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EFFECTS OF ACUTE ALCOHOL INTOXICATION ON BYSTANDER DECISION MAKING  
AND INTERVENTION BEHAVIOR FOR SEXUAL VIOLENCE

by

RUSCHELLE M. LEONE

Under the Direction of Dominic J. Parrott, PhD

ABSTRACT

The aims of the proposed study were to (1) test the interactive effects of acute alcohol intoxication and an evidenced-based situational-level predictor (i.e., audience social norms) on the likelihood and speed of sexual aggression intervention, and (2) examine perceived barriers for intervention. Participants were 74 men who were randomly assigned to consume alcohol or a no-alcohol control beverage and engaged in a novel laboratory paradigm in which they and four confederates (two men, two women) watched a female confederate, who reported a strong dislike of sexual content in the media, view a sexually explicit film which they could stop at any time. Prior to the female viewing the film, participants were randomly assigned to an audience manipulation wherein the confederates set a prosocial or ambiguous social norm. Following the

laboratory paradigm, participants who did not stop the video completed a measure of bystander barriers. Analyses revealed no independent or main effects of prosocial norms or acute alcohol intoxication on intervention likelihood or speed. Further, there was no evidence to support prosocial norms or alcohol intoxication influence barriers to intervention. Post hoc analyses demonstrated among men who self-reported a willingness to intervene in sexual aggression prior to the laboratory paradigm (i.e., intent to help), acute alcohol intoxication decreased the likelihood of intervention. Additionally, (1) sober men low in intent to help intervened the fastest followed by sober high intent to help men, and (2) intoxicated men with high intent to help intervened faster than those low in intent to help, who had the slowest intervention rate. Findings suggest that among men willing to intervene, alcohol decreases intervention behavior and are interpreted using a recently proposed integrative framework for intoxicated sexual aggressive intervention advanced by Leone, Haikalis, Parrott, and DiLillo (2017). Given the high prevalence of alcohol-facilitated sexual assault, this study highlights the need for bystander training programs to incorporate (1) alcohol interventions to reduce drinking and (2) psychoeducation to train bystanders how to intervene when intoxicated.

INDEX WORDS: Sexual assault, sexual aggression, bystander effect, helping behavior, alcohol, intent to help

EFFECTS OF ACUTE ALCOHOL INTOXICATION ON BYSTANDER DECISION MAKING  
AND INTERVENTION BEHAVIOR FOR SEXUAL VIOLENCE

by

RUSCHELLE M. LEONE

A Dissertation Submitted in Partial Fulfillment of the Requirements for the Degree of

Doctor of Philosophy

in the College of Arts and Sciences

Georgia State University

2019

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2019

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August 2019

## **DEDICATION**

This project is dedicated to all the men who have audaciously spoken up in the face of misogyny and sexual aggression.

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I am deeply indebted to my mentor, Dr. Dominic Parrott, who provided unwavering support and thoughtful guidance throughout my training. I am grateful for you encouraging each project without hesitation and providing a way for every training opportunity I dreamed of to come to fruition. You have fostered both personal and professional growth and I value our friendship. I would also like to thank my committee members, Drs. Sarah DeGue, Robert Latzman, Anthony Lemieux, and Kevin Swartout. Thank you for challenging me and strengthening this project. Your feedback was indispensable. Drs. Kathryn Graham and Samantha Wells, who served as consultants on my grant, were also instrumental in developing the idea for this project and provided training I am confident will allow me to extend these findings in the future. Dr. Katherine Masyn was also helpful in advancing my skills in using survival analyses. Your passion for statistics is inspiring and encouraged me develop my skills independently.

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## 1 INTRODUCTION

*“If you can get people to express their concerns, then already a whole different situation exists.”*

Ervin Staub - Professor of Psychology Emeritus at the University of Massachusetts

### 1.1 Purpose of the Study

In March 2015, two college students were charged with sexually assaulting a woman on a crowded Florida beach. The assault was recorded on a cellphone and depicts several men surrounding the incapacitated woman on a beach chair while a crowd of college students drinking from red solo cups stands within feet of her. Despite this crowd of bystanders, no one intervened. In reference to the assault, Sheriff Frank McKeithen noted, “This is happening in broad daylight with hundreds of people seeing and hearing what is happening, and they are more concerned about spilling their beer than somebody being raped.” Undoubtedly, there are many contexts in which sexual aggression can occur; however, research has demonstrated sexual aggression is common at bars and parties (e.g., Flack et al., 2007; Graham, Bernards, Abbey, Dumas, & Wells, 2017, Graham et al., 2014). While the blame of sexual aggression should ultimately rest on the perpetrator, bystanders may play an important role in prevention, as they are present in 18-29% of sexual assaults (Hamby, Weber, Grych, & Banyard, 2015; Planty, 2002). Despite this prevalence, victims of sexual assault report that bystanders only engage in helpful actions in 27% of cases (Hamby et al., 2015). The reasons why no one intervened on the crowded Florida beach are unclear; however, pertinent theory suggests there are a host of barriers to intervention (Latané & Darly, 1970) including: (1) failing to notice, (2) failing to interpret the event as high-risk, (3) failing to take intervention responsibility, (4) failing to act due to a skills deficit, and (5) failing to act due to audience inhibition. To this end, a new paradigm in prevention focuses on a bystander’s role in recognizing and intervening in sexual



aggression (e.g., Banyard, Moynihan, & Plante, 2007; Berkowitz, 2002). Although bystander training programs are founded on an extensive social psychological literature (Fischer et al., 2011), a meta-analysis suggests these programs have a stronger impact on *attitudes and behavioral intentions* than bystander *behavior* (Katz & Moore, 2013). Thus, there is an urgent need for research to identify inhibitors and facilitators of bystander behavior. Until such an evidence base is developed, the effectiveness of existing bystander training programs will remain limited.

Perhaps the most ignored piece of bystander intervention programs, and the evidence base upon which they are based, is the role of alcohol. At least half of all sexual assaults involve alcohol consumption by the perpetrator, victim, or both (Abbey, 2002), and alcohol-related sexual assault most often occurs among individuals who know each other casually and who spend time together at a bar or party (Abbey et al., 1996; Ullman, Karabotsos, & Koss, 1999). Despite this link between alcohol and sexual aggression, there exists not a single published study that examines the acute effects of alcohol on event-based bystander intervention (hereafter termed sexual aggression intervention). More broadly, only one study has examined acute alcohol intoxication and helping behavior. This experimental study demonstrated alcohol increased the speed, but not likelihood, of intervention in the presence of others (van Bommel, van Prooijen, Elffers, & Van Lange, 2016). The authors of this study posited that this effect is due to the cognitive impairments induced by alcohol that may hinder a bystander's ability to deliberate the decision to intervene leading to a quicker response time.

The lack of research on the link between alcohol and sexual aggression intervention is surprising for two reasons. First, sexual aggression often occurs at or after attending bars or parties (Flack et al., 2007; Mohler-Kuo et al., 2004; Testa et al., 2003). Approximately 80% of

men report perpetrating (Thompson & Cracco, 2008) and 60% of women report experiencing unwanted physical contact (e.g., rubbing against a woman on the dancefloor) in a bar (Graham et al., 2017). Second, bystanders who witness sexual aggression in drinking contexts are likely consuming alcohol that affects their behavior. Only two published studies have examined the association between patterns of alcohol use and bystander intentions to intervene in sexual aggression. Findings demonstrated that heavy drinking men were less willing to intervene in sexual aggression than non-heavy drinking men (Orchowski, Berkowitz, Boggis, & Oesterle, 2015), and that heavy alcohol use was associated with a lower likelihood of sexual aggression intervention among men, but not women (Fleming & Wiersma-Mosley, 2015). Relatedly, an observational study examining sexual aggression intervention in a drinking context found that 79% of bystanders did not intervene (Graham et al., 2014); however, it remains unclear why bystanders were inhibited from intervening, or if they were intoxicated.

The aims of the proposed study are to (1) test the interactive effects of acute alcohol intoxication and an evidenced-based situational-level predictor (i.e., audience social norms) on the likelihood and speed of sexual aggression intervention, and (2) examine perceived barriers for intervention. In doing so, this study will generate the first known data on alcohol's acute pharmacological effect on sexual aggression intervention.

## **1.2 Theoretical Overview**

To explain how alcohol is a barrier to sexual aggression intervention, the proposed project will utilize an integrative theoretical framework from well-established theories of bystander intervention and alcohol literatures advanced by Leone, Haikalis, Parrott, & DiLillo (2017a).

### ***1.2.1 The Bystander Effect***

The bystander effect is a well-studied phenomenon in which the presence of others significantly reduces the likelihood that an individual will help in an emergency (Fischer et al., 2011). In Latané and Darley's (1968) classic laboratory paradigm, a participant is either alone or in the presence of others when he or she witnesses an ostensible emergency. This paradigm has demonstrated that individuals are most likely to help if they are alone, and decreasingly likely to help as the number of bystanders increases in situations in which: (1) all the bystanders are in danger (e.g., room becomes filled with smoke; Latané & Darley, 1968), (2) a victim is in danger (e.g., a woman is injured; Latané & Rodin, 1969), (3) there is a villainous act (e.g., theft of books; Howard & Crano, 1974), and (4) there is a non-emergency (e.g., answering a door or intercom; Levy et al., 1972).

One of the most well-established models of bystander behavior, the decision-making model (Latané & Darley, 1970), posits that bystanders must go through five stages in order to intervene: they must (1) notice the event, (2) interpret it as high-risk, (3) develop a feeling of personal responsibility, (4) decide how to help, and (5) choose to act. Extant research indicates passing through each stage of the decision-making model significantly increases the likelihood of intervening to prevent an individual from driving while intoxicated (Monto, Newcomb, Rabow, & Hernandez, 1994). For example, 65% of individuals who noticed an intoxicated person attempting to drive, 73% who interpreted the situation as serious, and 82% who believed they had the skills to act, intervened. Progressing through these decision-making steps is important for bystanders to engage in prosocial behavior; however, research suggests situational barriers at each of these steps that may hinder bystander intervention. In relation to sexual aggression, qualitative data indicates that as the number of perceived barriers increases, the intent to engage

in prosocial bystander behavior decreases (Burn, 2009). Moreover, bystanders' decision making does not necessarily follow a linear path wherein each step is subsequently achieved (e.g., Banyard, 2015). Depending on the development of the witnessed situation, bystanders may take in new information and regress back to prior steps. Further, while decision-making is an internal process, bystanders are influenced by contextual variables and prior experiences with witnessing and intervening in sexual aggression which impact current behavior (Banyard, 2015). Prior to reviewing the barriers to intervention, it is important to first review theory related to how acute alcohol intoxication impairs behavior.

### ***1.2.2 Alcohol Myopia Theory***

Alcohol Myopia Theory (AMT; Steele & Josephs, 1990; Taylor & Leonard, 1983) is a prominent theory which aims to explain how alcohol leads to disinhibited social behavior. AMT purports that the pharmacological properties of alcohol narrow attentional focus, restrict internal and external cues individuals perceive, and reduce individuals' capacity to process meaning from information they do perceive. One model of AMT, the attention-allocation model, posits that alcohol impairs working memory, which then restricts the inebriate's ability to perceive and process instigatory and inhibitory cues. As such, intoxicated individuals allocate their attention such that they perceive and process only the most salient cues of a situation (e.g., prosocial audience social norms) to the exclusion of less salient inhibitory cues (e.g., sexual disinterest of a female). To this end, alcohol creates a myopia wherein incompletely processed cues in a situation invoke immoderate behavior and emotions. Research in support of the attention-allocation model comes from studies on alcohol's effects on myriad behaviors, most pertinently risky sexual behavior and aggression (for a review, see Giancola, Josephs, Parrott, & Duke, 2010).

### ***1.2.3 Bystander Decision Making: Alcohol as a Barrier to Intervention***

Bystanders must make a series of decisions to intervene, with only one particular set of decisions leading to intervention (Latané & Darley, 1970). At each step of the decision-making model, common barriers are reviewed, followed by a discussion of how alcohol intoxication may serve as an additional barrier at each step (see Figure 1).

It is important to note that extant literature indicates women are more likely to intervene than men and research suggests that risk factors, mechanisms, and barriers may vary by gender. Indeed, men report less efficacy to intervene (e.g., Amar, Sutherland, Laughon, 2014; Foubert, Brosi, & Bannon, 2011), less of a willingness to intervene (Brown, Banyard, & Moynihan, 2014; McMahon, Postmus, & Koenick, 2011) and fewer bystander behaviors than women (Amar et al., 2014; Banyard & Moynihan, 2011). This evidence suggests that men are most at risk for not intervening in sexual aggression and merit particular attention. Given the early stage of this research, the proposed study will examine these aims in men only. Pertinent theory and empirical evidence to this end are reviewed below.

#### ***1.2.3.1 Step 1: Notice the Event***

The first step towards bystander intervention is noticing an event. Bystanders may fail to notice sexually aggressive behaviors due to self-focus or sensory distractions (Burn, 2009; Latané & Darley, 1970). Prior research suggests alcohol increases susceptibility to distraction or mind-wandering. Specifically, participants who consumed alcohol were caught mind-wandering twice as often as sober participants and were less likely to notice their mind-wondering episodes (Sayette, Reichle, & Schooler, 2009). In other words, inebriated individuals are more likely to “zone out,” and not realize it, compared to their sober counterparts. This likelihood that intoxicated bystanders will be distracted from noticing a risky event is particularly concerning

given that indicators of an unwanted sexual advance are often subtle (e.g., averted eye contact, paralyzed reactions, polite resistance).

Next, inattentional blindness, a phenomenon in which individuals fail to detect salient unexpected objects in the field of vision (Mack & Rock, 1998; Simons & Chabris, 1999), helps explain why some individuals do not notice risk cues for nearby sexual aggression. For example, experimental research that examines this phenomenon has demonstrated approximately half of participants failed to notice a woman in a gorilla suit walking across a basketball game they were tasked with monitoring (Simons & Chabris, 1999). Sexual aggression, particularly less severe forms, may similarly go unnoticed by bystanders whose focus is narrowed due to alcohol intoxication. Recent laboratory-based research suggests alcohol intoxication increases the likelihood of inattentional blindness due to its myopic effects, which makes it difficult for individuals to allocate their attention to information outside a directed goal (Clifasefi, Takarangi, & Bergman, 2006). In most drinking environments, these goals (e.g., focusing on one's own conversation) may not routinely encompass risk factors for sexual aggression experienced by others. Such findings suggest that alcohol-facilitated inattentional blindness decreases the likelihood that intoxicated bystanders notice seemingly obvious sexual aggression behavior.

