1986). Dermen (1990) turned this task into a sexual aggression proxy by providing male participants with the opportunity to show sexually explicit slides to a female confederate who had previously indicated that she was uncomfortable viewing them. Participants were randomly assigned to a condition in which they were told they were drinking vodka and tonic or a condition in which they were told they were drinking tonic. In actuality, everyone drank (only) tonic. There was an interaction between alcohol expectancy set and participants' beliefs about how alcohol usually affected them. Men who thought they were drinking alcohol and who believed that alcohol made them aggressive exposed the female confederate to the sexually explicit slides for the longest amount of time. We are not aware of any study using this paradigm that actually administered alcohol to participants.

Hall and Hirschman (1994) built on this sexual aggression paradigm by having male participants watch three brief film clips and then pick one to show to a female confederate who was sitting with them. One film clip depicted a man and woman talking (neutral), one depicted a man raping a woman, and one depicted a man hitting a naked woman. Confederates were not allowed to talk to participants or show an emotional reaction to the film. Participants with a history of sexual aggression were significantly more likely to show the confederate the rape or physically violent videos than were men with no history of sexual aggression. Over the years, some researchers have modified this paradigm such that men could choose to send pornographic material or sexist jokes via computer to a woman (Diel, Rees, & Bohner, 2012; Maass, Cadinu, Guarnieri, & Grasselli, 2003). Other researchers have included male strangers or friends to examine peer influence on participants' decisions (Mitchell, Angelone, Hirschman, Lilly, & Hall, 2002; Parrott et al., 2012).

Many researchers and policy makers distinguish between acts of sexual harassment, such as telling sexual jokes or hanging posters of naked women in the workplace, and sexual aggression, which involves sexual contact of some type (Black et al., 2011; Maass et al., 2003). The only study of which we are aware that involved actual physical contact with a confederate was conducted by Pryor (1987) in which men showed a confederate how to hit a golf ball or how to play poker. Men with a past history of sexual harassment were more likely to touch the confederate in a sexual way when showing her how to golf than were men who did not have a past history of sexual harassment. This paradigm has not been widely adopted, presumably out of concern for the safety and psychological well-being of confederates.

The confederate studies described thus far were intended by their authors to assess participants' responses at the point in time that sexual aggression would occur in an actual sexual assault incident. Abbey, Zawacki, and Buck (2005) argued that perpetrators' perceptions of a female companion early in an interaction are often used to justify their later sexually aggressive behavior. Many rape myths focus on women being sexual teasers who sometimes say "no" when they mean "yes" and men's right to sex once a woman has sexually aroused them. Thus, Abbey and colleagues argued that assessing alcohol's effects

on men's perceptions of a female confederates' sexual interest early in an interaction is important because once a potential perpetrator has decided that a woman wants to have sex with him, this expectancy will bias his perceptions of her later behavior, particularly if he is intoxicated. Ward, Hudson, Johnston, and Marshall (1997) wrote that

the rapist who does not attend to negative cues from his victim may truly believe that the woman "enjoyed it" since he has no evidence to the contrary. Similarly, if friendly cues are interpreted as seductiveness, the offender has support for his belief that 'she asked for it. (p. 492)

To evaluate hypotheses about the effects of alcohol consumption and past perpetration, Abbey et al. (2005) randomly assigned male college students to a sober, placebo, or intoxicated (target BAC = .08) drink condition. Participants interacted for 20 min with an attractive female confederate who was friendly and attentive during most of the interaction. At predetermined points in the conversation, confederates delivered four positive cues (e.g., complimenting him) and four negative cues (e.g., breaking eye contact and looking around the room). These conversations were videotaped and later coded. Approximately 1 month in advance of the lab session, participants completed a self-report measure of past sexual assault perpetration. Although not all the hypotheses were supported, participants who consumed alcohol perceived themselves and the female confederate as acting more sexually during the interaction; intoxicated participants also recalled relatively more of the confederates' positive cues as compared with sober and placebo participants. Men who reported previously committing rape were more sexually attracted to the confederate, gave more hints about wanting to date her, and were more interested in future interaction with her than were other participants. Trained coders also perceived rapists as being most encouraged by confederates' positive and negative cues. These findings suggest that it may be informative to develop proxies that correspond to behaviors that occur early in interactions that turn sexually aggressive. If early warning signs can be systematically identified, these signs can be discussed in risk reduction and treatment programs.

