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Alcohol Intoxication Impairs the Bystander Intervention Process in a Hypothetical Sexual Assault: A Field Investigation

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Abstract

Objective: High rates of alcohol-related sexual assault among young adults represent a significant public health problem. Bystander intervention programs are a promising strategy to reduce sexual assault incidence. However, little is known about how bystander intoxication may modify bystander intervention effectiveness. We examined the role of bystander intoxication and intoxication levels of the hypothetical victim and perpetrator on outcomes associated with Latané and Darley's (1970) steps of bystander intervention, which include noticing a situation, assessment of risk and need for intervention, taking personal responsibility for intervening, and selecting an intervention.

Method: In a field setting, participants were recruited from a downtown area surrounded by several drinking establishments. After providing informed consent, 327 participants (45% women) ages 21 – 29 years listened to one of four sexual assault vignettes (varied by victim and perpetrator intoxication), responded to questionnaires assessing outcomes related to steps of bystander intervention, and completed a field breathalyzer test to measure intoxication level.

Results: We found that increased participant intoxication was related to decreased accuracy of situation recall and assessment of risk and need for intervention, but not ratings of personal responsibility to intervene, chosen intervention strategy, or confidence to intervene.

Conclusions: Intoxication could influence how a bystander interprets a hypothetical nonconsensual sexual interaction at the level of accurate situation recall and risk assessment. If the early steps of information processing are impaired by intoxication, later steps of intervention enactment may not occur successfully. Bystander intervention programming may consider incorporating training to overcome the impairing effects of intoxication for identifying harmful situations and choosing to intervene.

Keywords

Bystander intervention; sexual assault; alcohol intoxication; field setting

Sexual assault is highly prevalent and associated with significant adverse consequences. Approximately 44% of adult women and 23% of adult men report being the victim of sexual violence in their lifetime, which includes unwanted sexual contact, unwanted sexual experiences, sexual coercion, noncontact unwanted sexual experiences, and forced penetration according to a large nationally representative sample (Breiding, Smith, Basile, Walters, Chen, & Merrick, 2015). Survivors of sexual assault report higher rates of psychological, academic, and social problems compared with nonvictims (Au, Dickstein, Comer, Salters-Pedneault, & Litz, 2013; Ullman, 2016). Sexual assault commonly occurs in social drinking contexts, with approximately 50% of reported sexual assaults including alcohol use by the victim, perpetrator, or both (Abbey, 2002). In such contexts, bystanders are often present and witness pre-assault risk behaviors (Hoxmeier, Flay, & Acock, 2018). Several bystander intervention programs aim to reduce sexual assault, but may have limited effectiveness because they do not consider the role of bystander intoxication on intervention (DeGue et al., 2014; Leone, Haikalis, Parrott, & DiLillo, 2018). Research examining the effects of alcohol intoxication on bystanders is limited (Leone et al., 2018); thus, the current study examined the extent that bystander intoxication interferes with one's ability to notice a situation, appraise risk, and decide to intervene in a sexual assault scenario. We also examined how victim and perpetrator intoxication may further modify bystander intervention.

Bystander Intervention for Sexual Assault

Bystanders are people who witness an event and may be able to prevent a dangerous situation from occurring or continuing. Bystanders are present in as many as 23–40% of sexual assaults among community sample of young adult women (Haikalis, Leone, Parrott, & DiLillo, 2018; Hoxmeier et al., 2018). Given the rates of bystanders witnessing sexual assault, bystander intervention represents an important avenue for reducing sexual assault occurrence. Bystander intervention programs promote third-party interference when witnessing sexual assault or potential risk factors for sexual assault. In accordance with traditional bystander intervention models, bystanders must (1) notice the situation as it occurs, (2) identify the situation as dangerous and in need of intervention, (3) identify their own degree of responsibility for intervening, (4) choose a behavior to enact, and finally, (5) decide to intervene (Latané & Darley, 1970).

Effective bystander intervention requires the successful completion of these steps. Burn (2009) found that impairments in processing earlier steps of the bystander intervention model were associated with decreased intervention intentions in a hypothetical sexual assault scenario. Further, ambiguity about the level of risk present for the victim was a barrier to intervening (Pugh, Ningard, Ven, & Butler, 2016). Thus, if the processing of any step is impaired, bystander assistance may not occur. Although Latané and Darley's (1970) model provides a framework for understanding bystander intervention broadly, it does not account for individual and contextual differences that may influence bystander intervention in a sexual assault scenario (Banyard, 2015; Zinzow et al., 2018).

Alcohol's Influence on Bystander Intervention

Alcohol's psychological and physiological effects could interfere with each step of bystander intervention. One's expectations regarding the effects of alcohol (e.g., enhanced sociability or sexuality), or alcohol expectancies, are associated with increased hazardous drinking, risky sexual behavior, and sexual assault perpetration (Abbey, 2011; Monk & Heim, 2013). Further, many young adults expect alcohol to facilitate sexual activity and view social drinking contexts as places to meet sexual partners (e.g., Corbin, Scott, & Treat, 2016; Lindgren, Patalone, Lewis, & George, 2009), which could reduce the likelihood that they identify a sexual interaction as nonconsensual in such contexts. Alcohol's physiological effects on attention could also influence a potential bystander's response to a sexual assault.