### ***1.2.3.2 Step 2: Interpret as Emergency***

The second step towards bystander intervention is identifying the situation as an emergency, or high in sexual assault risk (Burn, 2009). Ignorance or ambiguity may lead bystanders to fail to identify the situation as high-risk. Sexual aggression exists on a continuum that ranges from heinous behaviors (e.g., forced vaginal penetration) to behaviors much more commonly accepted in society, including the use of sexually degrading language (Stout & McPhail, 1998; Stout, 1991). Research indicates bystanders are more likely to intervene when witnessing a “dangerous emergency” because these situations are less ambiguous and induce higher levels of arousal (Fischer et al., 2011). In contrast, behaviors on the lower end of the

continuum, which are often viewed as more ambiguous, may be seen as problematic with the potential to escalate into more severe aggressive behavior, and thus induce lower rates of intervention. However, it is critical to acknowledge that these less severe forms of sexual aggression, which are more prevalent and likely to be observed by bystanders, can escalate into more severe behaviors.

Qualitative data indicates college students report that it is easier, and that they are more likely, to engage in bystander behavior if they feel that a situation warrants intervention (Bennett, Banyard, & Garnhart, 2014). Further, those who reported being bothered by intimate partner violence reported more intent to respond to an aggressive scenario compared to those who were not bothered (Deitch-Stackhouse, Kenneavy, Thayer, Berkowitz, & Mascari, 2015). However, research indicates bystanders are more likely to witness behavior in the pre-assault phase of sexual aggression (Burn, 2009) that may be viewed as ambiguous by bystanders.

Interpreting complex situational and interpersonal cues is not an easy task, and alcohol intoxication further compromises this process. Indeed, intoxication distorts men's ability to interpret a woman's affective cues by increasing their likelihood of interpreting her behavior as sexually suggestive (Abbey, Zawacki, & Buck, 2005; Farris, Treat, & Viken, 2010). In an experimental study in which intoxicated and sober men read a violent pornographic story, intoxicated men reported more female character enjoyment and less negative judgment about the male's use of force to obtain sex (Norris, Davis, George, Martell, & Heiman, 2002). Similarly, experimental research has demonstrated intoxicated, relative to sober men, take longer to identify a male's inappropriate sexual behavior toward a female (Gross, Bennett, Sloan, Marx, & Juergens, 2001; Marx, Gross, & Juergens, 1997), because its ambiguity does not attract the drinker's myopic or narrowed attention. In other words, alcohol can distort or delay bystanders'

understanding of sexual aggression risk. Alcohol-induced myopia can also impair women's abilities to recognize danger cues that may subsequently lead to sexual aggression (Testa, Livingston, & Collins, 2000; Parks, Levonyan-Radloff, Dearing, Hequembourg, & Testa, 2016). Though a key goal of bystander training programs is to increase awareness that less severe forms of sexual aggression can escalate to more severe violence, the influence of alcohol exacerbates ambiguity in sexual risk situations, thereby impeding intervention.

### ***1.2.3.3 Step 3: Take Intervention Responsibility***

The third step towards bystander intervention is taking responsibility to intervene. This requirement is often obstructed by diffusion of responsibility, or the belief that the onus of helping is shared among all bystanders. Extant literature unequivocally demonstrates that the presence of other bystanders is a robust situational cue which prevents bystanders from intervening in non-dangerous emergency situations (for a review, see Fischer et al., 2011). Moreover, diffusion of responsibility is especially pronounced when social norms do not support intervention (Ruthkowski, Charles, & Daniel, 1983). Alcohol may exacerbate this robust effect by narrowing bystanders' attentional focus towards the presence of others (i.e., salient cue) rather than the sexually aggressive event, thereby decreasing the likelihood an individual will intervene. However, certain situational cues, such as peers' discouragement of sexually aggressive behavior, are likely more salient than the mere presence of others, which may lead to quicker intervention among intoxicated men who do intervene.

Failure to take responsibility is also affected by beliefs about a victim's "worthiness" of intervention (Burn, 2009). Extant research indicates individuals are less likely to help if they view a person as responsible for his or her own victimization, such that individuals who are perceived as ill are helped more than those perceived as intoxicated (Piliavin, Rodin, & Piliavin,



1969). In relation to sexual aggression, some men report the belief that a woman is responsible for her own safety and the safety of other women, and thus may not feel responsible to intervene in sexual aggression (Koelsch, Brown, & Boisen, 2012). Similarly, greater responsibility for sexual aggression victimization is often placed on a woman who is dressed provocatively (Workman & Freeburn, 1999; Cassidy & Hurrell, 1995; Schult & Schneider, 1991; Whatley, 2005) or who has consumed alcohol (for a review, see Grubb & Turner, 2012). Further, approximately 62% of men who were convicted of raping a female acquaintance reported that their behavior was a result of their alcohol consumption (Kanin, 1984). In other words, alcohol use is often used as a scapegoat whereby perpetrators blame alcohol for their sexually aggressive behavior (Abbey et al., 2002). This work may be extended to bystander behavior for sexual aggression such that bystanders may feel less compelled to take responsibility for intervening when intoxicated.

#### ***1.2.3.4 Step 4: Decide How to Help***

The fourth step towards bystander intervention is deciding how to help. Bystanders' decision to help may be impaired by a bystander's uncertainty on how to intervene and/or a skills deficit (Burn, 2009). This barrier has been identified as one of the most prevalent barriers to sexual aggression intervention and failing to intervene due to a skills deficit was related to less self-reported intervention when the victim was a stranger, but not a friend (Bennett et al., 2014). While training programs aim to prepare bystanders to intervene by building behavioral skills (e.g., using distraction) and increasing confidence necessary to intervene in sexually aggressive situations (e.g., Potter, Stapleton, & Moynihan, 2008), intoxication may impair bystanders' ability to execute those skills. It is well established that acute alcohol intoxication impairs higher order cognitive functioning, including working memory, problem solving, planning, set shifting,

psychomotor speed, and response inhibition (Curtin & Fairchild, 2003; Giancola, 2000). As such, intoxicated bystanders who would otherwise have the skills and confidence to intervene are less able to effectively implement a plan of action due to cognitive impairments induced by alcohol. For example, individuals may not be able to implement a complex plan to help due to impairments in working memory that prevent them from holding parts of their plan in working memory long enough to implement them. Moreover, intoxication may make it difficult for bystanders to shift intervention strategies in response to changes in or escalation of a perpetrator's tactics.

#### ***1.2.3.5 Step 5: Choose to Act***

Once a bystander reaches the final step, choosing to act, there may be little difficulty in intervention, unless the situation is perceived as stressful (Latané & Darley, 1968, 1970). Bystanders may fail to take action at this step due to audience inhibition, or the fear of negative evaluation from others (Burn, 2009; Latané & Nida, 1981). This barrier is likely more common among men due to gender norms that prevent men from intruding in another man's "sexual conquest" (Burn, 2009; Carlson, 2008; Fabiano et al., 2003), or the fear of losing respect from male peers if they intervene (Carlson, 2008). Further, men exposed to male confederates who promoted misogynistic, relative to ambiguous, peer norms were significantly less likely to intervene in sexual aggression (Leone, Parrott, & Swartout, 2017b). Though the power of peer influence is often identified as a barrier to intervention, social context can be harnessed to increase engagement in prosocial behavior. In cases of interpersonal violence that require multiple interveners, individuals are more likely to engage in prosocial behavior when they first see others intervene (Christy & Voigt, 1994). Moreover, a recent investigation demonstrated that men who reported higher, relative to lower, levels of confidence to intervene to prevent sexual

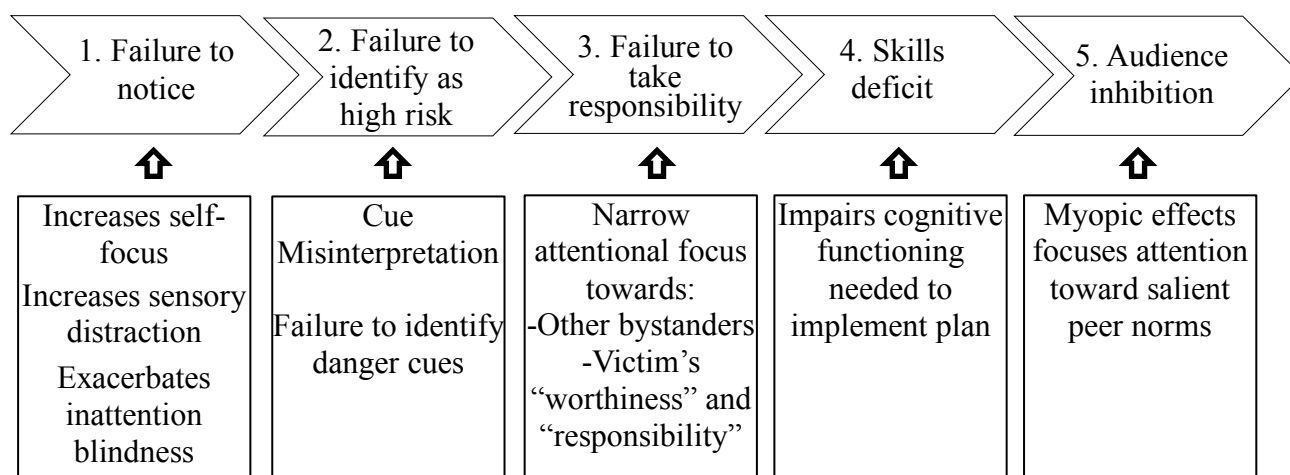
aggression intervened faster when they were exposed to confederates who promoted prosocial, relative to ambiguous, peer norms (Kaczkowski, Swartout, Parrott, & Leone, 2018).

These social context effects may be exacerbated by the myopic effects of alcohol, which focus a bystander's attention onto highly salient peer norms and/or the presence of others rather than sexual aggression or its consequences. Although the combined effects of alcohol and audience inhibition have yet to be studied, research that examines general aggression indicates intoxicated, compared to sober, participants administered higher levels of electric shocks to an ostensible opponent within an experimental task when they were observed by peer-confederates who applied social pressure (Taylor & Sears, 1988). In this study, the myopic effects of alcohol likely facilitated participants' attention to aggression-promoting peer norms and, as a result, facilitated aggressive behavior.

The interactive effect of alcohol and audience inhibition due to salient peer norms may, however, depend on the temporal relationship between alcohol consumption and exposure to a peer norm. Certain peer norms, including those that promote derogation of women, likely incite anxiety about intervening among sober men. Under acute alcohol intoxication, individual's experience of anxiety depends on when they are exposed to an anxiogenic cue (Sayette, 1993). When alcohol consumption proceeds an anxiogenic cue, alcohol disrupts appraisal of these cues as threatening effectively increasing one's "liquid courage." Conversely, if exposure to an anxiogenic cue precedes alcohol consumption, encoding of threatening cues is not impaired and may be enhanced by alcohol, thereby increasing anxiety (Sayette et al., 2001). In other words, intoxicated bystanders may be disinhibited and immune to the effects of peer norms if they are only exposed to these peer norms cues following intoxication. Conversely, if they are exposed to

and aware of the peer norms surrounding sexual behavior or intervention prior to intoxication, bystanders will experience anxiety related to intervention.

In a situation in which peer norms that condemn sexual aggression are most salient, or others engage in helping behavior first, the narrowed attentional capacity of the inebriate will be focused more so on those pro-intervention cues, leaving little working memory space to focus on less salient, and potentially intervention-inhibiting, cues. As a result, intoxicated bystanders should be more likely and quicker to intervene than non-intoxicated bystanders in sexual aggression situations. Thus, this barrier may be attenuated by prosocial peer norms, particularly for intoxicated persons who are likely to be myopically focused on that norm.



*Figure 1. Bystander decision making: Alcohol as a barrier to intervention*

#### **1.2.4 The Situational Model and Gender**

Disparate evidence on gender differences in barriers to intervention highlights a need for more gender-specific research on bystander behavior. Indeed, while some research suggests men experience more barriers to intervention (Burn, 2009), more recent evidence demonstrates this may be more nuanced and specific to certain types of situations across the continuum of sexual

aggression (Hoxmeier, McMahon, & O'Connor, 2017). Despite calls for gender-specific bystander training programming (Katz, 2018), it is unclear at which points the programming would diverge and how the content would differ given the lack of empirical evidence to guide these efforts. Certainly, bystander training programs aim to prepare both men and women to intervene in sexually aggressive situations; however, some programs target single-gender audiences (e.g., Gidycz, Orchowski, & Berkowitz, 2011; Katz 1995; Salazar, Vivolo-Kantor, Harbin, & Berkowitz, 2014) given the unique program goals for each gender (Gidycz, Rich, & Marioni, 2002; Katz, 2018). For example, single-gender programs provide an opportunity for men to have a dialogue about issues related to masculinity, gender, and violence without fear of judgment from women (Katz, 2018). All male audiences can also help to create an environment that reduces male defensiveness (Scheel, Johnson, Schneider, & Smith, 2001) and avoid gender-polarization (Berkowitz, 1994).

Given the early stage of this line of research, it is necessary to first test theoretical models with a population that represents the greatest risk for not intervening in sexual aggression. Although social psychological research suggests men are more likely to exhibit helping behaviors than women (Eagly & Steffen, 1986), this work may not apply to sexual aggression bystander intervention (e.g., Brown et al., 2014). Indeed, research in this area has demonstrated that men report less confidence in their ability to intervene (Amar et al., 2014; Foubert et al., 2011), less willingness to intervene (Brown et al., 2014; McMahon et al., 2011), fewer bystander behaviors (Amar et al., 2014; Banyard & Moynihan, 2011) and less willingness to provide support to survivors of sexual assault (Beeble, Post, Bybee, & Sullivan, 2008), than women. Additionally, scholars have theorized that risk factors and mechanisms may vary by gender (Brown et al., 2014).

### ***1.2.5 Peer Norms***

Research indicates college men's perceived peer attitudes towards sexual aggression are a significant predictor of one's willingness to intervene (Banyard & Moynihan, 2011; Brown & Messman-Moore, 2010), and men's own willingness to intervene is strongly influenced by their perceptions of how other men might act (Brown et al., 2014; Fabiano et al., 2003). Thus, perceptions of peer norms have a significant effect on individual's intervention behavior. In addition to perceived peer norms, social context can influence a person's decision to engage in prosocial bystander behavior. The classic bystander finding suggests, when more people are present, any one person is less likely to intervene (Latané & Darley, 1968). However, for situations that require multiple interveners, people are more likely to engage in prosocial behavior when they first see others engage in that behavior (Carlo & Randall, 2001), including instances of interpersonal violence (Christy & Voigt, 1994). Further, priming prosocial norms through a sentence-scramble task has been linked to more helping behavior (Abbate, Ruggieri, & Boca, 2013). More pertinent to the present investigation, in a laboratory study in which male and female confederates engaged in a script that elicited prosocial, compared to ambiguous social norms, men who previously self-reported confidence in their ability to intervene intervened significantly faster when exposed to prosocial social norms (Kaczkowski et al., 2018). Conversely, when male confederates engaged in a script that elicited misogynistic, compared to ambiguous, social norms, men who were exposed to misogynistic peer norms were significantly less likely to intervene in sexual aggression (Leone et al., 2017b). As such, the present study will employ a laboratory-based social norms manipulation to assess directly the effects of prosocial norms on sexually aggressive intervention. Indeed, the laboratory setting affords a high degree of

control over the manipulation of situation-specific norms, thereby maximizing the ability to infer a causal effect of norms on behavior.