Advantages and Disadvantages Associated With Different Types of Proxies

Table 1 summarizes the primary advantages and disadvantages associated with each of the types of proxies described in this article. An advantage of written vignettes is that they can be changed fairly quickly and inexpensively, allowing the addition of new independent variables or variations in characteristics of the situation (e.g., how well the man and woman know each other). In contrast, the development of audiotapes and videotapes is more time-consuming and costly. High-quality videos usually require professional actors and a director. If cues are varied across different versions of the video, it is particularly important to use skilled actors and film editors to ensure that nothing else is inadvertently altered. Confederates also require good acting skills and many hours of training to ensure that they can maintain their role regardless of how the participant reacts.

There are conflicting advantages and disadvantages associated with the mundane realism of the stimulus materials. Videotapes seem most realistic because they contain most of the visual, auditory, and nonverbal cues associated with actual interactions with others. Depending on the explicitness of the sexual material, a video may also be more sexually

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arousing than written or audio material. Participants often do not recognize how strongly emotions influence their actions, and thus proxies that induce strong emotions are likely to produce a more accurate assessment of sexual aggression proclivity (Bouffard, 2002). However, there are many challenges associated with developing videos that do not quickly appear outdated or irrelevant to participants' personal situation (Podsakoff, Podsakoff, MacKenzie, & Klinger, 2013). An apartment or party scene conveys many cues about the story characters' ethnicity, social class, lifestyle, and values that may be irrelevant to the researcher's hypotheses; nonetheless, these cues can subtly affect participants' ability to immerse themselves in the situation. In contrast, written stories and audiotapes allow participants to use their imagination and visualize a situation that is relevant and compelling to them.

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An important strength of proxies that use confederates is their experimental realism. With written, audiotape, and videotape proxies, participants are responding to a hypothetical situation that involves other people. Although participants are asked to project themselves into the situation and typically rate the situation as realistic, they always know that it is "just" a story. In contrast, participants who interact with a confederate believe that she is another study participant like themselves. Thus, when they show her a violent rape scene or send her a sexually harassing message, they should know that they are harming another person. Methodologists typically prefer experimental proxies that allow an immediate behavioral response (Wilson et al., 2010). Questionnaires may allow too much time for reflection, thus encouraging participants to report what they hope they would do in that situation or what they think the researcher would expect them to do, not what they are actually likely to do. Although most proxies that require participants to respond to a hypothetical situation use written questionnaires, the audiotape developed by Gross et al. (2001) is an exception. With that paradigm, participants simply stop the tape at the point they think the man should stop what he is doing.

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The type of proxy (e.g., written, audio, video, confederate) does not have to determine the type of outcome measure. An audiotape proxy could be followed with a self-report questionnaire in which participants rate their likelihood of acting like the male character in the audiotape. In a complementary manner, a written vignette does not require the use of likelihood ratings as the outcome measure. For example, Flowe, Stewart, Sleath, and Palmer (2011) asked men to read a story about a sexual assault one line at a time and decide at what point they would stop making sexual advances and go home. Participants can also complete questionnaires after interacting with a confederate (Abbey et al., 2005).

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Because it would be unethical to expose a female confederate to sexual aggression, participants' responses are limited in these paradigms. Anyone who has watched a simulation of Milgram's (1974) obedience study recognizes that artificial situations can feel very real to participants and produce intense emotions and behavioral responses. But without extensive construct validation, researchers do not know how well the proxy represents the underlying construct of interest. For example, to fully standardize their stimulus materials, many researchers have taped the confederates' response so participants only see her on a computer screen. Although sexually harassing material can be distributed without actual contact with the participant, sexual aggression requires physical contact. The myriad of cues

associated with the physical presence of a woman are likely to have a strong impact on participants' responses in a sexual aggression incident.

General Issues to Consider in Experimental Research With Sexual Aggression Proxies

In addition to demonstrating that a proxy is associated with established criterion measures, researchers need to address generalizability concerns. Full assessment of construct validity requires researchers to determine the persons, settings, manipulated independent variables, and outcomes to which their findings apply (Shadish et al., 2002). Many researchers have noted that sexual assault perpetrators are heterogeneous both in their motives and in the types of circumstances in which they are likely to engage in sexual aggression (Malamuth, 2003; Tharp et al., 2012). Thus, it is highly unlikely that any one proxy will motivate all potential perpetrators to respond in a sexually aggressive manner.