Alcohol myopia theory describes the attention altering effects of alcohol resulting in a narrowed focus of attention to the most immediate and salient cues (Steele & Josephs, 1990). Leone et al. (2018) introduced an integrative framework for understanding how the myopic effects of alcohol interact with socio-contextual factors to create barriers at each step of bystander intervention. First, bystanders may not notice sexual assault risk factors due to narrowed attentional focus on more salient information when intoxicated (Step 1). Intoxicated bystanders may not accurately appraise a situation as dangerous and in need of intervention (Step 2), as alcohol can impair the processing of risk cues for hypothetical sexual assault scenarios (for a review, see Melkonian & Ham, 2018). Barriers to taking responsibility to intervene (Step 3) when intoxicated include increased focus on the presence of other potential bystanders. Alcohol's effects on decision-making ability can also lead to the selection of ineffective intervention strategies (e.g., passive responding; Norris et al., 2006), posing a barrier to choose a behavior to enact (Step 4). Finally, barriers to enacting the selected intervention (Step 5) when intoxicated include enhanced attention on negative evaluation from peers for intervening.

Taken together, this theoretical framework provides structure for understanding how bystander intoxication can impede intervention; however, research examining this association is lacking. An exception is recent work by Ham, Wiersma-Mosley, Wolkowicz, Jozkowski, Bridges, and Melkonian (2019), which found potential bystanders who were administered alcohol in an experiment recalled aspects of a sexual assault vignette less accurately and appraised the situation as less risky but did not differ in later steps of bystander intervention, compared with those in a non-alcohol control condition. Using a sexual aggression laboratory analogue, Leone and Parrott (2019) found that alcohol intoxication reduced male bystanders' likelihood and speed of intervention (stopping a sexually explicit film that the female confederate does not want to view), but only for men who reported higher intentions to help.

Situational and individual variables may also influence bystander intervention, such as whether the perpetrator or victim are intoxicated. Parks and colleagues (2013) found that bystanders observed in bar settings were more likely to intervene in non-sexual aggression situations when the individuals involved in the conflict were intoxicated versus sober. However, findings from interviews with college students suggest some ascribe blame to an intoxicated victim and perceived them as less worthy of intervention, while others reported

increased intentions to intervene if there were differences in intoxication levels between victim and perpetrator (Pugh et al., 2016). In Ham et al.'s (2019) work examining bystander alcohol intoxication, the perpetrator was described as sober and the victim as intoxicated. It is not clear how bystander intoxication may interact with the intoxication of the perpetrator and victim in a sexual assault situation relative to bystander intervention steps.

Finally, Leone et al. (2018) recommended examining gender differences in the context of bystander intervention. The bystander's gender may interact with situational variables, such as intoxication of a victim or perpetrator, to promote or inhibit intervention in a sexual assault. Katz and Nguyen (2016) found that women were more likely than men to report intentions to intervene in a hypothetical scenario involving an intoxicated female victim and sober male perpetrator. However, this study only examined behavioral intentions among sober bystanders. While Ham et al. (2019) found that gender did not moderate the effects of alcohol condition on the bystander intervention steps, they did not manipulate the intoxication of the perpetrator or victim in the vignette presented to participants. There is evidence that people are more likely to intervene when they perceive the victim as part of their social group (e.g., Levine, Prosser, Evans, & Reicher, 2005), but it is not clear how this tendency might be affected by varying intoxication levels of the bystander, perpetrator, and victim.

Current Study

We examined the effects of acute intoxication on the first four steps of the bystander intervention process in a hypothetical sexual assault in which levels of perpetrator and victim intoxication described in the vignette were manipulated. To examine a wide range of intoxication levels, participants were recruited from a naturalistic field setting. Consistent with the theoretical framework proposed by Leone et al. (2018), we hypothesized that **(H1)** higher levels of intoxication would be associated with greater impairment in the processing of bystander intervention, assessed as **(a)** inaccurate situational recall for Step 1 (*Noticing the situation*), **(b)** decreased risk appraisal for Step 2 (*Identifying the situation as dangerous or risky*), **(c)** lower sense of personal responsibility to intervene for Step 3 (*Taking responsibility to intervene*), and **(d)** lower reported intentions to engage in an effective intervention strategy as well as lower self-efficacy to intervene for Step 4 (*Choosing a behavior to enact*). Based on prior research regarding bystander intervention that differs based on mismatched levels of intoxication of the parties involved (e.g., Pugh et al., 2016), we also hypothesized that **(H2)** feelings of responsibility to intervene (Step 3) would be greatest in the vignettes in which the victim was highly intoxicated and the perpetrator was minimally intoxicated. We also aimed to test the interactions of participant BrAC, participant gender, victim intoxication, and perpetrator intoxication conditions. However, the limited literature reviewed has not examined these relationships among intoxicated participants, thus these interaction analyses were treated as exploratory.

Method

Participants

Participants were 327 volunteers (45% female; 56.3% undergraduates; 81% White; $M_{age} = 23.19$, $SD = 2.32$ years) recruited on public sidewalks of a downtown area with several drinking establishments near a mid-southern US university between 10:00pm and 12:00am on Thursdays through Saturdays (see Figure 1, Supplemental Materials for flowchart). See Table 1 for demographic information. Interested passersby were screened for inclusion criteria: ages 21 to 29 years, having been to or planning to enter a bar that evening, and denying plans to drive after drinking.