### **1.3 Overview of the Present Study and Hypotheses**

Prevention of sexual aggression is a significant public health concern and there remains a strong need to develop intervention programs that are theoretically and empirically driven. One major gap in this literature is the inattention to alcohol's pharmacological effect on sexual aggression intervention. Collectively, the reviewed literature suggests alcohol intoxication may pose additional barriers to intervention, which may thwart the decision-making process. However, the presence of peers who express prosocial norms may increase intervention behavior due to the myopic effects of alcohol intoxication. Moreover, intoxicated individuals' attention is likely focused primarily on those norms and, among those who do intervene, should result in faster intervention relative to sober individuals. The proposed study is significant because it will (1) test a theoretically-based intervention manipulation designed to increase the likelihood of sexual aggression intervention, (2) provide the first examination of acute alcohol intoxication on sexual aggression intervention, and (3) examine perceived barriers to intervention. Data from this project are critical to the development of an evidence base from which existing intervention programming can better teach bystanders how to effectively prevent sexual aggression. The present project will only examine these relationships among men given the reviewed literature demonstrated gender effects among bystander attitudes, intent, barriers, and behavior. Thus, recruiting a mixed gender sample without sufficient power to examine gender moderation effects would result in data that less clearly informs intervention programming.

### **1.3.1 Research Aim 1**

Examine the effects of audience social norms (prosocial audience, ambiguous audience) and beverage condition (alcohol, sober) on *likelihood of sexual aggression intervention*.

#### **1.3.1.1 Hypothesis 1a**

Participants in the prosocial audience will be *more likely to intervene* than participants in the ambiguous audience.

#### **1.3.1.2 Hypothesis 1b**

Intoxicated participants will be *less likely to intervene* than sober participants.

### **1.3.2 Research Aim 2**

Among men who intervene, examine the effects of alcohol intoxication and audience social norms on sexual aggression *intervention speed* (see Figure 2).

#### **1.3.2.1 Hypothesis 2a**

Participants will intervene faster in the prosocial, relative to the ambiguous, audience condition.

#### **1.3.2.2 Hypothesis 2b**

The effect of audience social norms on intervention speed will be moderated by beverage condition, such that intoxicated, relative to sober, men will intervene faster in the prosocial, but not the ambiguous, audience.

### **1.3.3 Exploratory Aim**

Examine the effect of alcohol intoxication and audience social norms on perceived barriers to sexual aggression intervention.



### 1.3.3.1 Model 3a

Individuals in the prosocial, relative to those in the ambiguous, audience will report fewer barriers to intervention across the decision-making model.

### 1.3.3.2 Model 3b

Intoxicated, relative to sober men, will report more barriers across the decision-making model.

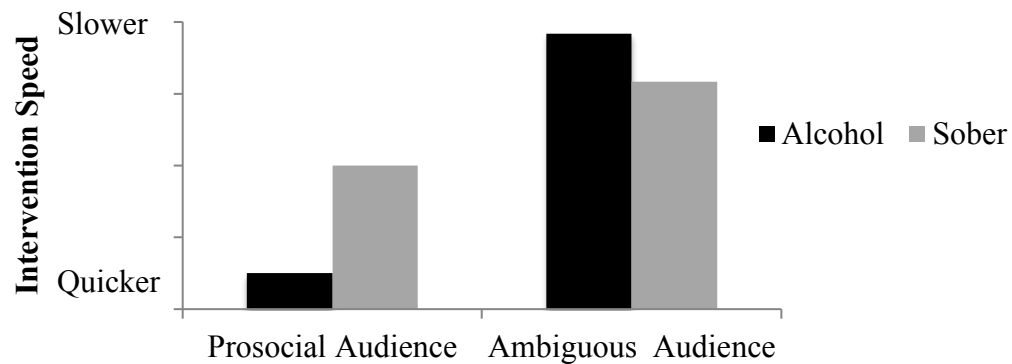


Figure 2. Predicted effects of beverage condition and audience social norms on sexual aggression intervention speed

## 2 METHOD

### 2.1 Recruitment Procedures

Healthy, non-treatment seeking social drinking men between the ages of 21 and 30 were recruited to participate in a two-part study. Nonprobability sampling was used, in which male participants from the local metro-Atlanta community responded to online advertisements that are read by different strata of the socioeconomic spectrum. Further, flyer advertisements were strategically posted on college and university campuses in the metro-Atlanta area. Male participants phoned the laboratory in response to advertisements that read “Men age 21-30

needed for study on the relation between alcohol, social behavior, and social attitudes. Earn up to \$100” and invited respondents to telephone the laboratory. Upon contacting the laboratory, respondents were provided with a short description of the study, required time commitment, and financial compensation. Interested individuals were subsequently screened by telephone for eligibility criteria. Participants were screened for inclusion and exclusion criteria at three separate time points throughout the study: Telephone Screening Interview, Session 1, and Session 2.

## **2.2 Eligibility Criteria**

To be eligible, participants had to self-report that they identified as male and were between the ages of 21 and 30. Respondents were not eligible to participate if they self-reported that they were less than 6 feet tall and over 230 lbs or over 6 feet tall and over 250 lbs. To minimize the possibility that participants would experience adverse reactions to the alcohol dose administered, participants who weighed greater than 250 lbs were not eligible to participate. This decision was made because alcohol dosing is based on body weight and it is important to ensure that participants are not given excessively large amounts of alcohol due to high levels of body fat. All participants had to report that on at least three occasions in the past year, they had consumed an alcohol quantity that was equal to or greater than the dose that would be administered in the laboratory (please see Table 1 below). For example, if a man self-reported that he is over 6 feet tall and weighs 220 pounds, he must have self-reported that he consumed at least 7 or more standard alcoholic drinks on at least three occasions during the past year. These drinking requirements were assessed within the context of the Drinking Patterns Questionnaire (NIAAA, 2014). Of particular relevance was the addition of one question which assessed respondents’ frequency of consuming this weight-based dose of alcohol during the past year

(“During the last 12 months, how often did you drink [weight-based dose number] drinks on one occasion?”).

These height/weight and drinking criteria were chosen to (1) ensure that the dose of alcohol participants received in the study (overall dose of 0.99 g/kg body weight of 95% ethanol USP mixed in a 1:5 ratio with Tropicana orange juice) would not produce a BrAC that was higher than what participants reach with self-administration, and (2) reduce the risk that participants would experience any negative effects from the dose of alcohol used in this investigation.

*Table 1. Standard Drink Equivalents of Laboratory Alcohol Dose Weight*

Dose	100 lbs (45 kg)	130 lbs (59 kg)	160 lbs (73 kg)	190 lbs (86 kg)	220 lbs (100 kg)	250 lbs (114 kg)
MEN	3.2	4.2	5.1	6.1	7.1	8.0
<p>Number of standard drinks by alcohol dose and body weight</p> <p>Though the alcohol content of what is considered a “standard drink” varies considerably (see Turner, 1990), for comparison purposes we use the <u>National Institute on Alcohol Abuse and Alcoholism</u>’s definition of 14g of pure alcohol (NIAAA, 2014) as the measure of a “standard drink.” This is roughly equal to 12 oz (355 ml) of beer, 5 oz (148 ml) of wine, and 1.5 oz (44 ml) of liquor.</p>						

In addition to these minimum drinking criteria, respondents had to self-report that they were not currently seeking treatment or in recovery for an alcohol use disorder, they did not have a current or lifetime DSM-V diagnosis of any substance use disorder (other than caffeine or nicotine), and that they were not drinkers who would require counseling or referral to treatment as defined by self-report or a score of 16 or more on the Alcohol Use Disorders Identification Test (AUDIT; Babor, Higgins-Biddle, Saunders, & Monteiro, 2001). Thus, eligibility for this study was not limited to social drinkers; rather, social and at-risk drinkers were all deemed eligible in the absence of active or recommended treatment seeking. Respondents who self-reported a head trauma that required medical attention or those who reported having been diagnosed with a neurological disorder, bipolar disorder, any psychotic disorder, current major depression, or other significant psychiatric symptomatology were excluded because these conditions might confound the outcome data. Furthermore, individuals who self-reported

abstinence from alcohol use, a condition in which alcohol consumption is medically contraindicated, or medication that might contraindicate the use of alcohol were also excluded from the research. Finally, given the deception procedures used in this study, any participant who stated that they knew another person who had participated in the study was also excluded.

### **2.3 Participants**

Participants were 153 men. Of these men, 16 were not eligible for Session 2 and were remunerated for the participation in Session 1. Of the men who were eligible for Session 2, 24 were lost to follow up, and 6 withdrew from the study before completing Session 2. Thus, 107 men presented to the laboratory for Session 2. Three participants experienced a technical error, two participants identified a confederate as someone they knew or vice versa and were removed from analyses, 20 participants selected the sexually explicit film, one participant indicated awareness of the study's aims, and seven participants endorsed the belief that the other participants were confederates. These participants were removed from analyses resulting in a final sample of 74 men ( $M_{\text{age}} = 23.93$ ,  $SD = 2.65$ ). Half of participants self-identified as White or Caucasian ( $N = 37$ ), 24.3% identified as Black or African America ( $N = 18$ ), 12.2% as more than one race ( $N = 9$ ), 10.8% as Asian ( $N = 8$ ), and 2.7% as American Indian or Alaska Native ( $N = 2$ ). Most participants identified as heterosexual (87.8%), had never been married (87.8%), and were not currently enrolled in college (52.7%). The sample earned \$32,331 per year on average and had an average of 16.59 ( $SD = 2.28$ ) years of education. The university's Institutional Review Board approved this study.

### **2.4 Experimental Design**

The present study used an experimental design and included two independent variables to which participants were assigned using Urn randomization (Stout, Wirtz, Carbonari, & Del

Boca., 1994): audience social-norms (prosocial, ambiguous), and participant beverage condition (alcohol, no alcohol control). The following variables were included in the Urn randomization: age, education level, marital status, ethnicity, racial identity, sexual orientation, income, previous sexual assault training attendance, AUDIT score, frequency of alcohol consumption in the past 12 months, drinks per drinking day in past 12 months, and frequency of heavy consumption (5+ drinks) in the past 12 months. A mix gender confederate audience comprised of four individuals (two male, two female) was selected because prior research suggests this number of individuals sufficiently inhibits bystander intervention (Latané & Dabbs, 1975), and the effects of bystanders' gender on intervention are still unclear. Indeed, there is no research to inform the manipulation of group gender composition; thus, doing so went beyond the scope of this project. A no-alcohol control beverage (i.e., told no alcohol, receive no alcohol) was selected due to compensatory effects associated with the use of a placebo (i.e., told alcohol, receive no alcohol) in sexual aggression research (Testa et al., 2006), and research suggesting a placebo condition is an appropriate control condition for low, but not high, dosage alcohol conditions (for a review, see George, Gilmore, & Stappenbeck, 2012).

## **2.5 Materials**

### ***2.5.1 Demographic form***

This form assessed participants' age, ethnic background, racial identity, highest level of education, education status, self-reported sexual orientation, income level and previous engagement in sexual assault training programs.

### ***2.5.2 The Brief Symptom Inventory***

The Brief Symptom Inventory (BSI; Derogotis, 1993) is a 51-item measure used to identify and exclude participants' who report significant acute psychiatric symptomatology. Any

participant who obtained a T-Score above 64 on the Global Severity Index was excluded from the study.

### **2.5.3 Drinking Patterns Questionnaire**

The Drinking Patterns Questionnaire (NIAAA, 2014) is 6-item self-report measure that assessed an individual's pattern of alcohol consumption during the past 12 months. Of particular relevance will be four questions that assess respondents' *average quantity of alcohol consumption during the past year* ("During the last 12 months, how many alcoholic drinks did you have on a typical day when you drank alcohol?"), *average frequency of alcohol consumption during the past year* ("During the last 12 months, how often did you usually have any kind of drink containing alcohol? A drink is defined as half an ounce of absolute alcohol (e.g. a 12 ounce can or glass of beer or wine cooler, a 5 ounce glass of wine, or a drink containing 1 shot of liquor)", *largest quantity of alcohol consumption during the past year* ("During the last 12 months, what is the largest number of drinks containing alcohol that you drank within a 24 hour period?"), and *frequency of largest quantity of alcohol consumption during the past year* ("During the last 12 months, how often did you drink this largest number of drinks?"). As previously mentioned, an additional question was added to assess respondents' frequency of consuming this weight-based dose of alcohol during the past year ("During the last 12 months, how often did you drink [weight-based dose number] drinks on one occasion?").

### **2.5.4 Alcohol Use Disorders Identification Test**

The Alcohol Use Disorders Identification Test (AUDIT; Babor et al., 2001) is NIAAA's recommended 10-item diagnostic scale developed by the World Health Organization to screen for excessive alcohol consumption. This measure assesses alcohol intake (items 1-3), dependence (items 4-6), and adverse consequences associated with alcohol use (items 7-10).

Respondents score between 0 and 4 on each item, and all scores are summed to obtain a total AUDIT score, which ranges from 0 to 40. A score of 16 or above identifies harmful or hazardous drinking with high sensitivity and specificity (Saunders, Aasland, Amundsen, & Grant, 1993). This measure was used to assess problematic alcohol consumption that warrants referral for treatment or counseling as evidenced by a score of 16 or above.

### ***2.5.5 Adapted Bystander Barrier Scale***

A modified 20-item version of the Bystander Barrier Scale (Burn, 2009) measured perceived barriers to intervening among participants who did not intervene ( $n = 39$ ). The original scale has good psychometric properties and is a reliable measure of bystander barriers (Bennett et al., 2014; Burn, 2009). Individuals who report high prosocial tendencies also report fewer barriers to helping (Bennett et al., 2014). This scale has five subscales: failure to notice, failure to identify situation as high-risk, failure to take responsibility for intervening, failure to intervene due to a skills deficit, and failure to intervene due to audience inhibition. Items are rated on an 8-point Likert-type scale (0 = don't know, 1 = strongly disagree, 8 strongly agree). Those who indicated "don't know" were excluded from analyses ( $n = 1$ ). Whereas Burn's original scale assesses barriers to sexual assault generally (sample item: "Even if I thought someone was at risk for being sexually assaulted, I would probably leave it up to others to intervene."), this adaptation assessed barriers to intervention in the present context (sample item: "Even if I thought Mandy didn't like the video that was shown, I left it up to others to stop the video."). Items adaptations were consistent with original items (Burn, personal communication), and experts in the field provided feedback on these items prior to administration<sup>1</sup>.