There is much that can be learned about the generalizability of research findings from testing variations of proxies. For example, Van Wie and Gross (2001) compared participants' responses to six audiotapes that were based on the audiotape described earlier, except they varied the reason the woman initially gave for refusing sex (pregnancy concern, waiting until marriage, too soon in the relationship) and the point at which she first refused (kissing or breast touching). Decision latencies were longest when she waited to refuse until he touched her breasts giving the reason that it was too early in the relationship. Additional research is needed to determine whether the same participants have the longest latencies for all variations of a sexual assault scenario or whether different men give the most sexually aggressive response to different versions of the story. For example, it is plausible that some potential perpetrators would be deterred by pregnancy concerns whereas others would not.

In a second study that examined components of this audiotape, Gross, Weed, and Lawson (1998) asked male and female college students to rate the intensity of the woman's desire for the man to stop based on 15s segments. Some participants listened to these segments in the order they occurred in the story and some listened to them in a random order. Male and female participants perceived the cues as equally intense, suggesting that in general these cues have the same meaning to women and men. Contrary to expectation, intensity ratings were comparable regardless of whether participants heard them in a logical or a random order. One explanation provided by the authors for this unexpected finding focused on the fact that there were several points in the story at which the man seemed to accept the woman's wishes and she expressed pleasure when he returned to just kissing. The authors suggest that potential perpetrators may misread these cues and take the woman's positive response to kissing as a sign that they can eventually interest her in more sexual activity. These findings suggest it would be valuable to systematically evaluate the effects of different refusal strategies. For example, would participants respond differently if the woman remained negative after her initial refusal?

Directions for Future Research

The current state of knowledge is insufficient to determine whether existing proxies for sexual aggression evoke a sexually aggressive response among most perpetrators. Much more research is needed to determine the generalizability of the findings from existing proxies, as well as how to best design new ones.

Expanding the Types of Sexual Assault Depicted

Existing proxies do not depict the full range of situations in which sexual aggression occurs. For example, all the proxies reviewed in this article involve casual relationships between the perpetrator and the victim. However, many sexual assaults occur in the context of steady relationships (Black et al., 2011; Testa, VanZile-Tamsen, & Livingston, 2007; Wegner, Pierce, & Abbey, 2014), and thus it is important to determine whether existing measures apply to perpetration that occurs in a variety of types of relationships. Most of the proxies provided graphic details about physically forced sex. However, victims and perpetrators report that verbal pressure and alcohol tactics are much more common (Abbey & Jacques-Tiura, 2011; Black et al., 2011). Past sexual precedence is a common justification used by perpetrators (Livingston, Buddie, Testa, & VanZile-Tamsen, 2004), although it is not mentioned in most of the scenarios used in this research (see Davis, 2010 for an exception). The victim in the audiotape labels what happened as rape (Bernat et al., 1997), which is also rare. Although many experimental researchers base their materials on common themes in survey findings, much could be learned from studies that systematically manipulate aspects of the scenario to reflect incident characteristics that vary in perpetrators' and victims' reports (e.g., randomly assign participants to versions of a scenario that vary the perpetrators' use of verbal, incapacitation, or physical tactics). Given that at least half of sexual assaults involve alcohol consumption by the perpetrator, victim, or both (Abbey, 2011; Testa, 2002), participants' and scenario characters' alcohol consumption should also be systematically varied to determine how alcohol interacts with other manipulated variables.

Men who are motivated to commit sexual assault for different reasons may be sexually aggressive in different types of situations. Hoyt and Yeater (2011) addressed this question in a study in which male college students completed surveys that included measures of several risk factors for sexual assault perpetration and provided responses to 10 written sexual assault vignettes that systematically varied characteristics of the assault incident. Men with a tendency to miss or ignore women's refusals were most likely to give a sexually aggressive response to scenarios in which previous sexual contact had occurred and they were in an isolated setting. Men who strongly endorsed rape myths were most likely to give a sexually aggressive response in situations that involved alcohol consumption. More studies are needed that examine hypotheses about the types of situations in which men with different etiological profiles are most likely to be sexually aggressive.

Expanding the Confederates' Responses

Researchers who use proxies that require a behavioral response to a female confederate are more concerned with experimental than mundane realism. Their goal is to evoke the sexual

arousal, anger, and/or sense of entitlement that are hypothesized to produce a sexually aggressive response “in the heat of the moment.” However, it is still important to establish the generalizability of these studies findings across different types of perpetrators in different types of provoking situations. For example, in many of the experimental studies that operationalize sexual aggression by allowing participants to show a female confederate sexually violent materials, the confederate remains emotionally impassive. Although some sexual assault victims freeze, most report that they showed their distress in a variety of ways (Ullman, 2007). Thus, the confederate’s lack of emotions may limit the generalizability of these findings.