Procedures

Data collection took place next to physical structures that helped to ensure the privacy and safety of each participant (see Figure 1, Supplemental Materials). Potential participants were recruited by asking all passersby if they were interested in participating in a research study about intoxication and social interaction. A research assistant then reviewed informed consent information orally. Eligible individuals completed a modified informed consent process that included a consent capacity assessment consistent with National Institutes of Health (2009) recommendations. To assess capacity to consent, participants completed a brief consent quiz. Participants answered five questions concerning key consent-related elements, including their rights as participants, the anonymity of their provided data, an outline of the procedures, and potential risks and benefits of participating (e.g., “do you have to participate if you do not want to?” and “what are some of the potential risks of participating?”). People unable to provide a correct response to an item in the consent capacity assessment, who posed a threat to safety or privacy of participants, or who were unwilling to refrain from smoking for 10 minutes (due to possible breathalyzer test interference) were excluded from the study. Eligible participants were informed they could rescind consent within 48 hours after completing the study and were provided instructions on how to anonymously request the removal of their data from the research (no participants chose to do so).

Once enrolled, participants completed a demographic survey and then completed the bystander intervention assessment facilitated by a gender-matched research assistant. Participants were randomly assigned to one of four vignette conditions and listened to the vignette through headphones while reading along with a printed script of the vignette. Next, participants completed an interviewer-facilitated questionnaire assessing the steps of the bystander model. A research assistant read each item aloud while the participant read along. The participant then circled their response for each item. Finally, participants completed BrAC assessment. Participants rinsed out their mouth with water and completed a field breathalyzer test. Participants were informed of their BrAC reading, provided education of common reactions and risks related to their current level of intoxication. Participants were debriefed, and were provided with a small item of their choosing as compensation (e.g., glow jewelry, small personal motorized fans). All study procedures were reviewed and approved by the University’s Institutional Review Board.

Stimulus Materials

Sexual assault vignette.—Participants listened to and read along with a vignette depicting a social interaction concluding in nonconsensual sexual activity (Ham et al., 2019). Participants were randomly assigned to a vignette condition (see Supplemental Material for scripts) that varied regarding the level of intoxication (*minimally intoxicated* vs. *highly intoxicated*) for both the male perpetrator and female victim. The victim or perpetrator was described as only having one beer in the *minimally intoxicated* conditions but as consuming several drinks and displaying behavioral signs of intoxication in the *highly intoxicated* conditions¹. All other elements of the vignette were consistent across conditions. Written in second person, the story described the participant attending a party with a female friend. In the story, the participant introduces a male friend (the perpetrator) attending the party to their female friend (the victim). The participant sees the two getting along well and engaging in consensual kissing. Next, the participant observes the two go in a bedroom and witnesses the male taking off his pants, getting on top of the victim, and the victim pushing him away. Finally, the male continues to make sexual advances and states “don’t be such a tease”. The vignette included several risk cues and features associated with bystander intervention behavior (Ham et al., 2019), such as level of familiarity with and intoxication levels of the perpetrator and victim.

Measures

Demographics.—Participants reported age, gender, race/ethnicity, sexual orientation, highest education, and year in school if a student. Drinking behaviors were measured by assessing typical number of drinking days per week and average number of standard drinks consumed per drinking occasion (e.g., Stewart, Morris, Mellings, & Komar, 2006).

Bystander steps.—Following the vignette, participants were asked to respond to items related to the steps of bystander intervention (Latané & Darley, 1970). Questionnaire items were developed based on the related steps of bystander intervention to address study aims and hypotheses. Participants provided ratings to the first three steps of the bystander intervention model on a scale from 1 (*not at all*) to 10 (*extremely*). For Step 1 (noticing the event), participants reported the perpetrator’s and victim’s levels of intoxication. Participant responses of five or greater were scored as “intoxicated” and ratings below five as “minimally intoxicated”. If participant ratings of character intoxication matched the assigned vignette character depiction (i.e., participant rated the character described as highly intoxicated as “intoxicated” or a character described as minimally intoxicated as “minimally intoxicated”), the accuracy was coded as “1”. If participant ratings of the character’s intoxication did not match that described in the vignette, accuracy was coded as “0.” This was repeated for ratings of both the victim and perpetrator intoxication ratings, yielding a possible range of intoxication assessment accuracy of 0 – 2.

¹Pilot data drawn from a sample of 38 young adults (who had not consumed alcohol) suggests that participants perceived a character in the high intoxication condition as highly intoxicated. Participants were presented with a scenario in which the perpetrator was described as being minimally intoxicated (e.g., “sticking to one beer”) and the victim was described as highly intoxicated (e.g., consuming “several shots”; having trouble walking) and later asked to provide ratings of intoxication on a 0 (*not at all intoxicated*) to 100 (*extremely intoxicated*). Mean intoxication ratings for the victim were 85.0 ($SD = 10.7$; median = 85.5), and were significantly higher than ratings of intoxication for the perpetrator ($M = 11.7$, $SD = 13.2$; median = 10.0), $p < .0001$. Cohen’s $d = 3.80$.

For Step 2, risk appraisal was assessed using three items asking the participant to rate the degree that the situation was dangerous for the victim, was uncomfortable for the victim, and required intervention. We computed an average score for these three items ($\alpha = .57$). Given the low internal consistency, these items were analyzed individually. For Step 3 (assuming personal responsibility for intervention), participants reported the extent that they were personally responsible for getting involved in the situation for the woman in the story. For Step 4 (choosing how to act), participants chose what would be the *best* thing to do in the situation from a list of select interventions which included actions such as “do nothing,” “do something to stop the situation,” “say something to stop the situation,” “tell others,” “draw others’ attention”, and “call the police” (Banyard, Moynihan, Cares, & Warner, 2014) and then rated the degree that they were confident they could enact this behavior on a 1 (*not at all*) to 10 (*completely*) scale.

Breath alcohol concentration.—Alcohol intoxication level was measured as BrAC using a field breathalyzer Intoximeter Alco-Sensor FST® (Range = 0.000 – 0.158).