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<sup>1</sup> Feedback was provided by Amy L. Brown, Shawn M. Burn, Kathryn Graham, Lindsay Orchowski, and Samantha Wells.



The first barrier, *failure to notice*, measures distractedness and consisted of one item. The second barrier, *failure to identify situation as high-risk*, measures ambiguity and pluralistic ignorance. The original scale includes three items; however, three items additional items were added to more accurately assess this barrier in the laboratory. Unlike the original scale ( $\alpha = .72$ ), this barrier had poor reliability ( $\alpha = .55$ ). Removal of the three additional items did not improve reliability ( $\alpha = .29$ ), and thus this barrier was not included in subsequent analyses. The third barrier, *failure to take responsibility for intervening*, measures diffusion of responsibility, victim worthiness, and bystander relationship to the victim/perpetrator. One additional item was added to the original eight items and reliability in the present study ( $\alpha = .80$ ) was consistent with the original scale ( $\alpha = .85$ ). The fourth barrier, *failure to intervene due to a skills deficit*, measures uncertainty about how to intervene using two items. The internal consistency of these two items was adequate ( $\alpha = .61$ ), albeit lower than the original scale ( $\alpha = .89$ ). Finally, the fifth barrier, *failure to intervene due to audience inhibition* measured hesitation to help due to concerns about embarrassment or lack of support from others using two items. Consistent with the original scale ( $\alpha = .70$ ), this barrier had adequate internal consistency ( $\alpha = .78$ ).

## 2.6 Beverage Administration

Participants assigned to consume alcohol were administered two drinks consisting of an overall dose of 0.99 g/kg body weight of 95% ethanol USP mixed in a 1:5 ratio with Tropicana orange juice. This single alcohol dose reliably produces BrACs between .08%-.12%. Participants in the No-Alcohol Control group received an isovolemic beverage consisting solely of orange juice. All beverages were poured into two glasses in equal quantitates and served chilled with no ice. Participants in the Alcohol group were told that they are receiving a ‘moderate’ dose of alcohol. Twenty minutes was allotted for beverage consumption. Participants were given their

glasses at equally-spaced times during the twenty-minute interval to control for drinking rate. BrACs for participants in the Alcohol group was monitored every five minutes after finishing their beverages with the Alco-Sensor IV breath analyzer (Intoximeters, Inc., St. Louis, MO). The laboratory task commenced after they reached .08% on the ascending limb of the BAC curve. Participants in the No-Alcohol control group began the laboratory task following consumption of their beverage.

## **2.7 Laboratory Analogue for Bystander Intervention for Sexual Aggression**

The proposed study utilized a valid laboratory paradigm to assess sexual aggression intervention (Leone & Parrott, 2014; Leone et al., 2017b; Parrott et al., 2012). This paradigm builds upon classic bystander paradigms that expose participants to an ostensible emergency and then assess whether and/or how quickly participants intervene (Latané & Darley, 1968) and the well-validated sexual imposition paradigm (Hall & Hirschman, 1994). In the sexual imposition paradigm, a male participant and female confederate engage in a media-rating task that supposedly assesses their preferences for various genres of media. The participant then receives a media rating profile based on the female confederate's responses, which explicitly states her strong dislike of sexual content in the media. Next, the participant views two film clips that depict a nonsexually explicit or sexually explicit scene. The participant is asked to select one film to show the female confederate and is informed that he will be able to view the female via closed circuit television as she watches the film he selected. Sexual aggression is operationalized as subjecting an unwilling female to the sexually explicit film. Research has demonstrated a past history of sexual assault predicts men's selection of a sexually explicit film (Hall, DeGarmo, Eap, Teten, & Sue, 2006; Hall & Hirschman, 1994; Hall, Hirschman, & Oliver, 1994; Parrott et al., 2012), and men believe that female is uncomfortable and upset by the film (Hall et al., 2006).

In line with classic bystander paradigms, the subjection of the unwilling female confederate to the sexually explicit film represents the ostensible emergency to which a bystander is exposed and can intervene to prevent. Thus, in this paradigm, the participant is informed that he is participating with five other confederates (including the female target). It is explicitly stated to the participant that the female target does not like to watch sexually explicit material during the media-rating task. The participant and the four other confederates (i.e., an “audience” comprised of two males and two females) are then asked to select a sexually explicit or non-explicit film clip for the female target to view and are informed that the film clip she ultimately views will be determined by randomly selecting from their five choices. Thus, the participant is led to believe that there is at least a 20% chance that his selection will be shown to the female target. After selection of the film clip, the four confederates are instructed by the experimenter to enter the participant’s room and engage in a scripted audience social norms manipulation, described below. Within this manipulation, one male confederate indicates that he chose the sexually explicit film to show the woman, whereas the other three confederates state that they chose the non-sexually explicit film. The participant and four confederates are then informed that the sexually explicit film (selected by a male confederate) was randomly selected and will be shown to the female target. They are informed that they will view the woman on their computer screen via a webcam as she watches the film clip and can stop the video at any time by pressing the “Enter” key on the keyboard. The participant is seated in front of the computer and keyboard and the four confederates are seated out of reach of the keyboard – thus only the participant can press the “Enter” key without significant physical movement.

The participant and four confederates then watch the woman view the sexually explicit film clip. In actuality, a pre-recorded video of the female confederate is played. Participants are

led to believe that her galvanic skin response is being assessed, which indicates her level of “comfort or discomfort” while watching the video. They are also told that they can view her physiological responding on their computer screen. This is depicted by bogus output that is displayed simultaneously next to the video file, which depicts her level of discomfort slowly rising over the four-minute video clip. The woman’s face remains neutral throughout the duration of the 4-minute film. Sexual aggression intervention is operationalized as whether the participant stops the video and the time in seconds it takes the participant to stop the video.

## **2.8 Audience Social Norms Manipulation**

After the participant and audience are informed that the sexually explicit clip will be shown to the female target, a male confederate (Confederate 1) who indicated he chose the non-sexually explicit clip delivers the intervention manipulation after the other male confederate (Confederate 2) states he selected the sexually explicit film clip. Both female confederates (Confederate 3 and 4) also state they choose the non-sexually explicit film clip. In the prosocial condition, Confederate 1 uses information on what the woman likes/dislikes to compel someone to stop the presentation of the video. Confederate 3 makes a similar statement and indicates it’s “not right” to show the female this clip. In the ambiguous condition, Confederate 1 comments on the comparable quality of the two video clips. Confederate 3 make statements in agreement. See Appendix A for Confederate scripts. The content of the confederate’s statements (i.e., clip quality vs. objective consideration of the female target’s wishes) is based upon qualitative pilot analyses of naturalistic bystander intervention within the laboratory context, wherein statements that explicitly cited the female’s wishes were significantly more likely to facilitate prosocial bystander behavior (Parrott, Swartout, Tharp, Purvis, & Topalli, 2016). Prior research has

successfully used this paradigm to manipulate audience social norms with confederates (Leone & Parrott, 2014; Leone et al., 2017b; Kaczowski, et al., 2018).

In order to create an alcohol-context, participants were informed that the other confederates, including the female target, were randomly assigned to the alcohol condition. To reinforce participants' belief that confederates had been drinking, this information was presented multiple times prior to the intervention manipulation and the clothes of the four confederates were sprayed with an alcohol-water mixture.

## **2.9 Procedure**

Participation occurred on two separate days, as described below.

### ***2.9.1 Session 1***

Upon arrival to the laboratory, participants' age and BrAC was verified, informed consent was obtained, and participants completed screening measures which included the Drinking Patterns Questionnaire (NIAAA, 2014), the BSI (Derogotis, 1993), the AUDIT (Barbor et al., 2001), and an adaptation of the telephone screening interview to re-assess for pertinent exclusionary criteria such as medical conditions, current medications, etc. Upon completion of these screening measures, participants completed a separate computer assessment battery using Qualtrics. The questionnaire battery included the demographic form and other questionnaires not related to the present student.

While the participant completed the Qualtrics questionnaires, the experimenter scored numerous measures from the initial screening battery to confirm the eligibility criteria. Eligible participants were scheduled for Session 2 on a separate day; ineligible participants were paid at a rate of \$10 per hour and thanked for their time.

### **2.9.2 Session 2**

Participants arrived at the laboratory on their designated day and time. Upon arrival, participants were greeted in the lobby by an experimenter and led to a private room. As part of the consent process, participants were required to give their keys (if they were carrying any), cell phone, and valid picture ID (e.g., a driver's license) to the experimenter with the understanding that these items would be returned at the end of the study upon reaching a BrAC of 0.04%. After obtaining informed consent, an experimenter re-verified screening criteria, checked age with a picture ID, ensured that the participant's BrAC was 0%, and conducted a field sobriety test.

Next, participants received instructions for the study. The experimenter followed a standardized script for all study proceedings. Upon reaching a BrAC of .08% (alcohol beverage condition) or following drink consumption (no-alcohol control condition) participants completed the laboratory analogue for sexual aggression intervention, including the audience social norms manipulation, followed by the Adapted Bystander Barrier Scale on the computer.

### **2.10 Manipulation Checks, Debriefing, and Compensation**

Following completion of the study, participants were probed for deception and debriefed (see Manipulation Check). Because participants in the alcohol beverage condition were intoxicated at the end of the experiment, they were debriefed in two phases. First, they received a limited debriefing immediately after completing the experimental protocol. Although they were intoxicated at this time, a limited debriefing was conducted to minimize potential ill effects from the deception manipulation. In the limited debriefing, participants were told that all other participants in the study were confederates, the ostensible live footage they watched of the female confederate was actually prerecorded, and that their responses were "normal" and consistent with those of others in the study. They were also informed that they were not told, at

the beginning of the study, that the study was designed to measure bystander intervention for sexual aggression because many people artificially alter their responses if they are aware of this information. To mitigate the likelihood that participants would feel intellectually inadequate because they were deceived by any manipulations, they were told that 90-95% of the participants in this project were similarly deceived and that being deceived is completely “normal.”

Questions and concerns were then addressed. Additional information about the study’s aims was not provided at this time due to participants’ level of intoxication. However, alcohol subjects received a full debriefing with all of this information (described below) after their BrAC reached .04%. Subjects in the No-alcohol control condition were fully debriefed immediately following the experiment.

During the debriefing, participants were told the true purpose of the study was to examine the effects of acute alcohol intoxication and prosocial peers of bystander intervention. They were also informed that all other participants in the study were actually confederates, who were not intoxicated, and the discussion they had with other “participants” regarding the video choice was scripted in order to examine how peers may impact bystander behavior for sexual aggression. The experimenter then addressed any comments or concerns.

Due to the fact that the study procedures involved witnessing an unwanted sexual experience, a Post-Debriefing Safety Interview was administered at the end of the final debriefing (i.e., just before participants were allowed to leave the laboratory). This assessment consisted of a written measure designed to evaluate participants’ experience of distress as a result of participating in the study. For example, participants were asked to rate their level of distress associated with “Believing that you were requiring somebody else to watch a film clip.”

Participants in the alcohol beverage condition completed the post-debriefing interview upon reaching a BrAC of .04%.

To minimize the possibility that participants would drive a motor vehicle after leaving the laboratory, they were transported home via pre-arranged transportation (e.g., a ride from a family member or friend) or via public transportation (e.g., Metropolitan Atlanta Rapid Transit) at no cost to the participant. Moreover, they were not allowed to leave the laboratory until their BrAC was below 0.04% and they passed a field sobriety test. All participants were given a standard field sobriety test upon entering the laboratory in the sober state and were given the same test when they reach a descending BrAC of 0.04%. Participants were only discharged from the laboratory if this test score was the same or better as when they entered the laboratory. Following these procedures, participants were compensated at the rate of \$10 per hour and thanked for their time.

### **3 DATA REDUCTION**

#### **3.1 Bystander Intervention for Sexual Aggression**

Bystander intervention was operationalized as whether the participant stops the video and the time in seconds it took the participant to stop the video (if applicable).

#### **3.2 Breath Alcohol Concentration (BrAC)**

This variable will be measured using the Alco-Sensor IV breath analyzer (Intoximeters Inc., St. Louis, MO). BrAC was assessed at three time points.

##### ***3.2.1 BrAC1***

This BrAC measurement was conducted upon participants' arrival at the laboratory during Session 2. In order to participate, all participants were required to have a BrAC of 0.00%.



### **3.2.2 *BrAC2***

This BrAC measurement was conducted immediately prior to the beginning of the laboratory analogue for bystander intervention for sexual aggression. As some participants may require several BrAC measurements in order to document a BrAC of at least 0.08 %, this variable only reflected this final measurement.

### **3.2.3 *BrAC3***

This BrAC measurement was conducted immediately following completion of the laboratory analogue for bystander intervention for sexual aggression.

## **3.3 Barriers to Intervention**

Five variables were derived from the Adapted Bystander Barrier Scale to assess five barriers to intervention: failure to notice, failure to identify situation as high-risk, failure to take responsibility for intervening, failure to intervene due to a skills deficit, and failure to intervene due to audience inhibition. Failure to identify situation as high-risk demonstrated poor internal consistency and responses were on a restricted range, and thus was not included in subsequent analyses.

## **4 RESULTS**

### **4.1 Participant Selection**

#### **4.1.1 *Film selection***

In the present study, bystander behavior is most clearly assessed among men who behaviorally designate themselves as bystanders outside of the group context. Put another way, bystander behavior is most clearly assessed among men who do not voluntarily enter into a sexually aggressive interaction prior to exposure to any group influence. This subgroup of men

is operationally defined by their selection of the nonsexually explicit film clip during the individual choice. Thus, in the present study, only participants who selected the nonsexually explicit film as their individual choice were included in analyses. Of the 106 participants who completed Session 2, 21 participants (19.8%) selected the sexually explicit film to show to the female confederate and were thus removed from subsequent analyses.

#### ***4.1.2 Deception manipulation***

In order for data to be valid, it must be demonstrated that participants believed they were engaged in the study with other “real” participants and that the task was not a measure of sexual aggression intervention. This was confirmed via a brief verbal interview prior to a standardized debriefing. Participants were asked (1) whether or not they thought the task was a good measure of media preferences, and (2) to provide verbally an “impression” of the confederates. The main criteria for exclusion were that participants’ beliefs that the task was a measure of sexual aggression intervention and that the other participants were confederates. One of the participants indicated awareness of the study’s aims and seven participants endorsed the belief that the other participants were confederates. These participants were removed from analyses.