Victims’ emotional responses are likely to affect whether potential perpetrators escalate or deescalate their response. The woman’s distress may activate some men’s empathy and stop them from going further (Abbey, Parkhill, BeShears, Clinton-Sherrod, & Zawacki, 2006; Wheeler, George, & Dahl, 2002). For other men, the victim’s distress may be sexually arousing and encourage further aggression. For example, male participants in Lopez, George, and Davis’s (2007) study received feedback on a computer screen from the female confederate regarding her reaction to each sexually explicit slide they forced her to watch. Men who scored high on measures of hostile beliefs about women and rape myths were unresponsive to the woman’s messages that conveyed discomfort and reported being in a good mood throughout the task. In contrast, men with low hostility toward women felt less positive and experienced embarrassment when the confederate communicated her discomfort. This is just one example of the types of questions that could be addressed by systematically varying components of experimental protocols.

Expanding the Types of Stimulus Materials: Virtual Reality Simulations

The authors of this article are developing a sexual aggression proxy for alcohol administration studies, which uses a virtual reality simulation with the expectation that it will have the flexibility to address some of the issues described above. Virtual environments can increase participants’ involvement in an experiment by providing a dynamic interaction in which their actions and choices receive immediate feedback (Fox, Arena, & Bailenson, 2009). People tend to react to computers that exhibit social responses as they do toward humans (von der Putten, Kramer, Gratch, & Kang, 2010), and this effect is heightened by the behavioral realism of the embodied agent (Blascovich et al., 2002). Past research also suggests that engaged participants experience physiological arousal similar to that experienced in response to actual social interactions (Slater et al., 2006). Involvement in a virtual environment is heightened by a variety of factors including the use of multiple sensory experiences, by the relevance of the virtual environment to participants (achieved through a careful literature review and pilot testing), and by behavioral realism (achieved by the use of female agents that make eye contact, talk, have voice and mouth synchronization, realistic head movements, and posture shifts). Jouriles, Rowe, McDonald, Platt, and Gomez (2011) developed a virtual reality simulation that examines women’s recognition and response to a sexual aggressor; however, we are not aware of any virtual reality simulations that assess men’s likelihood of being sexually aggressive.

The authors' simulation is still being developed. Before participants start the simulation, they will look at a number of human-like virtual females and select one that they view as sexually attractive and would like to date. Providing participants with a variety of potential dates who differ in ethnicity, hair color, and body type should maximize the likelihood that they are sexually attracted to the virtual woman and want to pursue sexual activities with her during the simulation.

To address the victim–perpetrator relationship issues described above, we are planning to allow participants to interact with the virtual woman multiple times, to simulate going from a casual, just getting to know each other stage, to an early dating stage, to an exclusive dating relationship stage. Thus, if some men are more likely to be sexually aggressive with casual acquaintances and other men are more likely to be sexually aggressive with steady dating partners, this proxy allows them to act in a sexually aggressive manner at different stages of a relationship.

Participants will have choices about what they can do in the simulation, including a range of sexual activities. The female agent will respond positively to some of these sexual activities and refuse others. Although this component of the simulation is still being pilot tested, we are conceptualizing sexual aggression as a second attempt to engage in sexual activity that the female agent just refused.

Unanswered Questions About Alcohol's Causal Role

The studies reviewed in this article provide evidence for direct, indirect, and moderated effects of alcohol consumption on men's sexually aggressive responses to a sexual assault scenario. Future research can expand on this knowledge base by (a) including additional individual difference measures, (b) addressing unresolved issues regarding the role of psychological expectancies, and (c) systematically varying the amount of alcohol consumed by participants and the female proxy.

There are many risk and protective factors identified in the general etiological literature that have not been included in laboratory studies that may also mediate or moderate alcohol's effects. Promising individual difference variables include empathy, narcissism, impulsivity, attitudes about casual sex, number of casual sex partners, usual drinking in sexual situations, peer norms, and rape myth acceptance (Abbey, Wegner, Pierce, & Jacques-Tiura, 2012; Tharp et al., 2012).