Data Analytic Plan

First, data were checked for missing data. Any participants with BrACs greater than 0.16% were excluded from study analyses, given the higher likelihood that the person may not provide valid reports in naturalistic studies at this level of intoxication (Lyvers, Cholakians, Puorro, & Sundram, 2011; Lyvers & Tobias-Webb, 2010). Descriptive statistics for all demographic study variables were obtained and compared by gender with independent samples t-tests.

We used between-groups analyses of covariance (ANCOVAs) to examine the main effects of participant gender (male vs. female), victim intoxication (minimally intoxicated vs. highly intoxicated), perpetrator intoxication (minimally intoxicated vs. highly intoxicated), and participant BrAC (as a continuous variable), as well as the two-, three-, and four-way interactions on bystander intervention Steps 1, 3, and 4. *A priori* power analysis based on between-subjects variables (participant gender, perpetrator intoxication level, victim intoxication level, each with 2 levels) and participant BrAC as a continuous variable suggested a total sample size between 277 and 306 (approximately 35–38 per cell) would be required to detect small-to-medium effects ($f^2 = .16-.17$) at $\alpha = .05$ and $\beta = .80$ for this ANCOVA design. Our total sample size exceeded this ($n = 327$), and distribution of participants across victim and perpetrator intoxication conditions suggests sufficient sample sizes to examine proposed hypotheses. Based on the distribution of responses on Step 2, we tested a negative binomial regression model using the ‘MASS’ package in *R* (Ripley et al., 2019) to predict this variable. We reverse-scored the sum to create a zero-inflated variable and then truncated the variable to account for outliers. Negative binomial models were chosen over Poisson models, because the reverse-scored and truncated risk assessment composite scores were zero-inflated and nearly overdispersed (Coxe, West, & Aiken, 2009). For Step 4, we used a multinomial regression model to examine if selected responses for the “best” thing to do in the situation (see Table 2 for response categories) differed by victim condition, perpetrator condition, participant gender, and BrAC levels. Because there was

little variability in selected responses, we did not examine interactions. Participants who reported that they would not intervene ($n = 4$) were removed from both Step 4 analyses.

Results

Nine participants were excluded from study analyses due to BrACs greater than 0.16%. One participant did not respond to items assessing Step 4 (Choose how to act) and was not included in Step 4 analyses. Overall demographic statistics are displayed in Table 1. Men were significantly older, reported more drinking occasions per week, and reported consuming more standard drinks per occasion than women. There were no gender differences in other demographic variables. Next, descriptive statistics were obtained. Participant's average BrAC was .054 ($SD = .045$). BrAC did not significantly differ by gender.

H1: higher levels of intoxication would be associated with greater impairment in each step of bystander intervention

- a. **Step 1 (*Noticing the situation*): inaccurate recall of victim and perpetrator intoxication.** Participant BrAC was significantly negatively associated with accuracy of assessing vignette character intoxication levels, such that higher participant BrACs were associated with lower accuracy scores, $F = 2.24$, $p < .01$, $\eta_p^2 = .03$.
- b. **Step 2 (*Identifying the situation as dangerous and needing intervention*): decreased risk appraisal.** Results suggested a significant negative association of participant BrAC and ratings of *perceived discomfort* of the victim, $B = 4.87$, $SE = 1.82$, $p < .01$ (Table 3, Step 2). Controlling for gender and condition, the rate at which people perceived victim discomfort decreased by a factor of 4.87 with each .100% increase in BrAC. Participant BrAC was not associated with ratings of *perceived danger* for the victim, $B = 2.74$, $p = .12$, or the *need to get involved* in the situation, $B = 2.19$, $p = .25$.
- c. **Step 3 (*Taking responsibility to intervene*): lower sense of personal responsibility.** We found no significant main effects of BrAC on participant ratings of personal responsibility to intervene in the situation, $F = 0.95$, $p = .33$, $\eta_p^2 < .01$.
- d. **Step 4 (*Choosing a behavior to enact*): lower reported intentions to engage in an effective intervention strategy and lower self-efficacy to intervene.** BrAC was not significantly associated with selection of intervention strategies BrAC was not significantly associated with selection of the intervention approaches “do something”, ($B = 1.53$, $p = .75$) or “say something,” ($B = 1.11$, $p = .96$) compared to “indirect intervention” strategies. Results are depicted in Table 3, Step 3, “Selected Action”.

There was no significant main effect of participant BrAC on participant's rated confidence to enact their selected intervention strategy, $F = .01$, $p = .92$, $\eta_p^2 < .01$.

H2: feelings of responsibility to intervene (Step 3) would be greatest in the vignettes in which the victim was highly intoxicated and the perpetrator was minimally intoxicated.

We found no significant main effects of victim intoxication, $F = 3.43$, $p = .07$, $\eta_p^2 = .01$, perpetrator intoxication, $F = 3.18$, $p = .08$, $\eta_p^2 = .01$, or their interaction, $F = 1.31$, $p = .25$, $\eta_p^2 < .01$ on ratings of personal responsibility to intervene.

Participant gender, victim intoxication, and perpetrator intoxication exploratory analyses.

