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# A Mixed Methods Evaluation of an Intersectional Bystander Program Against Sexual Violence Using the Integrated Model of Behavioral Prediction Within a Cluster Randomized Control Trial

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# A MIXED METHODS EVALUATION OF AN INTERSECTIONAL BYSTANDER PROGRAM AGAINST SEXUAL VIOLENCE USING THE INTEGRATED MODEL OF BEHAVIORAL PREDICTION WITHIN A CLUSTER RANDOMIZED CONTROL TRIAL

by

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ABSTRACT

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Background: Sexual violence is a critical public health problem that is particularly salient on college campuses. Bystander intervention is a prevention approach that teaches students who are not directly affected by a situation to take action to help others. Research is needed to understand the relationship between bystander training and changes in behavior to intervene against sexual violence, racism, and unhealthy alcohol outcomes. Methods: A cluster randomized waitlist control trial was used to evaluate the bystander program Our School TAKES ACTION. Upper-level undergraduate students were randomized by housing floor from buildings of a private, midwestern university. Data was collected in online surveys using Qualtrics at baseline and follow-up. Path analysis tested theories to explain bystander behavior and intervention effects were tested using mixed effects models in STATA 15.1. A team coded qualitative data into bystander strategies and approaches. Results: Students used a variety of strategies and approaches to intervene, with themes suggesting that students may have higher intentions than behaviors, be more likely to engage in passive approaches, and offer more support to friends/acquaintances who have been drinking alcohol compared to those experiencing violence. Results support The Theory of Planned Behavior in the verification of the key pathway between

intentions and behaviors in low-risk primary prevention scenarios of sexual violence, racism, and alcohol. The additional factors of skills and environmental constraints did not significantly predict behaviors within the sexual violence model, suggesting that the Integrated Model of Behavioral Prediction was not a better fit. The program demonstrated effectiveness to improve bystander experiences when helping someone who had too much to drink and needed help. While there were no further significant effects of the program, emerging trends may help inform future programming. Significance: This study contributes to an emerging body of research on the relationship between bystander intentions and behaviors. Future research is needed to explore the theoretical pathways that predict bystander intervention in upper-level undergraduates and increase bystander behaviors. Implications may inform subsequent practice in sexual violence prevention to improve health education, decrease sexual violence, racism and harmful alcohol outcomes, and promote safer college campuses.

Dedicated

to all victims and

survivors, to share the

hope of prevention to create a

world free from violence

or the threat of

violence

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# Chapter 1: Background

## Sexual violence on college campuses

Sexual violence is a critical public health problem that is relevant on college campuses. The World Health Organization defines sexual violence as "any sexual act, attempt to obtain a sexual act, unwanted sexual comments or advances, or acts to traffic, or otherwise directed, against a person's sexuality using coercion, by any person regardless of their relationship to the victim, in any setting, including but not limited to home and work" (Krug et al., 2002, p. 149). College-attending women are at higher risk for sexual assault compared to the general population and also compared to other women the same age who do not attend college (Daigle et al., 2008; Fisher, 2000; Karjane, 2005).

Despite efforts to prevent sexual assault, there is little evidence that rates of sexual assault victimization have declined since initial studies in the 1980s in U.S. college populations (Adams-Curtis & Forbes, 2004; Gidycz & Dardis, 2014; Marine, 2004; Sampson, 2002). The first landmark study published on sexual victimization of U.S. college women indicated that 28% of women in college were sexually victimized since age 14 (Koss et al., 1987). Most studies indicate that between 16% to 25% of undergraduate women experience sexual violence, including completed or attempted rape during their four to five year college careers (Cantor et al., 2020; Krebs et al., 2009; Fisher et al., 2010; Fisher, 2000; Karjane, 2005). Studies further suggest that men also experience sexual violence during college (O'Sullivan et al., 1998; Larimer et al., 1999; Banyard, Ward, et al., 2007). Sexual minority and transgender students report higher rates of victimization compared to non-sexual minority and cisgender students respectively (Edwards et al., 2015; L. M. Johnson et al., 2016).

Researchers have also measured sexual violence on campus through perpetration, by measuring how often individuals engage in sexual aggression. Sexual aggression is any attempted and/or completed unwanted sexual contact that is accomplished through intoxication, coercion, and/or actual or threatened physical force. During college, studies demonstrate that 15% to 31% of college males admit to initiating acts of sexual aggression (Loh et al., 2005; Mouilso & Calhoun, 2013; Nguyen & Parkhill, 2014). Additional studies have found that 25% to 57% of college men acknowledge committing sexual assault (Abbey et al., 1998; Lisak & Miller, 2002). While females also perpetrate various forms of sexual aggression, men commit 99% of rapes towards women and other people of other genders on college campuses (Rennison, 2002; Turchik, 2012).

High rates of victimization and perpetration impact the health of affected individuals. Impacts have been well documented, and include physical injuries, sexual/reproductive health problems, mental health disorders, and an increased risk to engage in health risk behaviors (Bowyer & Dalton, 1997; Parrish & Ryan, 1996; Basile et al., 2011; Turchik & Hassija, 2014). Mental health outcomes are particularly relevant for victims of sexual violence and may include humiliation, fear, guilt, mistrust, suicide ideation, and loss of self-esteem (Monnier et al., 2002; Schiefelbein, 2002). A meta-analysis analyzing the relationship between sexual abuse (in childhood and/or adulthood) and lifetime diagnosis of psychiatric disorders found that, compared to individuals without a history of sexual abuse, the odds of victims of sexual abuse being diagnosed with (1) an anxiety disorder were 3.09 times higher; (2) an eating disorder were 2.72 times higher; (3) a sleep disorder were 16.17 times higher, and; (4) suicide attempts were 4.14 times higher (Chen et al., 2010). Rape survivors are more likely to suffer posttraumatic stress disorder (PTSD) compared to other women and are the largest population in the United States

living with PTSD (McFarlane et al., 2005; Campbell & Wasco, 2005). One study with male college victims indicated similar findings to college females, with high rates of PTSD, hostility, depression, and general symptoms of distress among victims (Aosved et al., 2011). In particular, male victims are rape are more likely to suffer more severe violence during an attack when compared to female victims (Anderson, 2007).

In addition to health concerns for individuals, sexual violence has broader impacts on the public's health including the spread of infectious diseases and unintended pregnancies. In a study conducted in Minnesota, Miller et al. (2007) found that sexual violence resulted in an estimated 12,700 sexually transmitted infections, 1,500 pregnancies, and 750 abortions in 2005. Contracted infections have further impacts on the spread of disease in society, and unintended pregnancies may have harmful impacts on maternal, infant, child, and family health (Gipson et al., 2008).

With the high rates of sexual violence on campus and adverse health outcomes, addressing this public health issue is a critical concern on college campuses. This study contributes to the existing literature in two significant ways. First, the study increases the understanding of bystander intervention by testing the Integrated Model of Behavioral Prediction that builds upon previous models. The model specifically tested the contribution of skills and environmental constraints to predict bystander behaviors along with intentions and self-efficacy. Related to bystander skills, this study used a qualitative methodology to assess participants' descriptive responses to different, potentially harmful scenarios. The goal of using a qualitative approach was to provide a more naturalistic account of what bystanders perceive as their likely or experience-based responses, as such an account could be useful in the design or refinement of bystander training programs. Second, the study pilot-tested the efficacy of an intersectional bystander training model, called Our School TAKES ACTION, which was delivered to college

juniors and seniors on a midwestern college campus. This program was designed to train students to effectively respond to different risky or harmful scenarios that occur on college campuses. The following sections review the research literature on bystander training and theoretical literature on bystander intervention that informed the development and testing of the Our School TAKES ACTION training program.

**Sexual assault prevention and bystander intervention**

It is important to contextualize the proposed study in the existing literature on bystander intervention on college campuses. While prevention programming varies widely across colleges and universities, programs generally consist of 45 to 120 minutes of online or in-person workshops that include information of the prevalence of sexual assault, rape myths, how to reduce risk, gender roles, and strategies to increase empathy towards victims (Karjane, 2005; Vladutiu et al., 2011; Breitenbecher, 2000).

Within programs that aim to raise awareness of sexual violence on campus, there are three general approaches to prevent sexual assault. The first focuses on reducing risk for potential victims (risk reduction), the second focuses on efforts to prevent perpetration (primary prevention), and the third works with all students to intervene as "bystanders" to prevent sexual assault (bystander intervention: BI) (Gidycz & Dardis, 2014).

This third approach, bystander intervention, has emerged as a popular prevention approach since the mid-1990s (Banyard, Moynihan, et al., 2007; Berkowitz, 2002). One reason for its popularity is the socially acceptable approach of programming, as it focuses on empowering all students to prevent violence, in lieu of profiling them as potential victims or perpetrators (Banyard, Moynihan, et al., 2007). Evidence suggests this may decrease the resistance of both men and women to prevention messages and may increase engagement

(Banyard, Moynihan, et al., 2007). Bystander intervention is widely promoted in the United States, has been recommended for college campuses by the White House Task Force to Protect Students from Sexual Assault, and is listed as a promising prevention strategy by the Centers for Disease Control and Prevention (White House Task Force to Protect Students From Sexual, 2014; Basile et al., 2016; DeGue et al., 2014).

Bystander intervention occurs when individuals who are not directly affected by a situation, called bystanders, choose to intervene and help others (Banyard, 2008b; Banyard, Moynihan, et al., 2007). Bystanders are third-party witnesses who have the opportunity to do nothing, make a situation worse, or improve outcomes through their actions and behaviors (S. McMahon & Banyard, 2012). The collective response of individual students' behaviors is theorized to shape and modify the environment and context in which sexual violence occurs (Coker et al., 2011). Bystander intervention is theorized to play a part in decreasing sexual violence, as research shows that bystanders are present in almost a third of all sexual violence situations (Planty, 2002; Bennett et al., 2014).

Bystander intervention fits into the three traditional levels of disease prevention that can be applied from a public health approach to prevent sexual violence (P. M. McMahon, 2000). It can occur through addressing situations before an act of sexual aggression occurs (primary prevention), through intervening during an actual high-risk situation of sexual aggression (secondary prevention), or through engaging in positive behaviors after violence occurs (tertiary prevention) (S. McMahon & Banyard, 2012). For example, individuals can speak out against unhealthy social norms that promote sexual aggression, interrupt a friend who is trying to isolate an intoxicated individual, or provide support to victims (Cares et al., 2015).

Studies of bystander intervention training have shown consistent effectiveness in changing attitudes and mixed, but generally positive, changes on increasing bystander behaviors (Hennessy, 2018). Qualitative studies demonstrate positive attitudes, behavioral intentions, and bystander behaviors (Barone et al., 2007; Foubert & Perry, 2007; Foubert, Godin, et al., 2010; Foubert, Tatum, et al., 2010). Quantitative studies show decreased rape myth acceptance[1], increased proactive bystander behaviors, increased bystander efficacy, and increased willingness to help (Salazar et al., 2014; Thomas et al., 2016; Langhinrichsen-Rohling et al., 2011).

Three systematic reviews have assessed bystander outcomes in college populations, and all have found small to moderate effects of training on bystander attitudes or behaviors. A 2013 meta-analysis of 12 studies with 2,926 college students who went through an average of 140 minutes of bystander training found moderate effects of bystander education on bystander efficacy (0.49, 95% CI= 0.31 to 0.66) and bystander intentions (0.58, 95% CI = 0.38 to 0.78), and smaller effects on reported bystander behaviors (0.23, 95% CI = 0.04 to 0.41) and rape-myth acceptance (- 0.28, 95% CI = -0.20 to -0.36) (Jennifer Katz & Moore, 2013). A second review in 2018 included 24 studies and found smaller but improved effects on bystander attitudes and beliefs (0.27, $p<0.001$), and moderate effect on bystander behaviors (0.39, $p<0.001$) (Jouriles et al., 2018). Results attenuated over time but were still significant at three months follow-up. A third review by Kettrey & Marx (2019) of 14 studies of college and high school students found a similar outcome, a small effect of training on bystander behaviors (0.28, CI= 0.19-0.36).

While bystander intervention is most likely to change social norms or interrupt a situation that could escalate to a sexual assault, bystander intervention may also cause participants to

[1] Rape myth acceptance is commonly used in the literature to assess attitudes related to sexual violence bystander intervention and is defined as ‘‘prejudicial, stereotyped, or false beliefs about rape, rape victims, and rapists’’ (Burt, 1980, p. 217).

examine and modify their own behaviors that contribute to sexual violence risk. Theoretically, this suggests that participating in bystander programming could further decrease perpetration and victimization of the participants themselves. For instance, in discussing a bystander scenario where an intoxicated woman is being taken into a room by a man, this may cause participants to think about and then modify their own behaviors around drinking or obtaining consent, changing their risk for perpetration and possibly victimization.

However, most research suggests that bystander intervention does not prevent perpetration and few studies have assessed the impact of bystander intervention on victimization; Two meta-analyses found no significant effect of decreased perpetration as a result of bystander training. The bystander meta-analysis by Katz & Moore (2013) found a small effect on rape proclivity (less intentions to rape) (-0.17, 95% CI = -0.03 to -0.30), but did not find a significant effect of bystander education to decrease perpetration (-0.28, 95% CI = 0.09 to -0.65). Short follow-up times in the study may have inhibited the ability to detect decreases in perpetration; on average, behaviors were assessed 112 days after training (ie - 16 weeks, SD=68.58 days). The meta-analysis by Kettrey & Marx (2019), which had follow-up times that ranged from 4.3 to 25.8 weeks, assessed five studies that evaluated perpetration and also found no significant effect (0.11, 95% CI = -0.10 – 0.32). It is possible that programs that combine bystander and primary prevention messages may be effective to prevent perpetration. A 2018 review identified three bystander programs that evaluated perpetration or victimization; significant decreases in perpetration were found in two of three studies and in one study there were decreases in drug/alcohol facilitated sexual victimization (Hennessy, 2018; Salazar et al., 2014; Elias-Lambert & Black, 2015; Coker et al., 2015).

Despite the success of bystander programming to improve bystander attitudes and behaviors, and possibly decrease perpetration within combined programs, little research has assessed how these changes occur. Few theories have articulated the pathways between bystander training and decreased victimization and perpetration. More research is needed to understand the relationship between bystander perceptions, intentions and behavior, specifically on understanding the theoretical pathways that lead from bystander training to behavioral change using rigorous study designs to control for common threats to validity.

**Sexual violence bystander intervention theory**

The study and programming of bystander intervention emerged after the 1964 public murder of Kitty Genovese in New York (S. McMahon & Banyard, 2012) (McMahon, 2012). Afterwards, social psychologists Latané & Darley (1970) first studied the topic of bystander intervention and developed the landmark five-step model to explain the bystander process: (1) notice an event; (2) interpret that intervention is appropriate; (3) take responsibility for action; (4) decide how to help; and (5) take action and intervene (Burn, 2009). This model is still used widely today in bystander intervention for multiple topics not limited to only sexual violence (Nelson et al., 2011).

Katz (1995) first formally adapted bystander intervention for sexual assault prevention through the Mentors in Violence Prevention (MVP) program. Later research validated the five-barrier situational model of bystander intervention for sexual violence bystander intervention, assessing specific barriers at each step (Burn, 2009).

While the five-step model explains the process of intervening, there are two prominent models that contextualize the situation and society in which bystander occurs, including an ecological model and a nomological network of bystander opportunities. Banyard (2011)

presented an ecological framework of bystander intervention based on Bronfenbrenner (1977, 2005) and Kelly (2006) to examine factors that influence bystander intervention among different social-ecological levels. At the individual level, key factors increasing bystander behaviors against sexual violence included greater knowledge to recognize situations that may require intervention, lower rape myth acceptance, lowered adversarial sexual beliefs, being female (versus male), perceiving less costs than benefits, and having higher confidence/self-efficacy and intervention skills (Bannon et al., 2013; Banyard, 2008a; Burn, 2009; S. McMahon, 2010).

At the microsystem level, bystander behavior was associated with peer norms and "situational" factors that may change based on each situation, including the number of people in an establishment, type of establishment/location/setting, characteristics of a potential victim, and relationships between the potential victim, perpetrator, and bystander (Bennett et al., 2015; Brown & Messman-Moore, 2010; Hoxmeier et al., 2015). While less research is available at the exosystem and macrosystem levels, some studies show that a greater sense of community connection, location in a rural community, and smaller campus residence halls promote helping behaviors (Banyard, 2008a, 2011; Rushton, 1978).

The nomological network of bystander opportunities by S. McMahon & Banyard (2012) builds on the three levels of prevention frequently used to differentiate primary, secondary, and tertiary prevention initiatives (Caplan, 1964; Cowen, 1983). This framework specifically considers primary prevention as actions that change social norms to prevent the tolerance of sexual violence (i.e. - confronting victim blaming comments), secondary prevention as interrupting instances of violence (i.e.- creating a distraction so a victim can get away from a perpetrator), and tertiary prevention as assisting victims or holding perpetrators accountable (i.e.- helping a friend get medical care after a sexual assault). McMahon & Banyard (2012) expand the

application of prevention levels to sexual violence bystander opportunities through differentiating levels of opportunity for primary prevention as low-risk versus high-risk to a potential victim. High-risk primary bystander opportunities are defined as situations "immediately preceding a sexual assault where the victim is facing an imminent risk of harm," while low-risk opportunities are situations in which "negative attitudes towards women and/or sexual violence are expressed, but do not pose an immediate or high risk of harm to potential victims of sexual assault" (S. McMahon & Banyard, 2012, pp. 7–8). As it is likely that bystanders may take different actions at low-risk versus high-risk primary levels, and these actions would have a different impact on sexual assault (changing norms versus decreasing risk to an immediate victim), the nomological network by McMahon & Banyard (2012) provides an important theoretical contribution by differentiating primary prevention risks.

While there is frequent recognition of the five-step model and considerations for ecological factors in the sexual violence prevention literature, these models and constructs are not theories of behavior change. There has been little theoretical work on mediating psychological (internal) or behavioral changes that lead to changes in bystander intentions and behaviors. One review found that, out of ten programs promoting only bystander intervention between 2007 to 2017, four programs were based in theory; however, theories were elicited to disseminate material (Theatre of the Oppressed and Diffusion of Innovation), instead of focusing on internal psychological constructs (such as attitudes) used to elicit individual changes in bystander behavior or behavioral intentions (Hennessy, 2018). This suggests that continued theoretical development can continue to improve the field of sexual violence prevention through bystander intervention.

**Bystander approaches, strategies, and measurement**

In addition to the conceptual models and theories that inform bystander work, it is important to understand the specific strategies bystanders utilize when they choose to intervene. From a broader framework, bystander approaches have been framed as direct or indirect interventions (Banyard et al., 2004; Chabot et al., 2018). Direct interventions are noticeable to either the perpetrator or the victim, are conducted with just these individuals or within a group context, and involve physical, verbal, or nonverbal methods to intervene. Indirect interventions are not directed at a potential victim or perpetrator, but involve getting assistance (from other friends, authorities, calling 911, etc).

The Green Dot® bystander program for college campuses, which has been shown to decrease sexual assault victimization and perpetration, further differentiates intervention approaches into four options: engaging in a direct approach, creating a distraction, delegating to another person/authority, and delaying a response (Banyard et al., 2004; Coker et al., 2015). These are sometimes presented as the Four Ds of intervening: direct, distract, delegate, and delay (Coker et al., 2015). A qualitative study that coded bystander responses uncovered five similar themes of intervention along with the percentage of participants who reported each theme: direct intervention (42.0% of respondents reported using this), distract intervention (26.7%), distance intervention (42.7%), delegate intervention (7.3%), and diffuse intervention (4.0%) (Moschella et al., 2016).[2] It was found that direct responses were associated with more positive responses from both victims and perpetrators (Victim positive response: 41.3% for direct versus 21.8% for all other types of intervention, $X^2=6.57$, $p<0.05$; Perpetrator positive response: 12.7% for direct versus 1.1% for all other types of intervention, $X^2=8.64$, $p<0.01$). Distract responses were associated with less overall negative responses (At least one negative response from a perpetrator

[2] Some strategies were used more than once so numbers are greater than 100% (Moschella et al., 2016).

or a victim: 27.5% for distract versus 47.3% for all other types of interventions, $X^2=4.71$, $p<0.05$). Conversely, distance strategies were associated with more overall negative responses (At least one negative response from a perpetrator or a victim: 51.6% for distract versus 34.9% for all other types of interventions, $X^2=4.19$, $p<0.05$) (Moschella et al., 2016).

Within these direct and indirect approaches there are still many strategies a bystander can use. For instance, a direct approach to a potential/actual perpetrator could include a physical confrontation, a nonverbal threat implying a physical confrontation, and various verbal statements. Furthermore, within each of these selections, there are a variety of decisions a bystander must make. For instance, the exact type of statement used (declaration, observation, request, etc). With all the various options for bystanders, McMahon & Banyard (2012) share that an important next step for researchers is to "explore the different methods that can be used by students to intervene effectively and safely to prevent sexual violence" (p. 9).

Some researchers have started examining these methods. One measurement approach provides multiple choice options for different strategies to intervene in a bystander scenario. For instance, building upon existing bystander measures (Banyard, 2008a), Hoxmeier et al. (2018) asked 815 college students whether they had the opportunity to engage in twelve different behaviors and, if so, whether they engaged in them. Strategies were provided directly in the behavior; for instance, with options such as "*confront* a friend who says he plans to give a girl alcohol to get sex"; or "*check in* with your friend who looks intoxicated and is being taken to a room by a guy." These strategies were further classified into primary, secondary, and tertiary prevention (ie- before, during, and after an assault) and dichotomous responses were collected (yes/no to having intervened). Students had the most opportunity to intervene before an assault, with responses ranging from 12.02% of students who had the opportunity to "confront your

friend who says he plans to get a girl drunk to have sex" to 39.51% of students who had the opportunity to "check in with your friend who looks intoxicated and is being taken to a room by a guy." Of students with those two opportunities, 76.53% and 90.99% of students intervened respectively. Less than 5% of students reported an opportunity to intervene during an assault, and in these cases less than 60% intervened. Upwards to 36.2% of students reported an opportunity to intervene after an assault, with less than 40% intervening in these opportunities. Clearly, there are many opportunities where students do not intervene before, during, and after sexual assault.

A limitation to the Hoxmeier et al. (2018) study was that it provided only one intervention option per scenario. Therefore, if participants didn't *confront* a friend, but rather *created a distraction*, this would not be captured in the response. Additionally, it is unclear what exactly is said when a bystander "says something," "checks in," or "criticizes."

Bennett et al. (2015) provided more strategies for behavior selection in their study when they used vignette scenarios, provided nine different options (a variety of direct and indirect responses), and asked participant's likelihood of engaging in each option. For instance, after a scenario, participants were asked on a Likert scale from not at all likely (1) to extremely likely (5) how likely they would be to engage in options such as "go up to (victim) and start a conversation with her," or "tell (the perpetrator) that he could get in serious trouble." The authors did not report the responses to individual items, but found overall that participants were more likely to intervene in the more severe vignette (compared to the less severe vignette), that women were more likely than men to help victims, though men were more likely to use a direct approach to confront perpetrators, and that bystanders were more likely to intervene when their friend was a victim (compared to a stranger) and when the perpetrator was a stranger (compared to a friend) (Bennett et al., 2015).

A similar research strategy was used in a study that looked at bystander responses to uncivil, discriminatory, and immoral behaviors in Austria (Moisuc et al., 2018). After providing a list of generally rude actions (ie- throwing trash on the ground next to a garbage can) participants were asked how likely they would be to engage in one of seven behaviors on a 9-point Likert scale including items such as "no reaction" and "a polite comment to the person, pointing out that the behavior is wrong" (Moisuc et al., 2018, p. 6). This approach improves upon the previous study by providing an option for "no reaction," which is a possible response. However, it continues to lack details on the specific strategies used to intervene, such as the specific language used when a comment is made.

Hoxmeier et al. (2017) expanded measurement options to bystander intervention. They provided short bystander opportunities, determined if students had been presented the opportunity with a yes/no response, and then had students select options for what they did to intervene or why they may not have done anything. For instance, participants were asked a question such as "Have you seen a group of students sexually intimidating/bothering someone in a parking lot or similar setting?" If students indicated yes, they were asked to select what they did between "(a) did nothing, it wasn't my business; (b) did nothing because I wasn't sure what to do; (c) confronted the situation directly; (d) went and got assistance from someone else; and (e) other (please specify)" (Hoxmeier et al., 2017). In the harassment scenario described above, approximately half of college students did nothing, but 8.25% did nothing because "it wasn't my business" while 40.26% did nothing "because I was unsure what to do." Differentiating the reasons why students do not intervene is important because it indicates different programming needs (ie- to change attitudes versus to change skills).

Researchers have further assessed how potential bystanders assess the benefits and costs of intervening. This involves asking about common concerns, such as the safety of the bystander, any social consequences or benefits participants might face for intervening, and perceptions of how helpful participants feel it is to intervene. Witte et al. (2017) found that intervening was associated with "bitter-sweet" outcomes, characterized by many positive feelings overall, but higher risk of post-traumatic stress symptoms among those who witness and intervene after risky bystander situations, compared to those that do not witness and intervene. Krauss et al. (2017) conducted a study in which 281 college students reported a recent opportunity to help someone in a sexual assault, relationship abuse, or stalking situation. About a third (n=97) reported that they tried to help, and of this group 16% (16/97) reported a negative consequence from intervening such as getting into trouble or being harassed, physically hurt, or verbally threatened (Krauss et al., 2017). A second sample in this study of 299 students found that 20% of students that intervened reported one of these negative consequences (Krauss et al., 2017).

Initial research has further assessed how bystanders perceive the responses of potential victims and perpetrators. Qualitative work demonstrates both positive and negative perceived responses of potential victims and perpetrators. In coded responses, bystanders report positive responses by victims in 30.0% of interventions and by perpetrators in 6.0% of interventions (Moschella et al., 2016). Conversely, bystanders reported negative responses by perpetrators in 30.7% of interventions and by victims in 10.0% of interventions (Moschella et al., 2016). In 12.7% of interventions the bystanders report that the behavior was stopped after their intervention.

There are also timing concerns related to the measurement of bystander intervention outcomes (S. McMahon et al., 2017). One concern is assessing the frequency with which

bystanders have the opportunity to intervene. It is possible that students are presented with the same bystander opportunity multiple times and may respond differently in each situation. The timeframe in which participants are asked about bystander opportunities is also critical for reporting. If students are asked about any opportunities across their time in college, the amount of time they have been on campus may be related to how many opportunities they have encountered. For evaluation purposes, if the initial timeframe does not match the follow-up timeframe, bystander outcomes may seem to change based on the opportunities provided, not on the behaviors taken (ie- if upper-level undergraduate students are asked about any bystander behaviors they've used since starting at college and then assessed for behaviors in the month after a program, they may report less behaviors simply due to less opportunities during a shorter follow-up period). However, limiting the initial timeframe for evaluation purposes further limits the bystander opportunities that students may experience and requires long follow-up periods that are subject to more attrition.

## Bystander intervention in other health disciplines for college students

While bystander intervention against sexual violence is common in the literature, program staff at universities also work to increase bystander behaviors in other health-related areas, to address further topics such as harmful alcohol use and racial discrimination. Bystander intervention skills may be similar in these areas and can be promoted across health topics. The next section provides a selective review of bystander intervention approaches to harmful alcohol outcomes and racism.

### Alcohol-related bystander intervention

Alcohol use is common on college campuses, with young college-attending adults more likely to engage in heavy episodic drinking than their non-college attending peers (40% versus

35%) and 81% of college students reporting lifetime alcohol use (Carey et al., 2016; L. D. Johnson et al., 2012; Substance Abuse and Mental Health Services Administration, 2013). Negative consequences of excessive alcohol consumption in students include academic problems, mental health problems, injuries, increased mortality, and engagement in harmful sexual practices and illegal behaviors (Iconis, 2014).

Many interventions exist to address excessive alcohol use on college campuses, and some programs incorporate a component on helping friends with alcohol poisoning or those at risk for other negative consequences (Boekeloo et al., 2009; Fasone, 2016). Few studies have evaluated whether these trainings increase bystander behaviors in alcohol-related situations, but Fasone (2016) suggests that students actively engage in helping behaviors; in their study of college students who had witnessed someone in need of assistance related to alcohol in the previous month, 77% of participants gave the intoxicated person water, 63% drove or walked them home, 2% got help from a Resident Assistant and 4% called the police. Oesterle et al. (2018) found that only 14% of college students reported they had never helped someone with alcohol poisoning, mostly because they hadn't been in such a situation to provide assistance.

**Anti-racism bystander intervention**

Nelson et al. (2011, p. 265) define bystander anti-racism as "action taken by a person or persons (not directly involved as a target or perpetrator) to speak out about or to seek to engage others in responding (either directly or indirectly, immediately or at a later time) against interpersonal or systemic racism" (Nelson et al., 2011, p. 265). Confronting racism on campus shares similar dynamics to addressing sexual violence, as there is at least one primary aggressor and racism may be directed specifically to at least one victim or more broadly towards a group. Further, actions may be done in the presence of bystanders or in private one-on-one situations.

Scholars state that racism is currently presented more covertly than overtly, and that racism today is more commonly expressed as racial microaggressions, which are "brief and commonplace daily verbal, behavioral, or environmental indignities, whether intentional or unintentional, which communicate hostile, derogatory, or negative racial slights and insults toward people of color" (Minikel-Lacocque, 2013; Sue et al., 2007, p. 271). African Americans, Asian Americans, Latinos, and other minorities experience microaggressions regularly, and these experiences have been associated with mental health consequences (Kanter et al., 2017).

Evidence suggests that racism awareness education in undergraduates, typically through academic course content, increases critical awareness of race and decreases color-blind racial ideology, which is a form of racism that is found to reinforce racial prejudice and inequality (Neville et al., 2013). Evaluation findings suggest that anti-racism bystander training has been welcomed by students, with undergraduates indicating they appreciate and benefit from opportunities to practice responding to prejudiced comments through bystander role-playing (Plous, 2000).

Like sexual violence bystander intervention, there are frequently discrepancies between bystander intentions and bystander behaviors in anti-racism work. Hyers (2007, 2010) measured this discrepancy, and found that between two-thirds to three-quarters of participants considered an assertive response to discrimination (intentions) but only half or fewer of the participants made one (behaviors). Two trainings to directly confront racial prejudice found that participants of various racial backgrounds increased bystander behaviors after training (Bozeman, 2015; Lawson et al., 2010).

## Limitations in current sexual violence bystander intervention research

Even with recent studies in sexual violence bystander intervention, gaps exist in the literature. The next section outlines gaps that will be addressed in this research study.

### *Increase understanding of outcomes on programming for upper-level undergraduate students*

Much of the research conducted on sexual violence education with college students, and in bystander education, takes place with first and second-year undergraduate students (Hennessy, 2018). Since research shows that students with greater knowledge on sexual assault and less rape myth acceptance are more likely to intervene against sexual violence, some program planners believe that the impact of bystander intervention may be greater among older undergraduate students (S. McMahon, 2010; Staff, personal communication, 2018). As a result, this study will take place with upper-level undergraduate students, juniors and seniors, who have already received training during their freshman and sophomore years. This previous training aimed to increase knowledge about sexual violence, improve related attitudes, and provide initial guidance to intervene when sexual violence occurs. As a result of training, it is theorized that upper-level undergraduate students will enter the study with generally positive behavioral intentions to intervene. The intervention in this study aims to provide skills to further translate intentions into behavior by teaching direct communication skills and helping students to explore options to problem solve environmental constraints that inhibit bystander behaviors. As there are few interventions created specifically for previously trained students, this research may assist in providing future programming recommendations for upper-level undergraduates.

Baseline data collected in the study may also provide a cross-sectional view of the effects of previous one-session trainings on students. Most single session programs are considered insufficient dosage for behavior change (Nation et al., 2003). However, it is unclear how the

accumulation of multiple one-time sessions offered over multiple years may impact students. This study took place in a university where three existing in-person, single-session health-related educational programs and two online single session programs have been mandated to students over the course of two years.[3] Since single-session programming is more feasible for universities, determining the multiplicative effect of cumulative one-session programs may help evaluate prevention work as it happens in practice.

*Increase understanding of how training changes bystander behavior and the perceived helpfulness of intervening*

Research is beginning to emerge on which strategies students use to intervene, but these remain large categories that do not assess specific actions or approaches. For instance, even when intervention options are divided into categories such as the four Ds (direct, distract, delegate, delay), it is unknown what a student does when they engage in a "direct" intervention. It is also unclear what approaches students use, for instance whether they intervene in an aggressive, confrontational, or supportive manner. This research expands this literature by addressing two limitations: (1) Most current measurement approaches require students to describe their actions using categorical responses that do not provide a level of detail to fully discern the specific details of the strategy they would use (intentions) or have used (behaviors). This research increases the level of detail as students will share their specific actions/words in short open-ended responses. Coding these responses allows for future research to assess the perceived helpfulness of strategies. (2) Moschella et al. (2016) eloquently summarize the lack of

[3] This population of students has already received two years of prevention programming. Freshman students received information through orientation, an online sexual assault awareness program called Haven, and/or a one-woman theatrical performance on drug-facilitated sexual assault called Dissolve (Cooley, 2013; Gardiner, n.d.). Additionally, students received online training on alcohol awareness from EverFi and the alcohol bystander program Red Watch Band (EverFi, n.d.).

information on consequences of bystander intervention with their statement that, "little research has explored what happens after a bystander intervenes" (p.1). Studies are just emerging that assess the outcomes of bystander behaviors, concerning safety, benefits, and consequences (Moschella et al., 2016; Witte et al., 2017; Krauss et al., 2017). This study will contribute to that literature by assessing bystander experience and perceived helpfulness of intervening in scenarios of sexual violence, racism, and alcohol.

**Bystander program description**

The Our School TAKES ACTION program operates from the belief that "the entire campus community has a vital and valuable role to play in preventing acts that violate the basic dignity of an individual" and that this can be accomplished by training potential bystanders to prevent or intervene in violent and unhealthy situations (Staff, personal communication, 2018). The program name is an acronym. TAKES stands for Threat Assessment Keeps Everyone Safer (Staff, personal communication, 2018). ACTION stands for Aware (Notice an event and take responsibility to help), Create possible solutions (Think it through and pick a strategy), Tag Team (stay calm and enlist help if possible), Intervene (when safe and appropriate), Open dialogue/observe options (be conscious of delivery style), and Negotiate solutions/negate further conflict (know the appropriate next step) (Staff, personal communication, 2018).

Our School TAKES ACTION was first developed and implemented in 2011 at a private university in the Midwest. The program was developed by student services staff and campus police (Staff, personal communication, 2018)[4] and focuses on the primary prevention of sexual violence and other inappropriate comments, actions, and behaviors. It is a 90 minute one-session bystander education program that was initially implemented by the professionals who developed

[4] To protect the confidentiality of the college, it will be referred to as "the university" throughout this dissertation and in any results or evaluation tools.

the program. Our School TAKES ACTION is based in bystander research, the original five-step bystander model of intervention, and communication strategies (Latané & Darley, 1970; Staff, n.d.). In particular, the program promotes content adapted from the Virginia Tech Bystander Intervention Playbook (Stopabuse VT Edu, 2008). Ten strategies used are summarized in Table 1.

Table 1 Bystander Intervention Strategies[5]

| **Strategy** | **Description** |
|---|---|
| Group Intervention | There is safety and power in numbers. This is best used with someone who has a clear pattern of inappropriate behavior where many examples can be presented as evidence of his problem. This strategy is designed to let others know that they are not alone in their discomfort. For example, you might simply turn to the group and ask, "Am I the only one uncomfortable with this?" This creates options by allowing you to evaluate the situation and recruit the help of friends to determine your best move. |
| Clarification | People who express attitudes connected the inappropriate behavior expect people to go along with them, to laugh, to agree, to join in. They do not expect to be questioned. Saying, "I'm not clear about what you mean by that. Maybe you could explain?" encourages people to think about the assumptions that underlie their statements and attitudes. In using this strategy, it is especially important to question in a non-aggressive way. |
| Bring It Home | This strategy re-humanizes the person being demeaned (or objectified). Reminding someone that someone they care about might be talked about in this way often reminds people of their humanity. This prevents someone from distancing themselves from the impact of their actions. |
| "I" Statements | How does it feel when someone points a finger at you and says in an accusatory voice, "YOU . . ."? "I" statements are easier for people to hear since they are about the feelings and thoughts of the person making the statement, and not about criticizing the other person. Therefore, people are less likely to become defensive when using "I" statements. |
| Humor | This is perhaps the trickiest of all the strategies since humor can easily escalate tensions if people feel they're being mocked. However, if you use humor effectively, it can reduce the tension inherent in the interventions and make it easier for the person to hear you. Be careful, though, not to be so funny as to undermine the point you're trying to make. Funny doesn't mean unimportant. |
| Silent Stare | This strategy carries considerable weight with young people if you connect it with parents, who have the uncanny ability to communicate their displeasure with their children simply by staring at them. No words need to be spoken. Sometimes a disapproving look can be far more powerful than words. |

[5] Strategies are included in the TAKES ACTION program materials. These are not cited to protect the confidentiality of the program.

| Strategy | Description |
|---|---|
| Distraction | The goal of this strategy is not to directly confront inappropriate behaviors, but rather to interrupt them. This is an especially useful technique in dealing with situations in which there is a higher risk of physical violence (i.e. street harassment or an assault in progress). Use a distraction to redirect the focus somewhere else. Divert the attention of one person away from the other person. Have someone standing by to create a distraction and redirect the other person's focus if needed. |
| "We're Friends Right?" | Most people recognize that this strategy works best if you take your friend off to the side or wait until later to confront them. That way, you can avoid humiliating your friend and increase the likelihood that they will be able to hear and value what you say |
| Divide and Control | Step in and separate the two people. Let them know your concerns and reasons for intervening. Be a friend and let them know you are acting in their best interest. Take responsibility to make sure everyone makes it home safely. |
| Take a Picture | Have a camera phone? Use technology to your advantage. People immediately sensor their behavior when they know they are being recorded! Notice a security camera? Politely point it out. |

In addition to these strategies, communication is promoted through different engagement skills, including the Five-Step Persuasion Sequence and Engagement Phrases. Both these concepts are adapted with permission from Vistelar's Verbal Defense and Influence training program (Staff, n.d.). This program teaches non-escalatory and de-escalatory verbalization skills to prevent and manage conflict (Vistelar, 2018). The persuasion sequence promotes participants to do the following: 1. Ask, don't tell. 2. Tell them why, set the context. 3. Present options – present the most positive option first. 4. Confirm their decision. 5. Act – according to your knowledge, skills, and abilities (Staff, n.d.). These steps focus on ethical, rationale, personal, and practical ways to appeal to another person when engaging in a conversation that has high risk of conflict (Verbal Defense and Influence, n.d.).

Engagement Phrases are also a component of the Verbal Defense and Influence training. These are statements and questions that can be used when engaging in conversation and intervention on sensitive topics. Examples that have been adapted and used with Our School TAKES ACTION are provided in Table 2.

Table 2 Engagement Phrases promoted in Our School TAKES ACTION adapted from Verbal Defense and Influence[6]

| Engagement Statements / Questions |
| --- |
| • "The team needs you and expects more from you."<br>• "This is (*x*-school). That's not what we are about."<br>• "I know you're better than that."<br>• "You know that's not OK."<br>• "I hope no one talks about you like that."<br>• "Could you clarify what you just said? I'm not sure I understood that correctly."<br>• "Wow, do you *really* feel that way about *x* person/group/behavior."<br>• "I didn't expect that from you."<br>• "We've always been able to work things out in the past."<br>• "Please be careful. I care about you."<br>• "Right now, this is a small issue; let's work together so it doesn't become *x*."<br>• "That didn't necessarily offend me, but it may have offended someone else."<br>• "Could you please choose another word?"<br>• "Hey now, take it back, you didn't really mean that did you?" … "Well, why?" |

The final communication engagement strategy embedded into the program is the Law of Delivery, adapted from the University of Arizona's STEP UP bystander program (University of Arizona, 2008). It "encourages the person intervening to conduct the conversation in a safe environment, while being conscious of delivery style (tone, word choice, and the other non-verbals) necessary to convey a sensitive, understanding, non-judgmental, and empathetic approach" through encouraging bystander to focus on audience (who), content (what), timing (when), evidence/goals (why), and delivery/tone (how) (Staff, n.d.).

The Our School TAKES ACTION program was implemented with first- and second-year students at the university from 2011 to 2016 but the program was not researched with a rigorous study design or control group (Staff, personal communication, 2018). Overarching changes were made to the delivery of prevention programs on campus, so that students received bystander

[6] Strategies are included in the TAKES ACTION program materials These are not cited to protect the confidentiality of the program.

training in their first and second years. This training included single dose in-person sessions of sexual assault awareness, bystander intervention against sexual violence, and bystander intervention to help friends in harmful alcohol situations. In 2018, staff decided to offer additional programming to meet the needs of juniors and seniors with a refresher course and more advanced training. The Our School TAKES ACTION program, used in study, included the original communication strategies from previous renditions, but was updated with more current content, scenarios related to racism, and additional time to address more advanced bystander scenarios in an upper-level undergraduate audience.

**Theoretical framework**

While many sexual violence bystander intervention programs are informed by research and models, few programs are based on a theory of behavior change (Hennessy, 2018). More evidence is needed to explain the theoretical process that elicits internal changes in bystander intentions and behaviors. This study used an expansion of the Theory of Reasoned Action / Theory of Planned Behavior and Social Cognitive Theory called the Integrated Model of Behavioral Prediction (Integrated Model) (Fishbein & Yzer, 2003). This theory posits that the combination of intentions, self-efficacy, skills, and environmental constraints predict behaviors (Fishbein & Yzer, 2003). A primary goal of this study was to use this theory to help determine which constructs are most effective in eliciting behavior change in bystander training.

The Integrated Model of Behavioral Prediction is combined with existing research in bystander intervention and depicted in Figure 1. This model naturally intersects with Latané & Darley's (1970) original five-step model of helping behavior from the means to intervene (intentions) and bystander behaviors. Levels of prevention are incorporated to indicate how intentions vary based on risk (Caplan, 1964; Cowen, 1983; P. M. McMahon, 2000). Finally,

intervention details are included and contextualized around the four elements from the Theory of Reasoned Action / Planned Behavior. This includes an *action* (strategies to aggressors or victims), directed at a *target* (victim, aggressor/perpetrator, or other group of bystanders), at a certain point in *time* (immediate/delayed response), recognizing that these actions may vary based on the given the unique *context* of each situation (Fishbein, 2008, p. 3). Language to describe these elements is adapted from the Our School TAKES ACTION program and the Green Dot® bystander program's Four Ds of intervening: direct, distract, delegate, and delay (Coker et al., 2015).

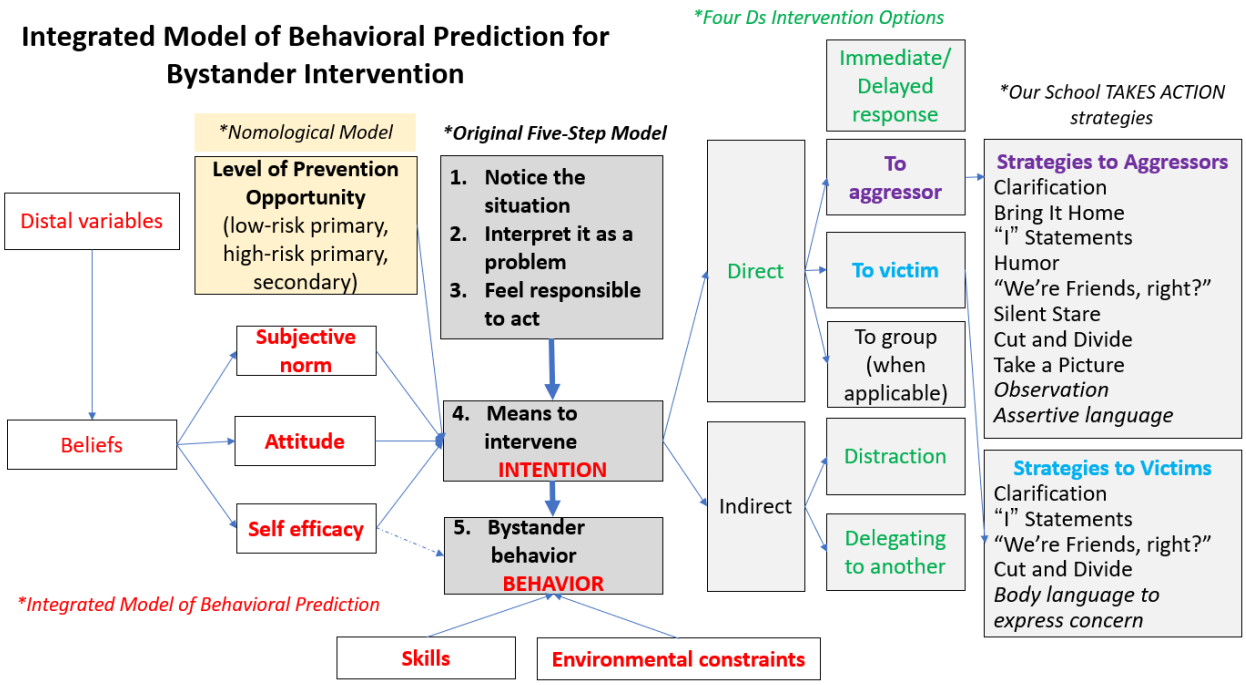


Figure 1. Integrated model of behavioral prediction for bystander intervention

There are specific advantages of applying the Integrated Model of Behavioral Prediction for Bystander Intervention to understand intervention and assess changes in the Our School TAKES ACTION program. The Integrated Model provides implications for which training constructs a health behavior intervention should address (Fishbein & Yzer, 2003). In particular,

individuals with positive behavioral intentions, but less bystander behaviors, are predicted to lack skills or to be restrained by environmental constraints. It is presumed that the students in this study will already have many positive behavioral intentions due to previous trainings from the university that have addressed attitudes, norms, and self-efficacy. The Our School TAKES ACTION program teaches strategies to build communication skills across various bystander scenarios. The curriculum further encourages students to consider safe, feasible, solutions for intervention in varying contexts. Since Our School TAKES ACTION aims to increase skills and help students address environmental constraints, it is hypothesized to increase bystander behaviors in students with existing positive behavioral intentions.