#### ***4.1.3 Final sample***

Overall, 21 participants selected the sexually explicit film clip, four participants had technical difficulties, and eight participants were not deceived. Removal of these participants from subsequent analyses resulted in a final sample of 74 participants.

### **4.2 BrAC Levels**

Initial BrACs was examined to ensure that all participants reported a 0% prior to experimental procedures. A repeated measures ANOVA indicated that participants’ in the alcohol condition had a significantly higher BrAC post-paradigm ( $M = .111$ ,  $SD = .03$ ) than pre-

paradigm ( $M = .095$ ,  $SD = .03$ ),  $F(1, 35) = 6.22$ ,  $p < .001$ . This indicates that participants were on the ascending limb of the BrAC curve.

### 4.3 Preliminary Analyses

Descriptive statistics and bivariate correlations for pertinent study variables were computed for the experimental sample and are displayed in Tables 2 and 3, respectively. AUDIT scores were positively associated with drinking frequency (i.e., frequency of alcohol consumption in the past 12 months) and quantity (i.e., drinks per drinking day in past 12 months). Drinking Frequency was positively associated with heavy consumption (i.e., frequency of heavy consumption (5+ drinks) in the past 12 months). Heavy consumption was positively associated with intervention likelihood and negatively associated with (1) intervention time and (2) failure to take intervention responsibility. In other words, heavy drinkers were more likely to intervene (though slower to do so) and more likely to report taking intervention responsibility. Intervention likelihood was negatively associated with intervention time, failure to take responsibility, and failure to intervene due to a skills deficit. Intervention time was positively associated with failure to take responsibility, and failure to intervene due to a skills deficit, such that those who were slower to intervene were more likely to report these barriers. Finally, failure to take responsibility, failure to intervene due to a skills deficit, and failure to act due to audience inhibition were all positively associated.

Urn randomization was used to ensure equal distribution of pertinent variables across experimental groups. To confirm this assumption, 2 X 2 ANOVAs and chi-square analyses were conducted on pertinent study variables to ensure group equivalency. No significant group differences were detected.

In the current study, bystander intervention was operationalized as the time (in seconds) it took participants to stop the sexually explicit video being shown to the female. Preliminary data analyses revealed these data were significantly skewed (skewness = -1.11,  $SE = .28$ ; kurtosis = -.01,  $SE = .55$ ). Root square transformations did not correct this problem (skewness = 1.42,  $SE = .24$ ,  $p < .001$ ; kurtosis = .26,  $SE = .47$ ). A natural log transformation was used to correct for skew by subtracting the observed score from the highest possible score +1 and reduced the skew (skewness = .21,  $SE = .28$ , kurtosis = -1.90,  $SE = .55$ ). Additionally, 52.7% of the sample did not intervene ( $n = 39$ ). A chi-square test was conducted on audience and beverage condition to examine group differences in intervention. No significant effects were detected. Specifically, a chi-square test demonstrated no significant difference in intervention likelihood among men in the prosocial condition (19 of 36, or 52%) compared to the ambiguous condition (16 of 38, or 42%),  $\chi^2 (1, 73) = .85$ ,  $p = .358$ . Similarly, there was no significant difference in intervention likelihood among men in the alcohol beverage condition (19 of 37, or 51%) compared to the no-alcohol beverage condition (16 of 37, or 43%),  $\chi^2 (1, 73) = .49$ ,  $p = .485$ .

*Table 2. Descriptive Statistics for Alcohol, Experimental Conditions, Intervention, and Barriers Variables*

Variable	<i>M</i>	<i>SD</i>	Range
AUDIT	6.49	2.53	3-11
Drinking Frequency	100.18	76.45	1-365
Drinking Quantity	4.11	2.03	1-12
Heavy Consumption	32.53	40.35	0-156
Intervention Time	187.81	69.13	1-240
Barrier Notice	2.15	1.45	1-7
Barrier Responsibility	3.46	1.59	1-7
Barrier Skills Deficit	2.66	1.69	1-7
Barrier Audience	2.87	1.71	1-7

Note. *n* = 74; Drinking Frequency = frequency of alcohol consumption in the past 12 months (in days); Drinking Quantity = drinks per drinking day in past 12 months; Heavy Consumption = frequency of heavy consumption (5+ drinks) in the past 12 months

*Table 3. Correlations among Alcohol, Experimental Conditions, Intervention, and Barriers Variables*

Variable	2.	3.	4.	5.	6.	7.	8.	9.	10.	11.	12.
1. AUDIT	.46**	.30**	.21	.24*	-.17	-.13	.07	.00	.00	-.09	-.28
2. Drinking Frequency	—	.03	.26*	.21	-.16	-.16	.04	-.06	-.06	-.19	-.15
3. Drinking Quantity	—	—	.11	.09	-.06	.06	-.04	.13	-.06	-.02	-.15
4. Heavy Consumption	—	—	—	.02	-.12	.30**	-.39**	-.02	-.26*	-.08	-.15
5. Beverage Condition	—	—	—	—	.00	.08	-.02	.35**	-.08	.01	-.13
6. Audience Condition	—	—	—	—	—	-.11	.02	-.01	.02	.09	.05
7. Intervention	—	—	—	—	—	—	-.80**	-.06	-.49**	-.32**	-.14
8. Intervention Time	—	—	—	—	—	—	—	-.01	.44**	.31**	.19
9. Barrier Notice	—	—	—	—	—	—	—	—	-.01	.07	-.14
10. Barrier Responsibility	—	—	—	—	—	—	—	—	—	.55**	.51**
11. Barrier Skills Deficit	—	—	—	—	—	—	—	—	—	—	.45**
12. Barrier Audience	—	—	—	—	—	—	—	—	—	—	—

Note. n = 74; Beverage Condition 0 = alcohol, 1 = no-alcohol control; Audience Condition 0 =

prosocial, 1 = ambiguous; Intervention 0= no intervention, 1 = intervention; Alcohol

Consumption = frequency of alcohol consumption in the past 12 months (in days); Alcohol

Quantity = drinks per drinking day in past 12 months; Heavy Consumption = frequency of heavy

consumption (5+ drinks) in the past 12 months; \* p < .05, \*\* p < .01

#### 4.4 Analytic Strategy

Data were modeled using SPSS version 24. Prior to analyses, audience social norm (prosocial = 0, ambiguous = 1) and beverage (no-alcohol control = 0, alcohol = 1) condition were dummy coded. Standardized scores are reported for all predictor variables ( $M = 0$ ,  $SD = 1$ ). Interaction terms were calculated by obtaining cross-products of first-order variables.

**Research Aim 1** was to examine the effects of audience social norms and beverage condition on likelihood of sexual aggression intervention and posited that participants in the prosocial audience would be *more likely to intervene* than participants in the ambiguous audience (*Hypothesis 1a*) and (2) intoxicated participants would be *less likely to intervene* than sober participants (*Hypothesis 1b*). To test this hypothesis, a binary logistic regression was conducted. Audience condition and beverage condition were entered simultaneously into the model.

**Research Aim 2** was to examine the effects of alcohol intoxication and audience social norms on sexual aggression *intervention speed*. It was hypothesized that (1) participants would intervene faster in the prosocial, relative to the ambiguous, audience condition (*Hypothesis 2a*) and (2) the effect of audience social norms on intervention speed would be moderated by beverage condition, such that intoxicated, relative to sober, men will intervene faster in the prosocial, but not the ambiguous, audience (*Hypothesis 2b*). These hypotheses were examined by conducting a 2 (Audience Condition) x 2 (Beverage Condition) factorial ANOVA with intervention speed as the dependent variable. To test Hypothesis 2a, the main effect of audience condition was examined to determine the effect of audience condition on intervention speed while controlling for beverage condition. To test Hypothesis 2b, the Audience x Beverage interaction was examined to determine the moderating role of beverage condition on the relation between audience social norms and intervention speed.

**Exploratory Aim 1** was to examine the effect of alcohol intoxication and audience social norms on perceived barriers to sexual aggression intervention. It was predicted that (1) individuals in the prosocial, relative to those in the ambiguous, audience social norm condition would report fewer barriers to intervention across the decision-making model, and (2) intoxicated, relative to sober men, would report more barriers across the decision-making model. A higher percentage of participants intervened than expected (35 of 74) resulting in only 39 participants to analyze in this exploratory aim. A multivariate analysis of variance (MANOVA) was conducted to compare the (1) prosocial and ambiguous norm condition and (2) alcohol and no-alcohol control condition for all four perceived barriers to sexual aggression intervention.

## 4.5 Regression Analyses

### 4.5.1 Results of Research Aim 1

Audience social norm and beverage condition were regressed on intervention<sup>1</sup>. The regression model was not significant, Nagelkerke  $R^2 = .02$ ,  $p = .512$ , and no variables in the model were significant (see Table 4). Contrary to hypotheses, results of this analysis indicated that neither audience nor beverage condition predicted bystanders' likelihood of intervention.

*Table 4. Logistic Regression for the Moderating Effects of Audience Condition on the Relation between Beverage Condition and Intervention Likelihood*

	<i>B</i>	<i>S.E.</i>	<i>OR</i>	<i>95% CI</i>	<i>p</i>
Audience Condition	.43	.47	1.54	.61, 3.87	.357
Beverage Condition	-.33	.47	.72	.29, 1.81	.483

<sup>1</sup> Given the racially diverse sample, racial identity was initially entered as a covariate when testing all hypotheses. Racial identity was not associated with intervention likelihood or rate, and did not change the pattern of effects, and was thus removed from the final models.



### 4.5.2 Results of Research Aim 2

The first model included the audience social norm and beverage condition variables and was not significant,  $F(3, 70) = .72, p = .545$ ; and no variables in the model were significant. The second model included the audience social norm condition, beverage condition, and Audience x Beverage Condition variables. This model was also not significant,  $F(3, 70) = .78, p = .511$ . Findings demonstrated no main or interactive of beverage or audience social norm on intervention speed (see Table 5).

*Table 5. Factorial ANOVA for the Moderating Effects of Audience Condition on the Relation between Beverage Condition and Intervention Speed*

	<i>DF</i>	<i>F</i>	$\eta^2$	<i>p</i>
<b>Model 1</b>				
Audience Condition	1	.41	.006	.524
Beverage Condition	1	.34	.005	.562
Error	70			
<b>Model 2</b>				
Audience Condition	1	.26	.006	.526
Beverage Condition	1	.35	.005	.552
Audience x Beverage	1	.27	.004	.594
Error	70			

*Note:* Model 1:  $R^2 = .01$ ; Adjusted  $R^2 = -.017$ . Model 2:  $R^2 = .014$ ; Adjusted  $R^2 = -.028$ .

### 4.5.3 Results of Exploratory Aim 1

First, to test for homogeneity of variance matrices, the Box's M test value of 51.43 ( $p = .112$ ) was not significant, which confirmed that the covariance matrices between both group comparisons (i.e., alcohol vs sober; prosocial norm vs ambiguous norm) were assumed to be

equal (Hubert & Petoskey, 2000). The MANOVA effect for beverage condition, Wilks'  $\lambda = .91$ ,  $F(4, 33) = .79$ ,  $p = .531$ , and audience condition, Wilks'  $\lambda = .95$ ,  $F(4, 33) = .79$ ,  $p = .735$  was not significant. This suggested that participants randomly assigned to either beverage or audience condition did not report differences in any barrier to intervention.

#### 4.6 Exploratory Post Hoc Analyses

Although none of the *a priori* hypotheses were supported, it was deemed important to (1) test *Hypothesis 2* using a more advanced statistical technique that does not require transforming intervention time and (2) explore the possibility that bystander intentions might moderate the hypothesized alcohol effects. These post hoc analyses were pursued in service of elucidating the results obtained in the present study and to provide potential avenues for future research.

**A comparison of survival analyses.** In order to test Hypothesis 2, in which intervention speed was the outcome, a natural log transformation was used to correct for skewness. Although this significantly reduced the skew, transforming data can be problematic for two reasons: (1) interpretation of a transformed variable is problematic because the relationship among variables has changed (Osborne, 2002) and (2) it is possible to eliminate effects by using a transformed variable (Whelan, 2008). To this end, it was deemed appropriate to test Hypothesis 2 using an analysis that did not require transforming intervention speed. A continuous-time survival analysis was most appropriate to model this data. Survival analysis is a statistical method that was originally developed to analyze the occurrence of deaths (see Singer & Willett, 2003). This is a type of survival analysis that accounts for the possibility that participants who have not yet experienced the event of interest may do so in the future. In other words, this analysis accounts for the possibility that participants who did not intervene may have done so if given more time. Time can be measured in any unit, including seconds (Luke & Homan, 1998).

**Moderating effects of acute alcohol intoxication on the relation between bystander intentions and behavior.** In addition to increasing bystander behavior, bystander training programs aim to increase proxies of bystander behavior including one's willingness to intervene (i.e., intent) (Katz & Moore, 2013). This construct is supported by the Theory of Planned Behavior (Ajzen, 1991), which provides a framework for understanding the complexities of intervention behavior. This theory posits that an individual's behavior is preceded by one's intentions to perform the behavior and that intentions are a reflection of an individual's readiness to perform a behavior. Further, intentions are shaped by (1) the individual's attitude towards a behavior, (2) the subjective norms around performing a behavior, and (3) the individual's perceived behavioral control over performing the behavior. More specifically, individuals' attitudes toward the behavior refer to their appraisal of the positive or negative consequences of engaging in the behavior, and how strongly they value the presence or absence of those consequences. Subjective norms refer to an individual's perceptions of social pressure to perform or not perform the behavior. Perceived behavioral control refers to the ease or difficulty of performing the behavior. Theories have postulated that an intention to perform a behavior is the closest cognitive antecedent of behavioral performance (e.g., Fishbein & Ajzen, 1975; Gollwitzer, 1993; Triandis, 1977). Although there is a dearth of research examining the intention-behavior link for bystander intervention, meta-analyses examining diverse behavior domains report mean intention-behavior correlations ranging from .45 (Randall & Wolff, 1994) to .62 (van Den Putte, 1993).

Scholars posit that intent to help is an important mechanism of bystander intervention (Banyard & Moynihan, 2011). The limited empirical evidence that does exist suggests that bystander intentions play a role in bystander behavior. For example, a longitudinal study

demonstrated indirect effects of a bystander training program on bystander behavior through bystander intentions and bystander efficacy at various time points (McMahon et al., 2015). More often, however, bystander intentions are used as a proxy for bystander behavior (e.g., Bannon, Brosi, & Foubert, 2013; Elias-Lambert & Black, 2016; McMahon et al., 2011; Foubert, Brosi, & Bannon, 2011; Moynihan, Banyard, Arnold, Eckstein, & Stapleton, 2010), limiting our understanding of the intention-behavior link.