- (a) **Step 1 (*Noticing the situation*): inaccurate recall of victim and perpetrator intoxication.** Significant perpetrator intoxication condition and victim intoxication condition main effects were qualified by a significant interaction of perpetrator and victim intoxication conditions, $F = 2.60$, $p < .01$, $\eta_p^2 = .03$. Accuracy scores were the lowest when both the perpetrator and victim were described as not intoxicated ($M = 1.31$, $SD = 0.85$). Intoxication accuracy ratings did not significantly differ by gender ($F = 0.17$, $p = .41$), and no other significant interactions were observed, $F_s = 0.01 - 0.39$, $p_s = .20 - .94$, $\eta_p^2 < .01$.
- (b-d) **Steps 2–4:** There were no significant interactive effects on decreased risk appraisal variables (perceived danger, perceived discomfort, or need to get involved), ratings of personal responsibility to intervene, intentions to engage in an effective intervention strategy, or self-efficacy to enact selected strategy. Full results are reported in Table 3.

Discussion

We tested the effects of bystander intoxication on the steps of the bystander intervention model in a hypothetical sexual assault scenario. We tested exploratory analyses to examine whether these associations interacted with victim intoxication, perpetrator intoxication, and bystander gender. Supporting Hypotheses 1a and 1b, results suggested that participant BrAC was associated with impairments in Steps 1 (*Noticing the situation*) and 2 (*Identifying the situation as dangerous and needing intervention*); however, BrAC was not significantly associated with Steps 3 (*Taking responsibility to intervene*) and 4 (*Choosing a behavior to enact*). Victim intoxication and perpetrator intoxication conditions did not moderate the effect of participant BrAC on bystander intervention steps. Finally, there were no significant differences in responses between men and women, and gender did not moderate the effect of BrAC on any measured outcomes of the bystander intervention steps.

At Step 1, participant intoxication was associated with impairments in accurately assessing the intoxication levels of the perpetrator and victim such that more intoxicated participants were less accurate at assessing vignette character intoxication. Overall, this pattern of incorrectly assessing vignette character intoxication levels is consistent with inattention to less salient information predicted by alcohol myopia theory (Steele & Josephs, 1990). Inebriated participants may have been narrowly attending to salient social cues of the convivial setting at the expense of cues related to the intoxication of the vignette characters, posing a barrier to successful completion of Step 1 (Leone et al., 2018). Alcohol consumption may also increase reliance on stereotyping to make social judgments. Thus,

participants may be more reliant on social expectations of inebriation in a convivial setting as their intoxication increases, resulting in overestimation of intoxication even when the perpetrator was described as only having one beer. Failing to notice situational cues has implications for progressing through the bystander intervention steps.

Among items assessing Step 2, appraising a situation as dangerous, participant intoxication was negatively associated with ratings of discomfort for the victim. H1b was partially supported; higher participant intoxication levels were associated with rating the victim as less uncomfortable (H1b; Step 2). Consistent with the myopic effects of alcohol; people may be more attentive to positive social cues of the party rather than attending to risk cues as they become increasingly intoxicated. Overall, most participants selected relatively high ratings of danger and ratings of need to get involved. Although previous researchers have identified acute intoxication to be associated with impairments in situational risk assessment, no significant associations were observed between participant intoxication and ratings of danger in the current study (Testa, Vanzile-Tamsen, Livingston, & Buddie, 2006). The vignette used in the current study was designed to include several features that were hypothesized to relate to increased bystander intervention (e.g., the participant is informed they are friends with both parties and are responsible for introducing the victim and perpetrator) to identify if alcohol impairs any steps of bystander intervention. It is possible that many participants, even when intoxicated, were able to successfully identify this situation as risky given the clear risk cues described. Additionally, no differences were observed based on the described intoxication levels of the victim in this study; however, interviews with college students regarding bystander intervention have identified that victim intoxication levels can complicate the assessment of the need for intervention (Koelsch, Brown, & Boisen, 2012; Pugh et al., 2016).

H1c and H2 were not supported: neither BrAC nor intoxication condition were significantly associated with participants feeling personally responsible for intervening. Although one barrier to taking responsibility may be diffusion of responsibility among bystanders, the current study's vignette does not make it explicit whether other bystanders witness the sexual assault occurring. If participants believe they are the only bystander, the proposed barriers to taking responsibility may not apply. We also did not observe differences in intervention strategies selected (H1d) or confidence to intervene (H1e) across the different experimental conditions or based on participant BrAC. Bystander intervention steps were also assessed in a linear fashion, and participants had been primed with considering risk of the scenario and their responsibility to intervene. As such, participants may have been able to confidently select an intervention strategy from the multiple-choice set presented once that step was evaluated. Furthermore, we hypothesized alcohol to impair bystander intervention. However, it is possible that alcohol does not impair the later steps of bystander intervention, and that once a situation in need of intervention is detected, intoxication could facilitate bystander intervention intentions due to the disinhibiting effects of alcohol (e.g., Parks et al., 2013).

Limitations

Findings from the current study are limited by the methodology and context of the field study setting. Although the field setting allowed for a unique examination of naturalistic alcohol consumption, the administration of alcohol was not standardized. Research suggests that people experience differences in the effects of alcohol intoxication based on whether they are on the ascending or descending limb of intoxication, which may have influenced information processing (Schweizer et al., 2006). Further, given the requirement to keep survey procedures brief, many steps were assessed with a single item. Future studies should assess the reliability and validity of these items or assess bystander steps with more comprehensive measures. We also asked participants to select what to do in the situation from a list of generic options (e.g., “do something to stop the situation”), which may have reduced response variance and limited the ability to identify an impact of BrAC on response intention.

Given the study design, we did not measure true bystander behavior, and the items do not capture the complexity of implementing intervention behaviors. Relatedly, in an effort to keep the survey brief and protect human subjects, we did not collect data about other moderators such as participants’ sexual assault history, beliefs about the effects of alcohol, or beliefs about sexual behavior or consent. We also did not assess participants’ exposure to bystander intervention training, which may increase recognition of risk, response selection, and confidence to intervene and nullify any influence of intoxication. Findings also may not generalize to all populations due to the voluntary nature of the study and the location of recruitment (i.e., college downtown area).