## Research study and aims

### Summarized study proposal

This proposal outlines a research collaboration to evaluate the bystander intervention program Our School TAKES ACTION using a waitlist-control cluster randomized trial at a private, midwestern university. In the Spring semester of 2019, the university implemented an updated version of its one-session bystander intervention program Our School TAKES ACTION using trained peer educators. The program aims to increase bystander behavior against sexual violence and other harmful health behaviors (racism, harmful alcohol outcomes) among upper-level undergraduate students who have already received prevention programming in bystander education, sexual violence, and alcohol. This study seeks to address the following specific aims and answer the corresponding questions:

*Aim #1: To examine the utility of the Theory of Planned Behavior/Integrated Model of Behavioral Prediction in predicting bystander intervention outcomes*

Question #1.1: How well does the modified Theory of Planned Behavior predict bystander intentions against sexual violence, racism, and unhealthy alcohol outcomes? Hypothesis: The constructs of subjective norms, attitudes, and self-efficacy will significantly predict bystander intentions, though not all constructs may be significant in each scenario. Intentions and self-efficacy will significantly predict behaviors.

Question #1.2: How well does the Integrated Model of Behavioral Prediction predict bystander intentions against sexual violence? Hypothesis: Along with intentions and self-efficacy, behavioral skills and environmental constraints are anticipated to be additional significant predictors of behavior, indicating that the Integrated Model of Behavioral Prediction may better model bystander behavior compared to the Theory of Planned Behavior.

*Aim #2: To delineate the specific bystander intervention strategies upper-level undergraduate college students use to intervene in sexual assault and other harmful health situations*

Question #2.1: How do bystander intentions and behaviors vary by low-risk primary, high-risk primary, and secondary prevention situations? Hypothesis: With quantitative baseline data, students will have higher intentions and be more likely to intervene in secondary prevention bystander situations, followed by high-risk primary prevention situations, and lastly by low-risk primary prevention situations.

Question #2.2: How does gender influence overall intentions and behaviors to intervene against sexual violence? Hypothesis: Women will report higher intentions and increased use of overall bystander behaviors in sexually violent situations.

Question #2.3: How does race/ethnicity influence overall intentions and behaviors to intervene against sexual violence? Hypothesis: Modeling Hoxmeier, Acock, & Flay (2017), who state that, "the dearth of literature on the role race/ethnicity plays in bystander intervention challenged any generation of hypotheses based on these variables," this study will employ an exploratory analysis to investigate differences in bystander intentions and behaviors, and between students of different race/ethnicities. While sample sizes for analyses may be limited due to the demographic composition of the school, it is hypothesized that Students of Color may be overrepresented in the study sample, as they may be more likely to live in off-campus student housing units compared to Non-Hispanic White students (Staff, personal communication, 2018).

Question #2.4: How do bystanders describe their intended and actual interventions in different scenarios? Hypothesis: Students will describe interventions differently based on the scenario provided. Students will describe a variety of strategies to intervene. Baseline data will be coded inductively and deductively, making this question more exploratory in nature.

*Aim #3: To assess the outcomes of bystander intervention training on changes in student intentions and the use of bystander strategies in upper-level undergraduate students*

Question #3.1: Does the Our School TAKES ACTION program (TAKES ACTION) increase student readiness to intervene in bystander situations? Hypothesis: Students who take the program will increase their readiness to intervene in bystander situations compared to waitlisted students in the control group. Using quantitative data, this will be operationalized by having significantly less students select they would do nothing because they are "not sure what to do" in hypothetical situations from baseline to follow-up.

Question #3.2: Does the TAKES ACTION program increase bystander behaviors and improve experiences intervening? Hypothesis: Students who take the program will increase their

behaviors to intervene in bystander situations compared to waitlisted students in the control group. Students will report increased helpfulness of the strategies they use and a more positive experience compared to waitlisted students in the control group.

Question #3.3: Does the TAKES ACTION program increase participant confidence levels to intervene? Hypothesis: Students will report more confidence to implement selected bystander strategies compared to waitlisted students in the control group after the intervention.

## Chapter 2: Methodology

### Overview

Using a cluster randomized waitlist control trial, students were randomized to receive the Our School TAKES ACTION program at the beginning (intervention group) or the end (waitlist control group) of Spring semester, 2019. Housing data indicated that 520 students lived in three off campus university buildings, and were mostly juniors or seniors.[7] Students were recruited from this sample, and a total of 206 students were formally enrolled in the study (39.6%). Further demographic information on study participants is included in *Chapter 3. Results*. Students were randomized by housing floor within their building to receive program sessions. Among the paired sample analyzed for intervention effects, data were collected from students at baseline and approximately seven-week follow-up using an online survey in UWM Qualtrics. Quantitative and qualitative data was collected in the survey. See Figure 2 for study stages.

| **Study Stages** Spring 2019 | **Activity** | **Intervention Group** | **Waitlist Control Group** |
|---|---|---|---|
| **STAGE 1** | Recruitment | ✓ Flyers hung on floor walls for recruitment<br>✓ Flyers disseminated into student mailboxes<br>✓ Emails sent to students<br>✓ Participants recruited in the lobby before sessions<br>✓ Participants invited by floor to participate at certain sessions<br>✓ Original incentives included free pizza at sessions and a lottery for prizes | |

[7] A small number of graduate and professional students also live in these buildings.

| **Study Stages** Spring 2019 | **Activity** | **Intervention Group** | **Waitlist Control Group** |
|---|---|---|---|
| | | ✓ Remaining sessions included a mandate requiring students to attend a training or have an enrollment hold placed on their registration. They were required to attend the session but invited, not required, to be a part of the research study. | |
| **STAGE 2** | Baseline Measurement & Intervention | ✓ Among intervention "floors," participants were consented and completed online baseline surveys in-person using their own phones, computers, or tablets.<br><br>✓ Participants **received *Our School TAKES ACTION*** in groups. | ✓ Among waitlist control "floors," participants were consented and completed online baseline surveys at short in-person sessions with free pizza or individually online in advance of their session using their own phones, computers, or tablets. |
| **STAGE 3** | Follow-up Measurement & Intervention | ✓ Among intervention "floors," participants were sent online follow-up surveys to be completed on their own phones, computers, or other electronic devices. | ✓ Among waitlist control "floors," participants completed online follow-up surveys in-person using their own phones, computers, or tablets before the training to complete their follow-up data<br><br>✓ Participants **received *Our School TAKES ACTION*** in groups |
| | Follow-up | ✓ To increase participation in the follow-up (T2) online survey, students who did not complete follow-up measures were emailed with additional incentives and/or received follow-up phone calls | |

Figure 2 Spring 2019 study details to evaluate Our School TAKES ACTION

**Participants**

Participants included third- and fourth-year students (juniors and seniors) at a private, midwestern university. There were approximately 3,000 third and fourth-year students enrolled

at the university. Current annual undergraduate tuition is similar to other private institutions, and the majority of admitted first-year students are in the top 20% of their high school class.[8]

The university manages multiple university-sponsored off-campus housing units for junior and senior undergraduates and graduate students. Buildings include a range of studio to four-bedroom units. It is estimated that approximately 1,400 students live in these buildings. Participants were recruited from within three of these buildings.

This population of students previously received two years of prevention programming. Based on year of entry, students received a different combination of programs. Students received information through orientation, an online sexual assault awareness program called Haven, and/or a theatrical performance on drug-facilitated sexual assault called Dissolve (Cooley, 2013; Gardiner, n.d.). Additionally, students received online training on alcohol awareness from EverFi and the alcohol bystander program Red Watch Band (EverFi, n.d.). As a result of this training, it was hypothesized that students entering the study may already exhibit positive bystander intentions.

**Study design and procedures**

***Design****:* A waitlist-control design for this study was selected to balance rigor, feasibility of implementation, and ethics. The use of an experimental design allows for the randomization of baseline characteristics among study participants, ideally increasing the internal validity of the study. This improves the likelihood that the intervention and control groups are more alike at baseline and decreases the likelihood that external factors to the study influence the program outcomes (Fink, 2005). The waitlist design allows for all study participants to receive the program by providing the training to some students in the beginning of the semester and to others

[8] Sources of university information and specific data is omitted to protect confidentiality.

at the end of the semester, while giving everyone in the study sample an equal chance to receive the program. The semester provides for a short follow-up period, aiming for a minimum of four weeks between pretest and follow-up while still reaching students before they graduate or leave for the summer. Specific recruitment methods are described more fully in detail below.

***Sampling, recruitment, and incentives****:* University programming staff in collaboration with Campus Housing staff identified Building 1, Building 2, and Building 3 as the three residence halls from which students are recruited for the study.[9] There were 520 students residing in these buildings, mostly juniors and seniors. All students in these buildings were recruited to be a part of the study, and 39% (n=206) were formally enrolled into the study.

Recruitment was conducted jointly between program staff at the university and the student Principal Investigator (student PI). Recruitment efforts throughout the study included dissemination of flyers hung in the housing buildings, flyers disseminated directly to student mailboxes, personalized emails to students, and in-person recruitment in building lobbies before sessions (see the *Study enrollment and data collection process* section below for details on enrollment and consent procedures).

Incentives and mandates changed throughout the study with appropriate IRB modifications. Participant incentives initially included free pizza and an entry into a lottery to win gift cards and prizes. This process yielded low recruitment, with only 33 enrolled participants in February for initial sessions. Revised recruitment efforts included a $10 electronic Amazon gift card for participation of the pretest survey and an additional $10 electronic Amazon gift card for the follow-up survey, with the expectation that participants would also attend a program session (at invited times based on group assignment). The program itself became a

[9] Building names are not shared to protect confidentiality.

requirement for the students in these buildings, and a hold was put on the registration of students who did not attend the program. This mandate was more relevant for juniors, as graduating seniors did not need to enroll in future courses. The hold was related only to program participation. Students were able to participate in the program but decline participation in the study.

To increase participation in the follow-up T2 online survey for intervention participants, after the semester ended, students who did not attend were called and given reminders to check their email for the final survey. Calling helped reach students that did not check their email in the summer. This last follow-up group was further incentivized with a $20 Amazon gift card for survey completion after receiving IRB permission.

***Assignment:*** Stratified, cluster randomization was used to select participants by housing floor from the three buildings into the intervention and control groups. Participants were stratified by building first, and then clustered into floors (or combinations of floors with low sample sizes). There were 15 different floors across the buildings. Floors included varying layouts, number of residents, and unit types of one to five students residing in each unit. The housing roster provided by program staff indicated that 20% of students lived in single units, and the remaining students lived in double, triple, quad, or five-person units.

As it is anticipated that different buildings may attract different students who apply and are selected to live there, stratification considered buildings and floors collectively so that a similar number of students within each building were randomized to the intervention and control groups. Since students were hypothesized to interact more with those in their housing unit and potentially on their floor, randomization by floor was theorized to minimize the likelihood of a spillover effect in the study (ie- that students in the intervention group will influence the

attitudes/behaviors of those in the waitlist control group due to their close proximity). Randomizing by individual would not have taken this into account, and would have limited recruitment efforts (ie- the ability to invite individuals to sessions based on their floor, or post flyers to invite an entire floor at a time). It was also predicted that roommates or hallmates might come to sessions together, further justifying the decision to randomize by floor. Lastly, floorplans indicated that unit types were relatively similar by building, so that randomization by the floor of each building would yield a similar number of unit types in the intervention and control groups (single, double, triple, etc.). This was hypothesized to reduce bias based from living arrangement, as living alone versus living with roommates might influence study participation and outcomes.

To ensure that a similar number of participants were randomized to the intervention and control groups, the following stratification and randomization decisions were utilized. The number of students per floors ranged from 3 to 89, with a mean floor size of 35 students. Floors in buildings were combined as needed so that a similar number of students were randomized to the intervention and control groups within each building. From 15 total floors, 10 strata were created and then compiled into five matched pairs of similar student size. Each matched pair was situated in the same building. For example, floors two and three could have been combined to create one stratum with a sample size similar to floor floor in Building 1. Stratum 2/3 and Stratum 4 then created a matched pair within that building and randomization assigned one stratum to the intervention and one to the control. The ten strata were entered into excel and the rand() function was conducted to provide a value of 0 to 1 for each stratum (floor or combination of floors). Within each matched pair, the higher values were assigned to the intervention group. The randomization process yielded eight intervention floors of 249 students and seven

comparison floors or 271 students. In buildings 1, 2, and 3 respectively, 49.5%, 42.9%, and 53.2% of students were assigned to the intervention group.

***Study enrollment and data collection process:*** Program sessions started in February of 2019. As students entered program sessions, they were invited by the Student PI or program staff to enter the study. Students on floors randomized to the intervention group immediately received the program after completing the online survey. In their separate sessions, control group participants were initially invited to sessions, not to receive the program, but to complete the baseline survey.

All students who chose to enroll in the study wrote their name and email onto a sign-in sheet. They were then provided with a URL to the online survey to complete in the first 20 minutes of the session. The first page of the survey included the IRB approved consent form, and by clicking onto the next page students were consented into the study. At the end of the survey, students were directed to an external survey to enter their name and email in order to receive their incentives through email. This separate survey was not connected to participant responses. In order to track participant outcomes across time but keep participant identity anonymous, students created their own identification codes on the first baseline survey (T1) using instructions provided. This code was then repeated again for the follow-up survey (T2) to match the surveys from T1 to T2. See code in Appendix A. Student Survey Code.

**Ethical Considerations**

A joint-university deferral form was accepted by the University of Wisconsin-Milwaukee Institutional Review Board (IRB), deferring the IRB to the university where the study was conducted (university name omitted for confidentiality). The study was determined to

be exempt status. All changes throughout the study were resubmitted and approved by the IRB before implementation.

All students received electronic consent forms in the first page of the UW-Milwaukee Qualtrics® survey that outlined the risks and benefits to the study. Consent forms included the topics of sexual violence, racism, and alcohol and shared that answering survey questions may be upsetting for some participants. Students were reassured of their rights as study participants, including the right to withdraw from the study at any time. Students were reminded in emails and in-person that they were able to participate in the program without participating in the study.

Due to the sensitive nature of sexual assault questions and mandated reporting requirements on college campuses, identifying information was not collected and demographic questions were optional. This diminished the likelihood of collecting identifying information required for mandated reporting requirements of sexual violence for students attending Title IX funded institutions of higher education (Potter & Edwards, 2015). Referrals for sexual violence and other services were provided in recruitment materials, emails, and on the last page of the online surveys. At the end of the survey students were redirected to the university's campus sexual assault services webpage. During program sessions, students were provided with campus and external resources, per recommendations for best practices in data collection in sexual assault research (Potter & Edwards, 2015).

**Measures Description**

Data collected for the study included demographic information, previous experiences with sexual assault/training/alcohol, theoretical constructs, bystander intentions, and bystander behaviors. These were collected in an online survey in Qualtrics. All questions are provided in Appendix B. Online survey questions.

***Demographics:*** Demographic data was collected on building, building floor, class standing, gender, gender identity, Hispanic ethnicity, race, U.S citizenship status, religious affiliation, and sexual orientation. All constructs described above were assessed with one question. Questions were taken directly from the Office of Research at the university to assist in reporting results.

***Previous training experiences*:** In addition to previous experiences of sexual assault, it was important to consider students' previous experiences with training. All students were required to complete mandatory training. Therefore, students were not asked directly about having attended previous university-sponsored sexual assault or alcohol trainings. However, transfer students may not have received such trainings. As a result, students were asked when they enrolled at the university by selecting their starting semester.

Finally, some students may have received previous education related to racism, which was hypothesized to influence their bystander intentions and behaviors (Neville et al., 2013). As a result, students were asked a singular question on whether they had taken an academic course or in-depth training on race or racism since starting at the university.

***Previous experiences with alcohol/drugs:*** Alcohol and drug use were measured using modified items from the Youth Risk Behavior Survey 2019 Questionnaire. Questions assessed the number of days or the number of times the respondent used the substance described. These included assessment of any alcohol use in the past 30 days, binge drinking assessed by 4+ drinks per sitting in the past 30 days for females and 5+ drinks for males/other genders, marijuana use since starting at the university, and other illegal drug use since starting at the university (Youth Risk Behavior Surveillance System, 2018).

***Previous sexual experiences:*** Sexual assault history was assessed through knowing a victim, knowing a perpetrator, being a victim, and being a perpetrator. Before this section a statement was written stating that, "The next set of questions ask about topics related to sexual assault." Knowing a victim and knowing a perpetrator were assessed with single item questions taken from the Sexual Assault Bystander Behavior Questionnaire SABB-Q (Hoxmeier, 2015). This questionnaire was informed by previous research and was created to measure bystander intentions and behaviors in a college population. Victimization and perpetration of sexual violence were assessed with an adaptation of the four-item sexual abuse subscale of the Conflict in Dating Relationships Inventory CADRI (Wolfe et al., 2001). This inventory was created to measure abuse among adolescent dating partners. The original items and updated language for victimization and perpetration are included in Table 3. Participants were asked, "How often has someone done the following to you?" for victimization and "How often have you ever done the following?" for perpetration. Response choices for each item were (a) never, (b) once or twice, and (c) three or more times. Using display logic in the online survey, participants who responded affirmatively for each item received a follow-up question on each item asking whether the behavior occurred in the past six weeks or since the program.

Table 3 CADRI items for victimization and perpetration[10]

| **Original item** | **Confirmatory factor loadings of the "Sexual abuse" construct** | **Adapted perpetration items "How often have you done the following?"** | **Adapted victimization items "How often has someone done the following to you?"** |
|---|---|---|---|
| I forced her to have sex when she didn't want to | 0.61 | Forced someone to have sex when that person didn't want to | Forced me to have sex when I didn't want to |

[10] Adapted from Wolfe et al. (2001)

| Original item | Confirmatory factor loadings of the "Sexual abuse" construct | Adapted perpetration items "How often have you done the following?" | Adapted victimization items "How often has someone done the following to you?" |
|---|---|---|---|
| I threatened her in an attempt to have sex with her | 0.62 | Threatened someone in an attempt to have sex with them | Threatened me in an attempt to have sex with me |
| I kissed her when she didn't want me to | 0.41 | Kissed someone when they didn't want me to | Kissed me when I didn't want them to |
| I touched her sexually when she didn't want me to | 0.28 | Touched someone sexually when they didn't want me to | Touched me sexually when I didn't want them to |

***Bystander scenarios*:** Brief scenarios were presented in short statements to students in two sections. In the first section, students were asked a series of questions about how they would behave if they encountered these scenarios (bystander intentions). In the second section, students were asked a series of questions on whether they had encountered the scenario before, and if so, what they did (bystander behaviors). Nine statements depicted bystander scenarios/opportunities. Three statements each were used to depict bystander scenarios related to sexual violence (n=3), and an additional three items each are used to assess alcohol (n=3) and racism (n=3). Of the scenarios within each topic, one statement portrayed a low-risk primary prevention opportunity, a second statement portrayed a high-risk primary prevention opportunity, and a third statement portrayed a secondary prevention opportunity. This format was developed from McMahon & Banyard's (2012) nomological framework.

To identify the nine items, an initial list of 42 potential items was compiled using existing research (sources for final items are included in

Table 4). Existing data on the distribution of responses to the item or factor loading was used to help select items for inclusion. In alignment with a collaborative evaluation, the list of items with any research information was brought forward to campus stakeholders and committee

members, who helped with selection of the low-risk primary, high-risk primary, and secondary prevention categories across the three topic areas. After selection, the language from items was adapted as needed to fit the format of the scenarios in this study, also seen in Table 4. This process, of creating bystander scenarios from the nomological framework by selecting individual items in the literature, models previous research in the field (Hoxmeier, 2015; S. McMahon et al., 2017).

Table 4 Final nine bystander scenarios

| **Area** | **Level** | **Original item** | **Data / Source** | **Final language** |
|---|---|---|---|---|
| Sexual assault | Low-risk primary | I heard friends talking about women in sexually degrading ways. | 31.4% of full sample intervened; 67.2% with opportunity intervened among 256 men/women at a midwestern university (S. McMahon et al., 2017) in Table 2 of article | I heard someone I know talking about women in sexually degrading ways. |
| Sexual assault | High-risk primary | Check in with your friend who looks intoxicated and is being taken to a room by a guy (SA, High risk primary) | 39.5% had the opportunity; of which 90.09% intervened among 815 men/women at a large university in the Pacific Northwest (Hoxmeier, Flay, et al., 2018) | When someone I know seemed drunk, I saw another person attempt to isolate them with possible sexual intentions (for instance to make out or hook up with them). |
| Sexual assault | Secondary | I saw another guy possibly committing a sexual assault. | 16.0% of full sample intervened; 33.1% with opportunity intervened among 256 men/women at a midwestern university (S. McMahon et al., 2017). | I saw another person possibly committing a sexual assault. |
| Racism | Low-risk primary | Challenge a friend who made a sexist joke. | On a scale of willingness to intervene from 1=less willing to 5=most willing, the mean for the item was 2.99 (SD=1.30) in a sample of 899 new first-year students at a large, northeastern public university (S. McMahon et al., 2011). This will be adapted to be a “racist” comment or joke. | I heard someone I know make a racist comment or joke. |
| Racism | High-risk primary | You have been treated with less respect than other people (because of | From a Day-to-day unfair treatment question in a psychometric study for population health research on racism and health among 616 working adults | I witnessed someone I know be treated with less respect than other people because of their |

| Area | Level | Original item | Data / Source | Final language |
|---|---|---|---|---|
| | | your race, ethnicity, or color). | 25-64 years old near Boston, MA (Krieger et al., 2005). | race, ethnicity, or color. |
| Racism | Secondary | You have been threatened or harassed. | From a Day-to-day unfair treatment question in a psychometric study for population health research on racism and health among 616 working adults 25-64 years old near Boston, MA (Krieger et al., 2005). | I witnessed someone I know be threatened or harassed because of their race, ethnicity, or color. |
| Alcohol | Low-risk primary | 'been pressured to drink alcoholic beverages more or more often than you wished to drink them?" / 'have been pressured to drink alcoholic beverages even if it has become evident that you do not drink? | Over 47% reported being pressured to drink in past 12 months among 52 Finnish adults 23-35 years old in a qualitative study (Mäkelä & Maunu, 2016). | I witnessed someone I know be pressured to drink alcoholic beverages more often than they wished. |
| Alcohol | High-risk primary | I saw a drunk person get left behind by their friends at a party; One of my friends needed help (I called 911). | In the first scenario, 41.7% of the full sample intervened; of those who had the opportunity, 86% intervened among 256 men/women at midwestern university (S. McMahon et al., 2017). For the second item (one of my friends needed help) in the same study, 7.3% of the full sample intervened; of those who had the opportunity 18.5% intervened. Adapted for multiple settings and changed based on collaborative discussions to discuss "needing assistance." | I witnessed someone I know have too much to drink and need assistance. |
| Alcohol | Secondary | Made sure someone who had too much to drink got home safely | 74.7% of sample had the opportunity; of which 95.1% intervened at least once among 410 men/women at private midwestern university (S. McMahon et al., 2017) in Table 3 of article | I witnessed someone I know who had too much to drink and needed help to get home safely. |

***Bystander intentions*:** To assess bystander intentions, each of the nine scenarios in Table 4 were presented as hypothetical situations. Before each item the survey stated, "Imagine the scenario" and listed response options from Table 5. Students were asked "If you were to encounter this situation, what would you be most likely to do?" and selected from one of eight

categorical options including (a) go along with it (agree, laugh, etc); (b) nothing; (c) say something; (d) actively intervene (ie- protect the person that could be harmed, stop the aggressor); (e) use body language (ie- silent stare of disapproval); (f) create a distraction; (g) go and get assistance from someone else; or (h) other.

Using online survey display logic, based on the response, each participant received a follow-up question(s) using the instructions, "Please select a response and/or respond with a short phrase or sentence." The follow-up questions correspond to the eight options above and are provided in the response column of Table 5. Bystander response options were adapted and informed from Hoxmeier, McMahon, & O'Connor (2017) and Moisuc et al. (2018).

Table 5 Measurement strategy for bystander intentions[11]

| **Instructions:** First, please circle a letter to indicate how might respond if you encountered this scenario. **If you were to encounter this situation, what would you be most likely to do?** | **Please select a response and/or respond with a short phrase or sentence.** |
|---|---|
| **a.** Go along with it (agree, laugh, etc)<br>**b.** Nothing<br>**c.** Say something<br>**d.** Actively intervene (ie- protect the person who could be harmed, stop the aggressor)<br>**e.** Use body language (ie- silent stare of disapproval)<br>**f.** Create a distraction<br>**g.** Go and get assistance from someone else.<br>**h.** Other | **a.** Why would you go along with it?<br>**b.** Why would you do nothing?<br>a. It isn't my business<br>b. Because I'm not sure what I would do<br>c. I am worried it would be unsafe<br>d. Because I am worried how it would impact me (my my relationships, reputation, etc)<br>c. For another reason. Explain here: ___<br>**c.** Who would you say something to? *(adapted for context)*<br>my friend directly.<br>the other person directly (if applicable)<br>the group directly (if I was in a group).<br>What exactly would you say?<br>**d.** How would you intervene? (ie- please describe what you would do)<br>**e.** How would you use body language? (ie- please describe what body language you would use)<br>**f.** How would you create a distraction?<br>**g.** Who would you go to for help?<br>**h.** What would you do? |

[11] Follow-up questions provided for all nine scenarios.

***Bystander behaviors:*** To assess bystander behaviors, the same corresponding bystander situation/scenario was provided immediately after the intention item for all nine scenarios. Students were asked if they had witnessed the scenario since starting at the university. For each scenario they witnessed, they were asked how many times they witnessed this scenario in the past six weeks or since they last completed the baseline survey (integer 0, 1, 2, etc.). For participants who had witnessed one or more scenarios in the past six weeks/ since they last completed the survey, they were asked how many times they intervened as a bystander (integer 0, 1, 2, etc.). For those who reported intervening at least once since starting at the university, the following question was provided: "During a time when you were in this situation, what did you do?" Participants received the past tense version of the same items (a) through (g) provided for intentions. The same follow-up questions were provided from the bystander intentions section, also rewritten in the past tense. See Table 6.

Table 6 Bystander behavior measurement questions

| Instructions: This section of the survey asks questions using different situations. First, please circle "Yes" or "No" to indicate if you have or have not had the opportunity to take each of the actions listed. Then answer the following questions for each item. | | | |
|---|---|---|---|
| **Have you witnessed this scenario since starting your time at the university?** | **If yes, have you witnessed this scenario in the past six weeks?** | **What did you do?** | **Please select a response and/or respond with a short phrase or sentence.** |
| Yes/No | **(or for T2 since the last time you completed the survey)?**<br><br>Yes/No | **a.** Went along with it (agreed, laughed, etc)<br>**b.** Nothing<br>**c.** Said something<br>**d.** Actively intervened (ie- protected the person who could be harmed, stopped the aggressor)Used body language (ie- silent stare of disapproval) | **a.** Why did you go along with it?<br>**b.** Why did you do nothing?<br>a. It wasn't my business<br>b. I wasn't sure what I would do<br>c. I was worried it was unsafe<br>d. Because I was worried how it would impact me (my relationships, reputation, etc)<br>e. For another reason. Explain here: _<br>**c.** Who did you say something to? *(Adapted)*<br>my friend directly.<br>the other person directly (if applicable)<br>the group directly (if I was in a group).<br>What exactly did you say? |

| Instructions: This section of the survey asks questions using different situations. First, please circle "Yes" or "No" to indicate if you have or have not had the opportunity to take each of the actions listed. Then answer the following questions for each item. | | | |
|---|---|---|---|
| **Have you witnessed this scenario since starting your time at the university?** | **If yes, have you witnessed this scenario in the past six weeks?** | **What did you do?** | **Please select a response and/or respond with a short phrase or sentence.** |
| | | **e.** Created a distraction<br>**f.** Went and got assistance from someone else.<br>**g.** Other | **d.** How did you intervene? (ie- please describe what you did)<br>**e.** How did you use body language? (ie- please describe what body language you used)<br>**f.** How did you create a distraction?<br>**g.** Who did you go to for help?<br>**h.** What did you do? |

***Theoretical constructs:*** The constructs of attitudes, subjective norms, self-efficacy, skills, and environmental constraints were used to assess the Integrated Model of Behavioral Prediction (Hust et al., 2013, 2016). For bystander behaviors, bystander experiences were measuring by assessing the perceived helpfulness of the selected strategy and personal experience intervening.

Attitudes / Rape Myth Acceptance: Attitudes were operationalized as twelve total items, four each for sexual assault, harmful alcohol use, and racism. Rape myth acceptance items are a common method to assess attitudes in a theoretical model to predict sexual violence behavior (Hust et al., 2013, 2016). Rape myth acceptance was measured using an updated version of the abbreviated 22 question Illinois Rape Myth Acceptance Scale (IRMA), which has a Cronbach's alpha of 0.87 (S. McMahon & Farmer, 2011). The original IRMA included 45 items and seven subscales, and had an overall Cronbach's alpha of 0.93 and subscale reliability ranging from 0.74 to 0.84 (Payne et al., 1999). The updated IRMA measures rape myth acceptance using four subscales, "She asked for it," "He didn't mean to," "It wasn't really rape," and "She lied." Participants rate their level of agreement on a series of statements in each subscale using a 5-

point Likert-scale ranging from strongly disagree (1) to strongly agree (5). Sample items include "If a woman is raped while she is drunk, she is at least somewhat responsible for letting things get out of control," and "If a guy is drunk, he might rape someone unintentionally." Following the example of Hust (2013) and previous authors, a shortened version of the scale was used by selecting one item within each subscale. Data was reported on a five-point scale where 1=strongly agree, 2=agree, 3=neutral, 4=disagree, and 5=strongly disagree. See the first four items for inclusion in Table 7 along with the mean, standard deviation, and skewness from a previous college population.

Less evidence is available on which attitudes predict bystander intervention against racism and harmful alcohol outcomes. Four items to assess alcohol attitudes and four items to assess racist attitudes were developed by the Student PI in consultation with stakeholders, with some items adapted from the Modified Social Drinker Intervention Scale (Fasone, 2016), the Experiences of Discrimination measure (Krieger et al., 2005), and the Acceptability of Racial Microaggressions Scale (Mekawi & Todd, 2018). See Table 7.

Table 7 Attitudinal items[12]

| **Item** | **Mean (SD)*** | **Skewness*** |
|---|---|---|
| If a girl is raped while she is drunk, she is at least somewhat responsible for letting things get out of control. | 3.29 (1.21) | -0.061 |
| If a girl initiates kissing or hooking up, she should not be surprised if a guy assumes she wants to have sex. | 3.31 (1.18) | -0.19 |
| When guys rape, it is usually because of their strong desire for sex. | 3.07 (1.20) | 0.01 |
| If a guy is drunk, he might rape someone unintentionally. | 3.18 (1.12) | 0.08 |
| It is okay to get really drunk. | - | - |
| It is unlikely that something bad will happen if a student gets really drunk. | - | - |

[12] Includes four items from the Illinois Rape Myth Acceptance Scale, McMahon & Farmer (2011)

| Item | Mean (SD)* | Skewness* |
|---|---|---|
| It is better not to get involved in a situation where someone is really drunk. | - | - |
| I expect my friends to look out for me when I'm drinking. | - | - |
| Everyone has the same chance to succeed regardless of their race. | - | - |
| Racism isn't really a problem on our campus. | - | - |
| It is okay to tell a racist joke as long as it doesn't offend anyone. | - | - |
| It is important to reflect on our actions to examine if they were discriminatory. | - | - |

*Data only provided for available items from the Illinois Rape Myth Acceptance Scale

Subjective norms: Subjective norms are assessed by rephrasing the twelve attitudinal items by asking participants to rate how they believe other students at their school would agree/disagree with each item. Instead of receiving instructions to rate their own agreement to the items, participants received the following instructions: "On a scale of 1 (strongly disagree) to 5 (strongly agree), rate how much you believe other students at the university agree with the following statements:" The 12 rephrased attitudinal statements were then stated. For example, instead of rating agreement to "If a girl is raped while she is drunk, she is at least somewhat responsible for letting things get out of control" students responded to "Most students at the university believe that if a girl is raped while she is drunk, she is at least somewhat responsible for letting things get out of control."

Self-efficacy: Self-efficacy was assessed by asking a follow-up item after each of the nine bystander intention questions. After selecting the intended strategy to intervene in the hypothetical situation, participants were asked to rate on a seven-point scale from one (not very confident) to seven (very confident), "How confident are you that you could take the action you selected / described?" This measurement approach is an adaptation from Hoxmeier (2015), who assessed perceived behavioral control by providing nine scenarios and asking the respondents,

“If you were to encounter this situation, how difficult or easy would it be for you to take each of these actions?” using a scale of one (very difficult) to seven (very easy).

Skills: A Likert scale was created to assess bystander skills based in the Law of Delivery, a communication strategy in Our School TAKES ACTION (University of Arizona, 2008). Participants are taught to focus on the who, what, when, how, and why of intervening. They were asked, "When my friend says or does something that I disapprove of I have the skills do the following:” Items included (a) Select the right person to speak with or go to for help; (b) Know what to say or do; (c) Know when to say or do something; (d) Think clearly about what I say or do; and (e) Use the right tone, word choice, and delivery style to share my opinion. Responses included 1=strongly agree, 2=agree, 3=neutral, 4=disagree, and 5=strongly disagree.

Environmental constraints: Environmental constraints were operationalized as environmentally-dependent skills. Seven items were based in common barriers to intervening based on different environmental contexts from Burn (2009), adapted in Yule & Grych (2017). These items included audience inhibition/peer norms, being drunk and vulnerable, perceived responsibility, perceived risk, and others. Responses included 1=strongly agree, 2=agree, 3=neutral, 4=disagree, and 5=strongly disagree. See items and corresponding barriers in Table 8.

Table 8 Environmental constraints measurement

| **Barrier category** | **Construct to assess environmental constraints** |
|---|---|
| Peer norms / Audience inhibition | My friends would disapprove if I intervene in situations related to sexual violence. |
| | I am worried that other people will make fun of me or criticize me if I intervene in situations related to sexual violence. |
| Drunk and vulnerable | There are safety concerns when I intervene in situations related to sexual violence. |

| Barrier category | Construct to assess environmental constraints |
|---|---|
| | When I am drinking it is harder for me to intervene in situations related to sexual violence[13] |
| Perceived responsibility | In most cases, someone else is better positioned to intervene in situations related to sexual violence. |
| Perceived risk | Some situations related to sexual violence are not that big of a deal. |
| Other | There are circumstances that would keep me from intervening in situations related to sexual violence. |

***Bystander helpfulness and experience*:** To measure bystander experiences after intervening, questions assessed the perceived helpfulness of the selected strategy and personal experience intervening. For each item where a behavior was used, participants answered the following two questions using a seven-point Likert scale from one (harmful) to seven (helpful): (1) How helpful do you believe your response was in addressing the comment or action? And a seven-point Likert scale from one (negative) to seven (positive): (2) How would you describe your personal experience as a bystander in this situation? These questions were created specifically for the survey and were informed by stakeholder input.

**Data analysis**

The study used a mixed-method design. Data was collected using Qualtrics, downloaded into Microsoft Excel files, and combined using baseline T1 and follow-up T2 codes. Codes were matched directly or within one "grouping" of values (ie- one part of the codes was not matched), also referencing other demographic variables for confirmation. Quantitative data was analyzed in STATA 15.1. A descriptive analysis was used to describe the data, and data was checked for missingness and outliers. Missingness was <5% of the proportion of responses of all key

[13] After this item the survey stated, "If you do not drink write: "NA" in the space below." These responses were recoded as 5=strongly disagree.

variables collected in both waves of data collected; as a result further imputation methods were not pursued (Jakobsen et al., 2017).[14]

***Demographics.*** Baseline demographics were compared between groups using chi-square tests for categorical variables with cell sizes of at least five, with Fisher's exact tests applied in analyses with cells having values less than five.

***Constructs***. Valid and reliable measurement of theoretical constructs was necessary to test the modified Theory of Planned Behavior and the Integrated Model of Behavioral Prediction. Constructs included sexual violence attitudes, subjective norms, self-efficacy, skills, and environmental constraints; alcohol attitudes, subjective norms, and self-efficacy; and racist attitudes, subjective norms, and self-efficacy. An exploratory factor analysis was conducted on all Likert scales and confidence scales to determine which questions significantly contributed to the theoretical constructs.[15] Drawing on guidelines from Walker & Madden (2008) and Howard (2016), assumptions were reviewed before the exploratory factor analysis was conducted. Sample size was assessed and assumptions were tested using Bartlett's test of sphericity and the Kaiser-Meyer-Olkin (KMO) Measure of Sampling Adequacy (Walker & Madden, 2008). Since the data from Likert scales are fully ordinal in nature, factor analysis was then conducted using a polychoric correlation matrix to correctly specify the data; this allowed the use of the matrix as an input, instead of the original variables that make up the Likert scales (UCLA: Statistical Consulting Group, n.d.). The default principal factors (pf) option was used in order to determine if all variables load onto one factor in a one-dimensional manner (StataCorp, 2017).

[14] Behavioral variables had higher levels of missingness due to the requirement that respondents had to witness events.
[15] Variables to measure theoretical constructs were reverse coded as needed.

After conducting the categorical factor analysis, an assessment was done to determine how many factors should be retained. A combination of criteria was used to make this decision, including the Kaiser criterion and a visual scree plot (VSP) analysis. In all models, one factor was obtained so rotation was not applied. Subsequently, factor loadings of 0.40 and higher were retained in the model based on general consensus from the literature (Howard, 2016; Walker & Madden, 2008). Reliability of the items was calculated using Cronbach's alpha to compute the interitem correlations / covariances (StataCorp, 2017). Ideal reliability values were over 0.7, with acceptable values starting at 0.6 and values below 0.5 not accepted. This fits with previous reporting of reliability in the literature, which has characterized values of 0.5 and above as "acceptable and sufficient,"[16] values of 0.6 and above as "acceptable, satisfactory, sufficient, and moderate," and values of 0.7 and above as "acceptable, satisfactory, sufficient, good, reasonable, adequate, and relatively high" (Taber, 2018).

***Bystander intention and behavioral variables.*** Students selected close-ended categories for what they would do if they were to encounter nine different scenarios. Students who selected they would "do nothing" or they would "go along with the situation" were collapsed to suggest they did not have a positive intention. All other responses were coded as a positive intention. This led to a binary outcome of intervention intentions (yes/no).

Behavior likelihood scores were created for each scenario to measure bystander behaviors. Students were asked how many times they intervened based on the number of times they witnessed each scenario in the past six weeks (times intervened/times witnessed).

To test the if there were statistically significant differences in bystander intentions and behaviors by levels of prevention, a likelihood score was created separately for each level. This was done by taking the average of three variables that corresponded to the level, creating six new variables.[17] Follow-up tests were conducted to test the differences in overall intentions and behaviors between the levels of prevention, using the Bonferroni method to adjust the p-value and detect statistical differences in such post-hoc tests (Lee & Lee, 2018). Differences were assessed between low-risk primary and high-risk primary, low-risk primary and secondary, and high-risk primary and secondary intentions and behaviors.

***Theoretical models.*** After the exploratory factor analysis and reliability assessment determined which variables to retain in each analysis, a final factor score was created to represent each construct. Construct factor scores were used to develop a path model using the Generalized Structural Equation Modeling (GSEM) builder of STATA.[18] The generalized SEM option allowed for the modeling of binary intentions (yes/no) for each scenario. Pathways were drawn to represent the Integrated Model of Behavioral Prediction for sexual violence bystander intervention, and a modified version of the Theory of Planned Behavior[19] was used to separately assess sexual violence, racism, and alcohol bystander intervention. These pathways were developed only for low-risk primary scenarios, to account for adequate sample sizes of behaviors. Following the structure of the Integrated Model of Behavioral Prediction, demographic variables and topic-specific historical variables were each modeled as predictors of

[17] The six new variables included a low-risk primary intention likelihood score, high-risk primary intention likelihood score, secondary intention likelihood score, low-risk primary behavior likelihood score, high-risk primary behavior likelihood score, and secondary behavior likelihood score.
[18] Latent variables were originally attempted in STATA using the variables kept from the exploratory factor analysis, but these models did not converge. The lack of convergence was likely due to the complexity of the model and small sample size. Factor scores were instead used to create the path models.
[19] The modification of the Theory of Planned Behavior involved using self-efficacy in lieu of perceived behavioral control. This change represents the use of self-efficacy in the Integrated Model of Behavioral Prediction.

attitudes, subjective norms, and self-efficacy (Fishbein & Yzer, 2003). Final models for the modified Theory of Planned Behavior included demographic/historical variables predicting attitudes, subjective norms, and self-efficacy, with these three variables predicting intentions, and intentions and self-efficacy predicting behaviors. The Integrated Model of Behavioral Prediction included skills and environmental constraints as additional predictors of behaviors.

All models converged and were further assessed to determine which variables significantly contributed to the model.[20] Models included the full sample size of intentions and ended with only participants who had witnessed an event in the past six weeks. Additional models were tested with smaller sample sizes to include only those who witnessed events. These models are reported in Appendix C. GSEM pathway models.

***Gender and race/ethnicity differences***. Chi square tests were used to assess statistically significant differences among intentions by gender and race/ethnicity for each scenario. Fisher exact tests were used in the instance that a cell size was less than or equal to five (STATA, 2020). Since behavior likelihood scores were ordinal and not normally distributed, the Wilcoxon-Mann-Whitney test was used to assess differences in behaviors by gender and race/ethnicity for each scenario (STATA, 2020).

***Qualitative data.*** A coding team analyzed descriptions of students' intended and actual interventions in different bystander scenarios. Using Microsoft Excel, all brief open-ended responses to the bystander intention and bystander behaviors questions were coded by a diverse four-person coding team including the Student PI. An initial codebook was created using strategies taught in the TAKES ACTION program. Inductive analysis was then employed, to identify additional behaviors that occurred and recurred in participants' written responses. This

[20] At this time, goodness-of-fit test statistics are not available in GSEM beyond the AIC and BIC, which are only meaningful when comparing models, and not when assessing absolute fit (StataCorp, 2017).

process was conducted using a simplified procedure to label and group these behaviors thematically (Vaismoradi et al., 2016). The coding team met weekly to review codes and further customize the codebook. After initial coding, blank options, "nothing," and "go-along" were auto-coded in Excel. For the remaining lines, the team coded 20.0% of the data together, the Student PI coded 33.8% of the data, and the other three coders each coded 15.4% of the data.

Interrater reliability, which calculates the variation between multiple raters who assess the same subjects, was calculated on the shared coding lines (n=650) using intraclass correlation coefficients (ICC) (Koo & Li, 2016). ICC estimates and their 95% confidence intervals were calculated based on a single-rater, absolute agreement, two-way random effects model. A single-rater model was used because all data was categorical and one final selection for each group was made by the coding team or the student PI (Koo & Li, 2016). Absolute agreement was selected to assess if raters assign the same score to the same subject (Koo & Li, 2016). A two-way random effects model was selected because the same group of raters was selected from a general population to code the data, and results should be generalized to other raters with similar characteristics (Koo & Li, 2016).

***Intervention effects.*** Mixed effects models were used to test for significant differences in outcome variables between the intervention and control groups at baseline and follow-up. These outcomes tested for changes in (1) student readiness to intervene in bystander scenarios; (2) bystander behaviors using behavior likelihood scores; (3) helpfulness of intervening; (3) self-reported experience of intervening; and (4) confidence levels to implement intentions. Mixed effects models allow for two types of effects within each model, fixed effects and random effects. Fixed effects describe the population as a whole, while random effects allow intercepts and slopes to vary across a population and are specific to clusters or subjects within a study

(Hamilton, 2013; West et al., 2007). Mixed effects models allow for multilevel modeling of clustered data as well as longitudinal data with repeat measures over time. Further, this analysis is advantageous as it allows for dependent observations over time, more flexibility than models assuming sphericity, and the inclusion of time as a covariate in the model (West et al., 2007).