As previously reviewed, the pharmacological effects of alcohol may, in many cases, pose an additional barrier to intervention. For example, acute alcohol intoxication impairs higher order cognitive functioning, including working memory, problem solving, planning, set shifting, psychomotor speed, and response inhibition (Curtin & Fairchild, 2003; Giancola, 2000). Intoxicated bystanders who would be willing to intervene when sober may be less likely to determine how to intervene when intoxicated due to the impairing effects of alcohol.

The present study examined two situational level factors theorized to predict sexual aggression bystander behavior: audience social norms and alcohol intoxication. Post hoc analyses were not conducted to examine the moderating role of audience social norms on the relation between bystander intentions and bystander intervention for two reasons. First, no measures were provided to test how the confederates were perceived by participants and thus it is impossible to test if one condition was perceived as more prosocial than the other. Additionally, there was no fidelity check to ensure that confederates delivered their lines accurately. Conversely, administration of the beverage condition was conducted utilizing a strict protocol and BrAC levels verified that participants were intoxicated during the laboratory paradigm. Given the uncertainty of how well the audience social norms manipulation was executed compared to the beverage condition, it was deemed prudent to not advance any exploratory

analyses examining the effects of audience social norms condition on bystander intervention. Instead, the audience social norms variable was included as a covariate in all analyses.

Given the reviewed theoretical and empirical evidence, it was deemed appropriate to examine the moderating effects of alcohol on the relation between bystander intentions and bystander behavior. In the present study, bystanders had the opportunity to help a stranger, and thus it was hypothesized that alcohol would moderate the relation between self-reported intent to help strangers, but not self-reported intent to help friends, and bystander behavior. Specifically, intent to help strangers would be associated with bystander behavior among sober, but not intoxicated, men.

#### ***4.6.1 Intent to Help measure***

The 10-item Intent to Help Friends-Short Form and 8-item Intent to Help Strangers-Short Form (Banyard et al., 2014) are Likert-type scales that measure participants' intent to help friends and strangers, respectively, through active bystander behavior. Participants rate each item (e.g., "I talk with people I don't know about watching each other's drinks") on a 1 (*not at all likely*) to 5 scale (*extremely likely*). The mean across items was used as the total score, with higher scores indicating a greater likelihood of helping. These two measures demonstrated good reliability (Friends  $\alpha = .93$ ; Strangers  $\alpha = .94$ ), consistent with the present same (Friends  $\alpha = .88$ ; Strangers  $\alpha = .91$ ).

#### ***4.6.2 Analytic strategy and results***

##### ***4.6.2.1 A comparison of survival analyses***

A Cox proportional hazard (PH) model was used to examine the effects of alcohol intoxication and audience social norms on intervention speed. Data up until the time of censoring (end of the study) are used to calculate hazard ratios (HR). The proportional-hazards assumption

was satisfied ( $\chi^2 (4, 69) = 5.89, p = .207$ ) for the model. Audience condition, beverage condition, and their interaction were entered into the model. Consistent with results from the linear regression model, a proportional hazard model revealed no effects of audience ( $HR = .96, p = .930, 95\% CI = .34, 2.55$ ), beverage ( $HR = 1.40, p = .474, 95\% CI = .56, 3.47$ ), or the Audience x Beverage interaction ( $HR = .73, p = .645, 95\% CI = .19, 2.78$ ) on intervention speed.

#### ***4.6.2.2 Moderating effects of beverage condition on the relation between bystander intentions and behavior***

To examine the effects of bystander intentions and beverage condition on intervention likelihood and speed, a binary logistic regression and Cox PH model were used, respectively. In the binary logistic regression, audience condition was entered into Step 1 as a covariate, bystander intentions and beverage condition were entered into Step 2, and the Bystander Intentions x Beverage Condition interaction was entered into Step 3. Separate models were conducted for intent to help (1) friends and (2) strangers. In the Cox PH model, audience social norm condition, beverage condition, intent to help, and the Beverage Condition x Intent to Help interaction were included in the model. The proportional-hazards assumption was satisfied for both the intent to help strangers ( $\chi^2 (4, 69) = 5.89, p = .207$ ) and friends ( $\chi^2 (4, 69) = 3.20, p = .524$ ) models. Significant interactions were probed according to guidelines from Frazier, Tix, and Barron (2004).

**Intent to Help Strangers.** In the binary logistic regression for strangers, Step 1 (Nagelkerke  $R^2 = .02, p = .358$ ) and Step 2 (Nagelkerke  $R^2 = .04, p = .513$ ) were not significant and there were no significant main effects. In Step 3 (see Table 6), the model was significant Nagelkerke  $R^2 = .18, p = .032$ . A significant Intent to Help Strangers x Beverage Condition interaction ( $OR = .22, p = .007, 95\% CI = .08, .67$ ) was detected. Explication of this interaction

indicated that the relation between intent to help strangers and likelihood of intervention was significant and positive among sober men ( $OR = .40, p = .017, 95\% CI = .19, .85$ ) but non-significant among intoxicated men ( $OR = 1.77, p = .144, 95\% CI = .82, 3.84$ ). See Figure 3.

*Table 6. Logistic Regression for the Moderating Effects of Beverage Condition on the Relation between Intent to Help Strangers and Intervention Likelihood*

	<i>B</i>	<i>S.E.</i>	<i>OR</i>	<i>95% CI</i>	<i>p</i>
Model 1					
Audience Condition	.43	.47	1.54	.61, 3.85	.359
Model 2					
Audience Condition	.38	.48	1.49	.57, 3.71	.428
Intent to Help Strangers	-.24	.24	.79	.49, 1.27	.331
Beverage Condition	-.32	.47	.73	.29, 1.84	.504
Model 3					
Audience Condition	.66	.52	1.93	.70, 5.38	.205
Intent to Help Strangers	.57	.39	1.77	.82, 3.82	.144
Beverage Condition	-.36	.50	.70	.26, 1.87	.475
Intent to Help x Beverage	-1.50	.56	.22	.08, .67	.007

*Note:* Audience social norms condition: prosocial = 0, ambiguous = 1; Beverage condition: no-alcohol control = 0, alcohol = 1

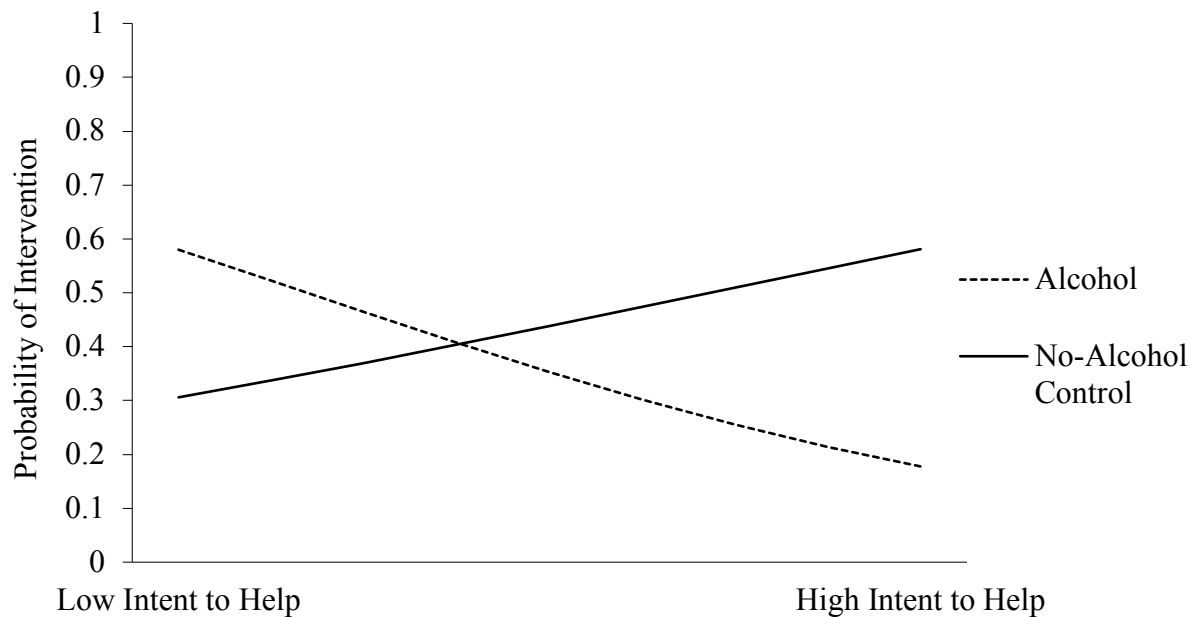


Figure 3. The moderating effects of intent to help strangers on the relation between beverage condition and intervention likelihood

For the Cox PH model for strangers (see Table 7), results indicated a conditional main effect of intent to help strangers ( $HR = .59, p = .031, 95\% CI = .37, .95$ ) that was qualified by a significant Intent to Help Strangers x Beverage Condition interaction ( $HR = .39, p = .007, 95\% CI = .19, .77$ ). Examination of these effects revealed that greater endorsement of intent to help corresponds to a significantly faster rate of intervention (i.e., lower hazard ratios) among men in the sober beverage norm condition ( $HR = .59, p = .031, 95\% CI = .37, .95$ ), relative to men in the alcohol beverage condition ( $HR = 1.53, p = .096, 95\% CI = .93, 2.52$ ). Additionally, hazard rates were plotted for the alcohol and sober beverage conditions at 1 *SD* above and below the mean of intent to help scores (see Figure 4). As depicted, the median hazard ratios (hazard ratio = .50) for each subgroup suggest that men low in intent to help in the sober condition had a median intervention rate of approximately 30 seconds, men high in intent to help in the sober



condition had a median intervention rate of approximately 80 seconds, and men high in intent to help in the alcohol condition had a median intervention rate of approximately 160 seconds. Men low in intent to help in the alcohol condition did not reach this hazard rate. The hazard ratios for sober men are initially smaller and decrease more rapidly for men low, compared to high, in intent to help. This pattern indicates that sober men with low intent to help intervened faster, although sober men with high and low intent to help become much more similar to each other around 3 minutes and 20 seconds into the film. Conversely, there is a marked difference between these hazard ratios among the intoxicated men who are high and low in intent to intervene. The hazard ratios for intoxicated men are initially similar; however, among intoxicated men high in intent to help, hazard ratios decreased more quickly. This pattern indicates that intoxicated men with high intent to help intervened faster compared to intoxicated men low in intent to help.

*Table 7. Hazard Model for Intent to Help Strangers*

	<i>HR</i>	<i>95% CI</i>	<i>p</i>
Audience Condition	.70	.35, 1.38	.299
ITH Strangers	.59	.37, .95	.031
Beverage Condition	1.34	.66, 2.71	.415
ITH Strangers x Beverage Condition	2.59	1.30, 5.17	.007

*Note:* ITH= Intent to Help; Audience social norms condition: prosocial = 0, ambiguous = 1;

Beverage condition: no-alcohol control = 0, alcohol =1

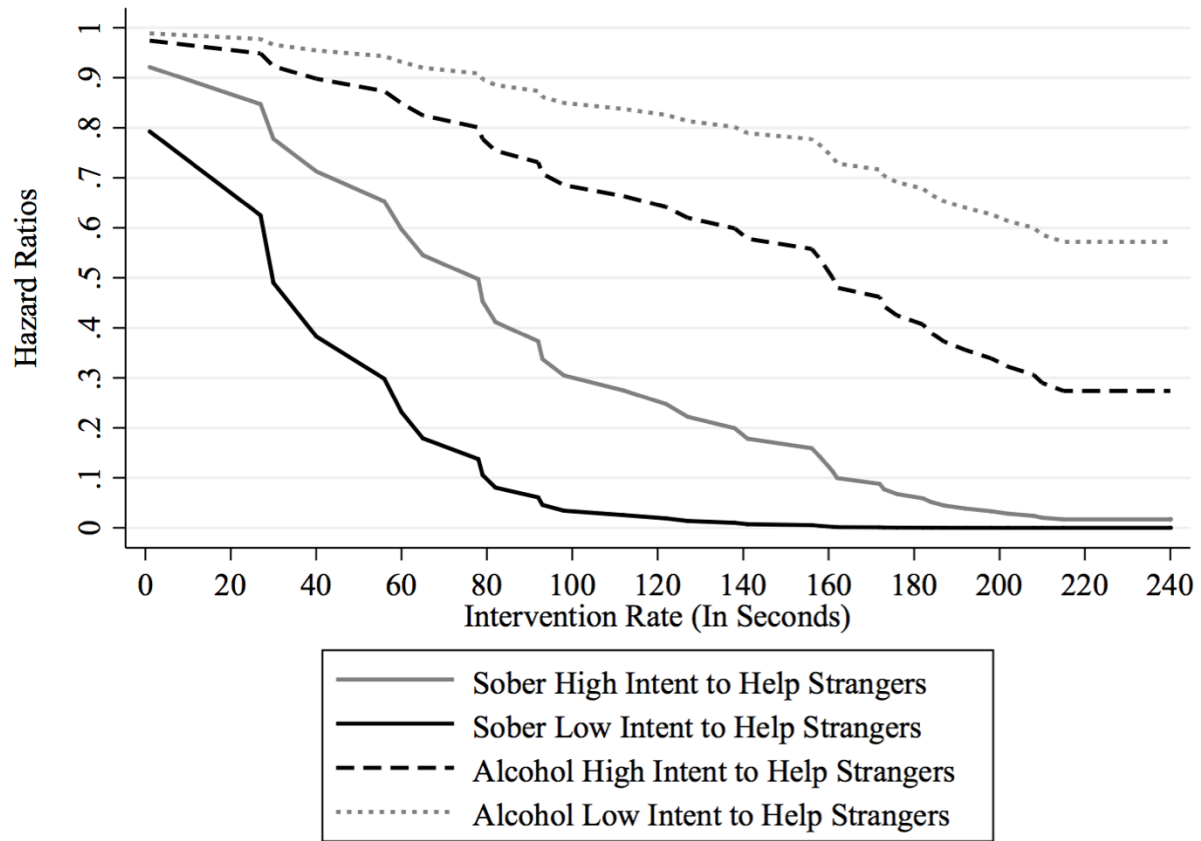


Figure 4. The moderating effects of beverage condition on the relation between intent to help strangers and intervention speed

Note: Higher intervention rate scores = slower intervention.

**Intent to Help Friends.** In the binary logistic regression for friends (see Table 8), Step 1 (Nagelkerke  $R^2 = .02$ ,  $p = .358$ ) and Step 2 (Nagelkerke  $R^2 = .08$ ,  $p = .187$ ) were not significant and there were no significant main effects. In Step 3, the model was marginally significant Nagelkerke  $R^2 = .15$ ,  $p = .068$ . There was a significant conditional main effect of intent to help friends on intervention likelihood ( $OR = 3.10$ ,  $p = .022$ , 95%  $CI = 1.18, 8.13$ ). There were no significant effects indicating that neither intent to help or beverage condition, or their interaction, predicted intervention likelihood.