The studies reviewed in this article provide mixed evidence regarding the extent to which any of alcohol's effects on sexual aggression occur solely in response to the belief that one has consumed alcohol. Placebo effects were only found in the audiotape paradigm; they were not found in written or videotape paradigms. Placebo effects are rarely found in alcohol administration studies that examine general aggression and sexual risk taking, and thus, most alcohol researchers do not expect to find placebo effects when studying sexual aggression (Giancola, Josephs, Parrott, & Duke, 2010). The deviance disavowal model has been used to explain placebo effects found in some sexual arousal studies (George, Cue, Lopez, Crowe, & Norris, 1995). According to this model, alcohol provides a credible excuse for sexual arousal in situations that might otherwise be embarrassing, such as watching

erotic slides in a laboratory. However, deviance disavowal may be ineffective for more extreme behaviors, such as sexual aggression. More research is needed to determine when placebo effects are likely to be found and when only pharmacological effects of alcohol are likely to be found. There is some preliminary evidence from these studies that individuals' personal beliefs about alcohol's effects on their sexual and aggressive behavior may determine for whom alcohol increases the likelihood of a sexually aggressive response (Davis, 2010; Norris et al., 2002).

The studies reviewed in this article found effects of alcohol consumption with target BACs that ranged from .03 to .10. The few studies that considered dose effects produced mixed results (Davis, 2010; Johnson et al., 2000; Noel et al., 2009); thus, more studies are needed to determine the level of intoxication required to increase men's likelihood of engaging in sexual aggression.

Numerous studies have found that men perceive drinking women as sexually promiscuous and sexually available (Abbey & Harnish, 1995; George et al., 1995). Thus, studies that systematically vary the amount of alcohol the woman consumes are also needed. The few written vignettes that varied alcohol consumption by the characters in the story depicted both individuals drinking or neither individual drinking, and these studies produced mixed results (Norris et al., 1999; Norris & Kerr, 1993). Some perpetrators appear to target intoxicated women at parties or bar, thus these men may be most likely to report that they would be sexually aggressive when presented with scenarios of intoxicated women in these types of settings (Parks & Zetes-Zanatta, 1999). Thus, in addition to looking for main effects of the female character's alcohol consumption on sexual aggression tendencies, it is important to consider how her drinking might interact with perpetrators' alcohol expectancies, alcohol consumption in sexual situations, and preferred tactics.

In conclusion, there is no one perfect type of proxy that all researchers should feel compelled to use. Each has advantages and disadvantages. Virtual environments present an exciting opportunity for researchers; however, they are expensive to develop due to the required programming skills. Many research questions can be addressed with inexpensive designs. There is still much to be learned about the circumstances in which alcohol plays a causal role in sexual aggression. With more specific information about who is likely to commit sexual assault when intoxicated and under what circumstances, focused prevention, treatment, and intervention programs can be developed.

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Biographies

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Rhiana Wegner received her PhD in Social Psychology from Wayne State University in 2014. She is currently an NIH T32 Postdoctoral Trainee in the Department of Psychiatry and Behavioral Sciences at the University of Washington. 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 examining the individual difference and situational factors that contribute to misperceptions of sexual intent.

Table 1**Advantages and Disadvantages Associated With Different Types of Proxies for Sexual Aggression.**

Stimulus type	Advantages	Disadvantages
Written vignette	Can be quickly and inexpensively modified. An efficient mechanism for varying characteristics of the situation based on theory or survey data to determine their impact. Allows participants to visualize a scenario that is realistic and compelling to them.	Reading comprehension is a concern, particularly after consuming alcohol. Can be difficult to depict nonverbal cues in a written story. Usually require written responses. May encourage participants to use decision-making skills that are rarely used in the heat of the moment.
Audiotape	Does not require reading. Provides verbal cues, such as intonation and emotion that cannot easily be conveyed in a written vignette. As compared with a videotape, provides more opportunities for participants to use their imaginations to project themselves into the situation. Materials used in past experimental research use a behavioral outcome.	Visual cues are missing that are salient in actual interactions. Quality of audio and participants' equipment can affect comprehension. Regional accents, slang, and the quality of the acting can distract participants or bias responses.
Videotape	Does not require reading. Contains the range of visual, nonverbal, and spoken cues that participants experience in actual interactions. Can be more sexually arousing and emotionally involving than written materials or audiotapes.	Time-consuming and costly to develop videotapes. Can quickly become outdated as clothing and hairstyles change. The additional visual cues may not fit with participants' own experiences, making it more difficult to immerse themselves in the situation.
Confederate	Participants interact with another person. Participants' actual behavior can be coded. Allows a quick response that may be subject to fewer social desirability demands.	Must have good acting skills and lengthy training. Ethical concerns restrict the allowable types of behavior. Although not required, in most past research confederates have been impassive; often taped and seen only on computer screen.