Models with dichotomous outcomes were analyzed with mixed-effects logistic regression using the melogit function in STATA. Models with continuous outcomes were analyzed with mixed-effects linear regression models using the mixed function in STATA. Linear models were fit using restricted maximum likelihood estimation (REML). REML estimation is preferred to maximum likelihood estimation because it produces unbiased estimates of covariance parameters; this is done by accounting for the loss of degrees of freedom that results from estimating fixed effects (West et al., 2007).

Fixed effects in the model included the group (intervention or control), the time period of assessment (baseline or follow-up) and an interaction term of the two to test the intervention effects. Covariates were also included as fixed effects. Covariates included duration between assessments, gender, grade, and cohort status. Building was hypothesized as a random effect but was not included since key variables of interest were not significantly related to building and random assignment equally distributed students between buildings within the intervention and control groups. The only random effect included in the model was the assigned student ID for paired surveys.

Mixed effect model fit statistics were assessed with the Wald chi square statistic, and for significant models, coefficients were interpreted using z-scores. Linear additivity is an assumption of the linear models, and residuals were plotted and inspected to review this assumption (Errickson, 2019). Collinearity, overfitting, and model selection can be additional

concerns in mixed-effects models. Multicollinearity was assessed in each model using the variance inflation factor (VIF) to ensure that values were less than 10 for each predictor in each model (Errickson, 2019). Related to sample sizes, the literature suggests to have 10 to 20 observations per predictor (Errickson, 2019). Overfitting could be a potential concern impacting the results of mixed-effects models, but in this study model selection was done using theoretical reasoning and predictors are justified in the model under this rationale.

## Chapter 3. Results

### Descriptive statistics

Housing data indicated that 520 students, mostly juniors or seniors, lived in three off campus university buildings.[21] Students were recruited from this sample, and a total of 206 students were formally enrolled in the study at either pre or follow-up (39.6% of target population). Data was collected using the Qualtrics online survey program from February to May, 2019. There were 209 baseline surveys started.[22] Participant surveys were excluded for having a completion rate of 45% or less (n=14), not providing identification as a junior or senior (n=10)[23], living outside of the building (n=2), and having a duplicate response at baseline based on anonymous code/demographics (n=6). All remaining and included surveys had response rates of 99% or higher. After exclusions, the final baseline sample included 177 participants (86% of the sample; 34% of target population in the three buildings).

Women comprised 64.97%, or almost two-thirds, of the sample. Seniors represented 55.93% of the sample with juniors comprising the remaining 44.07%. The majority of students started at the University within their cohort (84.18%), with 5.08% starting at the University before their cohort, and 10.73% starting afterwards. White students comprised most of the sample (72.88%), with Asian students making up the next largest racial subgroup (20.34%). Ethnicity was collected as a binary variable (yes/no) with 9.60% of the sample identifying as Hispanic students. The majority of students were heterosexual (88.70%) and U.S. citizens

[21] Reference is not cited to protect confidentiality. A small number of graduate and professional students also live in these buildings.
[22] Student identifying information was captured during in-person sessions with a sign-in sheet and online using a separate, unlinked survey in order to distribute incentives. This suggests a pre and follow-up sample that may not be identical. Additionally, it is possible that some students completed surveys but did not enroll in the survey.
[23] This included graduate/professional student (n=6), sophomore (n=1), and missing (n=2). One student was entered as a senior based on other demographic information.

(95.48%). Half the sample identified their religion as Catholic (50.85%), with the next largest groups consisting of those who did not identify with any religion (19.77%) and those that identify with other Christian faiths (19.21%). Participants were required to reside in one of three buildings, with the most students residing in Building 1 (42.50%), and the remaining students split between Building 2 (29.94%) and Building 3 (26.55%). This distribution was reflective of the sample sizes within the buildings. A full description of descriptive statistics in the baseline sample can be found in Table 9.

Table 9 Study Baseline Sample Demographics

| | Sample | |
|---|---|---|
| | **n** | **%** |
| **Total** | 177 | 100.00 |
| **Sex** | | |
| Woman | 115 | 64.97 |
| Man | 62 | 35.03 |
| **Grade** | | |
| Junior | 78 | 44.07 |
| Senior | 99 | 55.93 |
| **Cohort status** | | |
| Started before cohort | 9 | 5.08 |
| Started with cohort (traditional four-year student plan) | 149 | 84.18 |
| Started after cohort (transfer) | 19 | 10.73 |
| **Race** | | |
| White (including Middle Eastern) | 129 | 72.88 |
| Black | 6 | 3.39 |
| Asian (including Indian subcontinent and the Philippines) | 36 | 20.34 |
| Others | 2 | 1.13 |
| Prefer not to respond | 3 | 1.69 |
| Missing | 1 | 0.56 |
| **Hispanic Ethnicity** | | |
| Yes | 17 | 9.60 |
| No | 160 | 90.40 |
| **Sexuality** | | |
| Heterosexual | 157 | 88.70 |
| Bisexual | 12 | 6.78 |
| Others | 5 | 2.82 |
| Prefer not to respond | 3 | 1.69 |

| | Sample | |
|---|---|---|
| | **n** | **%** |
| **Citizenship** | | |
| U.S. Citizen | 169 | 95.48 |
| Other | 7 | 4.05 |
| Missing | 1 | 0.56 |
| **Religious affiliation** | | |
| Catholic | 90 | 50.85 |
| Does not have a religious affiliation | 35 | 19.77 |
| Other Christian Religion | 34 | 19.21 |
| Other World Religion | 14 | 7.91 |
| Prefer not to respond | 4 | 2.26 |
| **Residence** | | |
| Building 1 | 77 | 43.50 |
| Building 2 | 53 | 29.94 |
| Building 3 | 47 | 26.55 |

Characteristics of the sample were also collected, and included information on previous training, variables related to sexual violence, and the recent consumption of alcohol and illegal substances. These variables are related to the three content areas of the program: racism, sexual violence, and unhealthy alcohol outcomes. Less than half the students had ever taken a class on race (40.11%). Over half of participants were friends with a victim of sexual assault (60.45%), but few identified as being a friend with a perpetrator of sexual assault (5.08%). Almost a third of participants had a history of sexual violence victimization (32.20%), and 3.95% of participants experienced victimization in the six weeks before taking the baseline survey. Very few participants identified as having perpetrated sexual violence (1.69%), with none having perpetrated in the past six weeks. The majority of participants consumed alcohol at least once in the past 30 days (77.97%) and over half the sample engaged in binge drinking on at least one day in the past 30 days (53.09%). Most students had not used marijuana (77.27%) or other illegal drugs (94.92%) since starting at the university. A full description of sample characteristics can be found statistics in Appendix D. Characteristics of the baseline and paired samples.

**PART ONE: Theory and patterns of intervening**

***Aim #1 Results****: To examine the utility of the Theory of Planned Behavior/Integrated Model of Behavioral Prediction in predicting bystander intervention outcomes*

To analyze this aim, factor scores were created to operationalize constructs of interest, and these scores were used to create path models using generalized structural equation modeling. Methods for this process are included in the *Data analysis* section above, and assumptions / output of relevant data to create factor scores are included in Appendix E. Methods to create factor scores for path analysis. Correlations were calculated between the averages of the variables used to define the construct and the predicted factor scores in Appendix F. Correlations of factor scores and construct averages. All correlations were 0.9624 and higher and statistically significant ($p<0.0001$), suggesting that the averages are a good depiction of the factor scores themselves. Analyses were run with the full sample size available at each measurement model. Models are repeated only with students who reported behaviors and can be found in Appendix C. GSEM pathway models.

Question #1.1: How well does the modified Theory of Planned Behavior predict bystander intentions against sexual violence, racism, and unhealthy alcohol outcomes?[24]

***Sexual violence model.*** The sexual violence model to test the modified Theory of Behavioral Prediction used intentions and behaviors with the singular scenario of intervening against degrading comments about women. This model included 173 students with intervention intentions and ended with 57 students that had a behavior score. This model is depicted in Figure 3 and results are reported in

[24] For all models, self-efficacy is used in lieu of perceived behavioral control. This slightly modifies the Theory of Planned Behavior, but was made to account for the use of self-efficacy in the Integrated Model of Behavioral Prediction.

Table 10. Gender, race, grade level, and victimization history were modeled as predictors of attitudes, norms, and self-efficacy. Larger values of attitudes towards sexual violence indicate more negative attitudes (ie- having more agreement with rape myths). Larger values of subjective norms towards sexual violence indicated the belief that other students have more negative views of sexual violence (ie- others have more agreement with rape myths). Self-efficacy was measured so that higher values indicated more self-efficacy to intervene. Within the model, gender ($p<0.001$), race ($p=0.035$), and grade level ($p=0.048$) were significant predictors of attitudes. Controlling for covariates, negative attitudes were more likely to be reported among men compared to women, among Students of Color compared to Non-Hispanic White students, and among juniors compared to seniors. Within the model, gender ($p=0.004$) and past victimization ($p=0.008$) were significant predictors of subjective norms such that men reported more negative subjective norms than women, and those with a victimization past reported more negative subjective norms those without a victimization past.

The modified Theory of Planned Behavior suggests that attitudes, subjective norms, and self-efficacy predict intentions, and that intentions and self-efficacy predict behaviors (Ajzen, 1991; Fishbein & Ajzen, 1975). Within the model, only self-efficacy was a significant predictor of intentions ($p<0.001$), with greater self-efficacy associated with greater odds of intervening. Attitudes and subjective norms were not significant predictors. As hypothesized, within the model, both intentions ($p<0.001$) and self-efficacy ($p=0.006$) were significant predictors of behaviors. Within the model, having an intention to intervene and greater self-efficacy were associated with higher behavior intervention likelihood scores.

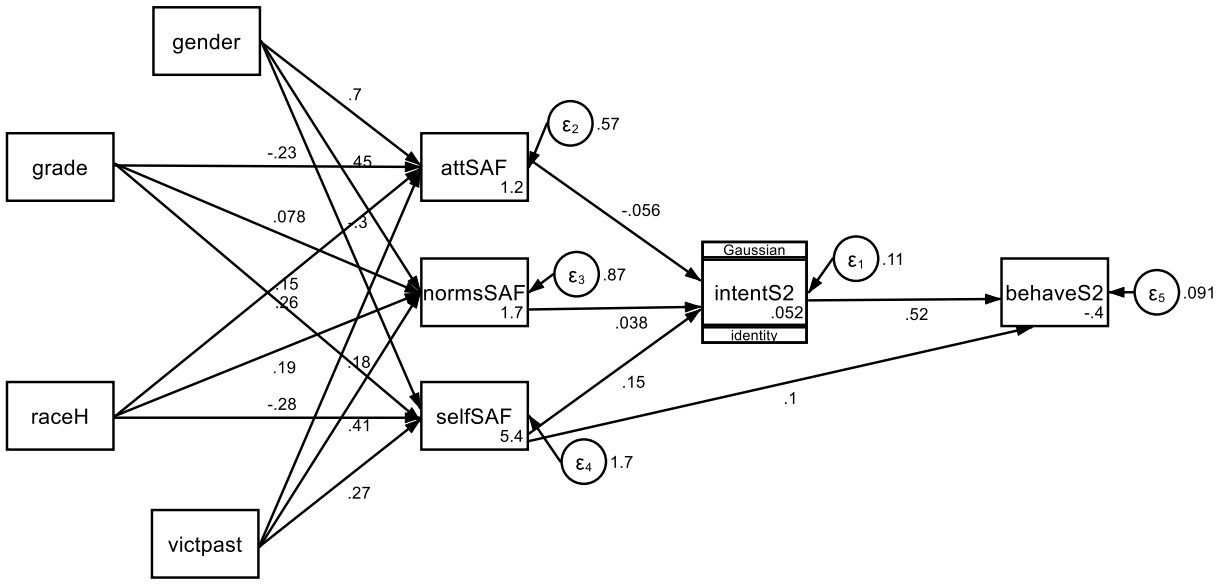


Figure 3. Theory of Planned Behavior model for sexual violence[25]

Table 10. Theory of Planned Behavior output for sexual violence model[26]

| Variables | coefficient | standard error | z-score | p-value |
|---|---|---|---|---|
| **Behavior (behaveS2)** | | | | |
| Intention (intentS2) | 0.518 | 0.104 | 4.980 | **0.000** |
| Self-efficacy (selfSAF) | 0.103 | 0.037 | 2.760 | **0.006** |
| | | | | |
| **Intention (intentS2)** | | | | |
| Attitudes (attSAF) | -0.056 | 0.037 | -1.520 | 0.127 |
| Norms (normsSAF) | 0.038 | 0.031 | 1.220 | 0.223 |
| Self-efficacy (selfSAF) | 0.145 | 0.019 | 7.620 | **0.000** |
| | | | | |
| **Attitudes (attSAF)** | | | | |
| Gender (gender) | 0.700 | 0.125 | 5.590 | **0.000** |
| Race/Ethnicity (raceH) | 0.258 | 0.122 | 2.110 | **0.035** |
| Past victimization (victpast) | 0.184 | 0.125 | 1.470 | 0.140 |

[25] raceH= race/ethnicity; attSAF= factor score for sexual assault attitudes; normsSAF = factor score for sexual assault subjective norms; selfSAF= factor score for sexual assault self-efficacy; intentS2 = binary intention to intervene when witnessing degrading comments about women; behaveS2= behavioral intervention score 0 to 1 for the proportion of times intervening based on the times observing degrading comments about women

[26] Reference groups included women, Non-Hispanic White students, juniors, not having a victimization past, and not intending to intervene.

| Variables | coefficient | standard error | z-score | p-value |
|---|---|---|---|---|
| Grade (grade) | -0.231 | 0.117 | -1.980 | **0.048** |
| **Norms (normsSAF)** | | | | |
| Gender (gender) | 0.445 | 0.156 | 2.860 | **0.004** |
| Race/Ethnicity (raceH) | 0.193 | 0.152 | 1.270 | 0.206 |
| Past victimization (victpast) | 0.411 | 0.155 | 2.650 | **0.008** |
| Grade (grade) | 0.078 | 0.145 | 0.540 | 0.592 |
| **Self-efficacy (selfSAF)** | | | | |
| Gender (gender) | -0.301 | 0.219 | -1.370 | 0.169 |
| Race/Ethnicity (raceH) | -0.283 | 0.214 | -1.320 | 0.187 |
| Past victimization (victpast) | 0.270 | 0.218 | 1.240 | 0.215 |
| Grade (grade) | 0.145 | 0.205 | 0.710 | 0.478 |

***Racism model.*** The racism model to test the Theory of Behavioral Prediction used intentions and behaviors with the singular scenario of intervening against racist jokes or comments. This model included 172 students with intervention intentions and ended with 46 students that had a behavior score. The model is depicted in Figure 4 and results are reported in Table 11. Gender, race, grade level, and taking an in-depth training or course on race or racism (yes/no) were modeled as predictors of attitudes, norms, and self-efficacy. Within the model, gender ($p<0.001$) and grade level ($p=0.044$) were significant predictors of attitudes such that men reported more negative attitudes than women and juniors reported more negative attitudes than seniors.

The modified Theory of Planned Behavior suggests that attitudes, subjective norms, and self-efficacy predict intentions, and that intentions and self-efficacy predict behaviors. Within the model, attitudes ($p<0.001$) and self-efficacy ($p<0.001$) were significant predictors of intentions, while intentions ($p=0.002$) and self-efficacy ($p=0.006$) were significant predictors of behaviors. Less negative attitudes and greater self-efficacy were associated with increased odds of

intervening, while greater self-efficacy and having an intention to intervene were associated with higher behavior intervention likelihood scores, within the model.

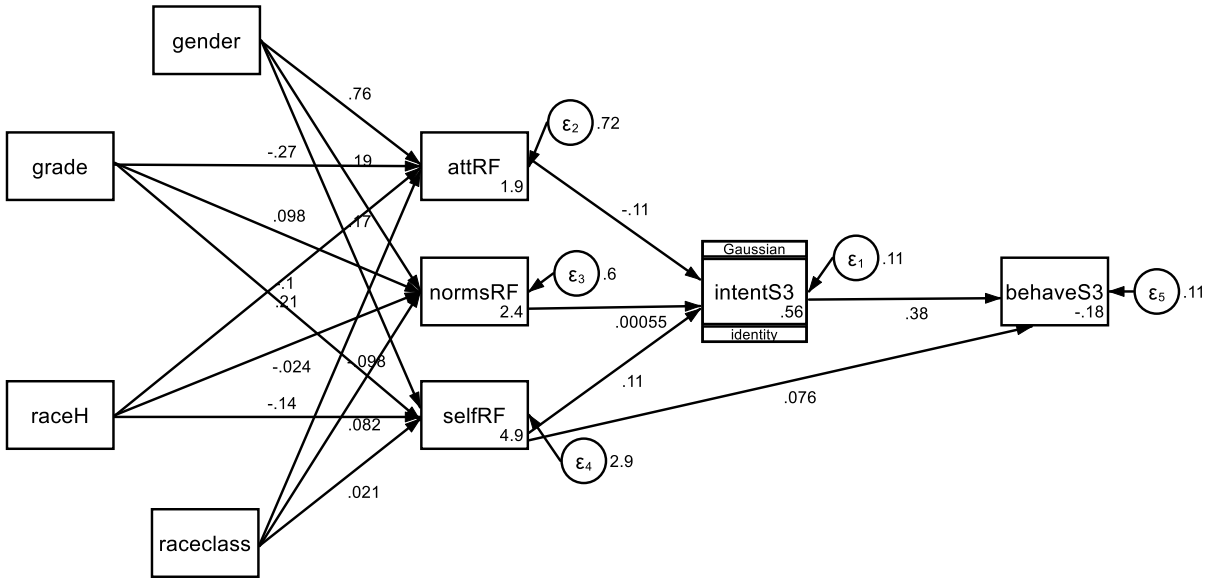


Figure 4. Theory of Planned Behavior model for racism[27]

Table 11. Theory of Planned behavior output for racism[28]

| Variables | coefficient | standard error | z-score | p-value |
|---|---|---|---|---|
| **Behavior (behaveS3)** | | | | |
| Intention (intentS3) | 0.381 | 0.123 | 3.110 | **0.002** |
| Self-efficacy (selfRF) | 0.076 | 0.027 | 2.770 | **0.006** |
| | | | | |
| **Intention (intentS3)** | | | | |
| Attitudes (attRF) | -0.113 | 0.027 | -4.230 | **0.000** |
| Norms (normsRF) | 0.001 | 0.032 | 0.020 | 0.986 |
| Self-efficacy (selfRF) | 0.108 | 0.015 | 7.430 | **0.000** |
| | | | | |
| **Attitudes (attRF)** | | | | |
| Gender (gender) | 0.757 | 0.138 | 5.500 | **0.000** |

[27] raceH= race/ethnicity; attRF= factor score for racist attitudes; normsRF = factor score for racist subjective norms; selfRF= factor score for race-based self-efficacy; intentS3 = binary intention to intervene when witnessing racist comments or joke; behaveS3= behavioral intervention score 0 to 1 for the proportion of times intervening based on the times observing racist comments or jokes.

[28] Reference groups included women, Non-Hispanic White students, juniors, not taken a class on race, and not intending to intervene.

| Variables | coefficient | standard error | z-score | p-value |
|---|---|---|---|---|
| Race/Ethnicity (raceH) | 0.215 | 0.137 | 1.570 | 0.118 |
| Took a class on race (raceclass) | -0.098 | 0.134 | -0.730 | 0.463 |
| Grade (grade) | -0.267 | 0.133 | -2.010 | **0.044** |
| **Norms (normsRF)** | | | | |
| Gender (gender) | 0.187 | 0.126 | 1.490 | 0.137 |
| Race/Ethnicity (raceH) | -0.024 | 0.126 | -0.190 | 0.852 |
| Took a class on race (raceclass) | 0.082 | 0.122 | 0.670 | 0.502 |
| Grade (grade) | 0.098 | 0.121 | 0.810 | 0.417 |
| **Self-efficacy (selfRF)** | | | | |
| Gender (gender) | 0.170 | 0.278 | 0.610 | 0.541 |
| Race/Ethnicity (raceH) | -0.136 | 0.277 | -0.490 | 0.623 |
| Took a class on race (raceclass) | 0.021 | 0.271 | 0.080 | 0.939 |
| Grade (grade) | -0.104 | 0.268 | -0.390 | 0.698 |

***Alcohol model.*** The alcohol model to test the Theory of Behavioral Prediction used intentions and behaviors with the singular scenario of intervening when someone is being pressured to drink. The model is depicted in Figure 5 and findings are reported in Table 12. This model included 174 students with intervention intentions and ended with 27 students that had a behavior score. Gender, race, grade level, and binge drinking at least once in the past month (yes/no) were modeled as predictors of attitudes, norms, and self-efficacy. Within the model, binge drinking was a statistically significant predictor of attitudes such that students who engaged in binge drinking at least once in the past month reported more negative attitudes than those who had not engaged in binge drinking ($p=0.001$).

The modified Theory of Planned Behavior suggests that attitudes, subjective norms, and self-efficacy predict intentions, and that intentions and self-efficacy predict behaviors. Within the model, attitudes ($p=0.045$) and self-efficacy ($p<0.001$) were significant predictors of intentions, but only intentions ($p=0.001$) were significant predictors of behaviors. Less negative attitudes and greater self-efficacy were associated with increased odds of intervening, while having an

intention to intervene was associated with higher behavior intervention likelihood scores, within the model.

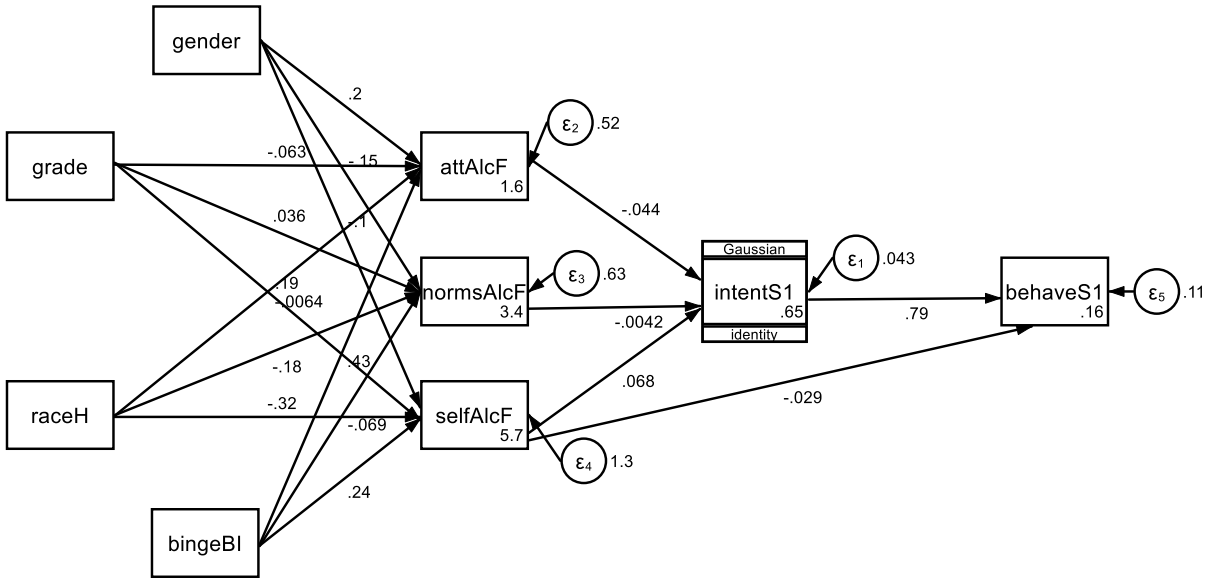


Figure 5. Theory of Planned Behavior model for unhealthy alcohol outcomes[29]

Table 12. Theory of Planned behavior output for unhealthy alcohol outcomes[30]

| Variables | coefficient | standard error | z-score | p-value |
|---|---|---|---|---|
| **Behavior (behaveS1)** | | | | |
| Intention (intentS1) | 0.789 | 0.246 | 3.210 | **0.001** |
| Self-efficacy (selfAlcF) | -0.029 | 0.057 | -0.510 | 0.607 |
| | | | | |
| **Intention (intentS1)** | | | | |
| Attitudes (attAlcF) | -0.044 | 0.022 | -2.000 | **0.045** |
| Norms (normsAlcF) | -0.004 | 0.020 | -0.210 | 0.836 |
| Self-efficacy (selfAlcF) | 0.068 | 0.014 | 4.840 | **0.000** |
| | | | | |
| **Attitudes (attAlcF)** | | | | |
| Gender (gender) | 0.197 | 0.116 | 1.700 | 0.089 |

[29] raceH= race/ethnicity; attAlcF= factor score for alcohol attitudes; normsAlcF = factor score for alcohol subjective norms; selfAlcF= factor score for alcohol self-efficacy; intentS1 = binary intention to intervene when witnessing someone pressured to drink; behaveS1= behavioral intervention score 0 to 1 for the proportion of times intervening based on the times observing someone pressured to drink.

[30] Reference groups included women, Non-Hispanic White students, juniors, not binge drinking in the past month, and not intending to intervene.

| Variables | coefficient | standard error | z-score | p-value |
|---|---|---|---|---|
| Race/Ethnicity (raceH) | -0.006 | 0.117 | -0.060 | 0.956 |
| Binge drinking (bingeBI) | 0.434 | 0.136 | 3.190 | **0.001** |
| Grade (grade) | -0.063 | 0.112 | -0.570 | 0.571 |
| **Norms (normsAlcF)** | | | | |
| Gender (gender) | -0.149 | 0.129 | -1.150 | 0.251 |
| Race/Ethnicity (raceH) | -0.181 | 0.131 | -1.390 | 0.165 |
| Binge drinking (bingeBI) | -0.069 | 0.154 | -0.450 | 0.652 |
| Grade (grade) | 0.036 | 0.125 | 0.290 | 0.770 |
| **Self-efficacy (selfAlcF)** | | | | |
| Gender (gender) | -0.100 | 0.186 | -0.540 | 0.588 |
| Race/Ethnicity (raceH) | -0.317 | 0.186 | -1.700 | 0.088 |
| Binge drinking (bingeBI) | 0.236 | 0.218 | 1.090 | 0.277 |
| Grade (grade) | 0.190 | 0.178 | 1.070 | 0.287 |

Question #1.2: How well does the Integrated Model of Behavioral Prediction predict bystander intervention against sexual violence?

***Sexual violence expanded model:*** The sexual violence model to test the Integrated Model of Behavioral Prediction used intentions and behaviors with the singular scenario of intervening against degrading comments about women. This model builds on

Table 10 by including environmental constraints and skills. The model is depicted in Figure 6 and findings are reported in

Table 13. Analysis included 173 students with intervention intentions and ended with 57 students that had a behavior score. The same predictors of intentions and of attitudes, subjective norms, and self-efficacy were found from the previous sexual violence model depicting the modified Theory of Planned Behavior.[31] The Integrated Model of Behavioral Prediction suggests that environmental constraints and skills also contribute to predicting behaviors, along with intentions and self-efficacy. Within the model, only intentions ($p<0.001$) and self-efficacy ($p=0.025$) remained significant predictors of behaviors, with no significant contribution from environmental constraints ($p=0.907$) or skills ($p=0.502$). Having an intention to intervention and greater self-efficacy were associated with a higher behavior intervention likelihood score, within the model.[32]

[31] Previous model findings: Gender, race, grade level, and victimization history were modeled as predictors of attitudes, norms, and self-efficacy. Within the model, gender ($p<0.001$), race ($p=0.035$), and grade level ($p=0.048$) were significant predictors of attitudes. Within the model, gender ($p=0.004$) and past victimization ($p=0.008$) were significant predictors of subjective norms and none of the covariates were significant predictors of self-efficacy. Within the model, only self-efficacy was a significant predictor of intentions ($p<0.001$), with attitudes ($p=0.127$) and subjective norms ($p=0.223$) not contributing to intentions as suggested by the theory.

[32] Variations of this model were explored but not reported. In one rendition, skills and environmental constraints were modeled as predictors of self-efficacy with all variables modeled as the same in the Integrated Model of Behavioral Prediction. They were both statistically significant predictors.

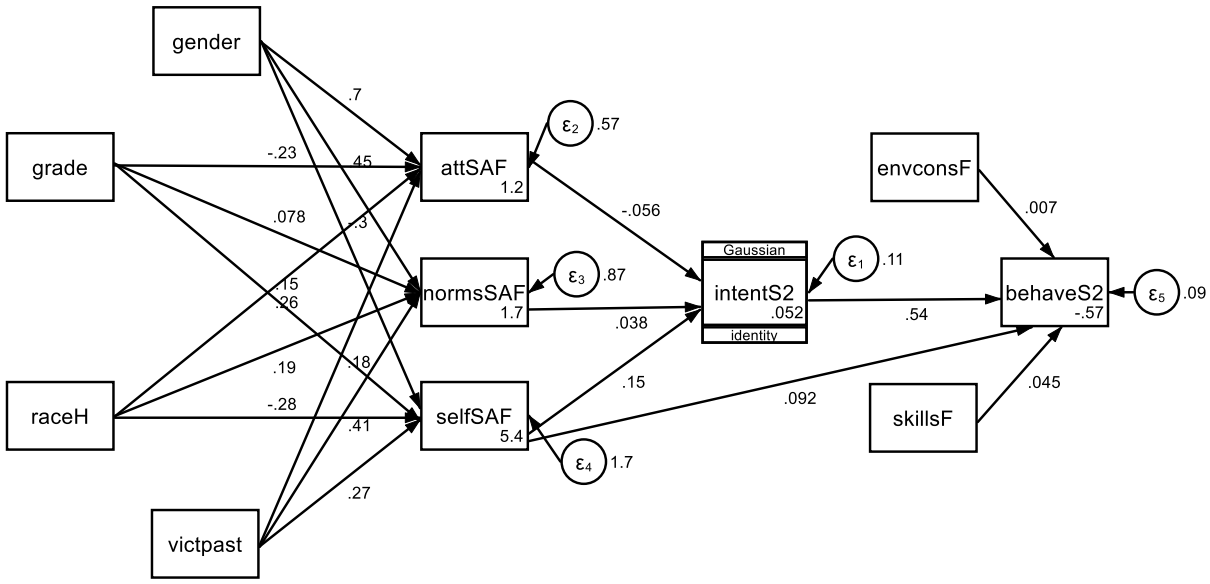


Figure 6. Integrated Model of Behavioral Prediction model for sexual violence[33]

[33] raceH= race/ethnicity; attSAF= factor score for sexual assault attitudes; normsSAF = factor score for sexual assault subjective norms; selfSAF= factor score for sexual assault self-efficacy; intentS2 = binary intention to intervene when witnessing degrading comments about women; envconsF = factor score for sexual violence environmental constraints; skillsF= factor score for sexual violence intervention skills; behaveS2= behavioral intervention score 0 to 1 for the proportion of times intervening based on the times observing degrading comments about women

Table 13. Integrated Model of Behavioral Prediction output for sexual violence model[34]

| Variables | coefficient | standard error | z-score | p-value |
|---|---|---|---|---|
| **Behavior (behaveS2)** | | | | |
| Intention (intentS2) | 0.538 | 0.109 | 4.920 | **0.000** |
| Self-efficacy (selfSAF) | 0.092 | 0.041 | 2.230 | **0.025** |
| Environmental constraints (envconsF) | 0.007 | 0.060 | 0.120 | 0.907 |
| Skills (skillsF) | 0.045 | 0.067 | 0.670 | 0.502 |
| **Intention (intentS2)** | | | | |
| Attitudes (attSAF) | -0.056 | 0.037 | -1.530 | 0.127 |
| Norms (normsSAF) | 0.038 | 0.031 | 1.220 | 0.223 |
| Self-efficacy (selfSAF) | 0.145 | 0.019 | 7.620 | **0.000** |
| **Attitudes (attSAF)** | | | | |
| Gender (gender) | 0.700 | 0.125 | 5.590 | **0.000** |
| Race/Ethnicity (raceH) | 0.258 | 0.122 | 2.110 | **0.035** |
| Past victimization (victpast) | 0.184 | 0.125 | 1.470 | 0.140 |
| Grade (grade) | -0.231 | 0.117 | -1.980 | **0.048** |
| **Norms (normsSAF)** | | | | |
| Gender (gender) | 0.445 | 0.156 | 2.860 | **0.004** |
| Race/Ethnicity (raceH) | 0.193 | 0.152 | 1.270 | 0.206 |
| Past victimization (victpast) | 0.411 | 0.155 | 2.650 | **0.008** |
| Grade (grade) | 0.078 | 0.145 | 0.540 | 0.592 |
| **Self-efficacy (selfSAF)** | | | | |
| Gender (gender) | -0.301 | 0.219 | -1.370 | 0.169 |
| Race/Ethnicity (raceH) | -0.283 | 0.214 | -1.320 | 0.187 |
| Past victimization (victpast) | 0.270 | 0.218 | 1.240 | 0.215 |
| Grade (grade) | 0.145 | 0.205 | 0.710 | 0.478 |

***Aim #2 Results:*** *To delineate the specific bystander intervention strategies upper-level undergraduate college students use to intervene in sexual assault and other harmful health situations*

Question #2.1: How do bystander intentions and behaviors vary by low-risk primary, high-risk primary, and secondary prevention situations?

[34] Reference groups included women, Non-White students, juniors, not having a victimization past, and not intending to intervene.

To answer this question, binary intentions and behavior likelihood scores were created for each scenario, and then combined for each level of prevention. Using baseline data, a binary outcome represented intentions. Strategies of "nothing" and "go along" were merged (0= no intention) and all other positive strategies were combined (1 = intention). To create behavior likelihood scores for each scenario, students were asked how many times they intervened based on the number of times they witnessed each scenario in the past six weeks (times intervened/times witnessed). For example, if students reported that they witnessed a racist comment four times in the past six weeks, and they intervened three of those times, their behavior likelihood score would be ¾ or 0.75. The binary intentions and behavior likelihood scores of the nine scenarios are listed in the order they appeared in the survey and are categorized by level of prevention and topic area in Table 14. Detailed steps to create behavior likelihood scores are reported in Appendix G. Behavior likelihood scores description.

Table 14. Binary intentions and behavior likelihood scores by scenario

| Level | Area | | Scenario | Code | Intentions | | | Behavior likelihood score | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | | n | | | n | N | % | mean | st. dev. | N |
| Low-risk primary | Alcohol | 1 | I witnessed someone I know be pressured to drink alcoholic beverages more often than they wished. | Pressure to drink | 168 | 177 | 94.92% | 0.7130 | 0.3965 | 69 |
| | SV | 2 | I heard someone I know talking about women in sexually degrading ways. | Degrade women | 142 | 176 | 80.68% | 0.5151 | 0.4427 | 94 |
| | Racism | 3 | I heard someone I know make a racist comment or joke | Racist comment | 142 | 176 | 80.68% | 0.4819 | 0.4145 | 104 |
| High-risk primary | Alcohol | 4 | I witnessed someone I know have too much to drink and need assistance. | Drinking and need assistance | 170 | 176 | 96.59% | 0.8848 | 0.2731 | 115 |
| | SV | 5 | When someone I know seemed drunk, I saw another person attempt to isolate them with possible sexual intentions (for instance to make out or hook up with them). | Isolation with sexual intent | 168 | 175 | 96.00% | 0.8750 | 0.3536 | 26 |
| | Racism | 6 | I witnessed someone I know be treated with less respect than other people because of their race, ethnicity, or color. | Racial disrespect | 159 | 175 | 90.86% | 0.3167 | 0.3796 | 34 |
| Secondary | SV | 7 | I saw another person possible committing a sexual assault. | Possible sexual assault | 168 | 173 | 97.11% | 0.6667 | 0.5774 | 7 |
| | Racism | 8 | I witnessed someone I know be threatened or harassed because of their race, ethnicity, or color. | Racial threats or harassment | 159 | 174 | 91.38% | 0.8333 | 0.2357 | 8 |
| | Alcohol | 9 | I witnessed someone I know who had too much to drink and needed help to get home safely. | Drinking and need to get home safely | 171 | 173 | 98.84% | 0.9518 | 0.1982 | 107 |

Likelihood scores were subsequently created for each level of prevention separately for intentions and behaviors. For each respondent, six new variables were created to determine if intentions and behaviors varied by level of prevention (low-risk primary, high-risk primary, and secondary prevention situations). For intentions, by level of prevention, a likelihood score was created by taking the average of the three, binary, low-risk primary intentions (0 to 1), the average of the three high-risk primary intentions (0 to 1), and the average of the secondary prevention intentions (0 to 1). For behaviors, the average of the three likelihood scores was taken to create a low-risk primary behavior likelihood score (0 to 1), a high-risk primary behavior likelihood score (0 to 1), and a secondary behavior likelihood score (0 to 1). These scores are reported in Table 15.

Table 15. Likelihood scores by level of prevention for intentions and behaviors

| Outcome | Level / Area | N | mean | st. dev. |
|---|---|---|---|---|
| Intentions | Low-risk primary | 177 | 0.8550 | 0.2240 |
| | High-risk primary | 176 | 0.9451 | 0.1430 |
| | Secondary | 174 | 0.9579 | 0.1416 |
| Behaviors | Low-risk primary | 90 | 0.5656 | 0.4083 |
| | High-risk primary | 73 | 0.7969 | 0.3457 |
| | Secondary | 57 | 0.9380 | 0.2084 |

Linear mixed effect models were used to test for statistically significant differences in intention likelihood scores and in behavior likelihood scores by level of prevention among those who witnessed scenarios in the six weeks prior to taking the survey. Significant differences were found between levels of prevention for both intentions ($X^2(2)=63.85$, $p<0.0001$) and behaviors ($X^2(2)=44.45$, $p<0.0001$). See Table 16 for model details. Graphical depictions of intention likelihood scores and behavior likelihood scores by level of prevention are provided in Figure 7 and Figure 8 respectively.

Table 16. Mixed linear effect model results for differences by level of prevention

| Area | Level / Area | coefficient | std. err. | z-score | p-value |
|---|---|---|---|---|---|
| Intentions | Primary | - | - | - | - |
| | Secondary | 0.0904 | 0.0140 | 0.0904 | 0.0140 |
| | Tertiary | 0.1028 | 0.0141 | 0.1028 | 0.0141 |
| Behaviors | Primary | - | - | - | - |
| | Secondary | 0.2315 | 0.0536 | 4.3200 | 0.0000 |
| | Tertiary | 0.3697 | 0.0576 | 6.4200 | 0.0000 |


Figure 7. Intention likelihood score by level of prevention


Figure 8. Behavior likelihood scores by level of prevention

To test for significant differences in intention likelihood scores and behavior likelihood scores between levels of prevention, follow-up tests used the Bonferroni method to correct for multiple testing (see Table 17). Significant differences were found between low-risk primary and high-risk primary intentions ($p<0.001$), low-risk primary and secondary intentions ($p<0.001$), low-risk primary and high-risk primary behaviors ($p<0.001$), and low-risk primary and secondary intentions ($p<0.001$). Low-risk primary intentions and behaviors were significantly lower than high-risk primary and secondary intentions and behaviors, respectively. High-risk primary and secondary behaviors approached significant ($p=0.063$) and no differences were detected between high-risk primary and secondary level intentions ($p=1.000$).

Table 17. Bonferroni follow-up tests for levels of prevention

| Area | Level contrast | Bonferroni | | | |
|---|---|---|---|---|---|
| | | **contrast** | **std. err.** | **z-score** | **p-value** |
| Intentions | Low-risk vs. High-risk | 0.0904 | 0.0140 | 6.45 | **0.000** |
| | Low-risk vs. Secondary | 0.1028 | 0.0141 | 7.30 | **0.000** |
| | High-risk versus Secondary | 0.0123 | 0.0141 | 0.87 | 1.000 |
| Behaviors | Low-risk vs. High-risk | 0.2315 | 0.0536 | 4.32 | **0.000** |
| | Low-risk vs. Secondary | 0.3697 | 0.0576 | 6.42 | **0.000** |
| | High-risk versus Secondary | 0.1382 | 0.0599 | 2.31 | 0.063 |

Question #2.2: How does gender influence overall intentions and behaviors to intervene against sexual violence?

Intentions were measured as a binary variable for each scenario (yes/no). Since all participants identified as being a woman or a man, gender was a binary construct. Women comprised 64.97% of the sample (n=115). Each of the three sexual violence scenarios were assessed separately and are reported in Table 18.

Women were significantly more likely to have intentions to intervene than men in two of the three sexual violence items. While 87.83% of women reported intentions to intervene when witnessing degrading comments about women, only 67.22% of men reported such intentions ($X^2$ =10.87, p=0.001). While 98.26% of women reported intentions to intervene when witnessing someone who appeared drunk be isolated by another person with possible sexual intentions, 91.67% of men reported such intentions (p=0.047, Fisher's Exact Test, two-sided). Intentions to intervene during a possible sexual assault were both very high for men and women, and there were no significant differences (p=1.000).

Changes in behavior likelihood scores were assessed using the Wilcoxon-Mann-Whitney test. This score assessed the number of times that students intervened in a scenario based on how many times they witnessed the scenario in the past six weeks (0= intervening in no witnessed

Table 18. Gender differences in binary intentions and behavior likelihood scores

| Level | | Scenario | Intentions | | | | | Behaviors | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | N | Women | Men | Chi2/ Fisher's* | p-value | n1** | n2 | U | z-score | p-value |
| Low-risk primary | 2 | Degrade women | 176 | 87.83% | 67.22% | 10.87 | **0.0010** | 38 | 19 | 314.0 | 0.84 | 0.4013 |
| High-risk primary | 5 | Isolation with sexual intent | 175 | 98.26% | 91.67% | * | **0.0470** | 4 | 4 | 6.0 | 1.00 | 0.3173 |
| Secondary | 7 | Possible sexual assault | 173 | 97.39% | 96.55% | * | 1.0000 | *** | | | | |

*Indicates Fisher's exact two-sided test due to cells with<=5 observations
**n1=Women; n2=Men
***Only women witnessed (n=3), cannot test



Table 19. Racial/ethnic differences in binary intentions and behavior likelihood scores

| Level | | Scenario | Intentions | | | | | Behaviors | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | N | White students | Students of Color | Chi2/ Fisher's* | p-value | n1** | n2 | U | z-score | p-value |
| Low-risk primary | 2 | Degrade women | 175 | 85.34% | 71.19% | 5.01 | **0.0250** | 39 | 18 | 258.5 | 1.68 | 0.0939 |
| High-risk primary | 5 | Isolation with sexual intent | 174 | 98.26% | 91.53% | * | **0.0450** | 4 | 4 | 6.0 | 1.00 | 0.3173 |
| Secondary | 7 | Possible sexual assault | 172 | 97.37% | 96.55% | * | 1.0000 | *** | | | | |

*Indicates Fisher's exact two-sided test due to cells with<=5 observations
**n1=White students; n2=Students of Color
***Only White students witnessed (n=3), cannot test

scenarios; 1=intervening in all witnessed scenarios). There were no statistically significant differences in intervening behaviors based in gender across sexual violence scenarios.

Question #2.3: How does race/ethnicity influence overall intentions and behaviors to intervene against sexual violence?

Intentions were measured as a binary variable for each scenario (yes/no). Since there was a limited sample size for some racial/ethnic groups, race/ethnicity was dichotomized to compare Non-Hispanic White students with Students of Color. There were 117 Non-Hispanic White students and 59 Students of Color in the baseline dataset. Among Students of Color, 61.02% of the sample identified as Asian, with the remaining sample identifying as Hispanic, Black/African American, or American Indian/Alaskan Native. Each of the three sexual violence scenarios were assessed separately and are reported in Table 19.

Non-Hispanic White students were significantly more likely to have intentions to intervene than Students of Color in two of the three sexual violence items. While 85.34% of Non-Hispanic White students reported intentions to intervene when witnessing degrading comments about women, only 71.19% of Students of Color reported such intentions ($X^2$ =5.01, p=0.0250). While 98.26% of Non-Hispanic White students reported intentions to intervene when witnessing someone who appeared drunk be isolated by another person with possible sexual intentions, 91.53% of Students of Color reported such intentions (p=0.045, Fisher's Exact Test, two-sided).

Changes in behavior likelihood scores were assessed using the Wilcoxon-Mann-Whitney test. This score assessed the number of times that students intervened in a scenario based on how many times they witnessed the scenario in the past six weeks (0= intervening in no witnessed

scenarios; 1=intervening in all witnessed scenarios). There were no statistically significant differences in intervening behaviors based in race/ethnicity for sexual violence scenarios.

Question #2.4: How do bystanders describe their intended and actual interventions in different scenarios?

As indicated above, one of the goals of this study was to ask participants to describe what actions they would or did take in response to different bystander scenarios. This allowed for a more open-ended, student-centered, and experience-based elaboration of bystander intentions and behaviors. When presented with scenarios, students selected from broad categories of how they would intervene (intentions) or how they did intervene (behaviors).[35] Afterwards they were asked to provide a short open-ended response with more detail. In total, there were 2,137 potential responses to these prompts at baseline.[36] Intentions were requested from all respondents, but behavioral data was only requested from students who had witnessed the given scenarios since starting at the university. See Table 20 for the number of potential responses provided by item.