*Table 8. Logistic Regression for the Moderating Effects of Intent to Help Friends on the Relation between Beverage Condition and Intervention Likelihood*

	<i>B</i>	<i>S.E.</i>	<i>OR</i>	<i>95% CI</i>	<i>p</i>
Model 1					
Audience Condition	.43	.47	1.54	.61, 3.85	.359
Model 2					
Audience Condition	.40	.48	1.49	.58, 3.82	.410
Intent to Help Friends	.48	.26	1.60	.95, 2.67	.076
Beverage Condition	-.38	.48	.69	.27, 1.77	.436
Model 3					
Audience Condition	.42	.50	1.52	.58, 4.02	.395
Intent to Help Friends	1.13	.50	.73	1.18, 8.13	.022
Beverage Condition	-.31	.50	.73	.28, 1.94	.734
Intent to Help x Beverage	-1.13	.60	.32	.10, 1.05	.061

*Note:* Audience social norms condition: prosocial = 0, ambiguous = 1; Beverage condition: no-alcohol control = 0, alcohol = 1

In the Cox PH model for friends (see Table 9), there were no significant effects were detected.

*Table 9. Hazard Model Results for Intent to Help Friends*

	<i>HR</i>	<i>95% CI</i>	<i>p</i>
Audience Condition	.87	.44, 1.70	.679
ITH Friends	1.02	.63, 1.65	.945
Beverage Condition	1.10	.54, 2.23	.788
ITH Friends x Beverage Condition	2.11	.96, 4.69	.063

*Note:* ITH= Intent to Help; Audience social norms condition: prosocial = 0, ambiguous = 1;

Beverage condition: no-alcohol control = 0, alcohol =1

## 5 DISCUSSION

The aim of the present investigation was to (1) test the interactive effects of acute alcohol intoxication and audience social norms on likelihood and speed of sexual aggression intervention and (2) examine perceived barriers for intervention. Given the dearth of research on alcohol and bystander intervention, the integrative theoretical framework from well-established bystander and alcohol theories advanced by Leone et al., (2017a) guided the hypotheses that (1) men in the prosocial, compared to ambiguous, audience norms condition would be *more* likely to intervene, (2) intoxicated, compared to sober, men would be *less* likely to intervene, (3) men would intervene *faster* in the prosocial, relative to ambiguous, audience condition, and (4) the effects of audience social norms on intervention speed would be moderated by beverage condition. Additionally, it was predicted that (1) men in the prosocial, relative to those in the ambiguous, audience condition would report *fewer* barriers to intervention across the decision-making model

and (2) intoxicated, relative to sober men, would report *more* barriers across the decision-making model. These hypotheses were not supported.

### **5.1 Do Prosocial Peers Influence Sexual Aggression Bystander Intervention?**

Prior research has identified peer norms as a determinant of bystander decision-making. For example, perceived peer attitudes towards sexual aggression are a significant prediction of one's willingness to intervene (Banyard & Moynihan, 2011; Brown & Messman-Moore, 2010). The non-significant audience findings in this study were perplexing and was likely due to the small sample size and lack of sufficient power for detecting an effect. The sample size recruited was based on a power analysis informed by prior research that suggests a large effect ( $r = .51$ ) of subjects' subjective level of intoxication on willingness to intervene in sexual aggression (Brown, personal communication) and a medium to large effect size ( $OR = 3.30$ ) of an audience manipulation of misogynistic peers on sexual aggression intervention (Leone et al., 2016). To this end, a medium effect ( $OR = 2.33$ ) was selected in the power analysis (power = .80). In retrospect, a more conservative effect size should have been used given the limited evidence base in this area. It is noteworthy that the effect size for audience condition in the binary logistic regression model was small ( $OR = 1.54$ ) and small-to-medium in the model examining the interactive effects of intent to help and acute alcohol intoxication on bystander intervention likelihood ( $OR = 1.93$ ). This suggests that there is a small effect of prosocial peers on bystander likelihood to intervene such that men exposed to peers that encourage intervention are more likely to intervene. Future research examining peer norms should consider a smaller effect size when determining sample size.

Despite these small-effect sizes, there are some methodological concerns that reduce confidence in the prosocial audience effects that merit discussion. First, the prosocial norm

manipulation may not have been strong enough to stimulate bystander behavior. It is unclear what dosage of prosocial statements is necessary to encourage intervention and how statements that contradict intervention impact decision-making. No measures were provided to examine how the confederates were perceived by participants in order to test perceived differences across audience conditions. Thus, it remains unclear if one condition was perceived as more prosocial than the other. Confederates in the prosocial audience script (see Appendix A) made clear statements disagreeing with the film that was selected based on the women's preferences (e.g., "...based on what she said she clearly isn't going to like it," "there's no way she'd want to watch that, she clearly said she didn't like that kind of stuff"); however, there was no fidelity check to ensure these lines were delivered with consistent fervor across participants. Second, there was no fidelity check to ensure that confederates delivered their lines accurately. Participants' verbal engagement with confederates may have made it difficult to deliver the audience social norms manipulation and thus negatively impacted the validity of the manipulation.

Interpretation of null findings should be considered tentative; however, there is reason to suspect that prosocial peers may not influence bystander behavior to the extent previously thought. Empirical evidence examining the influence of peer norms on sexual aggression intervention has overwhelmingly measured bystander *intentions* as a proxy for *behavior* (Brown & Messman-Moore, 2010; Banyard & Moynihan, 2011; Fabiano et al., 2003; Stein, 2007) thereby limiting our understanding of the peer norm-bystander behavior relationship. Intentions often predict behavior (Ajzen, 1991), yet research examining this relationship in the bystander literature has resulted in equivocal findings (e.g., McMahon et al., 2014; Murphy et al., 2016). Only two studies have examined peer norms and bystander behavior. One experimental study demonstrated that misogynistic peer norms decrease bystander behavior among men (Leone et

al., 2017b). These findings highlight the inhibiting effects of misogynistic peers on bystander intervention; however, it may be erroneous to assume that prosocial peers will have the reverse effect and encourage behavior based on these findings alone. Using cross-sectional data, Brown, Banyard, & Moynihan (2014) demonstrated that perceived prosocial peer norms positively predicted willingness to intervene, but not bystander behavior. Collectively, this evidence, coupled with the present investigation, suggest that while peer norms that support sexual aggression negatively impact bystander behavior (Banyard & Moynihan, 2011; Brown, Banyard, & Moynihan, 2014; Leone et al. 2017b), prosocial peer norms may not be enough to tip the needle towards intervention for men and promote intervention. In this regard, these null findings may have important intervention implication, but more research is needed to confirm these effects and determine what, if anything, peers can do to encourage others to directly intervene.

## **5.2 Understanding the Effects of Intent to Help and Acute Alcohol Intoxication**

Acute alcohol intoxication did not independently influence men's likelihood of intervention. This is surprising due to extant research that suggests that heavy drinking, compared to non-heavy drinking, men are less willing to intervene in sexual aggression (Orchowski et al., 2015) and that heavy drinking is associated with a lower likelihood of sexual aggression intervention (Fleming & Wierma-Mosley, 2015). However, post hoc analyses provide evidence that the acute effects of alcohol alone do not hinder intervention; drinking appears to only impede behavior among men who self-report a willingness to intervene when they witness sexual aggression.

Indeed, intent to help strangers, but not friends, interacts with acute alcohol intoxication to predict sexual aggression intervention. Specifically, intent to help is associated with a greater likelihood of sexual aggression intervention among sober, but not intoxicated, men. This finding

is consistent with the Theory of Planned Behavior (Ajzen, 1991) that posits an individual's behavior is preceded by intent to perform the behavior and that intentions are a reflection of an individual's readiness to perform a behavior. Men who reported intent to intervene appear to also be prepared to take action when provided the opportunity to intervene in sexual aggression.

These findings also suggest that acute alcohol intoxication decreases high intent to help men's likelihood of intervention. Put another way, *high intent to help men appear to be most susceptible to the inhibiting effects of alcohol*. Participants may have been more likely to have missed sexually aggressive risk-cues in the study due to inattentional blindness (Clifasefi et al., 2006), directions on how to intervene due to mind-wondering (Sayette et al., 2009), or difficulty holding directions on how to intervene in working memory during the laboratory paradigm (*Step 1*). Intoxicated men may also be inapt at interpreting the situation as high-risk due to their difficulty interpreting women's affective cues (*Step 2*) (Abbey et al., 2010). For example, participants' may have interpreted the female confederate's behavior as "flirty" when she accidentally entered the participants room and thus ignored her prior report that she did not like sexually explicit media content. Relatedly, although the female confederate's face remained neutral throughout the four-minute film and a bogus measure of galvanic skin response indicated she was uncomfortable, participants may have projected certain emotions of pleasure due to alcohol expectancies that alcohol makes women more sexual (Abbey et al., 1999). Additionally, acute alcohol intoxication may have narrowed attentional focus towards the presence of others who were also potential bystanders, thereby diffusing one's responsibility to intervene (*Step 3*). Finally, although men with a high intent to help are capable of intervening when sober, alcohol may make it difficult for them to decide how to help (*Step 4*) when inebriated due to impairments in cognitive functioning (Curtin & Fairchild, 2003; Giancola, 2000).



In the present study, all confederates were ostensibly intoxicated, and the participants were either intoxicated or sober. Alcohol is known to be a social lubricant and may have prompted social bonding and improved interpersonal interactions (de Visser, Wheeler, Abraham, & Smith, 2013; Fairbairn, Sayette, Aalen, & Frigessi, 2015; Monahan & Lannutti, 2000). Intoxicated men likely bonded more with the confederates in their experimental room, compared to the female target watching the film. This led to a narrowed focus on maintaining a positive interaction with their peers at the expense of intervention and being negatively evaluated by their peers (*Step 5*). Conversely, among sober men, men may have appraised the ostensibly intoxicated confederates as more bonded given their drinking status and had difficulty connecting socially, leading to fewer fears about audience inhibition. Of course, these conclusions are tentative, and more research is needed to understand the role of social bonding in alcohol-related sexual aggression intervention.

Intent to help does appear to predict intoxicated men's intervention rate, albeit these men are still markedly slower at intervening relative to sober men. Specifically, hazard ratios from the Cox PH model that take into account if and when sexual aggression intervention occurs indicate that (1) sober men low in intent to help intervened the fastest followed by sober high intent to help men, and (2) intoxicated men with high intent to help intervened faster than those low in intent to help, who had the slowest intervention rate. In other words, among intoxicated men, those high in intent to help intervened *faster* than those lower in intent to help, but still slower than sober men. Considering that alcohol intoxication preceded any anxiogenic cues in this study (i.e., bystander presence, opportunity to intervene), alcohol likely disrupted the appraisal of these cues as threatening (see Sayette, 1993), providing one "liquid courage" to intervene. These men may also have intervened faster than their low intent to help counterparts because if

intervention does have socially undesirable outcomes, men can blame their actions on alcohol (van Bommel et al., 2016). It is imperative to reiterate that intoxicated men still intervened at a slower rate than sober men. Acute alcohol intoxication impairs higher order cognitive functioning including working memory, problem solving, planning, set shifting, psychomotor speed, and response inhibition (Curtin & Fairchild, 2003; Giancola, 2000). Although these men may not experience barriers related to the social consequences of intervention, they still are slowed by these aforementioned effects of alcohol that interfere with their ability to quickly help.

Among sober men, those with high intent to intervene *slower* than those with low intent to intervene. It may be that these men who want to help, take longer to navigate a safe and effective plan to help. For example, in this particular study, participants may have attempted to elicit other's agreement in intervening to have "safety in numbers." High intent to help men, who are more likely to intervene, may have confidence that they are able to intervene in sexual aggression if and when they have an opportunity, however, they may not be fully equipped with the skills needed to quickly navigate intervention ergo decreasing their rate of intervention.

### **5.3 Barriers to Bystander Intervention**

Findings provide preliminary evidence that alcohol intoxication may pose an additional barrier to intervention among high intent to help men; however, it is unclear from the present investigation which, if any, stage of the decision-making model is most susceptible to the impairing effects of alcohol. Indeed, results from the Adapted Bystander Barrier Scale provided limited insight into barriers for intervention. Based on prior research using the same laboratory analogue for sexual aggression bystander intervention (Leone et al., 2017b), it was expected that approximately 75% of men would not intervene to prevent sexual aggression; however, 50% of men intervened and thus limited the sample size available to examine barriers to intervention.

Additionally, the items from the Bystander Barrier Scale (Burn, 2009) were modified to correspond with the laboratory analogue and, although reviewed by experts in the field, may not fully capture barriers experienced by participants.

#### **5.4 Limitations**

Several limitations warrant discussion. First, bystander behavior was operationalized as whether, and how quickly, participants intervene in a female's unwanted sexual experience by stopping a video. This measured one method of direct sexual aggression intervention; however, bystanders engage in a myriad of behaviors when witnessing sexual aggression. Bystanders can (1) do nothing, (2) intervene to extricate the victim from the risky sexual situation, or (3) contribute to the negative event. Bystanders can use direct (e.g., asking the victim if she is okay) or indirect (e.g., asking others to help, distraction, humor) methods to intervene that are non-aggressive or aggressive (Parks, Osgood, Felson, Wells, & Graham, 2013). In addition to helping, bystanders may participate in the situation by engaging in sexual aggression themselves or perpetuating a perpetrator's behavior by encouraging their actions (e.g., documenting sexual aggression via social media). Further, men report greater intent to confront perpetrators whereas women report a greater intent to help the victim (Bennett, Banyard, & Edwards, 2017). However, the present study did not measure intervention behaviors in which participants attempted to confront the confederates who selected the sexually explicit film. It is plausible that participants confronted the confederate verbally about his decision to subject the woman to the film and took action that, albeit did not successfully stop a sexually aggressive act, would be considered bystander behavior.

Second, the victim and other ostensible bystanders were all strangers. Prior research indicates that the relationship between a bystander and the victim, perpetrator, and other

bystanders differentially predicts intervention (Bennett et al., 2014; Katz, Paziienza, Olin, & Rich, 2015; Nicksa, 2014). Additionally, all confederates in the study were intoxicated, and it remains unclear how findings would differ if the drinking status of bystanders varied or was ambiguous to participants. Thus, these null peer norm findings may not extend to situations in which bystanders have prior relationships with peers or mixed drinking status groups. Next, as previously discussed, there was no fidelity check for the audience social norm manipulation. Fourth, as previously noted, there was lack of sufficient power for the hypothesized effects due to the small sample size. Further the small sample of non-intervenor limited the ability to test barriers to intervention. Finally, the present findings are based on a racially diverse community sample of socially drinking men and may not be generalizable to other populations including women. Indeed, prior research has indicated a nuanced relationship between gender, race, and year in college and peer norms and bystander actions (Brown, Banyard, & Moynihan, 2014) highlighting the need for differences across demographic factors to be explored in future research.