It is that possible demand characteristics and limited options influenced the selection of more pro-social intervention strategies. Further study of bystander behavior may benefit from quantitative assessment of the relationships between steps and qualitative assessment of the nuances of intervention. Additionally, it is unclear if responses to a hypothetical scenario reflect actual bystander behavior in all settings.

Prevention, Clinical, and Policy Implications

The current study provides evidence that bystander intoxication may affect the initial steps of bystander intervention, including accurate situational assessment such as victim and perpetrator intoxication levels, and perceiving situational danger such as assessing discomfort of potential victims. As suggested by Leone et al. (2018), bystander training may be further supplemented by interventions which may reduce hazardous drinking and providing additional training to potential bystanders on how intoxication may impair intervention efforts. Many bystander intervention programs have been effective at increasing intentions to intervene and improving pro-social attitudes (for a meta-analysis, see Jouriles, Krauss, Vu, Banyard, & McDonald, 2018). However, if the earlier steps of bystander intervention are impaired by intoxication, trained bystanders may not effectively recognize a situation as one which needs intervention. Thus, sexual violence prevention programs that aim to improve attitudes surrounding bystander intervention could include focused training on the recognition of situations which may require intervention, while incorporating

information regarding how situational assessment and intervention strategies may be impaired or altered by intoxication.

Research Implications

Replication of the current study with additional methods and populations would strengthen findings from the present study. Future studies may consider novel approaches to assessing bystander intervention steps, such as video vignette (Parks, Levonyan-Radloff, Dearing, Hequembourg, & Testa, 2016), virtual reality-based measures (Jouriles, Krauss, Vu, Banyard, & McDonald, 2018; Woerner, Abbey, Pegram, & Helmers, 2018), or laboratory-based analogue tasks of sexual aggression (Leone & Parrott, 2019). Given unsupported hypotheses related to Steps 3–4, future studies should test the steps of bystander intervention with more ambiguous situations featuring subtler cues and by allowing participants to generate an intervention strategy independently. The level of risk severity depicted in the vignette may also be manipulated (e.g., Parks et al., 2016) to examine situational factors that may influence bystanders' behavior. Finally, given the complexity of social interactions surrounding sexual assault, future research should aim to expand beyond the situational model of bystander intervention to understand how contextual factors and individual differences of the potential victim, perpetrator, or bystander relate to bystander intervention.

Conclusion

This field study examined the effects of intoxication on four of the five steps of bystander intervention in a hypothetical sexual assault scenario. We found that increased participant intoxication was associated with (a) misperceptions of the degree to which the perpetrator or victim in the scenario was intoxicated and (b) decreased ratings of risk. Participant intoxication and perpetrator or victim intoxication conditions were not associated with ratings of personal responsibility to intervene, selected intervention strategies, or confidence ratings to enact the selected intervention. If earlier steps of bystander intervention are impaired by bystander intoxication, later steps and bystander intervention behavior may also be impaired. Prevention programs effectiveness may improve by modifying current protocols to educate potential bystanders on how alcohol may negatively influence situation identification and risk assessment.

Supplementary Material

Refer to Web version on PubMed Central for supplementary material.

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Table 1.

Demographic Summary

	Combined (<i>N</i> = 327)	Male (<i>n</i> = 179)	Female (<i>n</i> = 148)	Test Statistic	<i>p</i> -value
Race and ethnicity				$\chi^2(5) = 4.87$	<i>p</i> = .68
White, non-Latinx	265 (81.0%)	144 (80.4%)	121 (81.8%)		
Black	11 (3.4%)	6 (3.4%)	5 (3.4%)		
Latinx	26 (8.0%)	15 (8.4%)	11 (7.4%)		
Asian	7 (2.1%)	5 (2.8%)	2 (1.4%)		
American Indian	6 (1.8%)	2 (1.1%)	4 (2.7%)		
Other/Not reported	12 (3.7%)	7 (3.9%)	5 (3.4%)		
Age	23.19 (<i>SD</i> = 2.32)	23.50 ^a (<i>SD</i> = 2.45)	22.82 ^b (<i>SD</i> = 2.10)	<i>t</i> (326) = -2.63	<i>p</i> = .01
Sexual Orientation				$\chi^2(3) = 3.64$	<i>p</i> = .30
Heterosexual	296 (90.5%)	158 (88.3%)	138 (93.2%)		
Gay	14 (4.3%)	11 (6.1%)	3 (2.0%)		
Bisexual	14 (4.3%)	8 (4.5%)	6 (4.1%)		
Other	3 (0.9%)	2 (1.1%)	1 (0.7%)		
Current student status				$\chi^2(3) = .79$	<i>p</i> = .85
Undergraduate	197 (60.2%)	104 (58.1%)	93 (62.8%)		
Graduate Student	38 (11.6%)	22 (12.3%)	16 (10.8%)		
Non-degree student	10 (3.1%)	6 (3.4%)	4 (2.7%)		
Non-student	82 (25.1%)	47 (26.3%)	35 (23.6%)		
Drinking occasions per week	2.61 (<i>SD</i> = 1.55)	2.78 ^a (<i>SD</i> = 1.60)	2.41 ^b (<i>SD</i> = 1.47)	<i>t</i> (326) = -2.13	<i>p</i> = .03
Typical drinking quantity per occasion	4.72 (<i>SD</i> = 2.33)	5.35 ^a (<i>SD</i> = 2.59)	3.97 ^b (<i>SD</i> = 1.69)	<i>t</i> (326) = -5.60	<i>p</i> < .01

Note: Different superscripts within rows indicate significant differences at *p* < .05.