Table 20. Number of intentional and behavioral responses to nine bystander scenarios

| Level | Scenario | Intentions* (n) | Behaviors(n) |
|---|---|---|---|
| Low-risk primary scenarios | Pressure to drink | 177 | 69 |
| | Degrade women | 176 | 93 |
| | Racist comment | 175 | 104 |
| High-risk primary scenarios | Drinking and need assistance | 176 | 115 |
| | Isolation with sexual intent | 175 | 26 |
| | Racial disrespect | 175 | 34 |

[35] Categories are not presented due to misclassification. Students would select one response but describe another, or multiple options. To increase data validity, responses were coded and these answers are shared.
[36] "Potential" responses are shared because some students selected a category but left the open-ended response blank. Values may vary slightly from quantitative data due to missing data, misclassified data, skip patterns, etc.

| Level | Scenario | Intentions* (n) | Behaviors(n) |
|---|---|---|---|
| Secondary scenarios | Possible sexual assault | 173 | 7 |
| | Racial threats or harassment | 174 | 8 |
| | Drinking and need to get home safely | 173 | 107 |

*The maximum number of intentions was 177 for each item.

Qualitative coding of intended and actual behaviors was based on a thematic analysis approach described in the *Data analysis* section. Codes were grouped into four themes, including: (1) behavioral strategies (e.g. distraction); (2) psychological approaches to a potential victim (e.g. supportive); (3) psychological approaches to a potential perpetrator/the overall situation (e.g. hostile, confrontational); and (4) victim control (yes/no). For behavioral strategies, coders could select up to four categories to fully capture all strategies mentioned. Definitions and examples of each theme and its categories can be found in Appendix H. Qualitative codebook definitions and examples of each code.

Interrater reliability was calculated using intraclass correlation coefficients (ICC) for all lines that were coded by the full four-person team (n=650). ICC estimates and their 95% confidence intervals were calculated based on a single-rater, absolute-agreement, two-way random effects model. Drawing on recommendations by Koo & Li (2016), ICC values less than 0.5 indicated poor reliability, values between 0.5 and 0.75 indicated moderate reliability, values over 0.75 to 0.9 indicated good reliability, and values greater than 0.90 indicated excellent reliability. The average ICC across all categories was 0.751 (95% CI = 0.667, 0.835), signifying moderate to good reliability across measures based on the confidence interval.[37] Using point estimates, three categories had excellent reliability (strategies: get professional help, body

[37] The point estimate falls into the cutoff range for good reliability (0.75 to 0.90), but the confidence interval extends below 0.75 into the moderate category.

language, and go along); five categories had good reliability (strategies: say disagreement, get help other, help victim, distraction, nothing); and six categories had moderate reliability (victim approach, perpetrator approach, victim control, and strategies: say engagement/other, separation, physical force, and vague strategy). The confidence intervals of two categories fell below 0.5 and indicate that these ideas may have poor reliability: victim control (ICC= 0.530, 95% CI= 0.492, 0.568) and vague strategy (ICC= 0.508, 95% CI = 0.468, 0.548). ICC values and confidence intervals are depicted in Figure 9, along with lines indicated the strength of reliability. All ICC point estimates and confidence intervals are reported in Appendix I. Intraclass correlation coefficients.

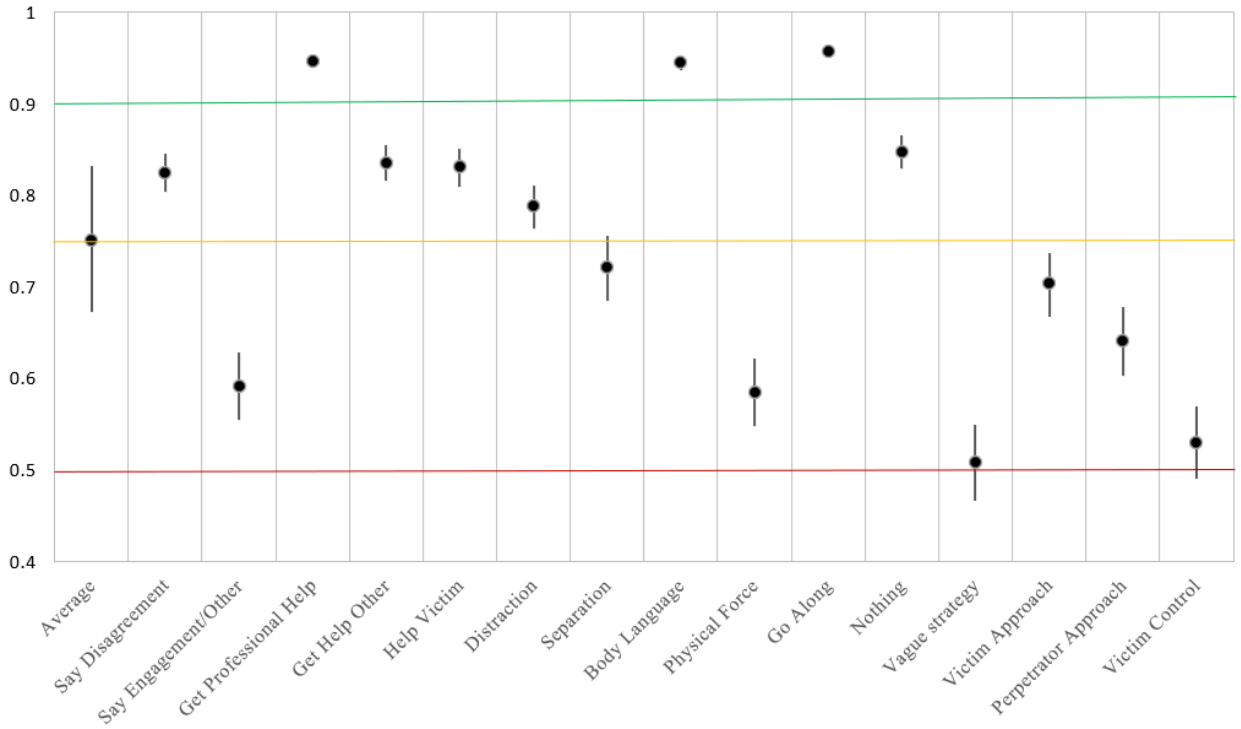


Figure 9. Intraclass correlation coefficients and confidence intervals[38]

In the tables below, specific categories are reported by intention and behavior for each bystander scenario and are reported by level of prevention.

[38] Top green line and above = excellent reliability; middle yellow line and above = good reliability; lowest red line and above = moderate reliability; below the low red line = poor reliability).

***Low-risk primary prevention scenarios:*** In the low-risk primary alcohol scenario, witnessing someone known being pressured to drink, students reported 177 intentions and 69 behaviors in baseline data (See Table 21). Trends of strategies by intentions and behaviors were similar, with verbal strategies employed most commonly; an engagement/other statement was the most common approach (intentions: 36.72%; behaviors: 23.19%), followed by a statement that indicated disapproval (intentions: 23.16%; behaviors: 15.94%). While only 5.08% of respondents reported they would do nothing if presented with the scenario (intentions), 17.39% of students reported they did nothing (behaviors) when actually presented with the scenario. A few students actively went along with the situation (intentions: 1.69%, behaviors: 5.80%). A vague strategy was hypothesized by 5.65% of students and reported by 7.25% of students in actual scenarios. While students hypothesized responding to the person being pressured to drink in 50.28% of scenarios, they utilized an approach to this victim in 36.23% of scenarios. For both intentions and behaviors, students responded with a supportive approach (intentions: 31.07%; behaviors: 24.64%) followed by an assertive approach (intentions: 16.38%; behaviors: 8.70%). Students hypothesized a response to the perpetrator, the person pressuring another to drink, or overall situation, in 53.67% of scenarios, but responded to them in 68.12% of actual scenarios. A passive response was most common for intentions and behaviors, but appeared to be stated almost twice as often in actual scenarios as hypothetical ones (intentions: 18.08%; behaviors: 34.78%). A confrontational approach was the next most common approach and appeared similar between intentions and behaviors (intentions: 15.82%; behaviors: 15.94%). Controlling language or behaviors were indicated towards the victim in 4.52% of hypothetical and 5.80% of actual scenarios.

Table 21 Coding themes and categories for low-risk primary prevention scenarios

| Low-risk primary prevention scenarios | Pressure to drink | | | | Degrade women | | | | Racist comments or jokes | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Intentions | | Behaviors | | Intentions | | Behaviors | | Intentions | | Behaviors | |
| | **n** | **%** | **n** | **%** | **n** | **%** | **n** | **%** | **n** | **%** | **n** | **%** |
| **Total** | 177 | 100.0% | 69 | 100.0% | 176 | 100.0% | 93 | 100.0% | 175 | 100.0% | 104 | 100.0% |
| **Strategies*** | | | | | | | | | | | | |
| Statement or expression of disagreement | 41 | 23.16% | 11 | 15.94% | 67 | 38.07% | 30 | 32.26% | 78 | 44.57% | 36 | 34.62% |
| Other statement | 65 | 36.72% | 16 | 23.19% | 22 | 12.50% | 5 | 5.38% | 24 | 13.71% | 16 | 15.38% |
| Get help from a professional | 0 | 0.00% | 0 | 0.00% | 0 | 0.00% | 0 | 0.00% | 0 | 0.00% | 0 | 0.00% |
| Get help from friends or others | 10 | 5.65% | 4 | 5.80% | 4 | 2.27% | 1 | 1.08% | 0 | 0.00% | 0 | 0.00% |
| Help victim | 14 | 7.91% | 9 | 13.04% | 1 | 0.57% | 0 | 0.00% | 2 | 1.14% | 2 | 1.92% |
| Create a distraction | 24 | 13.56% | 7 | 10.14% | 8 | 4.55% | 1 | 1.08% | 3 | 1.71% | 2 | 1.92% |
| Separate from the situation | 24 | 13.56% | 9 | 13.04% | 0 | 0.00% | 0 | 0.00% | 3 | 1.71% | 0 | 0.00% |
| Body language | 14 | 7.91% | 5 | 7.25% | 40 | 22.73% | 25 | 26.88% | 22 | 12.57% | 11 | 10.58% |
| Physically intervening | 2 | 1.13% | 1 | 1.45% | 1 | 0.57% | 0 | 0.00% | 0 | 0.00% | 0 | 0.00% |
| Go along with the situation | 3 | 1.69% | 4 | 5.80% | 4 | 2.27% | 7 | 7.53% | 5 | 2.86% | 8 | 7.69% |
| Nothing | 9 | 5.08% | 12 | 17.39% | 32 | 18.18% | 25 | 26.88% | 33 | 18.86% | 24 | 23.08% |
| Vague strategy | 10 | 5.65% | 5 | 7.25% | 8 | 4.55% | 7 | 7.53% | 11 | 6.29% | 8 | 7.69% |
| **Approach towards the victim** | | | | | | | | | | | | |
| Hostile | 0 | 0.00% | 0 | 0.00% | 0 | 0.00% | 0 | 0.00% | 0 | 0.00% | 0 | 0.00% |
| Confrontational | 1 | 0.56% | 1 | 1.45% | 1 | 0.57% | 0 | 0.00% | 0 | 0.00% | 0 | 0.00% |
| Supportive | 55 | 31.07% | 17 | 24.64% | 14 | 7.95% | 5 | 5.38% | 6 | 3.43% | 7 | 6.73% |
| Assertive | 29 | 16.38% | 6 | 8.70% | 3 | 1.70% | 1 | 1.08% | 2 | 1.14% | 0 | 0.00% |
| Passive | 1 | 0.56% | 1 | 1.45% | 0 | 0.00% | 0 | 0.00% | 1 | 0.57% | 1 | 0.96% |
| Unknown | 3 | 1.69% | 0 | 0.00% | 3 | 1.70% | 0 | 0.00% | 3 | 1.71% | 1 | 0.96% |
| None | 88 | 49.72% | 44 | 63.77% | 155 | 88.07% | 87 | 93.55% | 163 | 93.14% | 95 | 91.35% |
| **Approach towards the perpetrator** | | | | | | | | | | | | |
| Hostile | 3 | 1.69% | 2 | 2.90% | 9 | 5.11% | 4 | 4.30% | 7 | 4.00% | 1 | 0.96% |
| Confrontational | 28 | 15.82% | 11 | 15.94% | 29 | 16.48% | 10 | 10.75% | 22 | 12.57% | 16 | 15.38% |
| Supportive | 1 | 0.56% | 0 | 0.00% | 1 | 0.57% | 0 | 0.00% | 1 | 0.57% | 0 | 0.00% |
| Assertive | 14 | 7.91% | 5 | 7.25% | 37 | 21.02% | 17 | 18.28% | 53 | 30.29% | 26 | 25.00% |
| Passive | 32 | 18.08% | 24 | 34.78% | 70 | 39.77% | 53 | 56.99% | 57 | 32.57% | 41 | 39.42% |
| Unknown | 17 | 9.60% | 5 | 7.25% | 9 | 5.11% | 3 | 3.23% | 24 | 13.71% | 10 | 9.62% |
| None | 82 | 46.33% | 22 | 31.88% | 21 | 11.93% | 6 | 6.45% | 11 | 6.29% | 10 | 9.62% |
| **Controlling action towards victim** | | | | | | | | | | | | |
| Yes | 8 | 4.52% | 4 | 5.80% | 2 | 1.14% | 1 | 1.08% | 0 | 0.00% | 0 | 0.00% |
| No | 169 | 95.48% | 65 | 94.20% | 174 | 98.86% | 92 | 98.92% | 175 | 100.00% | 104 | 100.00% |

**Items are selected separately, totaling over 100%.*

In the low-risk primary sexual violence scenario, witnessing someone known making degrading comments about women, students reported 176 intentions and 93 behaviors in baseline data (See Table 21). Trends of strategies by intentions and behaviors were similar, with statements of disagreement most common (intentions: 38.07%; behaviors: 32.26%), followed by body language (intentions: 22.73%; behaviors: 26.88%). Students intended to do nothing in 18.08% of scenarios, and behavioral data suggested they did nothing in 26.88% of scenarios. They intended to go along with the situation in 2.27% of scenarios and actually went along with the situation in 7.53% of cases. A vague strategy was hypothesized by 4.55% of students and reported by 7.53% of students in actual scenarios. Approaches towards the perpetrator appeared more common than approaches towards a potential victim[39] (victim approach: intentions: 11.93% of scenarios, behaviors: 6.45%; perpetrator approach: intentions: 88.07%, behaviors: 93.55%). The majority of approaches towards the victim were supportive. Trends were similar on the most common perpetrator/situational approaches, with the most common coded approach being passive (intentions: 39.77%, behaviors: 56.99%), followed by assertive (intentions: 21.02%, behaviors: 18.28%), confrontational (intentions: 16.48%, behaviors: 10.75%), and hostile approaches (intentions: 5.11%; behaviors: 4.30%). Very few controlling actions were taken towards victims (intentions: 1.14%, behaviors: 1.08%).

In the low risk primary racism scenario, witnessing someone known making a racist comment or joke, students reported 175 intentions and 104 behaviors in baseline data (See Table 21). Trends of strategies by intentions and behaviors were similar, with statements of disagreement most common (intentions: 44.57%; behaviors: 34.62%), followed by other

[39] Due to the nature of the scenario, there may not be a potential victim in this scenario. For instance, a general degrading comment towards women is not directed at one clear person, but ranking a woman's body would have a potential victim, who may or may not be present.

statements (intentions: 13.71%; behaviors: 15.38%) and body language (intentions: 12.57%, behaviors: 10.58%). Students intended to do nothing in 18.08% of scenarios and actually did nothing in 23.08% of cases. They intended to go along with the situation in 2.86% of scenarios and actually went along with the situation in 7.69% of cases. A vague strategy was hypothesized by 6.29% of students and reported by 7.69% of students in actual scenarios. Approaches towards the perpetrator / overall situation appeared more common than approaches towards a potential victim[40] (victim approach: intentions: 6.86% of scenarios, behaviors: 8.65%; perpetrator approach: intentions: 93.71%, behaviors: 90.38%). Though uncommon overall, most approaches towards the victim were supportive (intentions: 3.43%, behaviors: 6.73%), with the remaining intentions or behaviors assertive, passive, or unknown. The most common perpetrator approaches appeared to be passive (intentions: 32.57%, behaviors: 39.42%), followed by assertive (intentions: 30.29%, behaviors: 25.00%). Confrontational approaches were hypothesized by 12.57% of students and utilized by 15.38% of students. Unknown approaches towards a perpetrator/the situation were coded in 13.71% of intentions and 9.62% behaviors. Hostile intentions were intended in 4.00% of scenarios and used in 0.96% of scenarios. There were no controlling actions coded towards any potential victim, hypothetically or in actuality.

***High-risk primary prevention scenarios:*** In the high-risk primary alcohol situation, witnessing someone known who had too much to drink and needed assistance, students reported 176 intentions and 115 behaviors in baseline data (Table 22). Trends of strategies by intentions and behaviors were similar. Students appeared most likely to help the victim (intentions: 59.66%, behaviors: 63.48%), followed by separation from the scenario (intentions: 32.95% behaviors:

[40] Due to the nature of the scenario, there may not be a potential victim in this scenario. For instance, a racist comment or joke could be made about a group of people broadly, or it could be made at the expense of a specific individual who may or may not be present.

Table 22. Coding themes and categories from high-risk primary prevention scenarios

| High-risk primary prevention scenarios | Drinking and need assistance | | | | Isolation with sexual intent | | | | Racist disrespect | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Intentions | | Behaviors | | Intentions | | Behaviors | | Intentions | | Behaviors | |
| | **n** | **%** | **n** | **%** | **n** | **%** | **n** | **%** | **n** | **%** | **n** | **%** |
| **Total** | 176 | 100.00% | 115 | 100.00% | 175 | 100.00% | 26 | 100.00% | 175 | 100.00% | 34 | 100.00% |
| **Strategies*** | | | | | | | | | | | | |
| Statement or expression of disagreement | 2 | 1.14% | 3 | 2.61% | 16 | 9.14% | 5 | 19.23% | 57 | 32.57% | 9 | 26.47% |
| Other statement | 13 | 7.39% | 9 | 7.83% | 26 | 14.86% | 3 | 11.54% | 45 | 25.71% | 4 | 11.76% |
| Get help from a professional | 19 | 10.80% | 5 | 4.35% | 5 | 2.86% | 0 | 0.00% | 5 | 2.86% | 0 | 0.00% |
| Get help from friends or others | 35 | 19.89% | 18 | 15.65% | 39 | 22.29% | 3 | 11.54% | 2 | 1.14% | 1 | 2.94% |
| Help victim | 105 | 59.66% | 73 | 63.48% | 28 | 16.00% | 6 | 23.08% | 13 | 7.43% | 2 | 5.88% |
| Create a distraction | 2 | 1.14% | 0 | 0.00% | 28 | 16.00% | 5 | 19.23% | 3 | 1.71% | 0 | 0.00% |
| Separate from the situation | 58 | 32.95% | 50 | 43.48% | 54 | 30.86% | 10 | 38.46% | 9 | 5.14% | 1 | 2.94% |
| Body language | 0 | 0.00% | 0 | 0.00% | 2 | 1.14% | 0 | 0.00% | 22 | 12.57% | 6 | 17.65% |
| Physically intervening | 1 | 0.57% | 2 | 1.74% | 7 | 4.00% | 2 | 7.69% | 1 | 0.57% | 0 | 0.00% |
| Go along with the situation | 0 | 0.00% | 1 | 0.87% | 1 | 0.57% | 1 | 3.85% | 0 | 0.00% | 0 | 0.00% |
| Nothing | 7 | 3.98% | 6 | 5.22% | 7 | 4.00% | 0 | 0.00% | 16 | 9.14% | 10 | 29.41% |
| Vague strategy | 17 | 9.66% | 9 | 7.83% | 17 | 9.71% | 1 | 3.85% | 16 | 9.14% | 3 | 8.82% |
| **Approach towards the victim** | | | | | | | | | | | | |
| Hostile | 0 | 0.00% | 0 | 0.00% | 0 | 0.00% | 0 | 0.00% | 0 | 0.00% | 0 | 0.00% |
| Confrontational | 2 | 1.14% | 1 | 0.87% | 1 | 0.57% | 0 | 0.00% | 1 | 0.57% | 0 | 0.00% |
| Supportive | 137 | 77.84% | 86 | 74.78% | 73 | 41.71% | 12 | 46.15% | 32 | 18.29% | 6 | 17.65% |
| Assertive | 2 | 1.14% | 5 | 4.35% | 17 | 9.71% | 2 | 7.69% | 7 | 4.00% | 0 | 0.00% |
| Passive | 0 | 0.00% | 0 | 0.00% | 5 | 2.86% | 0 | 0.00% | 2 | 1.14% | 0 | 0.00% |
| Unknown | 5 | 2.84% | 0 | 0.00% | 5 | 2.86% | 0 | 0.00% | 4 | 2.29% | 1 | 2.94% |
| None | 30 | 17.05% | 23 | 20.00% | 74 | 42.29% | 12 | 46.15% | 129 | 73.71% | 27 | 79.41% |
| **Approach towards the perpetrator** | | | | | | | | | | | | |
| Hostile | 0 | 0.00% | 2 | 1.74% | 5 | 2.86% | 1 | 3.85% | 5 | 2.86% | 1 | 2.94% |
| Confrontational | 2 | 1.14% | 1 | 0.87% | 15 | 8.57% | 5 | 19.23% | 32 | 18.29% | 3 | 8.82% |
| Supportive | 0 | 0.00% | 0 | 0.00% | 0 | 0.00% | 0 | 0.00% | 0 | 0.00% | 1 | 2.94% |
| Assertive | 5 | 2.84% | 4 | 3.48% | 19 | 10.86% | 1 | 3.85% | 38 | 21.71% | 6 | 17.65% |
| Passive | 7 | 3.98% | 7 | 6.09% | 20 | 11.43% | 6 | 23.08% | 37 | 21.14% | 14 | 41.18% |
| Unknown | 16 | 9.09% | 10 | 8.70% | 26 | 14.86% | 1 | 3.85% | 20 | 11.43% | 2 | 5.88% |
| None | 146 | 82.95% | 91 | 79.13% | 90 | 51.43% | 12 | 46.15% | 43 | 24.57% | 7 | 20.59% |
| **Controlling action towards victim** | | | | | | | | | | | | |
| Yes | 16 | 9.09% | 7 | 6.09% | 2 | 1.14% | 0 | 0.00% | 1 | 0.57% | 0 | 0.00% |
| No | 160 | 90.91% | 108 | 93.91% | 173 | 98.86% | 26 | 100.00% | 174 | 99.43% | 34 | 100.00% |

**Items are selected separately, totaling over 100%.*

43.48%), and getting help from friends/other non-professionals (intentions: 19.89% behaviors: 15.65%). It seemed that students hypothesized getting help from professionals more than they actually did (intentions: 10.80% behaviors: 4.35%). Students intended to do nothing in 3.98% of scenarios and actually did nothing in 5.22% of cases. They hardly ever went along with the situation, with 0% intending to along with it and 0.87% actually doing so. A vague strategy was hypothesized by 9.66% of students and reported by 7.83% of students in actual scenarios. Approaches towards the victim appeared more common than approaches towards a potential perpetrator/the situation[41] (victim approach: intentions: 82.95% of scenarios, behaviors: 80.00%; perpetrator approach: intentions: 17.05%, behaviors: 20.87%). Most perpetrator/situational approaches were unknown (intentions: 9.09%, behaviors: 8.70%), followed by passive (intentions: 3.98% behaviors: 6.09%) and assertive (intentions: 2.84%, behaviors: 3.48%). Almost all approaches towards the victim were supportive (intentions: 77.84%, behaviors: 74.78%), followed by assertive (intentions: 1.14% behaviors: 4.35%) and confrontational (intentions: 1.14% behaviors: 0.87%). Controlling actions towards the victim were coded in 9.09% of intentions and 6.09% of behaviors.

In the high-risk sexual violence primary prevention, witnessing someone known who appeared drunk being isolated by someone with potential sexual intent, students reported 175 intentions and 26 behaviors in baseline data (See Table 22). The most commonly reported strategy was separation (intentions: 30.86% behaviors: 38.46%). Trends by intention and behavior appeared to vary for other strategies. After separation, in actual scenarios, 23.08% of students helped the victim, 19.23% expressed a statement of disagreement, 19.23% created a distraction, 11.54% provided a statement other than disapproval, 11.54% got help from friends or

[41] In a situation like this, there was likely not a "perpetrator" or someone forcing another person to drink. It is more likely that the codes in the category are related to addressing a situation overall that do not involve the victim.

others, and 7.69% physically intervened. One student went along with the situation (3.85%) and there were no students who indicated they did nothing. Based on intentions, after separation, 22.29% of students indicated they would get help from friends/non-professionals, 16.0% would help the victim, 16.0% would create a distraction, 14.86% would make a statement other than disagreement, 9.14% would make a statement of disagreement, and 4.00% would physically intervene. A vague strategy was hypothesized by 9.71% of students and reported by 3.85% of students in actual scenarios. Over half of students reported behavioral approaches towards both the victim and the perpetrator/situation (victim approach: intentions: 57.71% of scenarios, behaviors: 52.85%; perpetrator approach: intentions: 48.57%, behaviors: 53.85%). Similar trends in intentions and behaviors were found for the approach towards the victim. The most common approach towards the victim appeared to be supportive (intentions: 41.71%, behaviors: 46.15%), followed by assertive (intentions: 9.71%, behaviors: 7.69%). This accounted for all actual behaviors. Students also hypothesized passive approaches (2.86%), unknown approaches (2.86%), and confrontational approaches (0.57%). In behaviors towards the perpetrator/situation, 23.08% of students used a passive approach, 19.23% used a confrontational approach, and 3.85% students each used a hostile, assertive, and unknown approach. In intentions towards the perpetrator, 14.8% of students hypothesized an unknown approach, 11.43% a passive approach, 10.86% an assertive approach, 8.57% a confrontational approach, and 2.86% a hostile approach. No controlling actions were coded towards the victim in actual situations, and only 1.14% of students indicated such control in their intentions.

In the high-risk primary racism situation, witnessing someone known being treated with less respect due to their race, ethnicity, or color, students reported 175 intentions and 34 behaviors in baseline data (See Table 22). Trends appeared to vary for intentions and behaviors.

The most common actual behavior was nothing, which 29.41% of students reported. In contrast, 9.14% of students intended to do nothing. There were no students who went along the situation or intended to do so. The next most common behaviors were statements of disagreement (26.47%), body language (17.65%), another statement (11.76%), a vague strategy (8.82%), help to the victim (5.88%), getting help from friends / non-professionals (2.94%), and separating from the situation (2.94%). The most common intention was a statement of disagreement (32.57%), followed by another type of statement (25.71%), body language (12.57%), a vague strategy (9.14%), help to the victim (7.43%), separating from the situation (5.14%), getting help from a professional (2.86%), creating a distraction (1.71%), getting help from friends/non-professionals (1.14%), and physically intervening (0.57%). It appeared more common to approach the perpetrator/situation over the victim (victim approach: intentions: 26.29% of scenarios, behaviors: 20.59%; perpetrator approach: intentions: 75.43%, behaviors: 79.41%). Passive approaches towards the perpetrator/situation appeared to be the common behavior, reported by 41.18% of students in actual situations. This was followed by assertive approaches (17.65%), confrontational approaches (8.82%), unknown approaches (5.88%), hostile approaches (2.94%), and supportive approaches (2.94%). Assessing intentions towards the perpetrator/ situation, students intended to use assertive (21.71%) and passive (21.14%) approaches commonly, followed by confrontational approaches (18.29%), unknown approaches (11.43%), and hostile approaches (2.86%). There were no controlling actions coded towards the victim in actual situations, and only 0.57% of students indicated such control in their intentions.

***Secondary prevention scenarios:*** In the secondary level sexual violence scenario, witnessing someone committing a possible sexual assault, students reported 173 intentions and 7 behaviors in baseline data (See Table 23). For intentions, 31.21% of students would get help

from a professional, 21.39% would get help from family/non-professionals, 17.34% would choose a vague strategy, 13.87% would separate the victim or perpetrator from the situation, 12.14% would make another type of statement, 8.67% would help the victim, 6.36% would physically intervene, 5.78% would make a statement of disagreement, 4.62% would create a distraction, 3.47% would do nothing, and 1.73% would use body language. There were only seven students who shared behaviors, with two students providing a statement other than disagreement (28.57%) and one student each using a statement of disagreement, getting help from a professional, getting help from friends or others, and doing nothing (14.29% each). Approaches were directed towards both the victim and the perpetrator/situation, but appeared to be more common towards the perpetrator/situation (victim approach: intentions: 41.04% of scenarios, behaviors: 57.14%; perpetrator approach: intentions: 65.90%, behaviors: 85.71%). A supportive approach towards a victim appeared most common (intentions: 34.10%, behaviors: 42.86%), followed by an assertive approach (intentions: 4.62%; behaviors: 14.29%), with 2.31% of students intending an unknown approach. Behavioral approaches towards the perpetrator/ situation were mostly unknown (57.71%) and also confrontational (14.29%) and passive (14.29%). Intended approaches towards the perpetrator/situation were assertive (27.17%), unknown (21.39%), confrontational (9.25%), passive (6.36%), and hostile (1.73%). There were no controlling actions coded towards the victim in intentions or behaviors.

Table 23. Coding themes and categories for secondary prevention scenarios

| Secondary prevention scenarios | Possible sexual assault | | | | Racial threats or harassment | | | | Drinking & get home safely | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Intentions | | Behaviors | | Intentions | | Behaviors | | Intentions | | Behaviors | |
| | **n** | **%** | **n** | **%** | **n** | **%** | **n** | **%** | **n** | **%** | **n** | **%** |
| **Total** | 173 | 100.00% | 7 | 100.00% | 174 | 100.00% | 8 | 100.00% | 173 | 100.00% | 107 | 100.00% |
| **Strategies*** | | | | | | | | | | | | |
| Statement or expression of disagreement | 10 | 5.78% | 1 | 14.29% | 50 | 28.74% | 1 | 12.50% | 1 | 0.58% | 0 | 0.00% |
| Other statement | 21 | 12.14% | 2 | 28.57% | 33 | 18.97% | 1 | 12.50% | 8 | 4.62% | 4 | 3.74% |
| Get help from a professional | 54 | 31.21% | 1 | 14.29% | 22 | 12.64% | 0 | 0.00% | 15 | 8.67% | 0 | 0.00% |
| Get help from friends or others | 37 | 21.39% | 1 | 14.29% | 14 | 8.05% | 0 | 0.00% | 29 | 16.76% | 18 | 16.82% |
| Help victim | 15 | 8.67% | 1 | 14.29% | 21 | 12.07% | 2 | 25.00% | 127 | 73.41% | 86 | 80.37% |
| Create a distraction | 8 | 4.62% | 0 | 0.00% | 3 | 1.72% | 1 | 12.50% | 1 | 0.58% | 0 | 0.00% |
| Separate from the situation | 24 | 13.87% | 0 | 0.00% | 12 | 6.90% | 1 | 12.50% | 97 | 56.07% | 65 | 60.75% |
| Body language | 3 | 1.73% | 0 | 0.00% | 5 | 2.87% | 0 | 0.00% | 0 | 0.00% | 0 | 0.00% |
| Physically intervening | 11 | 6.36% | 0 | 0.00% | 1 | 0.57% | 0 | 0.00% | 0 | 0.00% | 0 | 0.00% |
| Go along with the situation | 0 | 0.00% | 0 | 0.00% | 0 | 0.00% | 0 | 0.00% | 0 | 0.00% | 0 | 0.00% |
| Nothing | 6 | 3.47% | 1 | 14.29% | 17 | 9.77% | 3 | 37.50% | 1 | 0.58% | 3 | 2.80% |
| Vague strategy | 30 | 17.34% | 0 | 0.00% | 23 | 13.22% | 1 | 12.50% | 14 | 8.09% | 6 | 5.61% |
| **Approach towards the victim** | | | | | | | | | | | | |
| Hostile | 0 | 0.00% | 0 | 0.00% | 0 | 0.00% | 0 | 0.00% | 0 | 0.00% | 0 | 0.00% |
| Confrontational | 0 | 0.00% | 0 | 0.00% | 1 | 0.57% | 0 | 0.00% | 0 | 0.00% | 0 | 0.00% |
| Supportive | 59 | 34.10% | 3 | 42.86% | 47 | 27.01% | 3 | 37.50% | 141 | 81.50% | 90 | 84.11% |
| Assertive | 8 | 4.62% | 1 | 14.29% | 5 | 2.87% | 0 | 0.00% | 3 | 1.73% | 4 | 3.74% |
| Passive | 0 | 0.00% | 0 | 0.00% | 1 | 0.57% | 0 | 0.00% | 1 | 0.58% | 0 | 0.00% |
| Unknown | 4 | 2.31% | 0 | 0.00% | 6 | 3.45% | 0 | 0.00% | 2 | 1.16% | 0 | 0.00% |
| None | 102 | 58.96% | 3 | 42.86% | 114 | 65.52% | 5 | 62.50% | 26 | 15.03% | 13 | 12.15% |
| **Approach towards the perpetrator** | | | | | | | | | | | | |
| Hostile | 3 | 1.73% | 0 | 0.00% | 10 | 5.75% | 0 | 0.00% | 0 | 0.00% | 0 | 0.00% |
| Confrontational | 16 | 9.25% | 1 | 14.29% | 32 | 18.39% | 0 | 0.00% | 1 | 0.58% | 0 | 0.00% |
| Supportive | 0 | 0.00% | 0 | 0.00% | 0 | 0.00% | 0 | 0.00% | 1 | 0.58% | 0 | 0.00% |
| Assertive | 47 | 27.17% | 0 | 0.00% | 34 | 19.54% | 1 | 12.50% | 6 | 3.47% | 2 | 1.87% |
| Passive | 11 | 6.36% | 1 | 14.29% | 21 | 12.07% | 3 | 37.50% | 2 | 1.16% | 3 | 2.80% |
| Unknown | 37 | 21.39% | 4 | 57.14% | 30 | 17.24% | 1 | 12.50% | 17 | 9.83% | 8 | 7.48% |
| None | 59 | 34.10% | 1 | 14.29% | 47 | 27.01% | 3 | 37.50% | 146 | 84.39% | 94 | 87.85% |
| **Controlling action towards victim** | | | | | | | | | | | | |
| Yes | 0 | 0.00% | 0 | 0.00% | 0 | 0.00% | 0 | 0.00% | 3 | 1.73% | 1 | 0.93% |
| No | 173 | 100.00% | 7 | 100.00% | 174 | 100.00% | 8 | 100.00% | 170 | 98.27% | 106 | 99.07% |

**Items are selected separately, totaling over 100%.*

In the secondary level of prevention racism scenario, witnessing someone known be threatened or harassed because of their race, ethnicity, or color, students reported 174 intentions and 8 behaviors in baseline data (See Table 23). For intentions, 28.74% of students would make a statement of disagreement, 18.97% would make another statement, 13.22% would use a vague strategy, 12.64% would get help from a professional, 12.07% would help the victim, 9.77% would do nothing, 8.05% would get help from friends or others, 6.90% would separate the victim or perpetrator from the situation, 2.87% would use body language, and 0.57% would physically intervene. Among the eight students with behavioral data, 37.50% did nothing, 25.00% helped the victim, and one student each expressed a statement of disagreement, gave another statement, created a distraction, separated the victim or perpetrator from the situation, or engaged in a vague strategy (12.50% each). Approaches were directed towards both the victim and the perpetrator/situation, but appeared to be more common towards the perpetrator/situation (victim approach: intentions: 34.48% of scenarios, behaviors: 37.50%; perpetrator approach: intentions: 72.99%, behaviors: 62.50%). All behavioral approaches towards the victim were supportive (37.50%). Intended approaches towards the victim included supportive (27.01%), unknown (3.45%), assertive (2.87%), confrontational (0.57%), and passive (0.57%). Among intentions on approaches towards the perpetrator/situation, 24.14% of students intended a confrontational or hostile approach, but in actual behaviors none were reported. Students also intended to use assertive approaches (19.54%), unknown approaches (17.24%), and passive approaches (12.07%) towards the perpetrator/situation. Within their actual behavior, students appeared most likely to use a passive approach towards a perpetrator (37.50%), followed by assertive and unknown approaches (12.50% each). There were no controlling actions coded towards the victim in intentions or behaviors.

In the secondary prevention level alcohol scenario, witnessing someone known have too much to drink and need help to get home safely, students reported 173 intentions and 107 behaviors in baseline data (See Table 23). Trends were similar by intentions and behaviors. Helping the victim appeared to be the most common strategy (intentions: 72.41%, behaviors: 80.37%), followed by separating the person from the situation (intentions: 56.07%, behaviors: 60.75%), getting help from friends/non-professionals (intentions: 16.76%, behaviors: 16.82%), and making another statement (intentions: 4.62%, behaviors: 3.74%). Students further intended to get help from a professional (8.67%) and make a statement of disagreement (0.58%). Doing nothing was hypothesized in 0.58% of scenarios and reported by 2.80% of students in actual scenarios. No students went along with the situation, or intended to do so. Approaches appeared to be directed more towards the person drinking (victim) than the perpetrator/situation[42] (victim approach: intentions: 84.97%, behaviors: 87.85%; perpetrator approach: intentions: 15.61%, behaviors: 12.15%). A supportive approach towards a victim appeared most common (intentions: 81.50%, behaviors: 84.11%), followed by an assertive approach (intentions: 1.73%; behaviors: 3.74%). Students also intended to use unknown (1.16%) and passive (0.58%) approaches towards the victim. Most approaches towards the perpetrator/situation appeared unknown (intentions: 9.83%, behaviors: 7.48%). For intentions, these were followed by assertive (3.47%), passive (1.16%), supportive (0.58%), and confrontational (0.58%) approaches. Students only reported passive (2.80%) and assertive (1.87%) approaches towards the perpetrator/situation in actual situations. Controlling actions towards the victim were hypothesized by 1.73% of students and used by 0.93% of students.

[42] In this scenario, it is unlikely that there was a "perpetrator," so most of the codes in this category are likely directed towards the overall situation instead of towards the person drinking directly.

## PART TWO: Intervention Effects

***Aim #3 Results**: To assess the outcomes of bystander intervention training on changes in student intentions and use of bystander strategies in upper-level undergraduate students*

### *Descriptive statistics for the intervention and control groups*

Within the baseline sample, some students were recruited only at follow-up and were a part of only the baseline T1sample (n=13). The remaining students had been randomized by housing floor within their building to be a part of an intervention or waitlist control group. Of the starting sample of 177 students at baseline, 101 surveys had paired data at pre and follow-up using matched identical codes or those with one category missing and similar demographic information (49.0% of sample; 19.4% of target population).

Trends in the paired group mirrored trends in the baseline sample, with a majority sample of women (70.30%), seniors (52.48%), students from their original cohort (86.14%), White students (69.31%), Non-Hispanic students (90.10%), heterosexual students (96.04%), and U.S. citizens (96.04%). Catholics were the largest religious group and comprised about half the sample (49.51%). While those without a religious affiliation were the next largest group in the baseline sample, with the paired data the next largest religious group included other Christian religions (22.77%), and those without a religious affiliation (19.80%). Building 1 still contained the largest group of students (40.59%), but more students appeared to be in Building 2 (37.62%) than Building 3 (21.78%). See Table 24 for all demographic data in the paired group.

From the original dataset, students had previously been randomly assigned to the intervention or waitlist control group. The intervention group included 57 participants and the control group included 44 participants. Data was collected from students at pre and approximately seven-week follow-up using an online Qualtrics survey (n=101; mean=49.6 days; std dev=19.5 days). Differences between demographic variables were tested between the

intervention and control groups using Pearson's Chi Square test. Fisher's Exact Test was used in cases with cells containing less than five observations. Statistical differences were found between grade level ($p<0.001$) and cohort status ($p<0.001$). There were significantly more juniors in the intervention group compared to the control group. The control group had significantly more students that started before or after their traditional four-year cohort. No other statistical differences were found between groups (See Table 24).

Table 24 Demographics for intervention and control group

| | Sample | | Intervention | | Control | |
|---|---|---|---|---|---|---|
| | **n** | **%** | **n** | **%** | **n** | **%** |
| **Total** | 101 | 100.00 | 57 | 56.44 | 44 | 43.56 |
| **Sex** | | | | | | |
| Woman | 71 | 70.30 | 42 | 73.68 | 29 | 65.91 |
| Man | 30 | 29.70 | 15 | 26.32 | 15 | 34.09 |
| **Grade*** | | | | | | |
| Junior | 48 | 47.52 | 34 | 59.65 | 14 | 31.82 |
| Senior | 53 | 52.48 | 23 | 40.35 | 30 | 68.18 |
| **Cohort status*** | | | | | | |
| Started before cohort | 5 | 4.95 | 1 | 1.75 | 4 | 9.09 |
| Started with cohort (four-year student plan) | 87 | 86.14 | 55 | 96.49 | 32 | 72.73 |
| Started after cohort (transfer) | 9 | 8.91 | 1 | 1.75 | 8 | 18.18 |
| **Race** | | | | | | |
| White (including Middle Eastern) | 70 | 69.31 | 41 | 71.93 | 29 | 65.91 |
| Asian (including Indian subcontinent & Philippines) | 22 | 21.78 | 13 | 22.81 | 9 | 20.45 |
| Others | 5 | 4.95 | 1 | 1.75 | 4 | 9.09 |
| Prefer not to respond | 3 | 2.97 | 1 | 1.75 | 2 | 4.55 |
| Missing | 1 | 0.99 | 1 | 1.75 | 0 | 0.00 |
| **Hispanic Ethnicity** | | | | | | |
| Yes | 10 | 9.90 | 4 | 7.02 | 6 | 13.64 |
| No | 91 | 90.10 | 53 | 92.98 | 38 | 86.36 |
| **Sexuality** | | | | | | |
| Heterosexual | 97 | 96.04 | 55 | 96.49 | 42 | 95.45 |
| Others | 3 | 2.97 | 2 | 3.51 | 1 | 2.27 |
| Prefer not to respond | 1 | 0.99 | 0 | 0.00 | 1 | 2.27 |
| **Citizenship** | | | | | | |
| U.S. Citizen | 97 | 96.04 | 56 | 98.25 | 41 | 93.18 |
| Others | 3 | 2.97 | 0 | 0.00 | 3 | 6.82 |
| Missing | 1 | 0.99 | 1 | 1.75 | 0 | 0.00 |
| **Religious affiliation** | | | | | | |

| | Sample | | Intervention | | Control | |
|---|---|---|---|---|---|---|
| | n | % | n | % | n | % |
| Catholic | 49 | 49.51 | 22 | 38.60 | 27 | 61.36 |
| Does not have a religious affiliation | 20 | 19.80 | 13 | 22.81 | 7 | 15.91 |
| Other Christian Religion | 23 | 22.77 | 17 | 29.82 | 6 | 13.64 |
| Other World Religion | 8 | 7.92 | 4 | 7.02 | 4 | 9.09 |
| Prefer not to respond | 1 | 0.99 | 1 | 1.75 | 0 | 0.00 |
| **Residence** | | | | | | |
| Building 1 | 41 | 40.59 | 24 | 42.11 | 17 | 38.64 |
| Building 2 | 38 | 37.62 | 22 | 38.60 | 16 | 36.36 |
| Building 3 | 22 | 21.78 | 11 | 19.30 | 11 | 25.00 |

*Statistically significant differences between groups with $p<0.001$

Characteristics of the sample were further assessed related to training, sexual violence history, and recent consumption of alcohol and illegal substances. Similar trends to the baseline sample were found in the paired sample, with a majority of participants having a friend who was a victim of sexual assault (61.39%), not having a friend who had perpetrated sexual assault (96.04%), and not having taken a class on race (57.43%). Over a third of participants had experienced sexual violence (35.64%), with 3.96% experiencing victimization in the past six weeks. Only 0.99% of the sample indicated they had perpetrated sexual violence, with no occurrences in the past six weeks. The majority of participants consumed alcohol in the past 30 days (78.21%), with approximately half engaging in binge drinking at least once in the past 30 days (48.51%). Most participants have not consumed marijuana (78.21%) or taken other illegal drugs (98.02%) since starting at the university. No significant differences were found between the intervention and control groups using Pearson's Chi Square test, and Fisher's Exact Test for items with cells $n<5$. Additional information on characteristics of the intervention and control groups can be found in Appendix D. Characteristics of the baseline and paired samples

Question #3.1: Does the Our School TAKES ACTION program (TAKES ACTION) increase student readiness to intervene in bystander situations?

Since intentions were assumed to be high in this study, readiness to intervene was assessed as a possible area for improvement from the intervention. A variable was created for any respondent that selected “I’m not sure what I would do” in at least one hypothetical scenario at baseline and at follow-up. A second variable was created for any respondent that selected “I wasn’t sure what to do” in at least one actual scenario that they witnessed at baseline and follow-up. The percentage of respondents who indicated being unsure was reviewed descriptively by group over time and is visualized in Figure 10 and Figure 11 .