## **5.5 Research Implications and Future Directions**

In many ways, results from the present study offer more questions than answers. More research is needed to examine corollaries of acute alcohol intoxication on bystander behavior among individuals who, when sober, would likely intervene. Alcohol's effect on behavior varies as a function of dispositional and situational level factors (e.g., Crane, Godleski, Przybyla, Schlauch, & Testa, 2016; George & Stoner, 2010; Parrott & Eckhardt, 2018) and understanding who is most at risk of not intervening when witnessing sexual aggression will help target these individuals in bystander training programs. The present study only examined one individual level factor, intent to help, however myriad predictors of bystander behavior have been identified (for

a review, see Labhardt et al., 2017). Further, other situational-risk factors influence intervention, including interpersonal relationships of parties involved (Bennett et al., 2014; Katz et al., 2015; Nicksa, 2014) and should be considered in future work.

Extant research has only examined the distal effects of alcohol on bystander willingness to intervene (Fleming & Wiersma-Mosley, 2015; Orchowski et al., 2015) limiting our understanding of how alcohol intoxication impacts intervention behavior. The present findings extend this small literature and provides support for the inhibiting effects of acute alcohol intoxication on sexual aggression intervention. Importantly, however, the current measure of bystander barriers was unable to elucidate where alcohol posed the greatest barrier. Identifying underlying mechanisms of this relationship and continuing to examine the proximal effects of acute alcohol intoxication on bystander intervention is paramount to understanding how, and when, bystander behavior is impaired.

Methodologically, the present laboratory paradigm for sexual aggression bystander intervention could be modified and extended in future research. The female confederate remained neutral to standardize her emotional reaction while watching the video and her level of distress was presented to participants via her “galvanic skin conductance.” Prior research demonstrates a reciprocal relationship between sexual victimization and sexual assertiveness such that women who are victimized are more likely to have difficulty refusing sexual advances and more vulnerable to future victimization (Livingston, Testa, & VanZile-Tamsen, 2007). Thus, a lack of emotional reaction indicating disinterest in the present study is consistent with prior research of victimization responses; however, future research should consider how victim cues may enhance intervention. For example, varying the emotional reaction of the female confederate and including overt cues of disinterest may encourage intervention among sober, but

not intoxicated men due to difficulty interpreting affective cues (e.g., Abbey et al., 2010).

Additionally, qualitative data could also be collected in the form of participant statements made to the confederates to further explore bystander decision-making.

The methodology used in the present study was challenging to execute, and future research should consider multiple methods to assess the proximal effects of alcohol on bystander decision-making and behavior. Qualitative research can be used to understand what prevents intoxicated bystanders from intervening and identify potential new barriers not conceptualized in the current integrative framework for intoxicated sexual aggressive intervention (Leone et al., 2017a). Self-report measures could be developed that capture whether bystanders were intoxicated while witnessing and intervening in sexual aggression. Intensive longitudinal methods can be used to measure how often intoxicated bystanders recognize risky sexual aggressive situations, whether they intervene, and what barriers resulted in missed opportunities.

One major disadvantage of self-report longitudinal studies merits discussion. Given the absence of any prior longitudinal research in this area, it is unclear if participants will have opportunities to intervene in a given study's timeframe. If the opportunities are limited, then such studies would have limited utility. Indeed, victims of sexual assault report a bystander was present in only 18% of cases (Hamby et al., 2016); although this study does not account for situations in which successful intervention occurred. Virtual reality paradigms (Jouriles et al., 2016) and vignettes (Davis et al., 2012) can assure participants have an opportunity to intervene and provide researchers the ability to manipulate situational factors and control levels of intoxication. Further, virtual reality paradigms offer the ability to measure a range of behaviors in a naturalistic setting that proceed sexually aggressive behavior difficult to assess using other modalities. Participants can witness and intervene in escalating sexually aggressive behavior and

have a range of behavioral responses. Given the early stages of this research, complimenting self-report measures with laboratory-based methods that ensure participants have an opportunity to intervene and are less susceptible to reporting biases would maximize the likelihood that strong, internally valid conclusions can be drawn.

## **5.6 Programming Implications**

At the nexus of the discussion of alcohol and bystander intervention is the likely reality that intoxicated bystanders are most likely to witness sexual aggression, and least likely to intervene due to the impairing effects of acute alcohol intoxication (Leone et al., 2017a). The present findings support the hypothesis that intoxicated bystanders are less likely to engage in bystander behavior than sober bystanders when taking into account men's intent to help. To this end, current training programs that aim to increase bystander's intent to intervene may have little impact on the intoxicated bystander. Below, potential solutions to increase bystander intervention in drinking contexts are discussed; however, given the dearth of research exploring the link between acute alcohol intoxication and bystander behavior, the following implication should be considered tentative.

One strategy to target this high-risk group is for bystander training programs to also target alcohol use to circumvent the risk of bystanders witnessing sexual aggression while intoxicated. Web-based bystander trainings could easily integrate brief alcohol interventions that provide personalized feedback of drinking and related consequences, alcohol expectancies, and the theorized effects of alcohol on intervention behavior using the spirit of motivational interviewing (e.g., Dimeff et al., 1999; Rollnick & Miller, 1995). Current web-based interventions which promote prosocial bystander behavior target alcohol's role in sexual aggression (e.g., Salazar et al., 2014), but do not aim to decrease bystander's alcohol use. Prior

research has successfully integrated web-based brief interventions for alcohol use and sexual assault risk for high risk college women (Gilmore, Lewis, & George, 2015) and can provide a foundation for how alcohol may be targeted among potential high-risk bystanders through the use of personalized feedback.

In-person trainings should consider small group formats to promote awareness of the influence of alcohol and encourage problem solving strategies to compensate for deleterious effects of alcohol. Moreover, protective behavioral strategies when drinking (e.g., avoiding drinking games, putting extra ice in cup; Martens et al., 2005) should be elicited from participants and provided to help decrease heavy episodic drinking through the lens of how this impacts bystander intervention. Bystanders who have good intentions to intervene may have difficulty doing so when intoxicated, and thus psychoeducation may be fruitful in preventing heavy drinking in high-risk contexts.

Prevention works when efforts are appropriately timed to have an impact on the development of a problem behavior (Nation et al., 2003), and thus those who have not yet matriculated into college may benefit most from programming efforts that also target alcohol use in an age appropriate manner. Brief interventions to target alcohol use could similarly be incorporated and have demonstrated small, but significant, effects for adolescent populations that persist a year after programming (for a review, see Jensen et al., 2011; Tanner-Smith & Lipsey, 2015). Integrated alcohol use and bystander training programs may be particularly effective for high-risk populations who are most likely to engage in heavy drinking on college campus and frequent bars or parties (e.g., fraternities, athletic teams) (e.g., Harford, Wechsler, Seibring, 2002; Turrise et al., 2007). Similarly, military efforts to curb sexual assault may benefit from integrating alcohol education and reduction into bystander training programs. For example, U.S.



Air Force bystander training programs already include components that focus on how alcohol lowers inhibitions of perpetrators and compromises judgment (Gedney, Wood, Lundahl, & Butters, 2016), but neglect how bystanders themselves are influenced by alcohol use.

In addition to efforts aimed at reducing heavy episodic drinking, bystander training programs should foster a discussion on alternative strategies that intoxicated bystanders can use when attempting to help victims. Educating bystanders on the impairing effects of alcohol and providing strategies to intervene when consuming alcohol can equip bystanders to recognize their limitations and find simple ways to compensate. For example, designated drivers in a group of friends may also adopt the role of watching for high-risk sexual situations and intervening when necessary given the known limitations of their intoxicated friends. An intoxicated bystander concerned about a high-risk situation may text their sober friend to intervene, rather than doing so themselves. Friends having explicit conversations around this role may help build confidence and responsibility of sober bystanders in drinking situations. Although not directly addressed in this study, it is also plausible that the inhibiting effects of alcohol may prompt bystanders to intervene using methods that would put their own safety at risk. Programming efforts should consider teaching intervention skills through the lens of an intoxicated bystander. At the community level, Cornell University's student led independent organization, *Cayuga's Watchers*, aims to provide free supervision and bystander intervention for risky drinking at campus events (Cayuga's Watchers, 2015). The organization sends trained sober "watchers" at the request of event hosts who socialize as ostensible party guests and intervene in risky events, including sexual aggression, when needed. This program has yet to be empirically evaluated but shows promise and could be implemented on other college campus to curb alcohol-related sexual assault.

Beyond bystander training programs, communities should consider what can be done to prevent alcohol-related sexual aggression. Lippy and DeGue (2016) identified and reviewed six key alcohol policies that have the potential to reduce sexual aggression: alcohol price, sale time, alcohol outlet density, drinking environment, marketing, and college policies. Modifying these policies has the potential to target both individual and community-level risk factors. For example, research has demonstrated that higher alcohol prices and taxes at the state level were associated with lower rates of sexual assault (e.g., Desimone, 2001; Zimmerman & Benson, 2007). Additionally, there were fewer reports of sexual victimization by students who lived in alcohol and tobacco free housing compared to unrestricted dorms or Greek housing (Wechsler, Lee, Nelson, & Kuo, 2002). Although bystanders can play a role in prevention, communities should take responsibility to make changes to an environment that contributes to alcohol-facilitated sexual aggression.

## **5.7 Conclusions**

This was the first study to examine the independent and joint effects of audience social norms and acute alcohol intoxication on sexual aggression bystander intervention. The primary hypotheses were not supported; however, post hoc findings provide insight into how men who report a willingness to engage in sexual aggression intervention are inhibited from intervening when intoxicated. Bystander training programs that aim to prepare bystanders to help in high-risk situations and increase bystander's confidence may prove futile if they do not consider the role of alcohol. Indeed, many bystanders are likely to be intoxicated at bars and parties where sexual aggression frequently occurs (Flack et al., 2007; Graham et al., 2017, Graham et al., 2014) underscoring the urgent need for programming efforts to address intoxicated bystanders.

Two studies that demonstrated (1) patrons increasingly tipped more at bars as they consumed more alcohol (Lynn, 1988) and (2) participants who consumed alcohol were more likely to continue a mundane task when asked by an experimenter than those who did not (Steele, Critchlow, & Liu, 1985), led Steele and Josephs (1990) to reference Shakespeare when they concluded that “alcohol is apparently a milk of human kindness.” Alcohol intoxication may increase helping behavior in some contexts (Lynn, 1988; Steele et al., 1985; van Bommel et al., 2016), but appears to decrease the likelihood of sexual aggression intervention among intoxicated men who have good intentions to help. Tipping generously at a bar is a situation in which no one is at risk of harm and that poses little social risk to the tipper. This situation is qualitatively different from sexual aggression intervention. Indeed, sexual aggression intervention includes complex decision-making in which one must evaluate a situation and decide if and how to help. Intervention can have repercussions for bystanders including symptoms of posttraumatic stress (Witte, Casper, Hackman & Mulla, 2017) and can be challenging to execute, which may prove too difficult under conditions of intoxication. It is not surprising that alcohol decreases sexual aggression intervention, and, in this regard, alcohol is not the milk of human kindness, but rather “too much of a good thing,” (Shakespeare, 1914).

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### APPENDIX: AUDIENCE SOCIAL NORM SCRIPTS

*Four confederates (two males, two females) enter participants' individual testing room. A few moments after they are seated, a fifth confederate (a female) "accidentally" enters the doorway of the testing room and remain standing. She will not physically enter the room.*

Prosocial Audience Condition	Ambiguous Audience Condition
Confederate 3 (Female): Do you all know how long this is supposed to last?	Confederate 3 (Female): Do you all know how long this is supposed to last?
Confederate 2 (Male): I think an hour.	Confederate 2 (Male): I think an hour.
<i>Female confederate opens the door.</i>	<i>Female confederate opens the door.</i>
Female Confederate: Am I supposed to be in here? Do y'all know?	Female Confederate: Am I supposed to be in here? Do y'all know?
Confederate 1 (Male): No, I think you were supposed to stay in your room.	Confederate 1 (Male): No, I think you were supposed to stay in your room.
Female Confederate: Oops, sorry!	Female Confederate: Oops, sorry!
<i>(Female confederate leaves the room and closes the door)</i>	<i>(Female confederate leaves the room and closes the door)</i>
Confederate 1 (Male): Man, that girl looks just like my roommate's sister.	Confederate 1 (Male): Man, that girl looks just like my roommate's sister.
Confederate 2 (Male): Oh yeah?	Confederate 2 (Male): Oh yeah?
Confederate 3 (Female): (laughs) Are you sure it isn't your roommate's sister?	Confederate 3 (Female): (laughs) Are you sure it isn't your roommate's sister?
Confederate 1 (Male): No no, she goes to some culinary institute. If she's anything like	Confederate 1 (Male): No no, she goes to some culinary institute. If she's anything like

my roommate's sister, she'll like the food clip I picked to show her.	my roommate's sister, she'll like the food clip I picked to show her.
Confederate 3 (Female): Yeah, I picked that one too. She'll like that one.	Confederate 3 (Female): Yeah, I picked that one too. She'll like that one.
Confederate 4 (Female): Yeah, me too.	Confederate 4 (Female): Yeah, me too.
Confederate 2 (Male): Oh, I didn't, I picked the sex one.	Confederate 2 (Male): Oh, I didn't, I picked the sex one.
Confederate 1 (Male): Really? Well, don't you remember what her profile said? She said she doesn't want to watch that kind of stuff. I don't want her to be uncomfortable, it's not right to do that. So I picked the food clip.	Confederate 1 (Male): Really? Well, I thought the food clip was just a better clip. That's why I picked it.
Confederate 2 (Male): Well, I guess we'll have to agree to disagree.	Confederate 2 (Male): Well, I guess we'll have to agree to disagree.
Confederate 1 (Male): Well, I guess you disagree with all of us, right? [ <i>looking at the female confederates</i> ] What would you think?	Confederate 1 (Male): Well, I guess you disagree with all of us, right? [ <i>looking at the female confederates</i> ] What would you think?
Confederate 3 (Female): [ <i>nodding in agreement</i> ] Yep. I don't think it's right to show her that.	Confederate 3 (Female): [ <i>nodding in agreement</i> ] Well, the sex one looks fine. But the food clip was just a better quality clip.
Confederate 4 (Female): [ <i>nods in agreement</i> ]	Confederate 4 (Female): [ <i>nods in agreement</i> ]
Confederate 2 (Male): [ <i>shrugs his shoulders</i> ]	Confederate 2 (Male): [ <i>shrugs his shoulders</i> ]