Table 2.

Descriptive summary

	Combined (<i>N</i> = 327) <i>M</i> (<i>SD</i>)	Male (<i>n</i> = 179) <i>M</i> (<i>SD</i>)	Female (<i>n</i> = 148) <i>M</i> (<i>SD</i>)
Breath Alcohol Concentration	.054 (.045)	.056 (.043)	.053 (.046)
Step 1: How intoxicated is [the Victim]?	5.77 (3.02)	5.44 (3.08) ^a	6.16 (2.90) ^b
Step 1: How intoxicated is [the Perpetrator]?	5.65 (3.20)	5.56 (3.29)	5.76 (3.21)
Step 2: How dangerous is this for [the Victim]?	9.07 (1.35)	9.02 (1.39)	9.12 (1.30)
Step 2: How uncomfortable is [the Victim]?	8.51 (2.18)	8.55 (2.20)	8.47 (2.17)
Step 2: To what extent does someone need to get involved in this situation?	8.65 (2.12)	8.67 (2.03)	8.61 (2.23)
Step 3: To what extent are you responsible for getting involved in this situation?	8.69 (2.03)	8.71 (1.96)	8.67 (2.11)
Step 4: How confident are you that you would be able to do [the best thing] in the situation?	9.13 (1.43)	9.11 (1.45)	9.16 (1.43)
Step 4: What is the best thing to do in this situation?	<i>n</i> (%)	<i>n</i> (%)	<i>n</i> (%)
Do nothing	4 (1.2%)	4 (2.2%)	0 (0%)
Do something to stop the situation	177 (54.0%)	84 (46.9%)	93 (63.3%)
Say something to the perp and victim to stop the situation	116 (35.4%)	73 (40.8%)	43 (29.3%)
Tell others [*]	6 (1.8%)	4 (2.2%)	2 (1.4%)
Draw others' attention [*]	12 (3.7%)	9 (5.0%)	3 (2.0%)
Call the police [*]	11 (3.4%)	5 (2.8%)	6 (4.1%)

Note: Items with different superscript letters represents significant differences within each main effect at a $p < .05$ level.

^{*} Because of small cell sizes, these three categories were collapsed into the one reflecting indirect intervention (i.e., getting others involved) for data analysis.

[†] Risk Assessment composite score means are shown prior to transformation for scale range (1–10) consistency.

Table 3.

Tests of Main Effects for Gender, Victim Intoxication Condition, Perpetrator Intoxication Condition, and Participant BrAC, and Their Interactions on the Steps of Bystander Intervention.²

Step 1			
Accuracy of assessing vignette character intoxication			
Participant BrAC	$F = 2.24, p < .01, \eta_p^2 = .03^{**}$		
Vict Intox	$F = 2.25, p < .01, \eta_p^2 = .03^{**}$		
Perp Intox	$F = 2.00, p < .01, \eta_p^2 = .03^{**}$		
Participant Gender	$F = .17, p = .41, \eta_p^2 < .01$		
BrAC * Vict Intox	$F = .41, p = .52, \eta_p^2 < .01$		
BrAC * Perp Intox	$F = 1.61, p = .21, \eta_p^2 < .01$		
BrAC * Gender	$F = .21, p = .65, \eta_p^2 < .01$		
Vict Intox * Perp Intox	$F = 10.64, p = .01, \eta_p^2 = .03^{**}$		
Vict Intox * Gender	$F = .3, p = .85, \eta_p^2 < .01$		
Perp Intox * Gender	$F = 1.52, p = .22, \eta_p^2 < .01$		
BrAC * Vict Intox * Perp Intox	$F = .24, p = .63, \eta_p^2 < .01$		
BrAC * Vict Intox * Gender	$F = .82, p = .37, \eta_p^2 < .01$		
BrAC * Perp Intox * Gender	$F = .58, p = .45, \eta_p^2 < .01$		
Vict Intox * Perp Intox * Gender	$F = 1.10, p = .30, \eta_p^2 < .01$		
BrAC * Vict Intox * Perp Intox * Gender	$F = .24, p = .63, \eta_p^2 < .01$		

Step 2			
	Perceived Danger of Victim	Perceived Discomfort of Victim	Perceived Need to Get Involved
Participant BrAC	$B = 2.74, SE = 1.76, p = .12$	$B = 4.87, SE = 1.82, p < .01^{**}$	$B = 2.19, SE = 1.91, p = .25$
Vict Intox	$B = -.28, SE = .16, p = .08$	$B = .24, SE = .16, p = .14$	$B = -.35, SE = .17, p = .04^*$
Perp Intox	$B = .02, SE = .16, p = .89$	$B = -.08, SE = .16, p = .61$	$B = .30, SE = .17, p = .08$
Participant Gender	$B = .07, SE = .16, p = .64$	$B = -.09, SE = .16, p = .58$	$B = -0.01, SE = .17, p = .94$
BrAC * Vict Intox	$B = 3.85, SE = 7.08, p = .59$	$B = -5.36, SE = 7.41, p = .47$	$B = -6.32, SE = 7.92, p = .43$
BrAC * Perp Intox	$B = -12.68, SE = 7.88, p = .11$	$B = -5.93, SE = 7.97, p = .46$	$B = -4.98, SE = 7.89, p = .53$
BrAC * Gender	$B = -6.29, SE = 6.79, p = .35$	$B = -8.13, SE = 7.39, p = .27$	$B = -9.42, SE = 7.42, p = .21$
Vict Intox * Perp Intox	$B = -.12, SE = .74, p = .87$	$B = -.64, SE = .77, p = .41$	$B = -.46, SE = .79, p = .57$
Vict Intox * Gender	$B = -.39, SE = .71, p = .58$	$B = -.90, SE = .73, p = .21$	$B = -.22, SE = .75, p = .77$
Perp Intox * Gender	$B = -.99, SE = .69, p = .15$	$B = -1.37, SE = .80, p = .09$	$B = -.29, SE = .74, p = .70$
BrAC * Vict Intox * Perp Intox	$B = 4.29, SE = 10.32, p = .68$	$B = 3.70, SE = 10.42, p = .72$	$B = 12.78, SE = 10.91, p = .24$