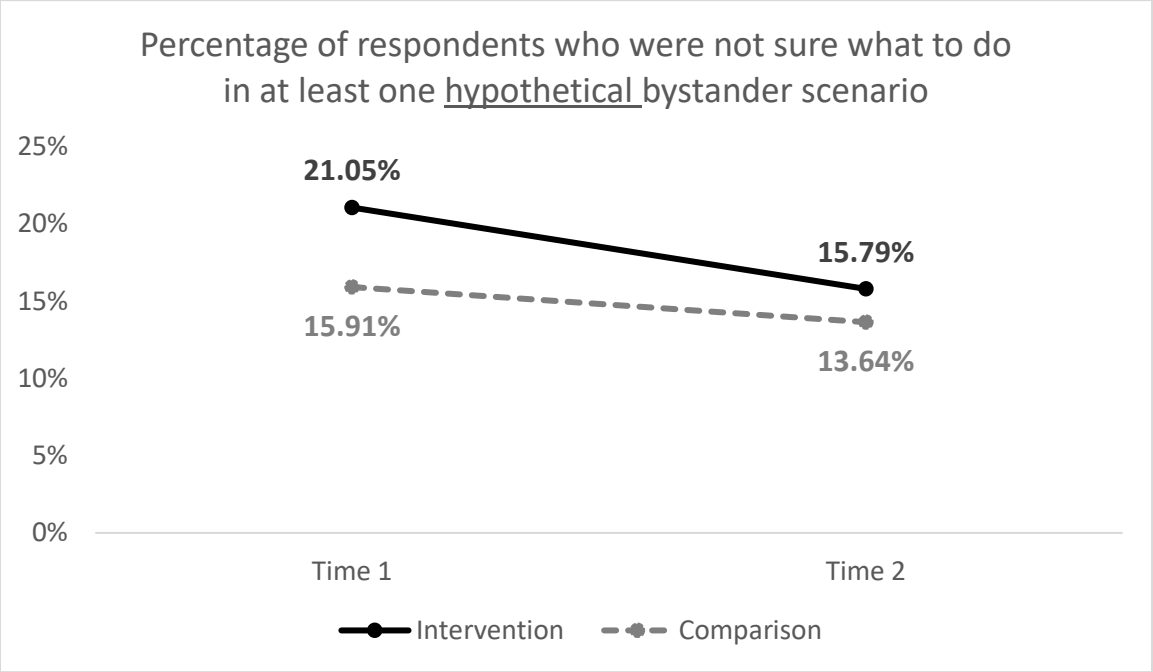

Figure 10. Intention readiness by group over time

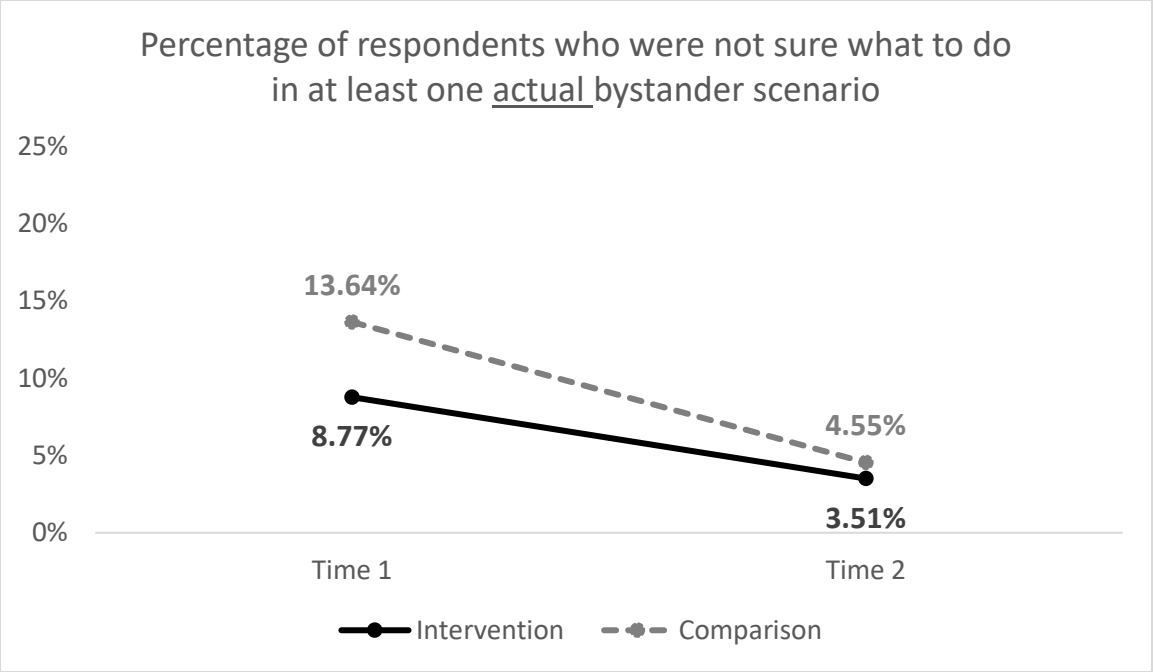

Figure 11. Behavior readiness by group over time

Multilevel mixed-effects logistic regression was used to test for intervention effects using the melogit function in STATA. The time period between the baseline survey and the follow-up survey was included (duration) as a covariate, along with group, time, gender, grade, cohort status, and the interaction of time and group. Cohort status was dropped from the behavioral model as it was a perfect predictor of the outcome (100% of students who were "not sure" what to do were in the traditional cohort group). The overall model to test for changes in being "not sure" between the intervention and control group from baseline to follow-up was not a significant fit for intentions (group n=101; n=202; $X^2(7)=5.56$, p=0.5918) or behaviors (group n=101; n=202; $X^2(6)=4.94$, p=0.5519)[43], suggesting there were no significant changes in any constructs of interest. This is reiterated with coefficients in Table 25. The results of the models suggest there were no significant changes in the number of students who were unsure to what to

[43] Sample size in mixed effects models includes observations used from each group at baseline and follow-up. With 101 paired participants, this included 101 observations in the intervention and control groups at baseline compared to 101 observations in the intervention and control groups at follow-up or a total n=202.

do in at least one scenario in the intervention and control group from baseline to follow-up after controlling for covariates, although data trended in the hypothesized direction.

Table 25 Mixed-effects logistic regression output for being unsure what to do from pre to follow-up in intervention and control groups

| | Notsure Intentions | | | | Notsure Behaviors | | | |
|---|---|---|---|---|---|---|---|---|
| | **coefficient** | **standard error** | **z-score** | **p-value** | **coefficient** | **standard error** | **z-score** | **p-value** |
| **Group** | 0.0943 | 0.8196 | 0.120 | 0.908 | -0.3268 | 0.8133 | -0.400 | 0.688 |
| **Time** | -0.2451 | 0.7019 | -0.350 | 0.727 | -1.3462 | 0.9163 | -1.470 | 0.142 |
| Duration | -0.0201 | 0.0185 | -1.060 | 0.291 | -0.0137 | 0.0187 | -0.740 | 0.462 |
| Gender | 0.6357 | 0.651778 | 0.98 | 0.329 | -0.6577 | 0.7688 | -0.860 | 0.392 |
| Grade | -0.8430 | 0.6530 | -1.290 | 0.197 | 0.3669 | 0.6807 | 0.540 | 0.590 |
| Cohort | -1.5083 | 1.1502 | -1.310 | 0.190 | * | * | * | * |
| **Group*Time** | -0.2775 | 0.0187 | -1.080 | 0.281 | 0.2717 | 1.2662 | 0.210 | 0.830 |

*Omitted due to lack of variability in the outcome.

Question #3.2: Does the TAKES ACTION program increase bystander behaviors and improve experiences intervening?

Mixed-effects linear models were used to test differences in the bystander behavior likelihood scores, helpfulness of intervening, and bystander experiences in scenarios with at least 15 responses at follow-up.[44] Three witnessed scenarios met the sample size criteria and are analyzed below: degrading comments about women, racist comments or jokes, and someone drinking who needs assistance. The time period between the baseline survey and the follow-up survey was included (duration) as a covariate, along with group, time, gender, grade, cohort status, and the interaction of time and group. The marginal effects of all nine models are graphed at pre and follow-up from the intervention and control groups in Figure 12.

[44] Helpfulness of intervening and bystander experiences were larger in sample size than behavior likelihood scores since they asked about a singular scenario at baseline since starting at the university, which behavior likelihood scores required witnessing in the past six weeks.

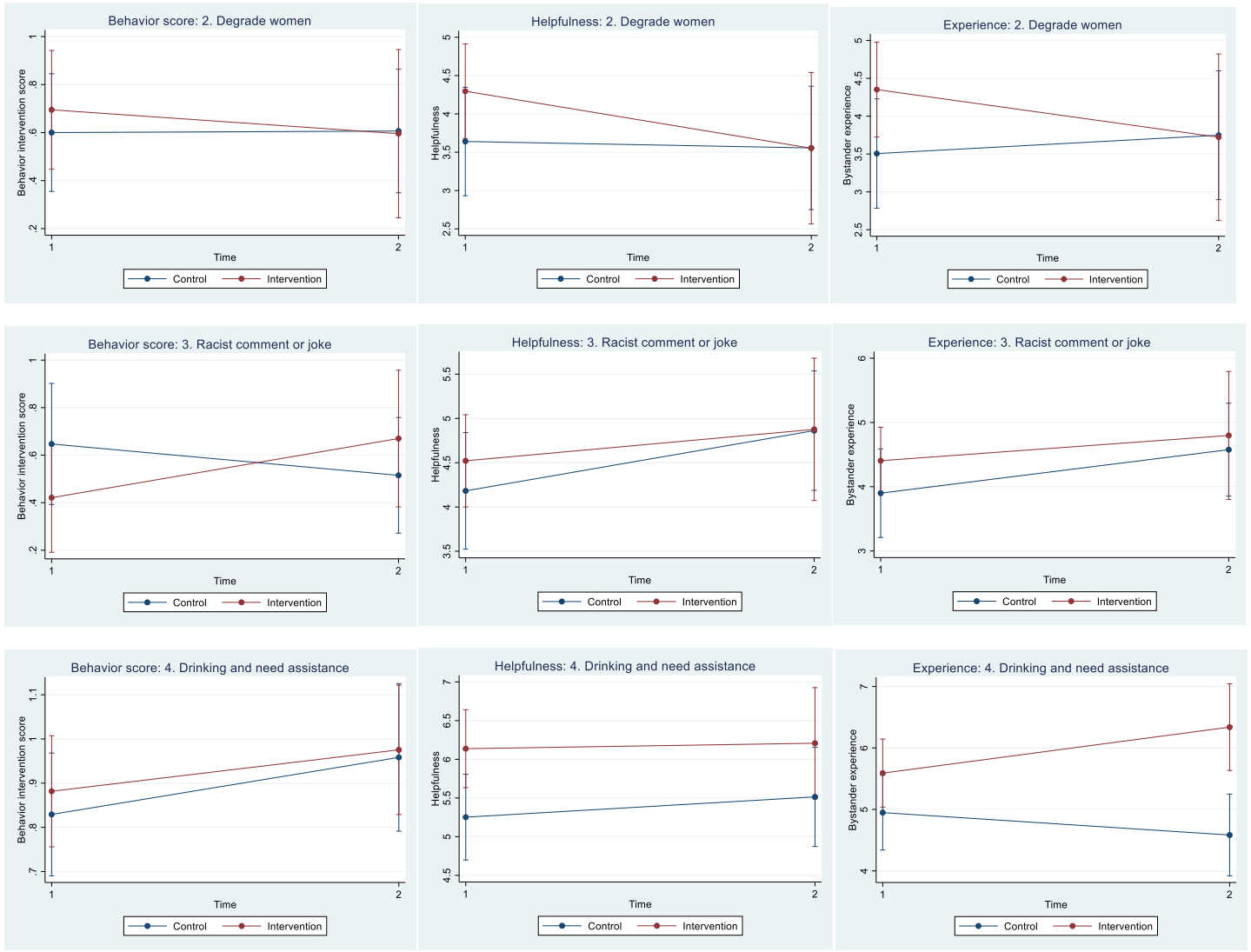


Figure 12 Graphs of the marginal effects of behavior likelihood score, helpfulness, and experiences between intervention and control groups at baseline and follow-up

There were no program effects on participants' responses to degrading comments towards women as measured by their behavior likelihood score (group n=36; n=45; $X^2(7)=3.30$, p=0.8558), helpfulness of intervening (group n=56; n=75; $X^2(7)=4.76$, p=0.6889), or bystander experience (group n=56; n=75; $X^2(7)=5.01$, p=0.6588) between the intervention and control group from baseline to follow-up. See Table 26 for model statistics.

Table 26 Linear mixed model analysis on behavior outcomes against degrading towards women between the intervention and control groups at baseline and follow-up

| Degrade comments about women | | | | |
|---|---|---|---|---|
| **Behavior likelihood score** | | | | |
| | **coefficient** | **standard error** | **z-score** | **p-value** |
| **Group** | 0.0948 | 0.1952 | 0.490 | 0.627 |
| **Time** | 0.0065 | 0.1440 | 0.050 | 0.964 |
| Duration | 0.0030 | 0.0042 | 0.710 | 0.475 |
| Gender | -0.1021 | 0.1593 | -0.640 | 0.522 |
| Grade | -0.1352 | 0.1470 | -0.920 | 0.358 |
| Cohort | 0.1459 | 0.2017 | 0.720 | 0.469 |
| **Group*Time** | -0.1057 | 0.2242 | -0.470 | 0.637 |
| **Helpfulness** | | | | |
| | **coefficient** | **standard error** | **z-score** | **p-value** |
| **Group** | 0.8850 | 0.3973 | 2.230 | 0.026 |
| **Time** | 0.2620 | 0.2948 | 0.890 | 0.374 |
| Duration | -0.0048 | 0.0087 | -0.550 | 0.583 |
| Gender | 0.1630 | 0.3914 | 0.420 | 0.677 |
| Grade | 0.2852 | 0.3617 | 0.790 | 0.430 |
| Cohort | 0.2832 | 0.5128 | 0.550 | 0.581 |
| **Group*Time** | -0.1914 | 0.4628 | -0.410 | 0.679 |
| **Experience** | | | | |
| | **coefficient** | **standard error** | **z-score** | **p-value** |
| **Group** | 0.8451 | 0.5234 | 1.610 | 0.106 |
| **Time** | 0.2424 | 0.4329 | 0.560 | 0.576 |
| Duration | -0.0003 | 0.0123 | -0.020 | 0.983 |
| Gender | -0.0416 | 0.4372 | -0.100 | 0.924 |
| Grade | -0.1694 | 0.4333 | -0.390 | 0.696 |
| Cohort | 1.0082 | 0.6890 | 1.460 | 0.143 |
| **Group*Time** | -0.8715 | 0.6946 | -1.250 | 0.210 |

There were no program effects on participants' responses to racist comments or jokes as measured by their behavior likelihood score (group n=40; n=50; $X^2(7)=4.63$, p=0.71) or the helpfulness of intervening (group n=64; n=82; $X^2(7)=13.03$, p=0.07) between the intervention and control group from baseline to follow-up. The model for the bystander experience, as being positive or negative, was significant for racist comments or jokes (group n=64; n=82; $X^2(7)=14.42$, p=0.04). The only statistically significant variable in the model was duration, which indicates that for every 0.02 decrease in the number of days between baseline and the follow-up completion of the survey, there is a one unit increase towards a positive bystander experience, after accounting for all confounders and the structure of the model (p=0.004). This suggests that bystander experiences were reported to be more positive if the follow-up survey was taken sooner rather than later. See Table 27 for the model statistics.

Table 27. Linear mixed model analysis on behavior outcomes against racist comments or jokes between the intervention and control groups at baseline and follow-up

| Racist comment or joke | | | | |
|---|---|---|---|---|
| **Behavior likelihood score** | | | | |
| | **coefficient** | **standard error** | **z-score** | **p-value** |
| **Group** | -0.2260 | 0.1830 | -1.240 | 0.217 |
| **Time** | -0.1319 | 0.1499 | -0.880 | 0.379 |
| Duration | -0.0027 | 0.0034 | -0.810 | 0.421 |
| Gender | -0.0184 | 0.1440 | -0.130 | 0.898 |
| Grade | -0.0538 | 0.1576 | -0.340 | 0.733 |
| Cohort | 0.0069 | 0.2249 | 0.030 | 0.975 |
| **Group*Time** | 0.3811 | 0.2145 | 1.780 | 0.076 |
| **Helpfulness** | | | | |
| | **coefficient** | **standard error** | **z-score** | **p-value** |
| **Group** | 0.3393 | 0.4532 | 0.750 | 0.454 |
| **Time** | 0.6804 | 0.2853 | 2.390 | 0.017[45] |
| Duration | -0.0189 | 0.0095 | -1.990 | 0.046[46] |
| Gender | -0.1012 | 0.3718 | -0.270 | 0.785 |
| Grade | 0.5138 | 0.4004 | 1.280 | 0.200 |

[45] Not interpreted since the overall model was not significant.
[46] Not interpreted since the overall model was not significant.

| | | | | |
|---|---|---|---|---|
| Cohort | 0.6962 | 0.6428 | 1.080 | 0.279 |
| **Group*Time** | -0.3254 | 0.4740 | -0.690 | 0.492 |
| **Experience**** | | | | |
| | **coefficient** | **standard error** | **z-score** | **p-value** |
| **Group** | 0.5049 | 0.4627 | 1.090 | 0.275 |
| **Time** | 0.6774 | 0.4996 | 1.360 | 0.175 |
| Duration | -0.0232 | 0.0081 | -2.880 | **0.004** |
| Gender | 0.3546 | 0.3547 | 1.000 | 0.317 |
| Grade | 0.5009 | 0.3569 | 1.400 | 0.160 |
| Cohort | 0.9495 | 0.5772 | 1.650 | 0.100 |
| **Group*Time** | -0.2839 | 0.7545 | -0.380 | 0.707 |

**The overall model was statistically significant.

There were no program effects on participants' responses to someone who was drinking and needed assistance as measured by their behavior likelihood scores (group n=44; n=54; $X^2(7)=5.23$, p=0.63) or the helpfulness of intervening (group n=73; n=98; $X^2(7)=5.93$, p=0.55) between the intervention and control group from baseline to follow-up. The model for the bystander experience, as being positive or negative, was significant for the scenario where someone was drinking and needed assistance (group n=73; n=98; $X^2(7)=15.16$, p=0.03). The only statistically significant variable in the model was the group by time interaction (p=0.004). Since the intervention group increased from a baseline value of 5.59 to 6.34 and the control group decreased from a baseline value of 4.95 to 4.58 (on a scale of 1 to 7 where 1=negative experience and 7=positive experience), this suggests that the intervention had a statistically significant effect on increasing the bystander experience when helping someone who was drunk and needed assistance, after accounting for covariates. See

Table 28 for the model statistics.

Table 28. Linear mixed model analysis on behavior outcomes of intervening when someone was drinking and needed assistance between the intervention and control groups at baseline and follow-up

| Drinking and need assistance | | | | |
|---|---|---|---|---|
| **Behavior likelihood score** | | | | |
| | **coefficient** | **standard error** | **z-score** | **p-value** |
| **Group** | 0.0524 | 0.0998 | 0.53 | 0.599 |
| **Time** | 0.1291 | 0.1037 | 1.24 | 0.213 |
| Duration | 0.0025 | 0.0023 | 1.06 | 0.288 |
| Gender | -0.0114 | 0.0823 | -0.14 | 0.889 |
| Grade | 0.0650 | 0.0732 | 0.89 | 0.375 |
| Cohort | 0.0869 | 0.1015 | 0.86 | 0.392 |
| **Group*Time** | -0.0353 | 0.1393955 | -0.25 | 0.8 |
| **Helpfulness** | | | | |
| | **coefficient** | **standard error** | **z-score** | **p-value** |
| **Group** | 0.8850 | 0.3973 | 2.230 | 0.026 |
| **Time** | 0.2620 | 0.2948 | 0.890 | 0.374 |
| Duration | -0.0048 | 0.0087 | -0.550 | 0.583 |
| Gender | 0.1630 | 0.3914 | 0.420 | 0.677 |
| Grade | 0.2852 | 0.3617 | 0.790 | 0.430 |
| Cohort | 0.2832 | 0.5128 | 0.550 | 0.581 |
| **Group*Time** | -0.1914 | 0.4628 | -0.410 | 0.679 |
| **Experience**** | | | | |
| | **coefficient** | **standard error** | **z-score** | **p-value** |
| **Group** | 0.6422 | 0.4368 | 1.470 | 0.141 |
| **Time** | -0.3647 | 0.2381 | -1.530 | 0.126 |
| Duration | -0.0026 | 0.0097 | -0.270 | 0.786 |
| Gender | 0.0091 | 0.4416 | 0.020 | 0.983 |
| Grade | -0.2298 | 0.4082 | -0.560 | 0.573 |
| Cohort | 0.8208 | 0.5824 | 1.410 | 0.159 |
| **Group*Time** | 1.1126 | 0.3840 | 2.900 | **0.004** |

**The overall model was statistically significant.

Question #3.3: Does the TAKES ACTION program increase participant confidence levels to intervene?

Confidence levels were assessed on bystander intentions using a one to seven Likert scale, with higher values indicating higher levels of confidence. Mixed-effects linear models were used to test differences in the levels of confidence to intervene for all nine hypothetical scenarios (intentions). The time period between the baseline survey and the follow-up survey

was included (duration) as a covariate, along with group, time, gender, grade level, cohort status, and the interaction of time and group. The marginal effects of all nine models are graphed at baseline and follow-up from the intervention and control groups in Figure 13.

There were no program effects on participants' confidence levels to intervene between the intervention and control group from baseline to follow-up for the following scenarios: someone being pressured to drink (group n=98; n=188; $X^2(7)=4.12$, p=0.77); degrading comments about women (group n=95; n=175; $X^2(7)=9.88$, p=0.20); racist comments or jokes (group n=92; n=167; $X^2(7)=9.21$, p=0.21); someone drinking who needs assistance (group n=100; n=195; $X^2(7)=3.34$, p=0.85); racial disrespect (group n=98; n=187; $X^2(7)=5.45$, p=0.61); possible sexual assault (group n=100; n=193; $X^2(7)=8.28$, p=0.31); racial threats or harassment (group n=96; n=182; $X^2(7)=7.22$, p=0.41); or someone who had too much to drink and needed help to get home safely (group n=100; n=198; $X^2(7)=3.00$, p=0.89).

The overall model for confidence levels to intervene in a situation of isolation with sexual intent was significant (group n=98; n=195; $X^2(7)=18.75$, p=0.009); the only statistically significant variable in the model was time (coefficient= 0.56, SE=0.19, p=0.004), which suggests that confidence to intervene when witnessing isolation with sexual intent increases from baseline to follow-up across students in the intervention and control groups together. The average level of student confidence to intervene at baseline was 5.54 and at follow-up was 6.01 (1=not very confident; 7=very confident). An increasing trend was found among both groups, with the intervention group increasing from 5.64 to 6.04, and the control group increasing from 5.42 to 5.98. See Table 29 for the model statistics.

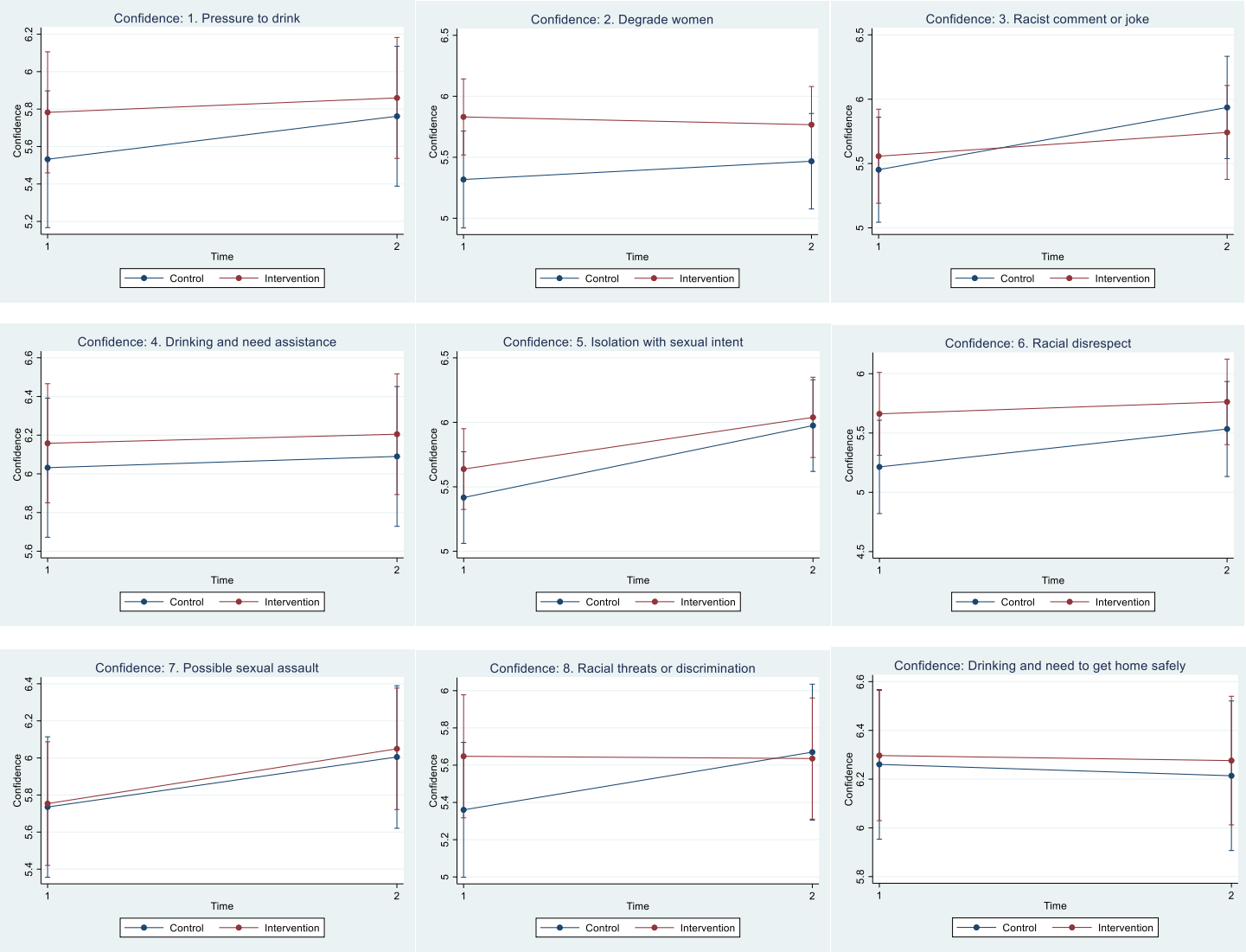


Figure 13. Graphs of the marginal effects of confidence levels to intervene between intervention and control groups at baseline and follow-up

Table 29. Linear mixed model analysis on confidence levels to intervene of nine intentions between the intervention and control groups at baseline and follow-up

| **Pressure to drink** | | | | |
|---|---|---|---|---|
| | **coef.** | **standard error** | **z-score** | **p-value** |
| **Group** | 0.2505 | 0.2608 | 0.960 | 0.337 |
| **Time** | 0.2297 | 0.1758 | 1.310 | 0.191 |
| Duration | 0.0001 | 0.0055 | 0.010 | 0.990 |
| Gender | 0.1905 | 0.2212 | 0.860 | 0.389 |
| Grade | 0.1888 | 0.2144 | 0.880 | 0.379 |
| Cohort | 0.1498 | 0.3131 | 0.480 | 0.632 |
| **Group*Time** | -0.1526 | 0.2337 | -0.650 | 0.514 |
| **Degrade women** | | | | |
| | **coefficient** | **standard error** | **z-score** | **p-value** |
| **Group** | 0.5130 | 0.2703 | 1.900 | 0.058 |
| **Time** | 0.1497 | 0.1847 | 0.810 | 0.417 |
| Duration | -0.0095 | 0.0057 | -1.680 | 0.092 |
| Gender | 0.1205 | 0.2355 | 0.510 | 0.609 |
| Grade | 0.3133 | 0.2154 | 1.450 | 0.146 |
| Cohort | 0.6016 | 0.3278 | 1.840 | 0.066 |
| **Group*Time** | 0.2364 | -0.9000 | 0.367 | -0.677 |
| **Racist comment or joke** | | | | |
| | **coefficient** | **standard error** | **z-score** | **p-value** |
| **Group** | 0.1050 | 0.2906 | 0.360 | 0.718 |
| **Time** | 0.4837 | 0.2160 | 2.240 | 0.025[47] |
| Duration | -0.0061 | 0.0058 | -1.050 | 0.294 |
| Gender | 0.1646 | 0.2442 | 0.670 | 0.500 |
| Grade | 0.2559 | 0.2288 | 1.120 | 0.263 |
| Cohort | -0.0178 | 0.3344 | -0.050 | 0.958 |
| **Group*Time** | -0.2989 | 0.2937 | -1.020 | 0.309 |
| **Drinking and need assistance** | | | | |
| | **coefficient** | **standard error** | **z-score** | **p-value** |
| **Group** | 0.1261 | 0.2549 | 0.490 | 0.621 |
| **Time** | 0.0582 | 0.1592 | 0.370 | 0.715 |
| Duration | -0.0057 | 0.0055 | -1.040 | 0.298 |
| Gender | -0.0173 | 0.2167 | -0.080 | 0.936 |
| Grade | 0.1727 | 0.2117 | 0.820 | 0.414 |
| Cohort | 0.3278 | 0.3099 | 1.060 | 0.290 |
| **Group*Time** | -0.0112 | 0.2111 | -0.050 | 0.958 |
| **Isolation with sexual intent** | | | | |
| | **coefficient** | **standard error** | **z-score** | **p-value** |
| **Group** | 0.2209 | 0.2529 | 0.870 | 0.382 |

[47] While the time variable was statistically significant, the overall model on confidence levels to intervene when witnessing racist comments and jokes was not significant.

| | | | | |
|---|---|---|---|---|
| **Time** | 0.5581 | 0.1919 | 2.910 | **0.004** |
| Duration | -0.0023 | 0.0051 | -0.450 | 0.655 |
| Gender | -0.1401 | 0.2082 | -0.670 | 0.501 |
| Grade | -0.2073 | 0.1988 | -1.040 | 0.297 |
| Cohort | 0.5020 | 0.2891 | 1.740 | 0.083 |
| **Group*Time** | -0.1571 | 0.2568 | -0.610 | 0.541 |
| **Racial disrespect** | | | | |
| | **coefficient** | **standard error** | **z-score** | **p-value** |
| **Group** | 0.4476 | 0.2806 | 1.600 | 0.111 |
| **Time** | 0.3196 | 0.2076 | 1.540 | 0.124 |
| Duration | -0.0038 | 0.0057 | -0.660 | 0.506 |
| Gender | -0.0192 | 0.2341 | -0.080 | 0.935 |
| Grade | 0.1399 | 0.2271 | 0.620 | 0.538 |
| Cohort | 0.3720 | 0.3397 | 1.100 | 0.273 |
| **Group*Time** | -0.2185 | 0.2811 | -0.780 | 0.437 |
| **Possible sexual assault**** | | | | |
| | **coefficient** | **standard error** | **z-score** | **p-value** |
| **Group** | 0.0182 | 0.2700 | 0.070 | 0.946 |
| **Time** | 0.2697 | 0.1951 | 1.380 | 0.167 |
| Duration | 0.0047 | 0.0055 | 0.850 | 0.396 |
| Gender | 0.2049 | 0.2235 | 0.920 | 0.359 |
| Grade | 0.0056 | 0.2159 | 0.030 | 0.979 |
| Cohort | 0.4148 | 0.3164 | 1.310 | 0.190 |
| **Group*Time** | 0.0260 | 0.2602 | 0.100 | 0.920 |
| **Racial threats or discrimination** | | | | |
| | **coefficient** | **standard error** | **z-score** | **p-value** |
| **Group** | 0.2875 | 0.2603 | 1.100 | 0.269 |
| **Time** | 0.3097 | 0.1934 | 1.600 | 0.109 |
| Duration | -0.0079 | 0.0053 | -1.500 | 0.134 |
| Gender | 0.1204 | 0.2141 | 0.560 | 0.574 |
| Grade | 0.0398 | 0.2072 | 0.190 | 0.848 |
| Cohort | 0.3551 | 0.3056 | 1.160 | 0.245 |
| **Group*Time** | -0.3218 | 0.2612 | -1.230 | 0.218 |
| **Drinking and need to get home safely** | | | | |
| | **coefficient** | **standard error** | **z-score** | **p-value** |
| **Group** | 0.0364 | 0.2172 | 0.170 | 0.867 |
| **Time** | -0.0465 | 0.1693 | -0.270 | 0.784 |
| Duration | 0.0028 | 0.0043 | 0.650 | 0.514 |
| Gender | 0.2059 | 0.1762 | 1.170 | 0.242 |
| Grade | 0.1247 | 0.1688 | 0.740 | 0.460 |
| Cohort | 0.0950 | 0.2468 | 0.390 | 0.700 |
| **Group*Time** | 0.0258 | 0.2255 | 0.110 | 0.909 |

**The overall model was statistically significant.

# Chapter 4. Discussion

This study used a mixed-methods design to understand bystander intervention across various scenarios related to sexual violence, racism, and alcohol. It employed a waitlist-control cluster randomized trial to test the effects of a bystander program on upper-level undergraduate students with previous years of training. This research expands our understanding of how students intervene, provides evidence of how a single-session "booster" program impacts bystander outcomes, and builds built upon the literature to describe how theory helps predict bystander behaviors.

Results outlined in the first aim of the study indicated that intentions predict behaviors as hypothesized by the Theory of Planned Behavior for all low-risk primary prevention scenarios related to sexual violence, racism, and alcohol. Self-efficacy further predicted behaviors for sexual violence and racism.[48] Adding skills and environmental constraints did not significantly predict bystander behaviors against sexual violence, suggesting that the Integrated Model of Behavioral Prediction may not provide the best fit to describe bystander intervention.

To further increase understanding of bystander intervention, trends in intervening were compared by student characteristics and level of prevention (risk) in the second research aim. Women and Non-Hispanic White students intended to intervene more often in certain sexual violence scenarios (compared to men and Students of Color respectively), but no significant differences were found in actual behaviors between these groups. Positive intentions to intervene and bystander behaviors were more common in riskier situations, with students significantly more likely to intervene in high-risk primary and secondary level scenarios compared to low-risk

[48] Attitudes also predicted intentions for the low-risk primary racism scenario.

primary scenarios. Open-ended feedback from students provided further insight on how students describe their intentions and experiences intervening.

The second part of the study tested the effects of the Our School TAKES ACTION bystander program in the third research aim. After controlling for duration, gender, grade, and cohort status, students in the intervention group reported significantly more positive experiences intervening when someone was drinking and needed assistance, compared to the control group (group n=73; n=98; $X^2(7)=15.16$, p=0.03). In the scenario where someone who had been drinking was isolated for possible sexual exploitation, there was a significant finding of time (p=0.004) within the tested model (group n=98; n=195; $X^2(7)=18.75$, p=0.009). This suggests that confidence scores increased in both groups over time, and could be a result of a testing effect where thinking about the scenario in the pretest increased the confidence to intervene in the follow-up test (Fink, 2005). While there were no further significant findings of the program to increase bystander likelihood scores, helpfulness of intervening, or any other bystander experiences or confidence levels, some positive trends were found and are outline further in the discussion section.

To discuss the results of the study from these three aims, emerging questions and themes are provided and explored below. These are followed by limitations, implications for prevention, future areas for research, and conclusions.

**Emerging questions and themes**

*What did we learn about predictors of intentions across bystander scenarios?*

Juniors and seniors have high intentions to intervene. Based on the analysis of baseline data, students intended to intervene in over 80% of all scenarios. In the riskier scenarios (high-risk primary and secondary level), students intended to intervene in 90% or more of scenarios.

The high rate of intentions to intervene was hypothesized, given that participants were juniors and seniors with previous years of bystander training. While other factors like maturation could account for higher intentions, it is likely that two to three previous years of training in sexual assault awareness, safe alcohol practices, and bystander intervention contributed to the high intentions of students in this population to intervene across potentially harmful scenarios.

Students had significantly higher intentions (and behaviors) to intervene in riskier situations compared to low-risk primary scenarios. While previous research has alluded to this finding, this study demonstrated statistically significant differences in bystander intentions and behaviors between levels of prevention (S. McMahon et al., 2017). It is worth noting that there was practically no difference between high-risk primary and secondary prevention likelihood scores for intentions (high-risk primary intention likelihood score: 0.9451; secondary intention likelihood score: 0.9579), even though behavior differences approached significance ($p=0.065$; high-risk primary behavior likelihood score: 0.7969; secondary intention behavior score: 0.9380). These results suggest that students have high intentions to intervene but lower behavior likelihood scores for high-risk primary scenarios. It is possible that students may face unanticipated barriers that keep them from intervening in high-risk primary scenarios, even though they have high intentions to do so. Fear and uncertainty may be particular barriers in these situations, specifically when violence is happening. These high-risk primary situations may create a paradoxical context where there is a chance that violence could escalate (ie- this could lead to rape / this could become a hate crime), while there is a simultaneous recognition that things may not be that bad (ie- he's not really going to rape her, she probably wants to have sex with him anyways, they shouldn't have disrespected him but he'll be okay, he's not physically

hurt, this seems sketchy but I don't want to make it a bigger deal, etc). More research could explore the differences in intentions and behaviors in these situations.

Self-efficacy predicted intentions for all low-risk primary scenarios. Drawing upon the Theory of Planned Behavior, attitudes, subjective norms, and perceived behavioral control (measured as self-efficacy) should predict intentions; however, not all constructs may be significant in every health promotion area, as some intentions and behaviors may be more influenced by attitudes, norms, or self-efficacy (Fishbein & Yzer, 2003). As expected, self-efficacy was predictive of intention to intervene for all health topics, aligning with previous research (Hust et al., 2013, 2016; Lukacena et al., 2019).

Attitudes predicted intentions to intervene against racism and harmful alcohol outcomes, but not against sexual violence. Attitudes included rape myth acceptance and the normalization of racism and alcohol use in college. Attitudes predicted intentions to intervene against racist comments or jokes and when someone was being pressured to drink. Attitudes did not predict intentions to intervene against degrading comments towards women. This later finding contradicts previous research, which has found attitudes to be predictive of intentions to intervene against sexual violence using the Theory of Reasoned Action / Planned Behavior (Hust et al., 2013, 2016; Lukacena et al., 2019). The null finding in this study may be due to measurement differences from previous studies. In previous research, intentions were measured across multiple Likert scale items using questions such as, ''I would discourage a friend who said they planned to get someone drunk to have sex," or "I intend to intervene in the future if I see a sexual assault" (Hust et al., 2013; Lukacena et al., 2019). By providing the intervention option directly in the item, these items may have been more "leading" in the sense that they primed the respondent to answer positively. In contrast, the study presented in this dissertation

measured one binary intention at a time (ie- What would you do? Recoded to yes/no from response selected and described). This provided students multiple options for response, including doing nothing and going along with the situation, which may have helped to normalize these responses. Different approaches to measuring attitudes may also explain why a relationship between attitudes and intentions in sexual violence was not found in this study. Lukacena et al. (2019) measured attitudes with broader items including, " My intervening to prevent sexual assault would be beneficial for society in general." Similar to the measurements for intentions, this statement may also be leading and more likely to generate affirmative responses. In summary, variations in measurement may explain why attitudes did not predict intentions in this study.

Women and Non-Hispanic White students reported higher intentions to intervene compared to men and Students of Color. As hypothesized, women had greater intentions to intervene in some sexual violence situations compared to men. However, this was only true for degrading comments about women and when witnessing someone drunk being isolated for potential sexual reasons. The highest risk scenario, witnessing a possible sexual assault, yielded no differences by gender. This is likely due to the elevated risk of the situation, which represents a tangible threat and does not address social norms or a potential situation. Both men and women reported high intentions to intervene when witnessing a potential sexual assault (women: 97.39%; men: 96.55%).

The same sexual violence scenarios with differences in intentions by gender also had significant differences by race/ethnicity. Compared to Students of Color, Non-Hispanic White students reported higher intentions to intervene when hearing degrading comments about women and seeing a drunk person being isolated by someone with possible sexual intentions. There were

no significant differences when witnessing a potential sexual assault. While it is limiting to combine all Students of Color into one group, differences in intentions by race/ethnicity could be a reflection of the campus demographics where this study took place. Non-Hispanic White students represent the majority of the student body. This may create more barriers for Students of Color when they are the clear minority on campus, especially since research shows that Students of Color experience harassment at higher rates than White students, and that they perceive the campus climate to be more racist and less accepting (Rankin & Reason, 2005).

Analysis by specific racial/ethnic groups should be explored more fully in studies with larger sample sizes. This research contributes to existing knowledge that differences may exist between racial/ethnic groups, but further research is needed to examine intervention outcomes by racial/ethnic groups and subgroups and to examine intersectional results with gender (Hoxmeier, O'Connor, et al., 2018).

*How do intentions translate to action?*

Despite differences in intentions to intervene by gender and race/ethnicity, there were no significant differences between bystander behaviors among these groups (based on behavior likelihood scores). The hypothesis that women would engage in significantly more bystander behaviors than men was not supported in this study. It is possible that differences were not detected due to low sample sizes in behavioral data. Conversely, differences in behaviors by gender may truly not exist due because of previous training in this population. With juniors and seniors, it is possible that previous training to build self-efficacy increased men's likelihood to do so when situations arise, even if they have lower intentions.

There was no hypothesis generated related to bystander behaviors by race/ethnicity, making this an exploratory research aim. No significant differences in behaviors were detected

between Students of Color and Non-Hispanic Whites in any sexual violence situation. A lack of difference by race/ethnicity may have been due to lower samples sizes, but could also suggest there are no differences in behaviors. While subject to limitations, this behavioral data suggests that intentions between gender and racial/ethnic groups do not translate to changes in bystander behaviors. Again, future research with racial/ethnic subgroups and intersections with gender could assist in providing more information to understand these relationships.

Trends suggest differences between what students say they would do and what they report they did do. Qualitative data provided trends for intentions and behaviors for each scenario. As a reminder, students were asked how they would respond in hypothetical situations and actual situations using short open-ended responses. Students suggested they would "do nothing" or "go along with the situation" more often when faced with an actual behavior (compared to the same situation in a hypothetical context). This was particularly true when witnessing racial threats and harassment, where there was a 27.73% points difference between the students who said they would intervene and those that did. Large discrepancies were also found for witnessing someone treated with disrespect because of their race/ethnicity (20.27% points difference), witnessing someone pressured to drink (16.41% points difference), and witnessing degrading comments about women (13.95% points difference). In these scenarios where intentions seemed higher than behaviors, there appeared to be more approaches directed towards a potential perpetrator than a potential victim. It may be that bystanders intervene less in scenarios where they feel they should confront a perpetrator. If students hypothesized more strategies to protect victims or get help in these same scenarios, it is possible that their intentions would be more likely to translate to actions.

Trends suggest differences between intentions and behaviors in *how* students intervene.

Students appeared to use more passive approaches to intervene towards a perpetrator/situation in all scenarios. The percentage of passive approaches used towards a perpetrator/situation was double what participants reported they would do in response to hypothetical scenarios. This was particularly salient when witnessing degrading comments towards women, with 39.77% of students intending such a passive approach and 56.99% of students using one.

In the high-risk primary and secondary level racism scenarios, there appeared to be substantially less confrontational/hostile strategies employed than intended. This was particularly pronounced for racial threats/harassment; while 24.14% of students intended to use a confrontational or hostile approach towards a perpetrator/situation, these approaches were never reported in behaviors. With racial disrespect, 21.14% of students intended a confrontational/hostile approach towards a perpetrator/situation, but only 11.76% used one. Conversely, an opposite trend was found for perpetrator/situational approaches to high-risk primary and secondary level scenarios for sexual violence; while 11.43% of students intended a confrontational/hostile approach when witnessing a drunk person be isolated for potential sexual reasons, 23.08% of student used one. This same trend was found when witnessing a possible sexual assault: 10.98% of students intended a confrontational/hostile approach while 14.29% used one. While sample sizes of behaviors are lower, findings suggest that confrontational/ hostile approaches are more common than anticipated in riskier sexual violence scenarios but less common than anticipated in riskier racism scenarios. One potential explanation may be related to benevolent sexism, and in particular protective paternalism, which dictates that women are in need of protection (Yeung, 2018). Since women are more likely to be victims of rape and attempted rape in college, which are depicted in these higher risk situations, using a confrontational approach to address these situations may be normalized in order to “rescue”

women. It may be worthwhile to assess if this trend (of higher and lower confrontational approaches in riskier sexual violence and racist scenarios respectively) is found in future research with larger samples sizes. Little research has explored differences in intervening across health topics. More research may assist in translating lessons learned to different areas within bystander intervention.

Intentions were the best predictor of behaviors across scenarios; additionally, self-efficacy also predicted behaviors against sexual violence and racism. The fundamental principal of the Theory of Planned Behavior is that intentions predict behaviors (Ajzen, 1991; Fishbein & Ajzen, 1975). Assuming a positive model fit, this was true for all low-risk primary prevention pathway models using generalized structural equation modeling. Under this theory, perceived behavioral control, as measured by the modified construct of self-efficacy, is posited to be a predictor of both intentions and behaviors. This was found to be true across models, with the exception of pressure to drink alcohol, where self-efficacy was only predictive of intentions, and not behaviors. It may be the case that students find it easier to intervene in drinking scenarios compared to addressing racialized or sexualized comments, and that self-efficacy is not as important to translate intentions to behaviors. The later violence-based scenarios require confronting oppression, which may present additional or more unique barriers and require higher levels of self-efficacy. Barriers that have been reported in violence-based scenarios that may be less relevant to alcohol-based situations include the possibility of more danger, especially for marginalized bystanders standing up to privileged groups, being labeled as a complainer/hypersensitive/politically correct, and being accused of targeting free speech (Bozeman, 2015; Nelson et al., 2011). If it is the case that it is easier to intervene in drinking situations compared to racist or sexist situations, then self-efficacy might be less critical to

translate intentions into behavior and could explain why it was not significant in the alcohol model.

*How does intervening vary based on the scenario encountered?*

Bystander behaviors vary widely based on the scenario encountered. Although most students had positive intentions across all scenarios, baseline behavior likelihood scores varied greatly in the baseline sample. As a reminder, behavior likelihood scores indicate the number of times students intervened based in the number of scenarios witnessed in a six-week time period. Results indicated that students were likely to intervene in 31.67% of scenarios (where someone known is being treated with disrespect due to their race/ethnicity) upward to 95.18% of scenarios (where someone known has had too much to drink and needs help to get home). This initial data suggests that intervening is dependent on the scenario, which is similar to previous studies (Hoxmeier et al., 2015, 2017).

Intervening appears more common in alcohol-related situations. Bystanders appear to intervene differently in these situations compared to situations of violence. Consistent with this finding, behavior likelihood scores suggest a trend of students intervening more frequently in alcohol-related scenarios compared to violence-related scenarios. The qualitative data suggested that supportive behaviors were more common in alcohol-related scenarios compared to sexually violent and racist scenarios. When someone who was known to the bystander was drinking and needed assistance, 77.84% of students intended to use a supportive approach and 74.78% used a supportive approach towards the person drinking. When someone who was known to the bystander was drinking and needed help to get home safely, 81.50% of students intended a supportive approach and 84.11% used a supportive approach towards the person drinking. In contrast, a supportive approach appeared less common for potential victims of sexual violence

when someone intoxicated was being isolated for possible sexual exploitation (supportive intentions: 47.71%; supportive behaviors: 46.15%) and during a possible sexual assault (supportive intentions: 34.10%; supportive behaviors: 42.86%). Supportive approaches appeared even lower for potential victims of racism when someone known was being disrespected due to their race/ethnicity (supportive intentions: 18.29%; supportive behaviors: 17.65%) and experiencing racial threats or harassment (supportive intentions: 27.01%; supportive behaviors: 37.50%). Since direct comparisons between bystander intervention across topic areas has not been researched, there is less research to draw upon directly to assess this emerging finding. However, it is not surprising that more support may be reported in alcohol-related situations. Alcohol use is normalized in college settings, with research suggesting that students believe their peers actually drink more than they do, and therefore supporting friends who have been drinking is not unusual (Maddock & Glanz, 2005). In contrast, there are a number of possible explanations for less support provided in the racist and sexist scenarios. First, with an act of aggression, there may be more immediacy to address the situation to keep everyone safe, and this lends itself towards more action-oriented solutions and less supportive strategies. This study also does not measure tertiary prevention scenarios, which may involve helping a victim after an experience of violence. It is possible there is more support provided in these situations. However, students were able to share open-ended responses, and some students provided a direct strategy to a perpetrator or situation, while simultaneously describing a way to be supportive towards a victim. Recognizing the ability to address the situation and support a victim together, there may be other factors that keep students from providing support to victims of gender and race-based violence. Fear of intervening due to safety could be a concern in sexual violent and racist

situations. Indeed, students reported doing nothing because they were worried it would be unsafe almost exclusively in situations related to sexual violence and racism.

*What was learned about the effects of the Our School TAKES ACTION bystander training program?*

Most expected intervention outcomes were not detected, but some positive trends were found. The Our School TAKES ACTION bystander program demonstrated effectiveness to significantly improve bystander experiences when helping someone who had too much to drink and needed help, and, across both the intervention and control groups, to increase confidence levels to intervene when someone is being isolated with sexual intent. A few positive but non-significant patterns emerged that are worth mentioning for the sake of discussion. There were fewer students who reported they "did nothing because I wasn't sure what to do" from baseline to follow-up, with more pronounced changes in the intervention group compared to the control group. Positive trends also suggested that confidence levels increased in the intervention group in some scenarios. A crossover effect was encountered when intervening against racist comments and jokes, with the behavior likelihood score in the intervention group increasing while the likelihood score in the control group decreased. This suggested an emerging effect in the positive direction, which may be particularly helpful since students intervened in less than half of the situations where they witnessed racist comments or jokes.

Other findings suggest that the intervention did not significantly improve confidence to intervene, experiences intervening, helpfulness of intervening, and that behaviors either did not increase or the sample sizes were too small to detect differences that may have occurred. This is in contrast to previous reviews of bystander intervention with college students, which have demonstrated small to medium effects on bystander efficacy, intentions, and behaviors (Jouriles

et al., 2018; Jennifer Katz & Moore, 2013; Kettrey & Marx, 2019). Duration of programming and student characteristics may explain the null findings in this study compared to these reviews. Many of the studies included in the reviews included longer trainings to students without previous bystander training; In Jennifer Katz & Moore (2013), college students went through an average of 140 minutes of bystander training. In this study, trainings were set to be 90 minutes and were closer to 60 minutes in actuality. Jennifer Katz & Moore (2013) also found larger effects sizes for younger, and likely untrained, students.

Despite the fact that systematic reviews and meta-analyses of bystander intervention demonstrate positive outcomes, not all programs have demonstrated significant changes in bystander behaviors (Hennessy, 2018). Further, previous research with young people has demonstrated that one-time, brief, interventions are not commonly effective for behavior change (Nation et al., 2003). This may be the case in the Our School TAKES ACTION bystander program. This session was intended to be part of a multi-year strategy with annual single-dose sessions to increase bystander behaviors across a variety of health topics. With some positive significant findings uncovered, and more research to test differences in qualitative outcomes that have been coded, there is potential to improve programming in the future. Little research exists on the impact of single dose sessions across multiple years at the collegiate level, despite this being a common intervention approach (Staff, personal communication, 2018). More research to study this approach to violence prevention is necessary to determine the impact of single-sessions across collegiate years.

It could also be the case that the content of the intervention was not sufficient to increase changes in behavior, or that the theoretical rationale to increase behaviors was not appropriate. It was theorized, using the Integrated Model of Behavioral Prediction, that the additional

contributions of skills and the ability to navigate environmental contexts could increase behaviors. The intervention did not detect statistically significant differences in either skills or the ability to navigate environmental contexts. Further, path models within generalized structural equation modeling did not show that skills or environmental contexts were significant predictors to behaviors within the context of the full model. However, baseline data suggests there is room to increase behaviors and improve behavioral likelihood scores, particularly to change social norms in low-risk primary prevention scenarios. Exploring content and theoretical constructs as they relate to increasing behaviors seems critical for future programs to increase bystander behaviors within upper-level undergraduate students.

**Limitations**

As found in similar studies of sexual violence prevention of college campuses, women comprised 64.97% of the baseline study sample and Whites represented 72.88% of participants (Hennessy, 2018). Overrepresentation of women continues to be a concern within bystander intervention research. Women, who historically are more likely to have positive intentions and to intervene against sexual violence, appear more likely to participate in bystander research. However, more women in the study could also be a reflection of the campus where this study took place, which enrolls and retains more women than men (University, 2020).

Underrepresentation of Students of Color in the sample presents multiple limitations. It creates results that may not be generalizable to all students, and makes it difficult to assess outcomes by racial/ethnic groups and subgroups. Analyzing data among Non-Hispanic White and all other Students of Color may greatly misrepresent the diversity of outcomes among Students of Color. Further, lower sample sizes make it difficult to detect statistically significant interactions between race/ethnicity and gender, making intersectional analyses less feasible and

therefore masking true differences among students by gender in addition to race/ethnicity. Based on the study sample, the external validity of the study could be compromised as the results are less generalizable to other upper-level undergraduate students at similar institutions in addition to public universities.

Lower than expected sample size in the efficacy tests of the Our School TAKES ACTION program was partly due to the strategy employed to maintain anonymity. Identifying information was not collected from participants due to confidentiality concerns and mandated reporting of sexual assault on the campus. Instead, an identifying code was created to match surveys over time and student names were collected in a different document to provide incentives. To increase T1 and T2 code matching, codes were matched by changing one or two characters to find partial matches while considering demographic matching. Even with this approach, using deidentified surveys created multiple limitations for the study. (1) Students who did not sign in at a session or complete an external survey link were not formally enrolled in the study, and therefore would not have received a follow-up survey. (2) Student may have enrolled in the study in-person, but never completed a baseline survey. Since follow-up surveys were sent to those who enrolled, these students could have then filled out a follow-up survey. (3) Students may have used different codes from baseline to follow-up, leading to unpaired responses over time. (4) Students may have completed the same survey multiple times. While attrition is innate to any longitudinal design, these concerns decreased the sample size in the paired sample and made it more difficult to detect statistically significant differences in outcomes or between different groups of students over time.

The overall sample was also lower than anticipated with 177 participants. Guidelines for conducting structural equation modeling recommend 200 or more observations (Howard, 2016;

Walker & Madden, 2008). To address limited sample sizes and convergence issues, latent variables were not used and factor scores were created instead. Additionally, the GSEM function of STATA does not currently report overall goodness-of-fit statistics (StataCorp, 2017). Moving data to another program, such as M*plus***,** could allow for the models to be assessed for overall fit moving forward (Xia & Yang, 2019).

Recall bias and social desirability bias were threats to the validity of the study. It is difficult to remember exactly how many times a certain scenario is witnessed, and how many times an intervention was used in a specified time period. Ideally this bias was balanced between the intervention and control groups. Social desirability bias suggests that respondents provide answers that are more acceptable to society instead of options that reflect their true feelings or experiences (Grimm, 2010). This bias likely impacted the study, as there are societal expectations about perpetrating and experiencing sexual violence, drinking, using drugs, and intervening.

Another limitation pertains to the brief time for follow-up to assess changes in behavior. Using only one semester to assess baseline and follow-up data created limitations in assessing reported behavioral responses to the various bystander scenarios. Some of these scenarios are less common than others, which was reflected by a limited number of students who witnessed events during six-week time periods. In some instances, less than ten students witnessed these riskier scenarios in a six-week period. Additionally, since only follow-up data was collected, immediate effects of the intervention may have been attenuated over time and not captured. However, it is likely that including a posttest and having three surveys in a period of six weeks would have been taxing on participants and may have increased a testing effect as a threat to the validity of the study (Fink, 2005).

Assessment reactivity may threaten the study results and may have diminished differences between treatment and waitlist control groups. Simply by taking the pre-test survey, participants in both the intervention and waitlist control groups may have increased their own awareness and consciousness on these topics, which might have influenced their knowledge, attitudes, and behaviors (Fink, 2005). Further, the interaction of the baseline assessment in combination with the intervention may have yielded a great effect than the intervention alone. Some positive trends from pre to follow-up were found in both the intervention and control groups. However, with time as a significant factor in only one model, it decreases the likelihood that assessment reactivity was a considerable threat to the study. Ideally, a Solomon four-square design would be used in future studies to control for this threat, but due to limitations in funding and sample size, this was not feasible in this study (Braver & Braver, 1988). Other limitations in measurement exist, as some survey questions were created for the study and not subjected to rigorous testing for validity and reliability. Due to the exploratory nature of new questions, and the need to keep measurement brief to account for all constructs needed for the theoretical models, full standardized measures were not included. While most items on the survey came from existing tools and research, it was possible that the survey did not fully measure the constructs as intended.

Since students were living in the same residence areas, there were limitations in randomization. While simple random sampling is ideal to distribute baseline characteristics, students lived in close proximity and the risk for a spillover effect was higher if they were not trained together. Randomizing by floor ideally assisted with this issue, but it is still possible that people on the different floors could influence each other, diminishing the study's power to detect effects.

Lastly, there may have been a cohort effect due to events that occurred during the study period. These events included the #MeToo movement, the nomination process of Brett Kavanaugh to the Supreme Court, immigration legislation/restrictions disproportionately impacting people of color, and mid-term political elections. These events may have influenced participation and outcomes of the program, making the results less generalizable to future cohorts. For example, sensitivity to the failure of bystanders to intervene in high profile cases may have magnified students' intentions to intervene.

While limitations of the study are explained in more detail to allow for an adequate assessment of the validity of the findings, there were also unique strengths in this research. The research originated from a collaborative design, with a purpose that was deemed meaningful for program staff that aim to prevent sexual violence on campus. The collaboration was mutually beneficial, as it allowed for a study that would have been incredibly difficult for a researcher to do in isolation, and it allowed for practitioners to conduct research on areas of importance with more rigorous methodology than program evaluation normally utilizes. The study used an experimental design, considered spillover effects, and used mixed effects models to test intervention effects. Behavior likelihood scores were used to assess bystander behavior, which considers opportunity to intervene, and is emerging as a best practice in measuring bystander outcomes (S. McMahon et al., 2014). This research used established behavioral health theory to test and explain intervening within three different topic areas, all within one sample. Theories were tested with path models, improving upon previous methods using only regression and allowed for multiple pathways to be assessed simultaneously. Quantitative and qualitative data was collected and will be compiled together, which can be used for additional research questions of interest.

## Implications for prevention

Using results of this study, implications for future programming in upper-level undergraduate students are considered. While there were primarily null findings of the Our School TAKES ACTION program, results suggest that there is room to improve bystander outcomes, particularly related to racism and behaviors in low-risk primary level prevention scenarios. To address these needs, future work on campus could provide modifications to the TAKES ACTION program to make it more effective, and/or reallocate resources towards other solutions to prevent sexual violence, racism, and unhealthy alcohol outcomes on college campuses in upper-level undergraduate students. The following sections draw upon qualitative and theory-based findings to address future training considerations and other opportunities for prevention.

### *Future training considerations in bystander training for upper-level undergraduates*

Focus training on low-risk primary prevention scenarios to change social norms. Intentions are high among students for high-risk primary and secondary prevention scenarios, but are significantly lower for low-risk primary prevention scenarios. Working to build intentions in this area, and increasing bystander behaviors across scenarios, are continued needs for practitioners to address on college campuses. The theoretical portion of this study did not seem to suggest that building skills and addressing different environmental contexts would be helpful to increase bystander intervention. While researchers can continue to explore theoretical solutions, the innovation of practitioners to explore real-time strategies with their students may provide more imminent solutions. Despite the practical ease of adapting expensive, commercial prevention programs across campuses, it seems critical that time, personnel, and money still be

invested to develop solutions to meet the needs of subgroups of students, including upper-level undergraduate students.

Increase self-efficacy among students to intervene. Since self-efficacy was a significant predictor of most outcomes, and for both intentions and behaviors to intervene in sexual violence scenarios, working to enhance this construct should be a goal of future training. One recommendation may be to focus more on practicing and role playing of strategies during trainings. Experience testing out different strategies was not a construct that was assessed in this study, but it may be related to intervening. While the TAKES ACTION program was implemented for already-trained students, less than half the time in the sessions was spent on discussing strategies and practicing them. One potential solution could build upon a study that used small group role play for the majority of training time; Plous (2000) describes a role-playing exercise that involves addressing prejudiced comments in groups of three or four with group participants in the roles of speaker, responder, and coach(s). A small pilot evaluation by Plous (2000) was conducted on a similar to the sample in our study, with 60% women and all juniors and seniors (n=34). All students recommended the exercise for use in future classes and Likert scale responses indicated that it was viewed as valuable (Plous, 2000). This type of exercise, conducted for 60 minutes, could address comments related to sexual violence, racism, and unhealthy alcohol expectations and might be a good fit for low-risk primary level scenarios within the in-person and mid-sized group modality of delivery.

Another way to increase self-efficacy and behaviors could be conducted through theatrical approaches. These approaches allow students to step in and try different approaches with facilitators trained as actors, and have yielded some changes in bystander efficacy, intentions, and behaviors (S. McMahon et al., 2015). Since higher risk scenarios of violence may

be triggering, keeping roleplay scenarios focused on more low-risk primary situations may allow for building intentions and behaviors simultaneously, while being sensitive to survivors within training spaces.

Provide more specific recommendations in trainings. Currently, Our School TAKES ACTION and other bystander programs train students by providing multiple options to intervene, and then recommend to students that they select strategies that are most comfortable to them in different situations. Results from this study suggest that trainers may want to provide more specific suggestions, especially among students who have already had training, to increase the likelihood that students intervene and that victims are supported. This could provide a two-prong approach to intervening in violence to address the situation and support the victim simultaneously. This could be particularly helpful to build empathy towards victims of racism and sexual violence, who seem to receive less support than students who have been drinking and who may experience further discrimination because of victim blaming and racism (Jennifer Katz et al., 2018; van der Bruggen & Grubb, 2014). Examples from qualitative data could provide tangible options in trainings that previous students have used to both address violent situations and support the victim. Another suggestion could be to imagine tangible direct and indirect options to intervening in the same scenarios. Since it seems common for students to hypothesize a direct approach, but do nothing instead or select an indirect strategy, helping students prepare for indirect strategies that may increase the likelihood that students intervene when faced with challenging situations.

Use study results in future bystander trainings. Sharing data from the study could be used to inform future trainings. Providing data on the discrepancies among intentions and behaviors, or intended versus implemented approaches, might assist in making students more open to

considering and practicing new intervention strategies. Using actual coded responses as options for students, particularly options that students felt confident using and viewed to be helpful, may make training more relevant to the current generation of college students. This could be a helpful update to trainings to be more timely and student-informed, and could be a welcome addition to curricula that were likely practitioner-driven and developed for a previous generation (Staff, personal communication, 2018). While data alone may not be sufficient to facilitate behavior change, providing students with a realistic depiction of strategies and approaches used in actual scenarios may create more realistic expectations, and ideally make it easier to translate intentions into practice.

The strategies and approaches students intend to use and actually use seemed to vary based on the specific scenario provided. In some alcohol-related situations, students seemed to report higher intentions and behaviors to intervene compared to sexual violence and racist scenarios. It is possible that using this data to facilitate a conversation with students could help build confidence to intervene in other topic areas (if I can do it in this scenario, I can do it that scenario!). Conversations could allow students to address possible reasons for differences across topic areas with facilitation questions such as: Why do more students seem to intervene when someone they know is drinking, compared to when someone is experiencing possible sexual violence or disrespect due to their race or ethnicity? What makes it more challenging to intervene in some scenarios compared to others? Why do students tend to report more intentions and behaviors to support people who are drinking compared to victims of sexual violence and racism? How does this relate to the community we aim to create on our campus? Questions like the last one could build upon already high intentions and attitudes to assist in problem solving through student-driven conversations and solutions to increase behaviors.

*Additional opportunities for prevention beyond bystander training*

Sexual violence, racism, and negative alcohol outcomes remain prevalent on college campuses. Bystander training is only one solution to address these multifaceted and complex public health concerns. With limited time, funding, and personnel, staff and campus leaders must make difficult decisions on how to allocate resources for prevention. Additional considerations from this study and further research inform additional recommendations to supplement bystander training.

Proactively address racism on campus. This study highlights the need for interventions to address racism on campus. Approximately three-fifths of students witnessed racist comments or jokes since starting at the university (59.09%), witnessing them an average of 2.26 times in the past six weeks (among those who have witnessed during this time). Students intervened in less than half of scenarios when they did witness racist comments or jokes (0.4819 behavior likelihood score), and in only 36.7% of instances when someone was treated with disrespect due to their race, ethnicity, or color. And while very few students witnessed someone they know experiencing racial threats or harassment, almost a quarter of students hypothesized they would use a confrontational or hostile approach to address such a situation (24.14%), while there were no students who used these approaches in actual situations. This suggests a mismatch between what students hypothesize they might do and actual behavioral approaches, and increases the chances that students may not be ready to take action when facing racial threats or harassment.

A reason for fewer bystander behaviors against racism may be due to less previous training and education in this area. While it is common for universities to provide education on alcohol use and sexual violence at freshman orientation and beyond, less programming (or no programming) is offered to promote racial awareness and increase anti-racism bystander

intervention. Considering the frequency of racism, and its determinantal impacts on Students of Color and the entire campus community, it seems critical to implement more proactive strategies to address and prevent racism (Kanter et al., 2017).

Diversity course requirements are seen as one approach to increase cultural competency around race, but less than half the sample in this study reported to have taken a course or in-depth training on race and racism. Racism awareness education in undergraduates, typically through academic course content, has been found to increase critical awareness of race and decrease color-blind racial ideology (Neville et al., 2013). In this study sample with 55.93% of seniors in their second semester, it seems unlikely that current course requirements are sufficient to increase racial awareness or anti-racism bystander training to reach the entire undergraduate population.

In contrast to education on race and racism, universities that receive Title IX funding are mandated to implement sexual violence programming. While trainings to address racism could be a solution moving forward, there is also an opportunity for sexual violence prevention programming to incorporate anti-racism training directly. Sexual violence prevention programming has a unique opportunity to proactively address racism in its curricula that is already disseminated to all students, and could highlight intersectional issues and scenarios common to both areas of oppression.

Provide ongoing support for students who intervene. This study reinforced that there can be positive, but also adverse experiences, when intervening (Krauss et al., 2017; Witte et al., 2017). Students reported a range of positive and negative experiences as well as experiences being more or less helpful to address situations as presented. Campuses may want to determine ways to support students in intervening. Providing chat lines, support groups, or meetings to

campus groups or classrooms to process experiences and problem solve challenges may help sustain intervening behavior. This work could potentially be incorporated into existing services. As previous research indicates that students have reported negative emotional outcomes when intervening, this could assist in improving the mental health outcomes of those who intervene while still promoting student leadership to address oppression and violence (Krauss et al., 2017; Witte et al., 2017).

Utilize bystander training as one of many approaches to prevent sexual violence and other negative outcomes on campus. Research theorizes that all forms of violence are connected across a continuum of sexual violence (L. Kelly, 1987). Additionally, the consideration of "lesser" forms of verbal sexual harassment is still correlated with negative outcomes for individuals and organizations (National Academies of Sciences et al., 2018). Having organization leadership implement interventions to address upstream and verbal forms of violence may actually create environments where this behavior is less tolerated and may decrease other forms of violence (National Academies of Sciences et al., 2018). While additional individual-level training may assist in building intentions and behaviors, considering structural changes and training among leadership may also change social norms on campus. It is possible that these goals can be achieved with methods beyond in-person training, for instance through the use of media campaigns or online programs, both of which have demonstrated initial success in increasing bystander behaviors (Salazar et al., 2014; Thomas et al., 2016). Since the Our School TAKES ACTION program was delivered within off campus housing buildings, future intervention could also consider ways to capitalize on the environment within these units or in other locations. One example could be through visual displays in the buildings or on campus to reinforce messages. For example, an effective sexual violence prevention program used artistic

expression like a poster contest to create messages that are then displayed in common places, to reinforce training messages (Foshee et al., 2005).

**Areas for future research**

Findings suggest there is a need for continued research on interventions, experiences, and training outcomes for upper-level students. There are still missed opportunities to intervene, and some students still reported not knowing what to do in certain scenarios, indicating that intervention/training is still necessary. Continued, collaborative research is needed to identify effective ways for universities to build multifaceted programs that prevent sexual violence, racism, and unhealthy alcohol outcomes. Researchers can partner with practitioners and students using methods like community based participatory research or developmental evaluation to use existing research and theory to help inform and study future prevention solutions.

This study hoped to assess outcomes by race/ethnicity, but experienced the same low sample sizes in many other studies that keep these analyses from being possible. It is likely that multi-year studies, or studies across institutions, are needed to continue this research among specific racial/ethnic subgroups, while considering critical intersections with gender and other identities. With initial findings in this study and others suggesting some differences in bystander outcomes by race/ethnicity, continuing this research seems critical to produce outcomes that can be used to inform practice and effectively serve the diverse needs of students in higher education.

There is a continued need for longitudinal research with adequate follow-up times for students to observe events, and possibly try new skills to intervene. Sufficient funding is needed for this work, as well as dedicated and trained researchers to pursue this work within the context of challenges unique to sexual violence research. Using behavior likelihood scores to measure bystander behaviors was an effective method to detect intervention differences by level of

prevention, and will be most effective within studies with longer follow-up times. To assist in managing recall bias, innovative measurement strategies and retainment approaches could more effectively capture data and experiences in real time (for instance through phone app-based measurement), so that students can better recall and capture their experiences. To avoid attrition and subsequent bias, it seems critical to move beyond deidentified studies to be able to engage in targeted follow-up efforts and to ensure paired data in longitudinal samples. Future researchers could apply for a certificate of confidentiality from an institution such as the National Institutes of Health, which now allocates certificates for non-federally funded projects (National Institutions of Health Grants, n.d.). This would allow identifying information to be collected to better track and collect data while protecting the confidentiality of students and their universities.

Including more rigorous forms of measurement is also essential, in particular related to perpetration, which was very low in this sample. While recent systematic reviews have not found bystander intervention programs to decrease sexual violence perpetration (Jennifer Katz & Moore, 2013; Kettrey & Marx, 2019), programs that combine messages to prevent perpetration and build bystander behaviors have shown initial evidence to prevent perpetration (Gidycz et al., 2011; Salazar et al., 2014). Given the social acceptability of bystander programming, it seems essential to continue combining these messages and advocating for rigorous evaluation with standardized measures, like the Sexual Experiences Scale (Banyard, Moynihan, et al., 2007; Koss et al., 2007). Additional new tools are emerging in bystander intervention research, and implementing these innovations, like the Compendium of Bystander Consequences, in future studies may be also helpful to increase understanding of bystander experiences (Banyard et al., 2019).

*Future research using the dataset from this study*

There is also future research particular to this dataset that can be explored. With the coded dataset finalized, future analysis can test whether there were statistically significant differences in the strategies and approaches within intentions and behaviors between intervention and control groups at baseline and follow-up. It may be more likely that the intervention was more effective in shifting the use of strategies selected, and increasing confidence to use new strategies. Assessing how confidence to intervene relates to student's proposed strategies and approaches may also assist in determining more feasible implementation options.

While there were fewer behaviors reported, it may be possible to determine if certain strategies and approaches were reported as more harmful or helpful to address a situation, and whether they lead to more positive or negative outcomes for bystanders. If sample sizes are not sufficient in this dataset, future research might consider collecting similar follow-up questions on bystander experiences to test these differences.

This dataset could be used to explore other theoretical approaches to depict bystander intervention. Since witnessing is so critical to intervening, incorporating witnessing as a construct within bystander models may help predict bystander intentions and behaviors related to sexual violence. Other changes, such as rearranging the relationships between variables, and possibly adding additional variables, may assist in better understanding the process of intervening, which could in turn inform strategies for prevention.

Finally, this study focused on differences in intervening outcomes between groups, but future work in this dataset could study bystander effects within individuals. Are there certain profiles of interveners? McMahon et al. (2018) conducted a latent class analysis and found five classes of interveners, "always interveners, never interveners, female-focused interveners,

authority interveners, and friend-only interveners." While this dataset cannot assess all these classes due to data collection limitations, it might be able to assess students who use the same strategies or approaches across scenarios, or have other patterns of interest. These patterns could be related to other characteristics, such as demographic variables or previous experiences. How common is it for students to intend certain ways of intervening but report different experiences in actual situations for the same scenario? Understanding questions like this one may assist in tailoring future prevention programming to students.

**Conclusions**

This study used a rigorous design and advanced analytical techniques to understand bystander intervention and assess program effects of the Our School TAKES ACTION peer-facilitated bystander training in upper-level undergraduate students. Results suggested that a modified Theory of Planned Behavior can be applied to explain intervention intentions and behaviors in certain scenarios related to sexual violence, racism, and unhealthy alcohol outcomes. It demonstrated that the Integrated Model of Behavioral Prediction may not be a better fit to understand how to increase bystander behaviors for low-risk primary prevention scenarios in sexual violence. The study generally demonstrated that a one-time, intersectional, bystander program in juniors and seniors did not increase confidence to intervene or overall behaviors (based in opportunities to intervene), but that significant impacts on bystander experiences were found for a least one scenario. With increased knowledge related to theory and intervening, along with some data suggesting positive and emerging trends, this research provides guidance for future training and research in previously trained students. Using the findings of the study may help to inform future programming that is more student-driven, relevant, and potentially effective.

This study suggests the continued need to promote bystander behaviors, specifically among low-risk primary scenarios and sexual violence and racist scenarios. It is a positive finding that students frequently intervene in risky alcohol situations, as it may be possible to apply lessons learned in this topic area to build confidence and skills to intervene against violence.

Finally, this research demonstrated that researcher-practitioner collaborations are feasible and meaningful, and reinforced the need for adequate time to develop and implement a shared and meaningful research agenda. Collaborations can lead to the future development and testing of strategies to address sexual violence, racism, and unhealthy alcohol outcomes on campus. Considering that these are critical public health concerns among college students, continued efforts for prevention practice and research can assist to keep students safe and healthy within thriving college communities.

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## Appendix A. Student Survey Code

Table 30 Student Survey Code

| |
|---|
| Please create and enter a code using the following instructions:<br><br>Enter the **first three letters of your mother's name** (or a female caregiver in your life).<br>Enter the **two-digit day you were born** (ignoring the month).<br>Enter the **first letter of the city where you were born**.<br>Enter the **number of siblings** you have (0, 1, 2, 3, etc).<br>Enter **your birth order** using a number (ie- first born = 1, second born =2, third born=3)<br><br>For any item that is unknown please enter a **U**.<br><br>For example, if:<br>my Mother's name is **MAR**IA<br>I was born on the 8th of January (**08**)<br>I was born in **M**ilwaukee,<br>have **2** siblings, and<br>I was the **1**st born, my code would be:<br><br>**MAR08M21** |

## Appendix B. Online survey questions

Our School TAKES ACTION Survey adapted for online use

Consent:

RESEARCH INFORMATION: Evaluation of the Our School Takes Action Program

**Introduction**

You have been asked to participate in a research study. You must be age 18 or older to participate. The purpose of this study is to evaluate the bystander intervention program Our School Takes Action and better understand the theory behind students' intentions and behaviors.

**What will happen in this study?**

This study involves attendance at one in-person session and completion of one online survey that takes approximately 20 minutes.

**What questions are in the survey?**

In the online survey, you will be asked to answer questions about your identity, experiences with sexual assault victimization and perpetration, substance use, attitudes, beliefs, intentions, and experiences you have witnessed related to racism, alcohol use, and sexual violence. Some of these topics are potentially sensitive. Resources and referrals to campus services are provided at the end of the survey. Results from the survey questions will be shared in aggregate form, which means they will be provided together. Individual quotes from open-ended questions may also be shared.

**Confidentiality**

Your name and other identifying information, including IP address, will not be collected. Your responses will be anonymous. The risks associated with this project are minimal and there are no direct benefits to you. Collection of data and survey responses using the internet involves the same risks that a person would encounter in everyday use of the internet, such as hacking or information unintentionally being seen by others. Your participation is completely voluntary and you may withdraw from the study at any time. You can skip any questions you do not wish to answer. Your decision to participate will not impact your relationship with the University.

**Will I be paid for taking part in this study?**

You will receive $10 in gift cards and entered into a raffle of prizes for taking part in this study. During the program session you attend, you will receive the opportunity to enter the raffle. You will be eligible for the gift card after you complete the online survey outside of the program session (this may be before or after the program session). You must complete 90% of the online survey questions to receive the incentives. **Language changed to include further incentives to complete a follow-up survey.*

**What if I have questions or concerns?**

If you have any questions about this study, you can contact *deidentified name and information*. If you have questions or concerns about your rights as a research participant, you can contact the University's Office of Research Compliance at *deidentified phone number*.

**How do I agree to be in the study?**

If you would like to take part in this study, please click the Next button on the bottom right of your screen and begin answering the questions. If you change your mind and decide not to participate, you can just close your web browser. Thank you for your participation.

Code:
Please create and enter a code using the following instructions:

Enter the **first three letters of your mother's name** (or a female caregiver in your life).
Enter the **two-digit day you were born** (ignoring the month).
Enter the **first letter of the city where you were born**.
Enter the **number of siblings** you have (0, 1, 2, 3, etc).
Enter **your birth order** using a number (ie- first born = 1, second born =2, third born=3)

For any item that is unknown please enter a **U**.

For example, if:
my Mother's name is **MAR**IA
I was born on the 8th of January (**08**)
I was born in **M**ilwaukee,
have **2** siblings, and
I was the **1**st born, my code would be:

**MAR08M21**

**Code: _____**

Demographics:

- Where do you live?
    - Building 1, Building 2, Building 3, Other: ____
- What floor do you live on?
    - $2^{nd}$, $3^{rd}$, $4^{th}$, $5^{th}$, $6^{th}$, $7^{th}$, $8^{th}$, Other: ___
- What if your class standing?
    - Freshman, Sophomore, Junior, Senior, Graduate/Professional, Other: _____
- When did you begin as a student at the university?
    - Fall 2018, Spring 2018, Fall 2017, Spring 2017, Fall 2016, Spring 2016, Fall 2015, Spring 2015, Fall 2014, Spring 2014, Other:_
- What is your gender?
    - Female, Male, Other: ____ Prefer not to respond
- With which gender do you identify?
    - Man, Woman, Other: ____ Prefer not to respond
- Are you Hispanic or Latino?
    - Yes, No, Prefer not to respond

- What is your race? (Select one or more)
    - American Indian or Alaska Native, Asian (including Indian subcontinent and the Philippines), Black or African American (including African and Caribbean), Native Hawaiian or Other Pacific Islander), White (including Middle Eastern), Prefer not to respond
- What is your citizenship status?
    - U.S. citizen, Permanent resident, Not a U.S. citizen or permanent resident, Prefer not to respond
- What is your religious affiliation?
    - Catholic, Other Christian Religion (e.g. Lutheran, Methodist, Baptist, Non-Denominational, Presbyterian, etc.), Other World Religion (e.g. Buddhist, Islam, Judaism, Sikh, etc.), I do not have a religious affiliation, Prefer not to respond
- Which best describes your sexual orientation?
    - Bisexual, Gay, Lesbian, Heterosexual, Other: ___, Prefer not to respond
- Since starting at the university, have you taken an academic course or in-depth training on race or racism?
    - Yes/No

<u>Alcohol and drug use</u>:

- During the past 30 days, on how many days did you have at least one drink of alcohol?
    - 0 days/1 or 2 days/3 to 5 days/6 to 9 days/10 to 19 days/20 to 29 days/All 30 days
- *Auto-filled for females only with any response besides "0 days" to any use in the past 30 days:* During the past 30 days, on how many days did you have 4 or more drinks of alcohol in a row, that is, within a couple of hours?
    - 0 days/1 or 2 days/3 to 5 days/6 to 9 days/10 to 19 days/20 to 29 days/All 30 days
- *Auto-filled for males and other gender only with any response besides "0 days" to any use in the past 30 days:* During the past 30 days, on how many days did you have 5 or more drinks of alcohol in a row, that is, within a couple of hours?
    - 0 days/1 or 2 days/3 to 5 days/6 to 9 days/10 to 19 days/20 to 29 days/All 30 days
- Since you started at the university, how many times have you used marijuana?
    - 0 times/1 or 2 times/3 to 9 times/10 to 19 times/20 to 39 times/40 or more times
- Since you started at the university, how many times have you used illegal drugs besides marijuana?
    - 0 times/1 or 2 times/3 to 9 times/10 to 19 times/20 to 39 times/40 or more times

Sexual assault introduction:

The next set of questions ask about topics related to sexual assault.

- Do you have a friend who has been a victim of sexual assault?
    - Yes/No
- Do you have a friend who has been a perpetrator of sexual assault?
    - Yes/No

Victimization:

How often has someone done the following to you? (never/ once or twice / three times or more)

- (a) "Forced me to have sex when I didn't want to"
- (b) "Threatened me in an attempt to have sex with me"
- (c) "Kissed me when I didn't want them to"
- (d) "Touched me sexually when I didn't want them to"
- For each item where a response greater than never is selected, "Did this happen in the past six weeks?" (yes/no)

Perpetration:

How often have you ever done the following? (never/ once or twice / three times or more)

- (a) "Forced someone to have sex when that person didn't want to"
- (b) "Threatened someone in an attempt to have sex with them"
- (c) "Kissed someone when they didn't want me to"
- (d) "Touched someone sexually when they didn't want me to"
- For each item where a response greater than never is selected, "Did this happen in the past six weeks?" (yes/no)

Skills

On a scale of 1(strongly disagree) to 5 (strongly agree), rate how much you agree with the following statements.

"When my friend says or does something that I disapprove of I have the skills to do the following . . .

- (a) Select the right person to speak with or go to for help
- (b) Know what to say or do
- (c) Know when to say or do something
- (d) Think clearly about what I say or do
- (e) Use the right tone, word choice, and delivery style to share my opinion

Environmental constraints

On a scale of 1(strongly disagree) to 5 (strongly agree), rate how much you agree with the following statements.

- My friends would disapprove if I intervene in situations related to sexual violence.
- I am worried that other people will make fun of me or criticize me if I intervene in situations related to sexual violence.
- There are safety concerns when I intervene in situations related to sexual violence.
- In most cases, someone else is better positioned to intervene in situations related to sexual violence.
- Some situations related to sexual violence are not that big of a deal.
- There are circumstances that would keep me from intervening in situations related to sexual violence.
- When I am drinking it is harder for me to intervene in situations related to sexual violence. *If you do not drink write: "NA" in the space below:* __

Attitudes:

On a scale of 1(strongly disagree) to 5 (strongly agree), rate how much you agree with the following statements:

- (a) If a girl is raped while she is drunk, she is at least somewhat responsible for letting things get out of control.
- (b) If a girl initiates kissing or hooking up, she should not be surprised if a guy assumes she wants to have sex.
- (c) When guys rape, it is usually because of their strong desire for sex.
- (d) If a guy is drunk, he might rape someone unintentionally.
- (e) It is okay to get really drunk.
- (f) It is unlikely that something bad will happen if a student gets really drunk.
- (g) It is better not to get involved in a situation where someone is really drunk.
- (h) I expect my friends to look out for me when I'm drinking.
- (i) Everyone has the same chance to succeed regardless of their race.
- (j) Racism isn't really a problem on our campus.
- (k) It is okay to tell a racist joke as long as it doesn't offend anyone.
- (l) It is important to reflect on our actions to examine if they were discriminatory.

Subjective norms:

Norms on rape myth acceptance: On a scale of 1(strongly disagree) to 5 (strongly agree), rate how much you believe other students at the university agree with the following statements:

- (a) Most students at the university believe that if a girl is raped while she is drunk, she is at least somewhat responsible for letting things get out of control.
- (b) Most students at the university believe that if a girl initiates kissing or hooking up, she should not be surprised if a guy assumes she wants to have sex.
- (c) Most students at the university believe that when guys rape, it is usually because of their strong desire for sex.
- (d) Most students at the university believe that if a guy is drunk, he might rape someone unintentionally.
- (e) Most students at the university believe that it is okay to get really drunk.
- (f) Most students at the university believe that it is unlikely that something bad will happen if a student gets really drunk.
- (g) Most students at the university believe that it is better not to get involved in a situation where someone is really drunk.
- (h) Most students at the university believe that their friends should look for out them when they're drinking.

- (i) Most students at the university believe that everyone has the same chance to succeed regardless of their race.
- (j) Most students at the university believe that racism isn't really a problem on our campus.
- (k) Most students at the university believe that it is okay to tell a racist joke as long as it doesn't offend anyone.
- (l) Most students at the university believe that it is important to reflect on our actions to examine if they were discriminatory.

Hypothetical Scenarios: (using online survey display logic and sequencing using chart below)

This section of the survey asks questions using different situations. Please select the answers that best apply to you.

*Scenarios for hypothetical and actual situations (order varied in the survey):*

- (a) I heard someone I know talking about women in sexually degrading ways.
- (b) When someone I know seemed drunk, I saw another person attempt to isolate them with possible sexual intentions (for instance to make out or hook up with them).
- (c) I saw another guy possibly committing a sexual assault.
- (d) I heard someone I know make a racist comment or joke.
- (e) I witnessed someone I know be treated with less respect than other people because of their race, ethnicity, or color.
- (f) I witnessed someone I know be threatened or harassed because of their race, ethnicity, or color.
- (g) I witnessed someone I know be pressured to drink alcoholic beverages more often than they wished.
- (h) I witnessed someone I know have too much to drink and need assistance.
- (i) I witnessed someone I know who had too much to drink and needed help to get home safely.