²Follow-up analyses with only those participants whose BrAC was greater than .000% yielded a similar pattern of results for Step 1–3. A three-way BrAC x Victim Intoxication Condition x Perpetrator intoxication condition was revealed for participant confidence to enact selected intervention, however, follow up analyses split by condition suggested no individual significant associations between BrAC and confidence by conditions. For clarity of results, and to represent the full range of potential bystander BrACs in convivial settings, we have reported results with all participants included.

Step 2			
	Perceived Danger of Victim	Perceived Discomfort of Victim	Perceived Need to Get Involved
BrAC * Vict Intox * Gender	$B = -1.13, SE = 9.68, p = .91$	$B = 8.07, SE = 10.04, p = .42$	$B = 3.27, SE = 10.93, p = .77$
BrAC * Perp Intox * Gender	$B = 18.34, SE = 10.10, p = .07$	$B = 13.89, SE = 10.86, p = .20$	$B = 6.32, SE = 10.64, p = .55$
Vict Intox * Perp Intox * Gender	$B = .11, SE = 1.04, p = .91$	$B = 1.16, SE = 1.09, p = .29$	$B = -.33, SE = 1.10, p = .76$
BrAC * Vict Intox * Perp Intox * Gender	$B = -4.45, SE = 14.23, p = .75$	$B = -7.56, SE = 14.69, p = .61$	$B = 1.72, SE = 15.37, p = .91$

	Step 3	Selected Action ⁺	Step 4
	Personal Responsibility to Intervene		Confidence to Enact Chosen Strategy
Participant BrAC	$F = 0.95, p = .33, \eta_p^2 < .01$	$^a B = 1.53, SE = 4.80, p = .75;$ $^b B = 1.11, SE = 4.64, p = .96$	$F = .01, p = .92, \eta_p^2 < .01$
Vict Intox Condition	$F = 3.43, p = .07, \eta_p^2 = .01$	$^a B = -0.00, SE = .42, p = .99;$ $^b B = 0.02, SE = .40, p = .96$	$F = .01, p = .91, \eta_p^2 < .01$
Perp Intox Condition	$F = 3.18, p = .08, \eta_p^2 = .01$	$^a B = 0.25, SE = .42, p = .35;$ $^b B = 0.33, SE = .40, p = .66$	$F = .58, p = .45, \eta_p^2 < .01$
Participant Gender	$F = .10, p = .32, \eta_p^2 < .01$ $F = .69, p = .41, \eta_p^2 < .01$	$^a B = -0.35, SE = .43, p = .81;$ $^b B = .59, SE = .41, p = .15$	$F = .94, p = .33, \eta_p^2 < .01$ $F = .33, p = .57, \eta_p^2 < .01$
BrAC * Vict Intox		--	
BrAC * Perp Intox	$F = .27, p = .61, \eta_p^2 < .01$	--	$F = .30, p = .58, \eta_p^2 < .01$
BrAC * Gender	$F = 2.14, p = .14, \eta_p^2 < .01$	--	$F = 2.55, p = .11, \eta_p^2 < .01$
Vict Intox * Perp Intox	$F = 1.31, p = .25, \eta_p^2 < .01$	--	$F = .89, p = .35, \eta_p^2 < .01$
Vict Intox * Gender	$F = .34, p = .56, \eta_p^2 < .01$	--	$F = .19, p = .67, \eta_p^2 < .01$
Perp Intox * Gender	$F = .06, p = .81, \eta_p^2 < .01$	--	$F = .01, p = .93, \eta_p^2 < .01$
BrAC * Vict Intox * Perp Intox	$F = 2.09, p = .15, \eta_p^2 = .01$	--	$F = 3.38, p = .07, \eta_p^2 = .01$
BrAC * Vict Intox * Gender	$F = .05, p = .83, \eta_p^2 < .01$	--	$F = .69, p = .41, \eta_p^2 < .01$
BrAC * Perp Intox * Gender	$F = .44, p = .51, \eta_p^2 < .01$	--	$F = 1.33, p = .25, \eta_p^2 < .01$
Vict Intox * Perp Intox * Gender	$F = .04, p = .84, \eta_p^2 < .01$	--	$F = .05, p = .83, \eta_p^2 < .01$
BrAC * Vic Intox * Perp Intox * Gender	$F = .01, p = .91, \eta_p^2 < .01$	--	$F = .84, p = .36, \eta_p^2 < .01$

Note: Vic Intox = Victim Intoxication Condition; Perp Intox = Perpetrator Intoxication

⁺Multinomial regression results

^aRepresents comparison of “do something” responses to reference group (“indirect intervention” responses)

^bRepresents comparison of “say something” responses to reference group (indirect intervention; (i.e., tell others, draw others’ attention, and call the police