- *Hypothetical scenarios to measure intentions*

Please select the answers that best apply to you

| If you were to encounter this situation, what would you be most likely to do? | Please select a response and/or respond with a short phrase or sentence. | <u>Self-Efficacy</u> |
|---|---|---|
| **a.** Go along with it (agree, laugh, etc)<br>**b.** Nothing<br>**c.** Say something<br>**d.** Actively intervene (ie- protect the person who could be harmed, stop the aggressor)<br>**e.** Use body language (ie- silent stare of disapproval)<br>**f.** Create a distraction<br>**g.** Go and get assistance from someone else.<br>**h.** Other | **a.** Why would you go along with it?<br>**b.** Why would you do nothing?<br>a. It isn't my business<br>b. I'm not sure what I would do<br>c. I am worried it would be unsafe<br>c. I am worried about how it would impact me (my relationships, reputation, etc)<br>c. For another reason. What is the reason you would do nothing?<br>**c.** Who would you say something to?<br>my friend directly.<br>the other person directly (if applicable)<br>the group directly (if I was in a group).<br>What exactly would you say?<br>**d.** How would you intervene? (ie- please describe what you would do)<br>**e.** How would you use body language? (ie- please describe what body language you would use)<br>**f.** How would you create a distraction?<br>**g.** Who would you go to for help?<br>**h.** What would you do? | How confident are you that you could take the action you selected / described?<br><br>(continuous scale 1 to 7)<br>Not Very Confident → Very Confident |

- *Actual scenarios to measure behaviors:*

Please select the answers that best apply to you.

| Have you witnessed this scenario since starting school at the university? | During one of these opportunities, What did you do? | Please select a response and/or respond with a short phrase or sentence. | Follow-up questions: |
|---|---|---|---|
| Yes/No<br><br>➔ If yes:<br>➔ How many times have you witnessed this scenario in the past six weeks?<br>➔ Enter a whole number 0 to 100<br>If >0, you said you've witnessed this scenario X times. Of the X times, in how many scenarios did you intervene? ## | **a.** Went along with it (agreed, laughed, etc)<br>**b.** Nothing<br>**c.** Said something<br>**d.** Actively intervened<br>**e.** (ie- protected the person who could be harmed, stopped the aggressor)<br>**f.** Used body language (ie- silent stare of disapproval)<br>**g.** Created a distraction.<br>**h.** Went and got assistance from someone else.<br>**i.** Other | **a.** Why did you go along with it?<br>**b.** Why did you do nothing?<br>a. It wasn't my business<br>b. I wasn't sure what I would do<br>c. I was worried it was unsafe<br>d. I was worried how it would impact me (my relationships, reputation, etc)<br>c. For another reason.<br><u>Follow-up for c:</u> What was the reason you did nothing?<br>**c.** Who did you say something to?<br>my friend directly.<br>the other person directly (if applicable)<br>the group directly (if I was in a group).<br>What exactly did you say?<br>**d.** How did you intervene? (ie- please describe what you did)<br>**e.** How did you use body language? (ie- please describe what body language you used)<br>**f.** How did you create a distraction?<br>**g.** Who did you go to for help?<br>**h.** What did you do? | <u>Helpfulness:</u> How helpful do you believe your response was in addressing the comment or action? (1 = harmful to 7= helpful)<br><br><u>Experience:</u> How would you describe your personal experience as a bystander in this situation? (1 = negative to 7 = positive) |

## Appendix C. GSEM pathway models

Table 31. Theory of planned behavior output for sexual violence among students who witnessed events in the past six weeks

| Variables | coefficient | standard error | z-score | p-value |
|---|---|---|---|---|
| **Behavior (behaveS2)** | | | | |
| Intention (intentS2) | 0.518 | 0.104 | 4.950 | **0.000** |
| Self-efficacy (selfSAF) | 0.103 | 0.038 | 2.740 | **0.006** |
| **Intention (intentS2)** | | | | |
| Attitudes (attSAF) | -0.058 | 0.062 | 0.930 | 0.350 |
| Norms (normsSAF) | 0.091 | 0.053 | 1.710 | 0.088 |
| Self-efficacy (selfSAF) | 0.188 | 0.040 | 4.700 | **0.000** |
| **Attitudes (attSAF)** | | | | |
| Gender (gender) | 0.762 | 0.214 | 3.570 | **0.000** |
| Race/Ethnicity (raceH) | -0.047 | 0.215 | 0.220 | 0.827 |
| Past victimization (victpast) | 0.126 | 0.223 | 0.560 | 0.573 |
| Grade (grade) | -0.264 | 0.196 | 1.350 | 0.178 |
| **Norms (normsSAF)** | | | | |
| Gender (gender) | 0.250 | 0.273 | 0.910 | 0.361 |
| Race/Ethnicity (raceH) | -0.032 | 0.275 | 0.120 | 0.908 |
| Past victimization (victpast) | 0.499 | 0.286 | 1.750 | 0.081 |
| Grade (grade) | 0.227 | 0.250 | 0.910 | 0.365 |
| **Self-efficacy (selfSAF)** | | | | |
| Gender (gender) | 0.068 | 0.346 | 0.200 | 0.844 |
| Race/Ethnicity (raceH) | 0.512 | 0.348 | 1.470 | 0.142 |
| Past victimization (victpast) | 0.376 | 0.362 | 1.040 | 0.298 |
| Grade (grade) | -0.549 | 0.317 | 1.730 | 0.083 |

Table 32. Theory of planned behavior output for racism among students who witnessed events in the past six weeks

| Variables | coefficient | standard error | z-score | p-value |
|---|---|---|---|---|
| **Behavior (behaveS3)** | | | | |
| Intention (intentS3) | 0.381 | 0.123 | 3.110 | **0.002** |
| Self-efficacy (selfRF) | 0.076 | 0.027 | 2.770 | **0.006** |
| | | | | |
| **Intention (intentS3)** | | | | |
| Attitudes (attRF) | -0.055 | 0.064 | 0.860 | 0.390 |
| Norms (normsRF) | 0.044 | 0.082 | 0.540 | 0.588 |
| Self-efficacy (selfRF) | 0.046 | 0.032 | 1.440 | 0.151 |
| | | | | |
| **Attitudes (attRF)** | | | | |
| Gender (gender) | 1.105 | 0.244 | 4.530 | **0.000** |
| Race/Ethnicity (raceH) | 0.308 | 0.264 | 1.170 | 0.242 |
| Took a class on race (raceclass) | -0.438 | 0.255 | 1.720 | 0.085 |
| Grade (grade) | -0.168 | 0.245 | 0.690 | 0.493 |
| | | | | |
| **Norms (normsRF)** | | | | |
| Gender (gender) | -0.340 | 0.226 | 1.500 | 0.133 |
| Race/Ethnicity (raceH) | 0.186 | 0.244 | 0.760 | 0.447 |
| Took a class on race (raceclass) | -0.080 | 0.236 | 0.340 | 0.735 |
| Grade (grade) | 0.271 | 0.227 | 1.190 | 0.232 |
| | | | | |
| **Self-efficacy (selfRF)** | | | | |
| Gender (gender) | 0.830 | 0.519 | 1.600 | 0.110 |
| Race/Ethnicity (raceH) | 0.006 | 0.561 | 0.010 | 0.992 |
| Took a class on race (raceclass) | 0.915 | 0.542 | 1.690 | 0.091 |
| Grade (grade) | -0.528 | 0.520 | 1.010 | 0.311 |

Table 33. Theory of planned behavior output for unhealthy alcohol outcomes among students who witnessed events in the past six weeks

| Variables | coefficient | standard error | z-score | p-value |
|---|---|---|---|---|
| **Behavior (behaveS1)** | | | | |
| Intention (intentS1) | 0.789 | 0.252 | 3.140 | **0.002** |
| Self-efficacy (selfAlcF) | 0.029 | 0.058 | -0.510 | 0.609 |
| **Intention (intentS1)** | | | | |
| Attitudes (attAlcF) | 0.196 | 0.071 | -2.750 | **0.006** |
| Norms (normsAlcF) | 0.048 | 0.067 | 0.720 | 0.475 |
| Self-efficacy (selfAlcF) | 0.044 | 0.039 | 1.120 | 0.264 |
| **Attitudes (attAlcF)** | | | | |
| Gender (gender) | 0.341 | 0.248 | 1.370 | 0.170 |
| Race/Ethnicity (raceH) | 0.167 | 0.260 | 0.640 | 0.522 |
| Binge drinking (bingeBI) | - | - | - | - |
| Grade (grade) | 0.129 | 0.242 | -0.530 | 0.595 |
| **Norms (normsAlcF)** | | | | |
| Gender (gender) | 0.245 | 0.280 | 0.880 | 0.381 |
| Race/Ethnicity (raceH) | 0.142 | 0.293 | -0.490 | 0.628 |
| Binge drinking (bingeBI) | - | - | - | - |
| Grade (grade) | 0.010 | 0.273 | -0.040 | 0.971 |
| **Self-efficacy (selfAlcF)** | | | | |
| Gender (gender) | 0.283 | 0.434 | -0.650 | 0.515 |
| Race/Ethnicity (raceH) | 0.860 | 0.455 | 1.890 | 0.059 |
| Binge drinking (bingeBI) | - | - | - | - |
| Grade (grade) | 0.048 | 0.423 | -0.110 | 0.910 |

Table 34. Integrated Model of Behavioral Prediction output for sexual violence among students who witnessed events in the past six weeks

| Variabletas | coefficient | standard error | z-score | p-value |
|---|---|---|---|---|
| **Behavior (behaveS2)** | | | | |
| Intention (intentS2) | 0.538 | 0.110 | 4.880 | **0.000** |
| Self-efficacy (selfSAF) | 0.092 | 0.042 | 2.220 | **0.026** |
| Environmental constraints (envconsF) | 0.007 | 0.060 | 0.120 | 0.907 |
| Skills (skillsF) | 0.045 | 0.067 | 0.670 | 0.502 |
| **Intention (intentS2)** | | | | |
| Attitudes (attSAF) | 0.058 | 0.062 | -0.940 | 0.347 |
| Norms (normsSAF) | 0.091 | 0.053 | 1.710 | 0.088 |
| Self-efficacy (selfSAF) | 0.188 | 0.040 | 4.700 | **0.000** |
| **Attitudes (attSAF)** | | | | |
| Gender (gender) | 0.762 | 0.214 | 3.570 | **0.000** |
| Race/Ethnicity (raceH) | 0.047 | 0.215 | -0.220 | 0.827 |
| Past victimization (victpast) | 0.126 | 0.223 | 0.560 | 0.573 |
| Grade (grade) | -0.264 | 0.196 | -1.350 | 0.178 |
| **Norms (normsSAF)** | | | | |
| Gender (gender) | 0.250 | 0.273 | 0.910 | 0.361 |
| Race/Ethnicity (raceH) | 0.032 | 0.275 | -0.120 | 0.908 |
| Past victimization (victpast) | 0.499 | 0.286 | 1.750 | 0.081 |
| Grade (grade) | 0.227 | 0.250 | 0.910 | 0.365 |
| **Self-efficacy (selfSAF)** | | | | |
| Gender (gender) | 0.068 | 0.346 | 0.200 | 0.844 |
| Race/Ethnicity (raceH) | 0.512 | 0.348 | 1.470 | 0.142 |
| Past victimization (victpast) | 0.376 | 0.362 | 1.040 | 0.298 |
| Grade (grade) | 0.549 | 0.317 | -1.730 | 0.083 |

## Appendix D. Characteristics of the baseline and paired samples

Table 35 Sample Characteristics of Baseline Sample

| | Sample | |
|---|---|---|
| | **n** | **%** |
| **Total** | 177 | 100.00 |
| **Taken a Class on Race** | | |
| Yes | 71 | 40.11 |
| No | 106 | 59.89 |
| **Friend with Sexual Assault Victim** | | |
| Yes | 107 | 60.45 |
| No | 70 | 39.55 |
| **Friend with Sexual Assault Perpetrator** | | |
| Yes | 9 | 5.08 |
| No | 168 | 94.92 |
| **Sexual Violence Victimization (Ever)** | | |
| Yes | 57 | 32.20 |
| No | 119 | 67.23 |
| Missing | 1 | 0.56 |
| **Sexual Violence Victimization (Past six weeks)** | | |
| Yes | 7 | 3.95 |
| No | 50 | 28.25 |
| Never victimized | 119 | 67.23 |
| Missing | 1 | 0.56 |
| **Sexual Violence Perpetration (Ever)** | | |
| Yes | 3 | 1.69 |
| No | 171 | 96.61 |
| Missing | 3 | 1.69 |
| **Sexual Violence Perpetration (Past six weeks)** | | |
| Yes | 0 | 0.00 |
| No | 6 | 3.38 |
| Never perpetrated | 171 | 96.61 |
| **Alcohol Consumption in past 30 days** | | |
| None | 39 | 22.03 |
| 1 or 2 days | 33 | 18.64 |
| 3 to 5 days | 49 | 27.68 |
| 6 to 9 days | 30 | 16.95 |
| 10 days or more | 26 | 14.69 |
| **Binge Alcohol Consumption in past 30 days** | | |
| Does not drink | 39 | 22.03 |
| 0 days | 44 | 24.86 |
| 1 or 2 days | 57 | 32.20 |
| 3 to 5 days | 26 | 14.69 |
| 6 to 9 days | 7 | 3.95 |
| 10 days or more | 4 | 2.25 |

| | Sample | |
|---|---|---|
| | n | % |
| **Marijuana Use (ever at this university)** | | |
| None | 135 | 77.27 |
| 1 or 2 times | 16 | 9.04 |
| 3 to 9 times | 16 | 9.04 |
| 10 time or more to 19 times | 10 | 5.65 |
| **Other Illegal Drug Use (ever at this university)** | | |
| None | 168 | 94.92 |
| 1 or 2 times | 3 | 1.69 |
| 3 to 9 times | 3 | 1.69 |
| 10 times or more | 3 | 1.69 |

Table 36 Characteristics of the paired intervention and control groups

| | Sample | | Intervention | | Control | |
|---|---|---|---|---|---|---|
| | n | % | n | % | n | % |
| **Total** | 101 | 100.00 | 57 | 56.44 | 44 | 43.56 |
| **Took a Class on Race** | | | | | | |
| Yes | 43 | 42.57 | 23 | 40.35 | 20 | 45.45 |
| No | 58 | 57.43 | 34 | 59.65 | 24 | 54.55 |
| **Friend with Sexual Assault Victim** | | | | | | |
| Yes | 62 | 61.39 | 36 | 63.16 | 26 | 59.09 |
| No | 39 | 38.61 | 21 | 36.84 | 18 | 40.91 |
| **Friend with Sexual Assault Perpetrator** | | | | | | |
| Yes | 4 | 3.96 | 2 | 3.51 | 2 | 4.55 |
| No | 97 | 96.04 | 55 | 96.49 | 42 | 95.45 |
| **Sexual Violence Victimization (Ever)** | | | | | | |
| Yes | 36 | 35.64 | 22 | 38.60 | 14 | 31.82 |
| No | 65 | 64.36 | 35 | 61.40 | 30 | 68.18 |
| **Sexual Violence Victimization (Past six weeks)** | | | | | | |
| Yes | 4 | 3.96 | 2 | 3.51 | 2 | 4.55 |
| No | 32 | 31.68 | 20 | 35.09 | 12 | 27.27 |
| Never victimized | 65 | 64.36 | 35 | 61.40 | 30 | 68.18 |
| **Sexual Violence Perpetration (Ever)** | | | | | | |
| Yes | 1 | 0.99 | 0 | 0.00 | 1 | 2.27 |
| No | 97 | 96.04 | 54 | 94.74 | 43 | 97.73 |
| Missing | 3 | 2.97 | 3 | 5.26 | 0 | 0.00 |
| **Sexual Violence Perpetration (Past six weeks)** | | | | | | |
| Yes | 0 | 0.00 | 0 | 0.00 | 0 | 0.00 |
| No | 4 | 3.96 | 3 | 5.26 | 1 | 2.27 |
| Never perpetrated | 97 | 96.04 | 54 | 94.74 | 43 | 97.73 |
| **Alcohol Consumption in past 30 days** | | | | | | |
| None | 22 | 21.78 | 9 | 15.79 | 13 | 29.55 |
| 1 or 2 days | 20 | 19.80 | 14 | 24.56 | 6 | 13.64 |

| | Sample | | Intervention | | Control | |
|---|---|---|---|---|---|---|
| | n | % | n | % | n | % |
| 3 to 5 days | 32 | 31.68 | 18 | 31.58 | 14 | 31.82 |
| 6 to 9 days | 14 | 13.86 | 9 | 15.79 | 5 | 11.36 |
| 10 days or more | 13 | 12.87 | 7 | 12.28 | 6 | 13.64 |
| **Binge Alcohol Consumption in past 30 days** | | | | | | |
| Does not drink | 22 | 21.78 | 9 | 15.79 | 13 | 29.55 |
| 0 days | 30 | 29.70 | 17 | 29.82 | 13 | 29.55 |
| 1 or 2 days | 34 | 33.66 | 21 | 36.84 | 13 | 29.55 |
| 3 to 5 days | 12 | 11.88 | 9 | 15.79 | 3 | 6.82 |
| 6 to 9 days | 3 | 2.97 | 1 | 1.75 | 2 | 4.55 |
| **Marijuana Use (ever at this university)** | | | | | | |
| None | 82 | 81.19 | 46 | 80.70 | 36 | 81.82 |
| 1 or 2 times | 7 | 6.93 | 4 | 7.02 | 3 | 6.82 |
| 3 to 9 times | 7 | 6.93 | 3 | 5.26 | 4 | 9.09 |
| 10 times or more | 5 | 4.95 | 4 | 7.02 | 1 | 2.27 |
| **Other Illegal Drug Use (ever at this university)** | | | | | | |
| None | 99 | 98.02 | 56 | 98.25 | 43 | 97.73 |
| 1 or 2 times | 1 | 0.99 | 0 | 0.00 | 1 | 2.27 |
| 3 to 9 times | 1 | 0.99 | 1 | 1.75 | 0 | 0.00 |

## Appendix E. Methods to create factor scores for path analysis

The following items are reported for each factor score created to represent its construct of interest. Data provided represents the final variables kept to create factor scores.

1. **Overview of analysis**
2. **Data inspection techniques**
    a. **Bartlett's test of sphericity**
    b. **Kaiser-Meyer-Olkin (KMO) Measure of Sampling Adequacy**
    c. **Anti-image correlation matrix**
3. **Factor retention criteria**
    a. **Eigenvalues / Percentage of variance explained by each impact factor**
    b. **Scree plot**
4. **Final factor loading scores**
5. **Cronbach's alpha**

Factors scores created included the following separately for sexual violence, racism, and unhealthy alcohol outcomes:

1. **Attitudes**
2. **Subjective norms**
3. **Self-efficacy**

Factor scores specific to sexual violence included:

1. **Skills**
2. **Environmental constraints / barriers**

### *Overview of analysis*

While popular recommendations for a sufficient sample size to conduct an exploratory factor analysis include 200 to 500, other scholars recommend a sample of at least 100 (Howard, 2016; Walker & Madden, 2008). Sample sizes for most analyses in this study ranged from 160-174, with three analyses utilizing a sample of 127. Further criteria generally agreed upon in the literature is that the participant-to-variable ratio should range from 5 to 20. The largest number of variables used in a factor analysis was seven, yielding a required sample size of 35 to 140 for the 5 to 20 ratio-requirement respectively. Analyses with samples of 127 were comprised of only

three variables, far surpassing the ratio requirements. Based on this criterion, analysis proceeded with exploratory factor analysis.

Before conducting the categorical factor analyses, data inspection techniques were conducted to examine the data and confirm the appropriateness of exploratory factor analysis. Tests included Bartlett's test of sphericity and the Kaiser-Meyer-Olkin (KMO) Measure of Sampling Adequacy (Walker & Madden, 2008). Bartlett's test determines whether the correlation matrix is an identity matrix, which prevents exploratory factor analysis from functioning as variables will not properly load as needed; as such, a significant test suggests the matrix is not an identity matrix and therefore suitable for further analysis (Howard, 2016). The KMO compares observed correlation coefficients to partial correlation coefficients, with small values less than 0.5 indicating that the sampling is unacceptable for exploratory factor analysis (Walker & Madden, 2008). Values over 0.5 indicate that latent factors may exist and that exploratory factor analysis is acceptable; scholars suggest that the KMO should be above 0.6 (Howard, 2016). Finally, a visual inspection of an anti-image correlation matrix was conducted to confirm a low degree of correlation between variables when others were held constant (Walker & Madden, 2008). After confirming the appropriateness of exploratory factor analysis, analysis proceeded in STATA using the default principal factors (pf) option. This option computes factor loadings using the squared multiple correlations as estimates of the communality, and allows for the option to see if all variables load onto one factor in a one-dimensional manner (StataCorp, 2017).

The Kaiser criterion assesses eigenvalues, which are the sum of the squared factor loadings and demonstrate the strength of a factor (Howard, 2016; Walker & Madden, 2008). An eigenvalue of one or more signifies that variables explain a minimum of the average amount of

variance, therefore a cutoff of one or higher was used as the initial criteria to determine the number of factors to retain (Howard, 2016; Walker & Madden, 2008). Further criteria included the examination of a scree plot to assess the "leveling" off factor (Walker & Madden, 2008). In all models, one factor was obtained so rotation was not applied. Subsequently, factor loadings of 0.40 and higher were retained in the model based on general consensus from the literature (Howard, 2016; Walker & Madden, 2008). Values less than 0.40 were dropped from the model in these cases, and the process of testing assumptions and rerunning the factor analysis was then repeated with the reduced number of variables. Throughout the process, reliability of the items was calculated using Cronbach's alpha to compute the interitem correlations / covariances (StataCorp, 2017). Ideal reliability values were over 0.7, with acceptable values starting at 0.6 and absolutely no values accepted below 0.5. This fits with previous reporting of reliability in the literature, which has characterized values of 0.5 and above as "acceptable and sufficient,"[49] values of 0.6 and above as "acceptable, satisfactory, sufficient, and moderate," and values of 0.7 and above as "acceptable, satisfactory, sufficient, good, reasonable, adequate, and relatively high" (Taber, 2018).

***Sexual violence: Attitudes***

Bartlett's test was required to be statistically significant and ideal KMO values were set to be greater than 0.6, with 0.5 as an absolutely minimum acceptable value. Bartlett's test was significant at $p<0.001$ and the Kaiser Meyer Olkin Measuring of Sampling Adequacy was 0.681. The anti-image correlation matrix is providing in Table 37, demonstrating a low degree of correlation between variables when other variables are held constant. Based on these criteria, analysis proceeded with the categorical exploratory factor analysis.

[49] One source calling 0.4 to 0.55 as not satisfactory.

Table 37. Anti-image correlation matrix for sexual violence attitudes

| Variable | AttS~1SA | AttS~2SA | AttS~3SA | AttS~4SA |
|---|---|---|---|---|
| AttSelf_1SA | 0.4248 | | | |
| AttSelf_2SA | -0.2714 | 0.5243 | | |
| AttSelf_3SA | -0.0548 | -0.1202 | 0.6415 | |
| AttSelf_4SA | -0.1995 | 0.0633 | -0.2220 | 0.5995 |

One eigenvalue was retained and explained 49.7% of the variance (n=175) See Table 38. The scree plot in Figure 14 demonstrates a leveling off of the data, supporting the retention of one eigenvalue. The final factor loadings for the one retained factor, without rotation, are provided in Table 39. These results supported the retention of the all four variables originally provided to measure sexual violence attitudes. The reliability of this final list of variables was confirmed using Cronbach's alpha and was 0.7134. Acceptable values of 0.6 and higher were used for the study.

Table 38. Eigenvalue and variance for sexual violence attitudes

| Factor | Eigenvalue | Difference | Proportion | Cumulative |
|---|---|---|---|---|
| Factor1 | 1.98861 | 1.85019 | 0.4972 | 0.4972 |
| Factor2 | 0.13841 | 0.22269 | 0.0346 | 0.5318 |
| Factor3 | -0.08428 | 0.14845 | -0.0211 | 0.5107 |
| Factor4 | -0.23274 | . | -0.0582 | 0.4525 |

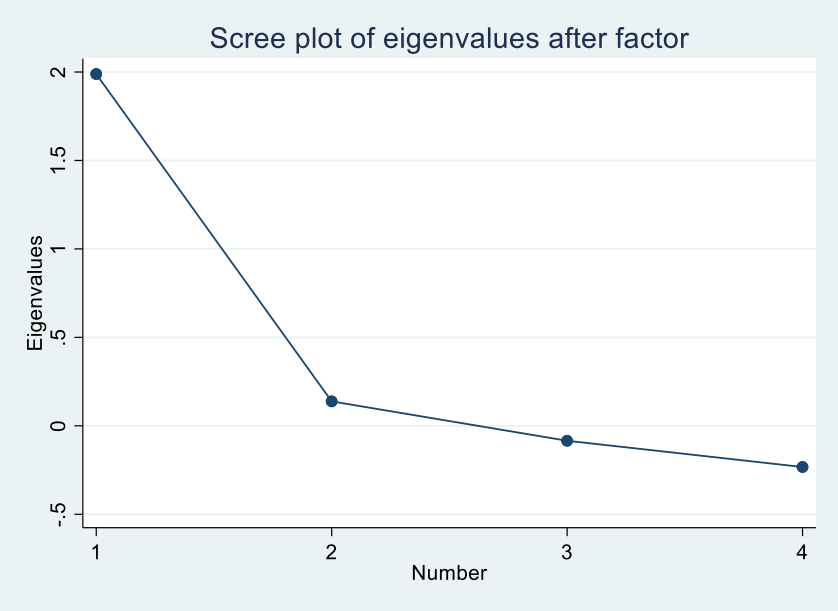


Figure 14. Scree plot for sexual violence attitudes

Table 39. Final factor loadings for sexual violence attitudes

| Variable | Factor1 | Uniqueness |
|---|---|---|
| AttSelf_1SA | 0.8126 | 0.3397 |
| AttSelf_2SA | 0.7002 | 0.5097 |
| AttSelf_3SA | 0.6437 | 0.5856 |
| AttSelf_4SA | 0.6509 | 0.5764 |

***Sexual violence: Subjective norms***

Bartlett's test was required to be statistically significant and ideal KMO values were set to be greater than 0.6, with 0.5 as an absolutely minimum acceptable value. Bartlett's test was significant at $p<0.001$ and the Kaiser Meyer Olkin Measuring of Sampling Adequacy was 0.678. The anti-image correlation matrix is providing in

Table 40, demonstrating a low degree of correlation between variables when other variables are held constant. Based on these criteria, analysis proceeded with the categorical exploratory factor analysis.

Table 40. Anti-image correlation matrix for sexual violence subjective norms

| Variable | AttO~1SA | AttO~2SA | AttO~3SA | AttO~4SA |
|---|---|---|---|---|
| AttOth_1SA | 0.3279 | | | |
| AttOth_2SA | -0.2423 | 0.3437 | | |
| AttOth_3SA | -0.0215 | -0.0731 | 0.4291 | |
| AttOth_4SA | -0.0739 | 0.0263 | -0.2735 | 0.4625 |

One eigenvalue was retained and explained 59.38% of the variance (n=172) See Table 41. The scree plot in Figure 15 demonstrates a leveling off of the data, supporting the retention of one eigenvalue. The final factor loadings for the one retained factor, without rotation, are provided in Table 42. These results supported the retention of all the four variables originally used to measure the construct. The reliability of this final list of variables was confirmed using Cronbach's alpha and was 0.8088. Acceptable values of 0.6 and higher were used for the study.

Table 41. Eigenvalue and variance for sexual violence subjective norms

| Factor | Eigenvalue | Difference | Proportion | Cumulative |
|---|---|---|---|---|
| Factor1 | 2.37528 | 2.00926 | 0.5938 | 0.5938 |
| Factor2 | 0.36602 | 0.48739 | 0.0915 | 0.6853 |
| Factor3 | -0.12137 | 0.06168 | -0.0303 | 0.6550 |
| Factor4 | -0.18305 | . | -0.0458 | 0.6092 |

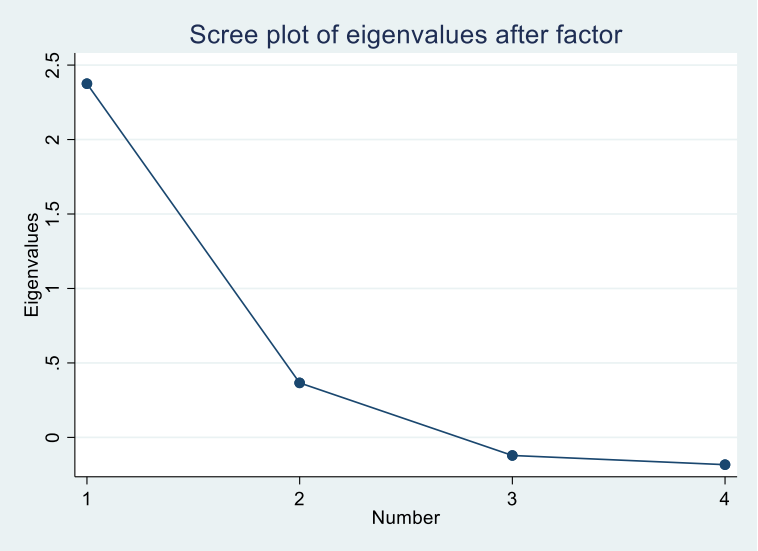


Figure 15. Scree plot for sexual violence subjective norms

Table 42. Final factor loadings for sexual violence subjective norms

| Variable | Factor1 | Uniqueness |
|---|---|---|
| AttOth_1SA | 0.8201 | 0.3274 |
| AttOth_2SA | 0.7933 | 0.3707 |
| AttOth_3SA | 0.7553 | 0.4295 |
| AttOth_4SA | 0.7091 | 0.4972 |

***Sexual violence: Self-efficacy***

Bartlett's test was required to be statistically significant and ideal KMO values were set to be greater than 0.6, with 0.5 as an absolutely minimum acceptable value. Bartlett's test was significant at $p<0.001$ and the Kaiser Meyer Olkin Measuring of Sampling Adequacy was 0.587. The anti-image correlation matrix is providing in Table 1Table 43, demonstrating a low degree of correlation between variables when other variables are held constant. Based on these criteria, analysis proceeded with the categorical exploratory factor analysis.

Table 43. Anti-image correlation matrix for sexual violence self-efficacy

| Variable | S2h_co~N | S5h_co~N | S7h_~ntN |
|---|---|---|---|
| S2h_confid~N | 0.7720 | | |
| S5h_confid~N | -0.2369 | 0.5048 | |
| S7h_confid~N | -0.0074 | -0.3210 | 0.5896 |

One eigenvalue was retained and explained 45.76% of the variance (n=139). See Table 44. The scree plot in Figure 16 demonstrates a leveling off of the data, supporting the retention of one eigenvalue. The final factor loadings for the one retained factor, without rotation, are provided in Table 45. These results supported the retention of all three of the variables originally used to measure self-efficacy for sexual violence. The reliability of this final list of variables was confirmed using Cronbach's alpha and was 0.6120. Acceptable values of 0.6 and higher were used for the study.

Table 44. Eigenvalue and variance for sexual violence self-efficacy

| Factor | Eigenvalue | Difference | Proportion | Cumulative |
|---|---|---|---|---|
| Factor1 | 1.37267 | 1.37964 | 0.4576 | 0.4576 |
| Factor2 | -0.00697 | 0.22514 | -0.0023 | 0.4552 |
| Factor3 | -0.23211 | . | -0.0774 | 0.3779 |

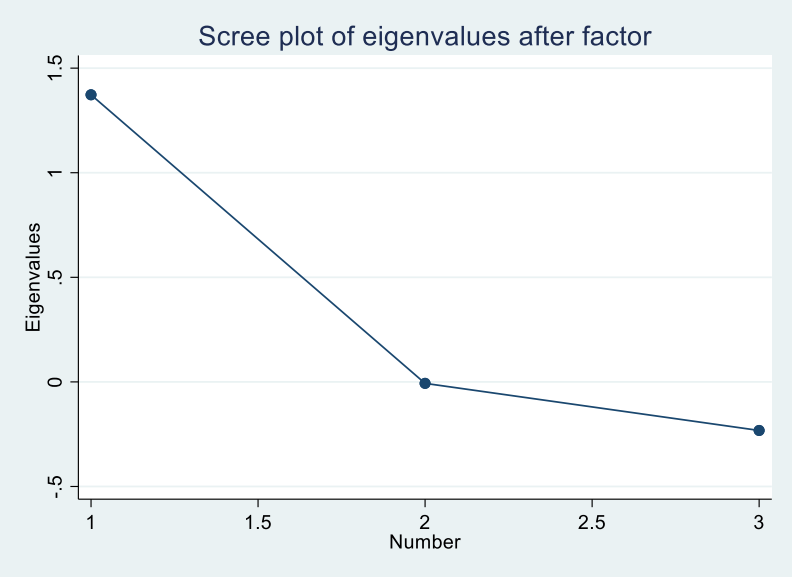


Figure 16. Scree plot for sexual violence self-efficacy

Table 45. Final factor loadings for sexual violence self-efficacy

| Variable | Factor1 | Uniqueness |
|---|---|---|
| S2h_confid~N | 0.5187 | 0.7309 |
| S5h_confid~N | 0.7888 | 0.3779 |
| S7h_confid~N | 0.6938 | 0.5186 |

***Sexual violence: Environmental constraints***

Bartlett's test was required to be statistically significant and ideal KMO values were set to be greater than 0.6, with 0.5 as an absolutely minimum acceptable value. Bartlett's test was significant at $p<0.001$ and the Kaiser Meyer Olkin Measuring of Sampling Adequacy was 0.709. The anti-image correlation matrix is providing in Table 46, demonstrating a low degree of correlation between variables when other variables are held constant. Based on these criteria, analysis proceeded with the categorical exploratory factor analysis.

Table 46. Anti-image correlation matrix for sexual violence environmental constraints

| Variable | Barri~ve | Barrie~n | Barri~me | Barrie~l |
|---|---|---|---|---|
| Barrier_1a~e | 0.4510 | | | |
| Barrier_2m~n | -0.2056 | 0.4369 | | |
| Barrier_4n~e | -0.1254 | -0.1353 | 0.7958 | |
| Barrier_5n~l | -0.1593 | -0.1736 | 0.0994 | 0.5810 |

One eigenvalue was retained and explained 48.80% of the variance (n=174) See Table 47. The scree plot in Figure 17 demonstrates a leveling off of the data, supporting the retention of one eigenvalue. The final factor loadings for the one retained factor, without rotation, are provided in Table 48. These results supported the retention of four of the seven variables. Items 3, 6, and 7 were dropped. The retained variables measured friends' disapproval when intervening (1), worry over being made fun of or criticized (2), someone being better positioned to intervene (4), and some situations not being that big of a deal (5). The reliability of this final list of variables was confirmed using Cronbach's alpha and was 0.6812. Acceptable values of 0.6 and higher were used for the study.

Table 47. Eigenvalue and variance for sexual violence environmental constraints

| Factor | Eigenvalue | Difference | Proportion | Cumulative |
|---|---|---|---|---|
| Factor1 | 1.95190 | 1.83902 | 0.4880 | 0.4880 |
| Factor2 | 0.11287 | 0.25297 | 0.0282 | 0.5162 |
| Factor3 | -0.14010 | 0.04922 | -0.0350 | 0.4812 |
| Factor4 | -0.18931 | . | -0.0473 | 0.4338 |

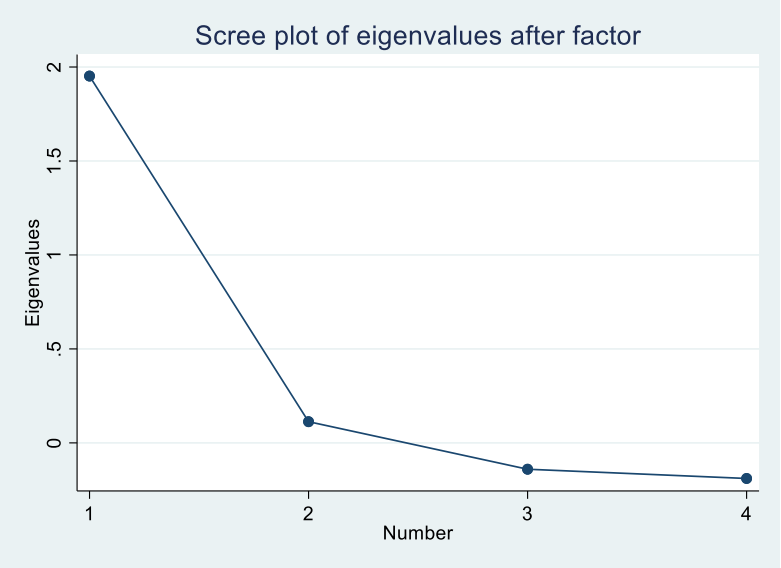


Figure 17. Scree plot for sexual violence environmental constraints

Table 48. Final factor loadings for sexual violence environmental constraints

| Variable | Factor1 | Uniqueness |
|---|---|---|
| Barrier_1a~e | 0.8048 | 0.3523 |
| Barrier_2m~n | 0.8158 | 0.3345 |
| Barrier_4n~e | 0.4358 | 0.8101 |
| Barrier_5n~l | 0.6699 | 0.5512 |

***Sexual violence: Skills***

Bartlett's test was required to be statistically significant and ideal KMO values were set to be greater than 0.6, with 0.5 as an absolutely minimum acceptable value. Bartlett's test was significant at $p<0.001$ and the Kaiser Meyer Olkin Measuring of Sampling Adequacy was 0.813. The anti-image correlation matrix is providing in Table 49, demonstrating a low degree of correlation between variables when other variables are held constant. Based on these criteria, analysis proceeded with the categorical exploratory factor analysis.

Table 49. Anti-image correlation matrix for sexual violence skills

| Variable | Skills~o | Skills~y | Skills~n | Skills~r | Skills~e |
|---|---|---|---|---|---|
| Skills_1who | 0.5943 | | | | |
| Skills_2say | -0.1713 | 0.4205 | | | |
| Skills_3when | -0.0586 | -0.1854 | 0.4780 | | |
| Skills_4cl~r | -0.0426 | -0.0696 | -0.1385 | 0.4704 | |
| Skills_5tone | -0.0724 | -0.0671 | 0.0013 | -0.2160 | 0.5878 |

One eigenvalue was retained and explained 53.65% of the variance (n=172) See Table 50. The scree plot in Figure 18 demonstrates a leveling off of the data, supporting the retention of one eigenvalue. The final factor loadings for the one retained factor, without rotation, are provided in Table 51. These results supported the retention of all five of the original variables used to measure skills. The reliability of this final list of variables was confirmed using Cronbach's alpha and was 0.7999. Acceptable values of 0.6 and higher were used for the study.

Table 50. Eigenvalue and variance for sexual violence skills

| Factor | Eigenvalue | Difference | Proportion | Cumulative |
|---|---|---|---|---|
| Factor1 | 2.68244 | 2.57296 | 0.5365 | 0.5365 |
| Factor2 | 0.10947 | 0.13163 | 0.0219 | 0.5584 |
| Factor3 | -0.02216 | 0.12029 | -0.0044 | 0.5540 |
| Factor4 | -0.14245 | 0.03583 | -0.0285 | 0.5255 |
| Factor5 | -0.17827 | . | -0.0357 | 0.4898 |

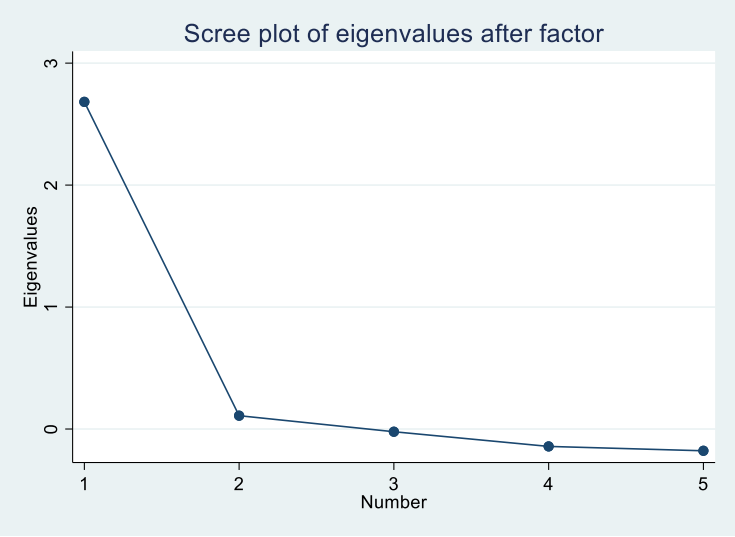


Figure 18. Scree plot for sexual violence skills

Table 51. Final factor loadings for sexual violence skills

| Variable | Factor1 | Uniqueness |
|---|---|---|
| Skills_1who | 0.6686 | 0.5530 |
| Skills_2say | 0.8047 | 0.3525 |
| Skills_3when | 0.7540 | 0.4315 |
| Skills_4cl~r | 0.7652 | 0.4145 |
| Skills_5tone | 0.6587 | 0.5661 |

***Racism: Attitudes***

Bartlett's test was required to be statistically significant and ideal KMO values were set to be greater than 0.6, with 0.5 as an absolutely minimum acceptable value. Bartlett's test was significant at $p<0.001$ and the Kaiser Meyer Olkin Measuring of Sampling Adequacy was 0.671. The anti-image correlation matrix is providing in Table 52, demonstrating a low degree of correlation between variables when other variables are held constant. Based on these criteria, analysis proceeded with the categorical exploratory factor analysis.

Table 52. Anti-image correlation matrix for racism attitudes

| Variable | AttSel.. | AttSel.. | AttSel.. | AttSe~eR |
|---|---|---|---|---|
| AttSelf_9r~e | 0.6920 | | | |
| AttSelf_10~e | -0.2573 | 0.5166 | | |
| AttSelf_11~e | -0.0476 | -0.2472 | 0.5530 | |
| AttSelf_12~R | -0.0014 | -0.0228 | -0.2331 | 0.7972 |

One eigenvalue was retained and explained 41.6% of the variance (n=174) See Table 53. The scree plot in Figure 19 demonstrates a leveling off of the data, supporting the retention of one eigenvalue. The final factor loadings for the one retained factor, without rotation, are provided in Table 54. These results supported the retention of all four of the original variables used to measure racism attitudes. The reliability of this final list of variables was confirmed using Cronbach's alpha and was 0.6626. Acceptable values of 0.6 and higher were used for the study.

Table 53. Eigenvalue and variance for racism attitudes

| Factor | Eigenvalue | Difference | Proportion | Cumulative |
|---|---|---|---|---|
| Factor1 | 1.66440 | 1.52114 | 0.4161 | 0.4161 |
| Factor2 | 0.14327 | 0.28599 | 0.0358 | 0.4519 |
| Factor3 | -0.14273 | 0.08105 | -0.0357 | 0.4162 |
| Factor4 | -0.22378 | . | -0.0559 | 0.3603 |

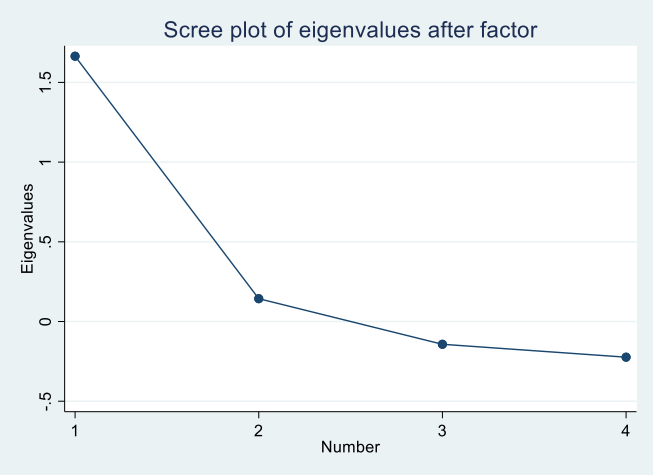


Figure 19. Scree plot for racism attitudes

Table 54. Final factor loadings for racism attitudes

| Variable | Factor1 | Uniqueness |
|---|---|---|
| AttSelf_9r~e | 0.5825 | 0.6607 |
| AttSelf_10~e | 0.7620 | 0.4194 |
| AttSelf_11~e | 0.7321 | 0.4641 |
| AttSelf_12~R | 0.4567 | 0.7914 |

***Racism: Subjective norms***

Bartlett's test was required to be statistically significant and ideal KMO values were set to be greater than 0.6, with 0.5 as an absolutely minimum acceptable value. Bartlett's test was significant at $p<0.001$ and the Kaiser Meyer Olkin Measuring of Sampling Adequacy was 0.607. The anti-image correlation matrix is providing in Table 55, demonstrating a low degree of correlation between variables when other variables are held constant. Based on these criteria, analysis proceeded with the categorical exploratory factor analysis.

Table 55. Anti-image correlation matrix for racism subjective norms

| Variable | AttOth.. | AttOth.. | AttOt~eR |
|---|---|---|---|
| AttOth_10r~e | 0.7353 | | |
| AttOth_11r~e | -0.3168 | 0.6652 | |
| AttOth_12r~R | -0.0675 | -0.2375 | 0.8307 |

One eigenvalue was retained and explained 35.64% of the variance (n=172) See Table 56. The scree plot in Figure 20 demonstrates a leveling off of the data, supporting the retention of one eigenvalue. The final factor loadings for the one retained factor, without rotation, are provided in Table 57. These results supported the retention of three of the four variables to measure subjective norms for racism. Item #9 was dropped, which measures a view of how most students at the university believe that everyone has the same chance to succeed regardless of their race. Items 10, 11, and 12 were retained, which measure a view of how most students at the university agree that (10) racism isn't really a problem on campus; (11) it's okay to tell a racist joke as long as it doesn't offend anyone; and (12) it is important to reflect on our actions to examine if they were discriminatory. The reliability of this final list of variables was confirmed using Cronbach's alpha and was 0.6207. Acceptable values of 0.6 and higher were used for the study.

Table 56. Eigenvalue and variance for racism subjective norms

| Factor | Eigenvalue | Difference | Proportion | Cumulative |
|---|---|---|---|---|
| Factor1 | 1.06928 | 1.12904 | 0.3564 | 0.3564 |
| Factor2 | -0.05977 | 0.18098 | -0.0199 | 0.3365 |
| Factor3 | -0.24075 | . | -0.0802 | 0.2563 |

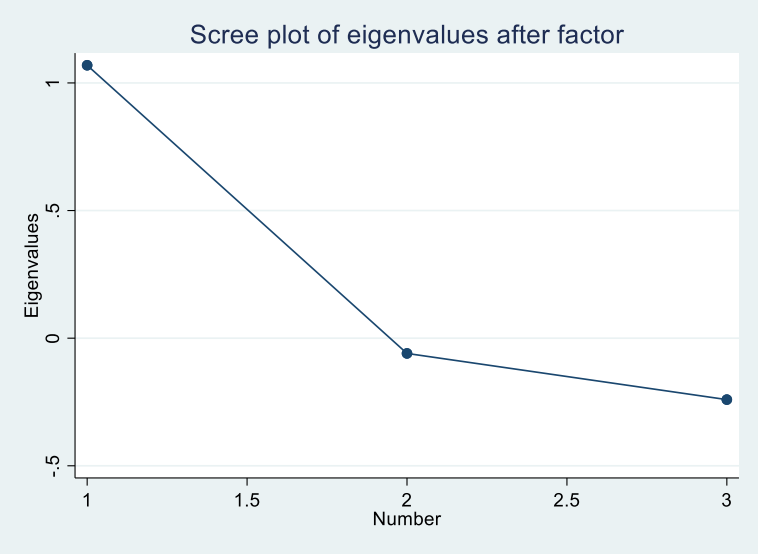


Figure 20. Scree plot for racism subjective norms

Table 57. Final factor loadings for racism subjective norms

| Variable | Factor1 | Uniqueness |
|---|---|---|
| AttOth_10r~e | 0.6000 | 0.6400 |
| AttOth_11r~e | 0.6851 | 0.5306 |
| AttOth_12r~R | 0.4898 | 0.7601 |

***Racism: Self-efficacy***

Bartlett's test was required to be statistically significant and ideal KMO values were set to be greater than 0.6, with 0.5 as an absolutely minimum acceptable value. Bartlett's test was significant at $p<0.001$ and the Kaiser Meyer Olkin Measuring of Sampling Adequacy was 0.635. The anti-image correlation matrix is providing in Table 58, demonstrating a low degree of correlation between variables when other variables are held constant. Based on these criteria, analysis proceeded with the categorical exploratory factor analysis.

Table 58. Anti-image correlation matrix for racism self-efficacy

| Variable | S3h_co~N | S6h_co~N | S8h_co~N |
|---|---|---|---|
| S3h_confid~N | 0.6320 | | |
| S6h_confid~N | -0.1334 | 0.4780 | |
| S8h_confid~N | -0.1719 | -0.2646 | 0.4557 |

One eigenvalue was retained and explained 56.74% of the variance (n=127) See Table 59. The scree plot in Figure 21 demonstrates a leveling off of the data, supporting the retention of one eigenvalue. The final factor loadings for the one retained factor, without rotation, are provided in Table 60. These results supported the retention of all the original three variables used to measure racism self-efficacy. The reliability of this final list of variables was confirmed using Cronbach's alpha and was 0.7021. Acceptable values of 0.6 and higher were used for the study.

Table 59. Eigenvalue and variance for racism self-efficacy

| Factor | Eigenvalue | Difference | Proportion | Cumulative |
|---|---|---|---|---|
| Factor1 | 1.70233 | 1.79973 | 0.5674 | 0.5674 |
| Factor2 | -0.09740 | 0.07327 | -0.0325 | 0.5350 |
| Factor3 | -0.17067 | . | -0.0569 | 0.4781 |

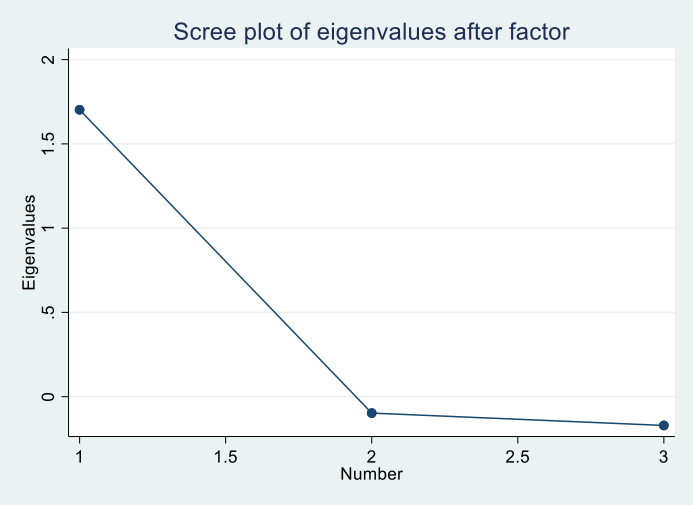


Figure 21. Scree plot for racism self-efficacy

Table 60. Final factor loadings for racism self-efficacy

| Variable | Factor1 | Uniqueness |
|---|---|---|
| S3h_confid~N | 0.6646 | 0.5583 |
| S6h_confid~N | 0.7839 | 0.3855 |
| S8h_confid~N | 0.8038 | 0.3540 |

***Unhealthy alcohol outcomes: Attitudes***

Bartlett's test was required to be statistically significant and ideal KMO values were set to be greater than 0.6, with 0.5 as an absolutely minimum acceptable value. Bartlett's test was significant at $p<0.001$ and the Kaiser Meyer Olkin Measuring of Sampling Adequacy was 0.500. The anti-image correlation matrix is providing in Table 61, demonstrating a low degree of correlation between variables when other variables are held constant. Based on these criteria, analysis proceeded with the categorical exploratory factor analysis.

Table 61. Anti-image correlation matrix for unhealthy alcohol outcomes attitudes

| Variable | A~f_5alc | A~f_6alc |
|---|---|---|
| AttSelf_5alc | 0.7129 | |
| AttSelf_6alc | -0.3820 | 0.7129 |

One eigenvalue was retained and explained 41.15% of the variance (n=173). However, the eigenvalue was only 0.823, less than the value of 1 normally required for a cutoff. See Table 62. The scree plot in Figure 22 demonstrates a leveling off of the data, supporting the retention of one eigenvalue. The final factor loadings for the one retained factor, without rotation, are provided in Table 63. These results supported the retention of two of the original four variables to measure attitude alcohols. Items dropped included (7) it is better not to get involved in a situation where someone is very drunk; and (8) I expect my friends to look out for me when I'm drinking. Items retained included (5) it is okay to get really drunk; and (6) it is unlikely that something bad will happen if a student gets really drunk. The reliability of this final two variables was confirmed using Cronbach's alpha and was 0.6318. Acceptable values of 0.6 and higher were used for the study.

The factor score to measure alcohol attitudes is limited in having a lower KMO, retaining only two variables to make the factor score, and yielding a factor with an eigenvalue <1.

Table 62. Eigenvalue and variance for unhealthy alcohol outcomes attitudes

| Factor | Eigenvalue | Difference | Proportion | Cumulative |
|---|---|---|---|---|
| Factor1 | 0.82295 | 1.07167 | 0.4115 | 0.4115 |
| Factor2 | -0.24872 | . | -0.1244 | 0.2871 |

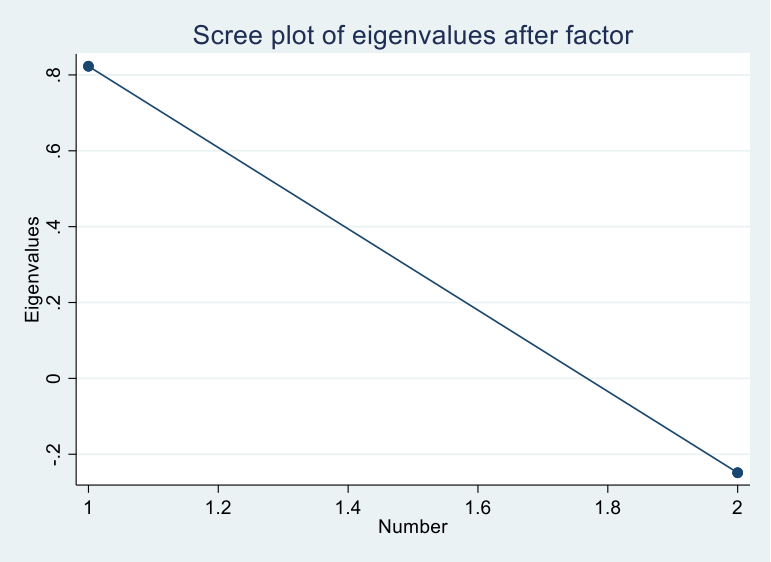


Figure 22. Scree plot for unhealthy alcohol outcomes attitudes

Table 63. Final factor loadings for unhealthy alcohol outcomes attitudes

| Variable | Factor1 | Uniqueness |
|---|---|---|
| AttSelf_5alc | 0.6415 | 0.5885 |
| AttSelf_6alc | 0.6415 | 0.5885 |

***Unhealthy alcohol outcomes: Subjective norms***

Bartlett's test was required to be statistically significant and ideal KMO values were set to be greater than 0.6, with 0.5 as an absolutely minimum acceptable value. Bartlett's test was significant at $p<0.001$ and the Kaiser Meyer Olkin Measuring of Sampling Adequacy was 0.614. The anti-image correlation matrix is providing in Table 64, demonstrating a low degree of correlation between variables when other variables are held constant. Based on these criteria, analysis proceeded with the categorical exploratory factor analysis.

Table 64. Anti-image correlation matrix for unhealthy alcohol outcomes subjective norms

| Variable | A~h_5alc | A~h_6alc | A~h_7alc |
|---|---|---|---|
| AttOth_5alc | 0.6728 | | |
| AttOth_6alc | -0.3322 | 0.6438 | |
| AttOth_7alc | -0.1028 | -0.1824 | 0.8479 |

One eigenvalue was retained and explained 37.94% of the variance (n=172) See Table 65. The scree plot in Figure 23 demonstrates a leveling off of the data, supporting the retention of one eigenvalue. The final factor loadings for the one retained factor, without rotation, are provided in Table 66. These results supported the retention of the three of the original four variables used to measure alcohol subjective norms. Item (8) was dropped: Most students at the school believe that their friends should look out for them when they're drinking. The first three items were retained, which measure views on how most students at the school believe (5) it's okay to get really drunk; (6) it is unlikely that something bad will happen if a student gets really drunk; and (7) it is better not to get involved in a situation where someone is really drunk. The reliability of the final list of variables was confirmed using Cronbach's alpha and was 0.6348. Acceptable values of 0.6 and higher were used for the study.

Table 65. Eigenvalue and variance for unhealthy alcohol outcomes subjective norms

| Factor | Eigenvalue | Difference | Proportion | Cumulative |
|---|---|---|---|---|
| Factor1 | 1.13819 | 1.21482 | 0.3794 | 0.3794 |
| Factor2 | -0.07663 | 0.14944 | -0.0255 | 0.3539 |
| Factor3 | -0.22607 | . | -0.0754 | 0.2785 |

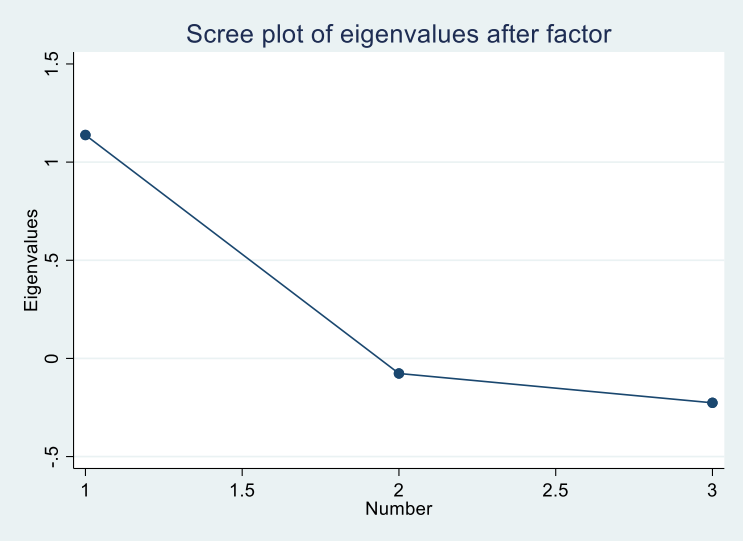


Figure 23. Scree plot for unhealthy alcohol outcomes subjective norms

Table 66. Final factor loadings for unhealthy alcohol outcomes subjective norms

| Variable | Factor1 | Uniqueness |
|---|---|---|
| AttOth_5alc | 0.6604 | 0.5639 |
| AttOth_6alc | 0.6946 | 0.5175 |
| AttOth_7alc | 0.4686 | 0.7804 |

***Unhealthy alcohol outcomes: Self-efficacy***

Bartlett's test was required to be statistically significant and ideal KMO values were set to be greater than 0.6, with 0.5 as an absolutely minimum acceptable value. Bartlett's test was significant at $p<0.001$ and the Kaiser Meyer Olkin Measuring of Sampling Adequacy was 0.634. The anti-image correlation matrix is providing in Table 67, demonstrating a low degree of correlation between variables when other variables are held constant. Based on these criteria, analysis proceeded with the categorical exploratory factor analysis.

Table 67. Anti-image correlation matrix for unhealthy alcohol outcomes self-efficacy

| Variable | S1h_co~N | S4h_co~N | S9h_co~N |
|---|---|---|---|
| S1h_confid~N | 0.6831 | | |
| S4h_confid~N | -0.1228 | 0.5050 | |
| S9h_confid~N | -0.1757 | -0.2825 | 0.4781 |

One eigenvalue was retained and explained 53.57% of the variance (n=160). See Table 68. The scree plot in Figure 24 demonstrates a leveling off of the data, supporting the retention of one eigenvalue. The final factor loadings for the one retained factor, without rotation, are provided in Table 69. These results supported the retention of all three variables used to measure alcohol self-efficacy. The reliability of this final list of variables was confirmed using Cronbach's alpha and was 0.6863. Acceptable values of 0.6 and higher were used for the study.

Table 68. Eigenvalue and variance for unhealthy alcohol outcomes self-efficacy

| Factor | Eigenvalue | Difference | Proportion | Cumulative |
|---|---|---|---|---|
| Factor1 | 1.60711 | 1.69810 | 0.5357 | 0.5357 |
| Factor2 | -0.09099 | 0.09134 | -0.0303 | 0.5054 |
| Factor3 | -0.18233 | . | -0.0608 | 0.4446 |

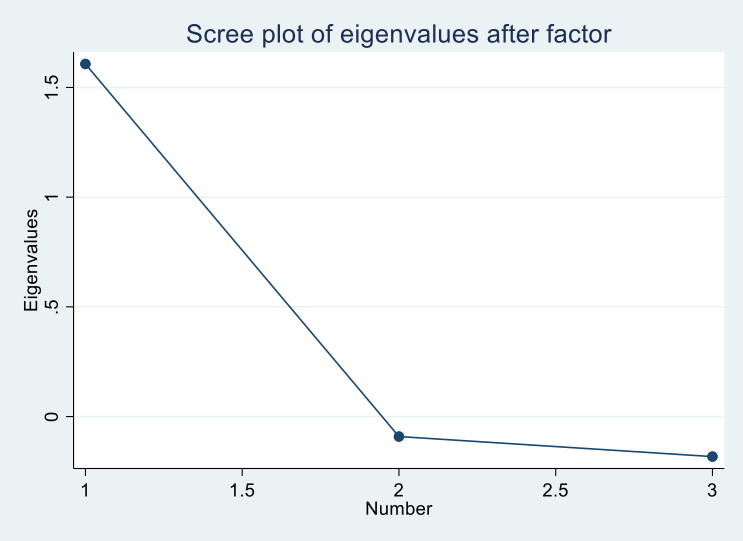


Figure 24. Scree plot for unhealthy alcohol outcomes self-efficacy

Table 69. Final factor loadings for unhealthy alcohol outcomes self-efficacy

| Variable | Factor1 | Uniqueness |
|---|---|---|
| S1h_confid~N | 0.6235 | 0.6113 |
| S4h_confid~N | 0.7678 | 0.4106 |
| S9h_confid~N | 0.7931 | 0.3710 |

## Appendix F. Correlations of factor scores and construct averages

Table 70. Correlations of factor scores and construct averages

| | Sample |
|---|---|
| **Constructs*** | **r** |
| **Sexual violence** | |
| Attitudes | 0.9900 |
| Subjective norms | 0.9973 |
| Self-efficacy | 0.9678 |
| Environmental constraints | 0.9624 |
| Skills | 1.0000 |
| **Racism** | |
| Attitudes | 0.9835 |
| Subjective norms | 0.9892 |
| Self-efficacy | 0.9890 |
| **Unhealthy alcohol outcomes** | |
| Attitudes | 1.0000 |
| Subjective norms | 0.9862 |
| Self-efficacy | 0.9857 |

*All correlations reported in the table are statistically significant ($p<0.0001$)

## Appendix G. Behavior likelihood scores description

Students were asked if they had ever witnessed each of nine scenarios since starting at the school. The results are reported in Table 71. The most-witnessed scenario was a situation where someone the respondent knew was drinking and needed assistance (witnessed by 66.09% of students since starting at the university). This was followed by a situation where someone they knew was drunk and needed help to get home safely (62.43%). The least witnessed scenarios were a possible sexual assault (4.05%) and racial threats or harassment (4.62%). Trends in sexual violence and racism seemed similar across levels and fit with the lower levels of prevention being witnessed more frequently, with 53.14% and 59.09% of students witnessing low-risk scenarios respectively, 14.86% and 19.54% witnessing high-risk primary scenarios, and 4.05% and 4.62% witnessing secondary level prevention scenarios, respectively. Unhealthy alcohol scenarios did not follow this trend. The high-risk primary prevention scenario appeared to have been witnessed the most (66.09%), followed by the secondary level scenario (62.43%), and lastly the low-risk primary prevention scenario (38.98%).

Table 71. Witnessing scenarios since starting at the university

| Level | Area | | Scenario | Witnessed at school | | |
|---|---|---|---|---|---|---|
| | | n | | n | N | % |
| Low-risk primary | Alcohol | 1 | Pressure to drink | 69 | 177 | 38.98% |
| | SV | 2 | Degrade women | 93 | 175 | 53.14% |
| | Racism | 3 | Racist comment | 104 | 176 | 59.09% |
| High-risk primary | Alcohol | 4 | Drinking and need assistance | 115 | 174 | 66.09% |
| | SV | 5 | Isolation with sexual intent | 26 | 175 | 14.86% |
| | Racism | 6 | Racial disrespect | 34 | 174 | 19.54% |
| Secondary | SV | 7 | Possible sexual assault | 7 | 173 | 4.05% |

| Level | Area | | Scenario | Witnessed at school | | |
|---|---|---|---|---|---|---|
| | | n | | n | N | % |
| | Racism | 8 | Racial threats or harassment | 8 | 173 | 4.62% |
| | Alcohol | 9 | Drinking and need to get home safely | 108 | 173 | 62.43% |

Among the students who had witnessed each scenario at least once since attending the university, students were asked how many times they had witnessed a scenario in the past six weeks. Students were required to enter an integer of 0 or higher. On average, students witnessed the following scenarios more than once in the six weeks prior: racist comments or jokes (2.260 times witnessed in the past six weeks), degrading language about women (1.742 times witnessed in the past six weeks), and someone known drinking too much and needing assistance (1.439 times witnessed in the past six weeks). Among those who had witnessed a situation in the prior six weeks, less than one event on average was witnessed for racial disrespect (0.941), someone drinking too much and needing to get home safely (0.889), pressure to drink (0.806), possible sexual assault (0.741), racial threats or harassment (0.500), and isolation with sexual intent (0.462). Results are reported in Table 72, with witnessing a scenario five or more times in the past six weeks was collapsed into the highest level.

Table 72. Times each scenario was witnessed in the past six weeks[50]

| Scenario | | Times witnessed past 6 weeks | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | | 0 | 1 | 2 | 3 | 4 | >=5 | N | mean | st. dev. |
| 1 | Pressure to drink | 56.72%<br>38 | 20.90%<br>14 | 16.42%<br>11 | 0.00%<br>0 | 2.99%<br>2 | 2.99%<br>2 | 67 | 0.806 | 1.209 |
| 2 | Degrade women | 31.18%<br>29 | 24.73%<br>23 | 18.28%<br>17 | 9.68%<br>9 | 7.53%<br>7 | 8.60%<br>8 | 93 | 1.742 | 1.916 |
| 3 | Racist comment | 51.92%<br>54 | 6.73%<br>7 | 18.27%<br>19 | 7.69%<br>8 | 2.88%<br>3 | 12.50%<br>13 | 104 | 2.260 | 5.930 |

[50] Among those who have witnessed since starting at the university

| Scenario | | Times witnessed past 6 weeks | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | | **0** | **1** | **2** | **3** | **4** | **>=5** | **N** | **mean** | **st. dev.** |
| 4 | Drinking and need assistance | 42.98%<br>49 | 32.46%<br>37 | 10.53%<br>12 | 7.02%<br>8 | 1.75%<br>2 | 5.26%<br>6 | 114 | 1.439 | 2.984 |
| 5 | Isolation with sexual intent | 69.23%<br>18 | 19.23%<br>5 | 7.69%<br>2 | 3.85%<br>1 | 0.00%<br>0 | 0.00%<br>0 | 26 | 0.462 | 0.811 |
| 6 | Racial disrespect | 58.82%<br>20 | 17.65%<br>6 | 5.88%<br>2 | 11.76%<br>4 | 0.00%<br>0 | 5.88%<br>2 | 34 | 0.941 | 1.455 |
| 7 | Possible sexual assault | 57.14%<br>4 | 28.57%<br>2 | 14.29%<br>1 | 0.00%<br>0 | 0.00%<br>0 | 0.00%<br>0 | 7 | 0.714 | 1.113 |
| 8 | Racial threats or harassment | 75.00%<br>6 | 12.50%<br>1 | 0.00%<br>0 | 12.50%<br>1 | 0.00%<br>0 | 0.00%<br>0 | 8 | 0.500 | 1.069 |
| 9 | Drinking & need to get home safely | 43.52%<br>47 | 34.26%<br>37 | 14.81%<br>16 | 5.56%<br>6 | 0.93%<br>1 | 0.93%<br>1 | 108 | 0.889 | 1.017 |

After reporting how many times they had witnessed an event in the past six weeks (among those who have ever witnessed at the university), students were asked how many times they had intervened. Students appeared to intervene the most against racist comments or jokes (2.936 times in the past six weeks) and when someone they know was drinking and needed assistance (2.258 times in the past six weeks)[51]. Students intervened an average of one to times in the past six weeks against racial threats or harassment (1.500), when someone known was drinking and needed to get home safely (1.500), when someone known was pressured to drink (1.259), against degrading comments towards women (1.228), and when someone intoxicated was isolated for possible sexual purposes (1.125). Among those who had witnessed a situation in the past six weeks, students intervened less than one time on average against racial disrespect (0.714) and possible sexual assault (0.667). Results are reported in Table 73, with witnessing a scenario five or more times in the past six weeks was collapsed into the highest level.

[51] The averages for intervening are higher than for witnessing because they exclude individuals who did not witness any events in the past six weeks.

Table 73. Times intervened in the past six weeks[52]

| Scenario | | Times intervened past 6 weeks | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | | **0** | **1** | **2** | **3** | **4** | **>=5** | **N** | **mean** | **st. dev.** |
| 1 | Pressure to drink | 18.52% 5 | 51.85% 14 | 22.22% 6 | 3.70% 1 | 0.00% 0 | 3.70% 1 | 27 | 1.259 | 1.059 |
| 2 | Degrade women | 35.09% 20 | 33.33% 19 | 19.30% 11 | 1.75% 1 | 7.02% 4 | 3.51% 2 | 57 | 1.228 | 1.337 |
| 3 | Racist comment | 34.04% 16 | 29.79% 14 | 19.15% 9 | 6.38% 3 | 0.00% 0 | 10.64% 5 | 47 | 2.936 | 8.300 |
| 4 | Drinking and need assistance | 6.45% 4 | 53.23% 33 | 19.35% 12 | 9.68% 6 | 1.61% 1 | 9.68% 6 | 62 | 2.258 | 3.382 |
| 5 | Isolation with sexual intent | 12.50% 1 | 62.50% 5 | 25.00% 2 | 0.00% 0 | 0.00% 0 | 0.00% 0 | 8 | 1.125 | 0.641 |
| 6 | Racial disrespect | 50.00% 7 | 35.71% 5 | 7.14% 1 | 7.14% 1 | 0.00% 0 | 0.00% 0 | 14 | 0.714 | 0.914 |
| 7 | Possible sexual assault | 33.33% 1 | 66.67% 2 | 0.00% 0 | 0.00% 0 | 0.00% 0 | 0.00% 0 | 3 | 0.667 | 0.577 |
| 8 | Racial threats or harassment | 50.00% 1 | 50.00% 1 | 0.00% 0 | 0.00% 0 | 0.00% 0 | 0.00% 0 | 2 | 1.500 | 0.707 |
| 9 | Drinking & need to get home safely | 3.57% 2 | 60.71% 34 | 21.43% 12 | 10.71% 6 | 3.57% 2 | 0.00% 0 | 56 | 1.500 | 0.874 |

Behavior likelihood scores were created for behaviors by taking the number of times a respondent intervened in the past six weeks divided by the number of times they had witnessed the scenario in the past six weeks (a value of 0 to 1). Behavior likelihood scores are reported in Table 74. An interpretation is provided for the first scenario: On average, students intervened in 71.30% of instances when they witnessed someone they know being pressured to drink in the six weeks prior to taking the survey (behavior likelihood score: 0.7130). Intervention was highest when witnessing someone known drinking and needing to get home safely (0.9518) and lowest when witnessing racial disrespect (0.3167). Behavior likelihood scores must be interpreted with caution, as sample sizes were low among witnessing and intervening for some items. This is

[52] Among those who witnessed at least once in the past six weeks

particularly true for possible sexual assault and racial threats or harassment, where the number of students who witnessed these scenarios in the past six weeks was less than ten.

Table 74. Behavior likelihood scores (past six weeks)

| Level | Area | | Scenario | Behavior likelihood score (6 weeks) | | |
|---|---|---|---|---|---|---|
| | | | | mean | st. dev. | N |
| Low-risk primary | Alcohol | 1 | Pressure to drink | 0.7130 | 0.3965 | 69 |
| | SV | 2 | Degrade women | 0.5151 | 0.4427 | 94 |
| | Racism | 3 | Racist comment | 0.4819 | 0.4145 | 104 |
| High-risk primary | Alcohol | 4 | Drinking and need assistance | 0.8848 | 0.2731 | 115 |
| | SV | 5 | Isolation with sexual intent | 0.8750 | 0.3536 | 26 |
| | Racism | 6 | Racial disrespect | 0.3167 | 0.3796 | 34 |
| Secondary | SV | 7 | Possible sexual assault | 0.6667 | 0.5774 | 7 |
| | Racism | 8 | Racial threats or harassment | 0.8333 | 0.2357 | 8 |
| | Alcohol | 9 | Drinking and need to get home safely | 0.9518 | 0.1982 | 107 |

## Appendix H. Qualitative codebook

Table 75. Qualitative codebook

| *Theme/Category* | *Definition* | *Examples* |
|---|---|---|
| **Approach** | | |
| **(use in the order listed when in doubt or between two strategies) Only code the "approach" based on who receives a comment. Using the example: "Don't say that to her because she deserves better," only code the approach for the perpetrator (Confrontational). While it is supportive towards a victim, we will avoid double coding comments directed towards one person.** | | |
| **Hostile** | Uses physical aggression or violent/vulgar language; must be explicit | Clear physical force; physically make them stop ; Get in their face ; Tell them to shut up ; Curse words or equivalents *(fuck, hell, heck, shut up, etc)* |
| **Confrontational** | Openly confronts perpetrator or victim with commands, demands, posture, or accusatory language. Targets the PERSON directly | Confront the situation; You're an idiot to say that; You're racist; You can't say that; Make them stop; language directed at the person not the behavior: you need to do this; what the person should or shouldn't do. Confront them. |
| **Supportive** | Intervenes in a way that provides compassion and caring towards the victim or situation; getting help from friends or getting friends | "Help"; Checking in on a person or situation; ensuring someone is okay; taking someone home; getting friends to help; getting water; calling an UBER other ride home. Make up an excuse to get them away and then take them home. |
| **Assertive** | Makes actions clear to victim or perpetrator; actively engages with them in a respectful manner; confronts the actions of a perpetrator rather than the perpetrator themselves (what you said is stupid); calling for help from police/professionals/adults. Includes distractions where separation occur. | Get help from authority figure; Body language to the point of intervention *(stare at them until they know I'm unhappy)*; Statements of disapproval not directed at the person but at the behavior; that's not okay; not appropriate; not cool; s/he doesn't have to do that; explain why the behavior isn't okay; correct them; get them out of a situation; get help from police, authorities, friends, people nearby, etc; make them go to the bathroom with me; change the topic and then pull them away. |
| **Passive** | No clear intervention is provided; the intervention would not definitely lead to a change (ie- the perpetrator or victim might not even notice). This includes distractions in general or changes of subject, but not distractions that also include separation. Those would be assertive. | Nothing; Go along with the situation; body language without making sure it is known. Change the topic. Make them pay attention to something else. |

| *Theme/Category* | *Definition* | *Examples* |
|---|---|---|
| **Unknown** | Not clear from context - there is a strategy mentioned but the approach is not shared; includes unclear separation | Stop it; Help; Say something; Steps in; Get them away from the situation; Insert myself into the situation; explanation left blank (unless noted otherwise, code none to victim; unknown to perpetrator). |
| **None** | No intervention towards the victim or perpetrator. Will always be coded in either the victim or perpetrator column unless the strategy clearly states strategies directed towards both parties. | Tell the perpetrator to stop saying that (Victim approach: None). Pull the victim away from the situation (Perpetrator approach: None) |
| **Strategy** | | |
| **Say disapproval** | Questions or statement that directly or indirectly demonstrates disapproval of the situation. | That's not okay; not appropriate; shut up; what makes you think that's okay?; that's offensive; you need to stop; it's not okay that they did that; chill, calm down, relax |
| **Say engagement / other** | Questions or statements that aims to engage in conversation from a nonjudgmental standpoint. Any statement that does not fit into disapproval or engagement; Includes statements about what people don't have to do; Statements that indicate distraction. | What do you mean by that?; Are you okay?; What can I do to help?; What do you mean by that? You don't really mean that, do you?; Do you think s/he needs help?; I don't think you'd like it if someone talked about your family that way.; Could I chat with you about this with you?; I would explain why the situation is upsetting to me.; I feel uncomfortable with this situation *(I statement);* You don't have to; They don't have to; It's not okay that they said that to you; "Say something" selected, but nothing written |
| **Get help professional** | Get help from police, employees, sexual assault advocate, or any authority figure | police; 911; "adult" |
| **Get help other** | Get help from anyone else | friend; friends; other; someone close by; acquaintance |
| **Help victim** | Indication to directly help or assist the victim; demonstrates care and compassion; victim should be aware this is happening or happened | Call an UBER/other ride; Help to get someone home or out of the situation; check on the person/situation; helps victim; cares for victim; ensures safety; provides resources; calling a victim's friend for help *(but not calling the police or others, since they might not be called on to help the victim directly)* |
| **Distraction** | Create a distraction, make up a way to leave, change the subject, engage in conversation | Create a distraction; change the topic; pull the fire alarm; make up a new game to play; Ask them to go to the bathroom with me; change the subject |

| *Theme/Category* | *Definition* | *Examples* |
|---|---|---|
| **Separate** | Any intervention where the victim and perpetrator are no longer together or one of the parties is actively removed from the situation. This should be the finalized action, not an implication. | Call an UBER/other ride; Take them home; pull them away; make them leave; anything that ends in clear separation *(ie- asking them to leave is NOT separation, because the person might not choose to leave);* Pull them away from the situation |
| **Body language** | Body language or indication of using non-verbal means to communicate | Stare till I get their attention; disapproving looks; cold shoulder; head shakes |
| **Physically intervene** | Clear or strong indications or physical contact (Conversely, "Step in" and "insert myself into situation" are OTHER, not physically intervening) | Physical force; grab them; push them; get physical |
| **Go along** | Go along with it, no follow-up needed | I would go along with it because it's just a joke. |
| **Nothing** | Nothing, no follow up needed | Nothing |
| **Vague strategy** | Only code when there is NO other option. This is for any intervention that is too vague to fit into the other criteria above. | I don't drink so I don't witness these scenarios; Do something; Stop it; Step in; Insert myself into the situation |
| **Control Victim** | | |
| **Yes** | Makes a victim do something; states they should / must / need to do something. | Make them stop drinking; tell them they should be more careful |
| **No** | Taking home and separating for safety are NOT controlling in the context of our questions | Take them home; any other item without victim control |

## Appendix I. Intraclass correlation coefficients

Table 76. Intraclass correlation coefficients

| Group & Item | ICC | 95% Confidence Interval | |
|---|---|---|---|
| **Average** | **0.7530** | **0.6743** | **0.8316** |
| **Strategy** | | | |
| Say Disagreement | 0.8277 | 0.8082 | 0.8460 |
| Say Engagement/Other | 0.5924 | 0.5566 | 0.6276 |
| Get Professional Help | 0.9473 | 0.9406 | 0.9534 |
| Get Help Other | 0.8361 | 0.8174 | 0.8536 |
| Help Victim | 0.8314 | 0.8115 | 0.8500 |
| Distraction | 0.7882 | 0.7652 | 0.8100 |
| Separation | 0.7222 | 0.6861 | 0.7550 |
| Body Language | 0.9457 | 0.9388 | 0.9520 |
| Physical Force | 0.5852 | 0.5490 | 0.6208 |
| Go Along | 0.9582 | 0.9529 | 0.9631 |
| Nothing | 0.8520 | 0.8346 | 0.8682 |
| Vague strategy | 0.5082 | 0.4677 | 0.5484 |
| **Victim approach** | 0.7080 | 0.6739 | 0.7398 |
| **Perpetrator approach** | 0.6392 | 0.6023 | 0.6744 |
| **Victim control** | 0.5299 | 0.4915 | 0.5681 |

**CURRICULUM VITAE**

# Rose Hennessy, MPH

University of Wisconsin – Milwaukee * Milwaukee, WI
**Doctoral Candidate, Community & Behavioral Health Promotion (ABD)**
Associate Lecturer, Helen Bader School of Social Welfare
Teaching Assistant, Joseph J Zilber School of Public Health
Research Assistant, Joseph J Zilber School of Public Health

## EDUCATION

**PhD in Public Health: Community & Behavioral Health Promotion**

Joseph J Zilber School of Public Health, University of Wisconsin- Milwaukee
Milwaukee, WI
August 2020

**Master of Public Health: Community Health Sciences**

UCLA Fielding School of Public Health
Los Angeles, CA
December, 2011

**Bachelor of Arts: Biology, Society, & Environment**, Minors: Spanish & Social Justice

University of Minnesota- Twin Cities
Summa Cum Laude
May, 2008

## AWARDS

**APHA Women's Caucus Honorable Mention Highest Scoring Student Abstract** ***2018***
Women's Caucus of the American Public Health Association
Submission: *A Unified Model to Prevent Sexual Aggression on Campus*

**UW-Milwaukee Women's & Gender Studies Student Research Contest Winner** ***2018***
3rd place Graduate Research. Submission: *Caring for the Caregiver: Exploring the Intersections of Identity for African American Breast Cancer Survivors*

**UW-Milwaukee Health Research Symposium First Place Podium Presenter** ***2018***
1st place of ten invited podium presenters among sixty abstracts from graduate students in the College of Health Sciences, College of Nursing, School of Public Health, and School of Social Work at the University of Wisconsin-Milwaukee.
Submission: *A Unified Model to Prevent Sexual Aggression on Campus*

**Polanki College Achievement Scholarship Award** ***2017***
Award provided from UW-Milwaukee on academic achievement and submission of a research paper: *The Public Health Response to Sexual Assault in Poland and the United States*

# TEACHING EXPERIENCE

**PH427: Strategies for Action in Public Health**
Spring 2020
Newly developed undergraduate course; public health students
Independent Teaching Assistant, Joseph J Zilber School of Public Health, UW- Milwaukee

**PH758: Social Epidemiology**
Fall 2019
Graduate course; combined PhD and MPH students
Independent Teaching Assistant, Joseph J Zilber School of Public Health, UW- Milwaukee

**SW794: Evaluation of Programs**
Summer 2017; Fall 2017; Spring 2018; Summer 2018; Fall 2018; Summer 2019; Summer 2020
Graduate course; MSW students
Associate Lecturer, Helen Bader School of Social Welfare, UW-Milwaukee

**PH101: Introduction to Public Health (online)**
Fall 2018; Spring 2019; Summer 2019
Undergraduate course; interdisciplinary majors
Independent Teaching Assistant, Joseph J Zilber School of Public Health, UW- Milwaukee

**PH101: Introduction to Public Health**
Fall 2017; Spring 2018
Undergraduate course; interdisciplinary majors
Lecturer on Causal Inference, Behavior Change Theory, Sexual Violence Prevention
Teaching Assistant under Keith Dookeran, Joseph J Zilber School of Public Health, UW- Milwaukee

**PH306: Adolescent Health & Development**
Spring 2016
Undergraduate course; interdisciplinary majors
Lecturer on Adolescent Sexuality & Health, Teen Dating Violence Prevention
Teaching Assistant under Paul Florsheim, Joseph J Zilber School of Public Health, UW- Milwaukee

**Evaluation Learning Collaborative**
January – October 2013
Developed and led evaluation instruction to nine sexual assault service agencies in Wisconsin
(7 webinars and 2 in-person trainings)
Instructor, Wisconsin Coalition Against Sexual Assault * Madison, WI

**PH M106: Latino Health**
Winter, 2011
Undergraduate course, interdisciplinary majors
Course Administrator under David Hayes-Bautista, Fielding School of Public Health, UCLA

**Group Fitness Classes**
2011- Current
Instruction of group fitness classes including HIIT, Strength, Bootcamp, Zumba, Step, Core, and Workplace Wellness to university students and staff at UCLA & UW-Milwaukee.

# RESEARCH & EVALUATION WORK HISTORY

**Research Assistant – Breast Cancer Racial Health Disparities** ***February 2018 - Current***
Joseph J Zilber School of Public Health, University of Wisconsin – Milwaukee *Milwaukee, WI

- Role 2 under Dr. Keith Dookeran (current): Compiled findings of a literature search on disparities of triple negative breast cancer in Indian and Nepalese women; Contributed to proposal to study the etiology and tumor subtype of cancer in the Kathmandu Valley of Nepal (proposal is under review); Submitting request to the Nurse's Health Study II to conduct a mediation analysis between childhood sexual abuse, early maturation, and breast cancer
- Role 1 under Dr. Alice Yan (previous): Gathered and analyzed data from Wisconsin's WISH database on breast cancer; Compiled and presented research to community and academic audiences; Co-coordinated a conference to eliminate cancer disparities in young African American women in Wisconsin

**Program Evaluator / Research Assistant** ***January 2016 – September 2017***
Socially Responsible Evaluation in Education, University of Wisconsin – Milwaukee * Milwaukee, WI

- Served as an evaluator on a collaborative team in an external evaluation office focused on education
- Facilitated participatory-evaluation for the federally-funded college readiness GEAR UP grant offered in Milwaukee Public Schools
- Assisted in implementing the state-level mandated Educator Effectiveness evaluation and disseminating results to school districts throughout Wisconsin

**Prevention & Evaluation Coordinator** ***March 2013 – December 2015***
Wisconsin Coalition Against Sexual Assault * Madison, WI

- Coordinated and provided evaluation and prevention training and technical assistance for local and statewide primary prevention programs against sexual assault
- Evaluated and disseminated agency practices, trainings, primary prevention programs, and statewide prevention data
- Worked in collaboration with the Department of Health Services to implement the Rape Prevention and Education Grant from the Centers for Disease Control and Prevention (CDC)

**Prevention Coordinator** ***August 2012 – March 2013***
Wisconsin Coalition Against Domestic Violence (End Domestic Abuse Wisconsin) * Madison, WI

- Coordinated and provided technical assistance for local and statewide primary prevention programs against domestic violence
- Advised and led statewide prevention initiatives including the Prevention Committee of the Wisconsin Governor's Council on Domestic Abuse
- Evaluated agency practices, trainings, and primary prevention programs
- Adapted research for non-academic communities, developing and disseminating resources and trainings

**Research Assistant & Care Coordinator** ***June 2011 – July 2012***
The Children's Institute, Inc. * Los Angeles, CA

- Created Spanish/English bilingual data management systems and participant reporting templates
- Collaborated with domestic violence group leaders to provide ongoing program evaluation
- Provided in-home therapeutic services and case management in Spanish for children and their caregivers
- Evaluated a domestic violence advocate-police response program using mixed methods
- Provided statistics for fiscal year reports and dissemination materials

# PUBLICATIONS

Yan, A., Millon-Underwood, S., Walker, A., Nevels, D., Dookeran, K.A., **Hennessy, R.**, Knobloch, M.J., Egede, L., & Stolley, M. (2019) Engaging Young African American Women Breast Cancer Survivors: A novel storytelling approach to identify patient-centered research priorities. *Health Expectations*.

# SERVICE, COMMUNITY ENGAGEMENT, AFFILIATIONS

**American Evaluation Association: Member** ***2013 - Current***
Membership in the following Topical Interest Groups: Feminist Issues in Evaluation; Nonprofit and Foundations; Collaborative, Participatory, & Empowerment Evaluation; Integrating Technology into Evaluation

**Wisconsin Public Health Association Member** ***2013 – Current***
Member and conference presenter

**Graduate Program Committee PhD Student Representative** ***2018- 2020***
Joseph J Zilber School of Public Health
University of Wisconsin - Milwaukee

**Vice President** ***2019- 2020***
Public Health Graduate Student Association
Joseph J Zilber School of Public Health
University of Wisconsin - Milwaukee

**Volunteer / Communications Committee Co-Chair** ***2016 – 2019***
¡Milwaukee Evaluation!, the Wisconsin affiliate of the American Evaluation Association
Social-justice orientated affiliate focused on culturally responsive evaluation

**Project Advisory Group Member** ***2017 - 2018***
Wisconsin Statewide Domestic Violence Prevention Initiative
End Domestic Abuse Wisconsin – Madison, WI

# TRAININGS & PRESENTATIONS

**National Level Trainings**

**Beyond bystander intervention: The good, the bad, and the ugly**
*August 21st, 2019*
National Sexual Assault Conference * Philadelphia, PA

**Intimate partner violence as a risk factor for pregnancy/birth complications among young expectant mothers: Who to ask? *(Contributor, not a presenter)***
*March 8th, 2019*
Society for Behavioral Medicine Annual Conference * Washington, D.C.

**4069.0 A unified model to prevent sexual aggression on campus** within 4069.0 Preventing sexual assault on college campuses, Women's Caucus
*November 13th, 2018*
American Public Health Association Annual Conference * San Diego, CA

**It's your turn to be heard! How to write a conference proposal**
*November 3rd, 2018*
American Evaluation Association Annual Conference * Cleveland, OH

**Raising student voice, modeling shared power, and promoting multiple truths: nine strategies to teach program evaluation to graduate students**
*November 1st, 2018*
American Evaluation Association Annual Conference * Cleveland, OH

**What do we know and where do we go? Reviewing the past decade of research to prevent sexual aggression on campus**
*August 29th, 2018*
National Sexual Assault Conference * Anaheim, CA

**Let's do it together! Creating logic models using collaborative, participatory, and empowerment approaches**
*June 9th, 2017*
National Sexual Assault Conference * Dallas, TX

**Designing logic models: Traditional, collaborative, participatory, and empowerment approaches**
*October 28th, 2016*
American Evaluation Association Conference * Atlanta, GA

**I can do and I will do: Implementing a credit recovery model to promote grade level for "at-risk" students**
*July 19th, 2016*
NCCEP/GEAR UP Annual Conference * Washington, DC

**Empowered to evaluate: Skill-building to demystify qualitative analysis**
*April 2nd, 2016*
RespectCon: Understanding Sexual Violence Through a Social Justice Lens * Atlanta, GA

**Using and promoting Epi Info in nonprofit empowerment evaluation**
*November 13th, 2015*
American Evaluation Association Conference * Chicago, IL

**Determining condom use in adolescence from survivors of physically-forced sexual assault** (poster)
*November 3, 2015*
American Public Health Association Conference * Chicago, IL

**Que hago con todo este texto? Analisís cuantitativo** (Repeated in English below)
*September 3rd, 2015*
National Sexual Assault Conference * Los Angeles, CA

**What do I do with all this text? Qualitative analysis**
*September 2nd, 2015*
National Sexual Assault Conference * Los Angeles, CA

**Core concepts for child sexual abuse prevention**
*September 2nd, 2015*
National Sexual Assault Conference * Los Angeles, CA

**10 tangible tips for empowerment / equity-focused evaluation**
*September 1st, 2015*
Rape Prevention & Education Leadership Conference * Los Angeles, CA

**Creating a Google spreadsheet for multisite reporting using a participatory approach**
*October 17th, 2014*
American Evaluation Association * Denver, CO

**State & Local Level Trainings in Wisconsin**

**Teaching the class that no one wants to take! Seven empowering teaching strategies to help students learn . . . and maybe even like it?**
*January 10th, 2019*
UW-Milwaukee Teaching & Learning Symposium * Milwaukee, WI

**Sexual misconduct training & victim advocacy**
*June 19th, 2019*
Pioneer Drum & Bugle Corps * Cudahy, WI

**How can we prevent victimization and perpetration among all genders? A unified model to prevent sexual aggression on campus (poster)**
*May 23rd, 2018*
Wisconsin Public Health Association Conference * Green Bay, WI

**The nuts and bolts of program planning: Improving neighborhood health through strategic design (preconference session)**
*May 23rd, 2017*
Wisconsin Public Health Association Conference * Wisconsin Dells, WI

**What to do with all this text? Demystifying qualitative analysis**
*May 26th, 2016*
Wisconsin Public Health Association Conference * Appleton, WI

**What to do with all this text? Demystifying qualitative analysis**
*March 18th, 2016*
Wisconsin Planned Parenthood Conference * Milwaukee, WI

**Teen sexual abuse: What professionals need to know for prevention & response**
*October 13th, 2015*
Wisconsin Health & Physical Education Conference * Wisconsin Dells

**Youth prevention**
*July 22nd, 2015*
Northern Training for Domestic Violence & Sexual Assault * Danbury

**Channeling social media for social change: Case studies in sexual violence prevention**
*May 20th, 2015*
Wisconsin Public Health Association Conference * Wisconsin Dells

**Collaborations & partnerships to address violence from a public health perspective**
*May 20th, 2015*
Wisconsin Public Health Association Conference * Wisconsin Dells

**Teen sexual abuse: What professionals need to know for prevention & response**
*April 16th, 2015*
Together for Children Conference * Lake Geneva

**Teen sexual abuse: What professionals need to know for prevention & response**
*February 5th, 2015*
Adolescent Health Symposium * Madison

**What is Rape Culture? How do we end it?**
*November 11th, 2014*
Youth Partners in Civic Leadership Retreat * Southeastern Wisconsin

**How rape culture impacts my patients and my community**
*June 6th, 2014*
Building Networks Conference * Madison

**Part of the Solution: Responding to Sexual Assault**
*April 2nd, 2014*
Wisconsin Family Planning & Reproductive Health Association Conference * Wausau

**<u>Webinar Trainings</u>**

**Ask the Researcher: Beyond Intervening: Strengths, Limitations, & Implications for Bystander Intervention Research**
*January, 2020*
Hosted by: The National Sexual Violence Resource Center

**Making your prevention snap, crackle, and POP: Principles of prevention**
*January 18th, 2017*
Hosted by: Georgia Network to End Sexual Assault

**Moving beyond the individual into multilevel prevention: Breaking down the socio-ecological model**
*January 11th, 2017*
Hosted by: Georgia Network to End Sexual Assault

**Prevention initiatives in Wisconsin: What's going on and how to get involved**
*June 22nd, 2015*
Hosted by: Wisconsin Coalition Against Sexual Assault

**American Evaluation Association (AEA) coffee break: Evaluation using google sheets**
*April 2nd, 2015*
Hosted by: American Evaluation Association

**Building networks: Best practices in assessment and referral**
*June 2nd, 2014*
Hosted by: Wisconsin Coalition Against Sexual Assault

**CDC Epi Info: Three part skills series**
*August 14th, 2013*
Hosted by: Wisconsin Coalition Against Sexual Assault

**Integrating primary prevention**
*October 8th, 2013*
Hosted by: Wisconsin Coalition Against Sexual Assault

**Introduction to evaluation**
*March 11th, 2013*
Hosted by: Wisconsin Coalition Against Sexual Assault