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ABSTRACT

This study evaluates the impact of a theory- and empirical evidence- based 20-minute video, *Intervene*, on college students' intentions to intervene on behalf of others in multiple problematic situations: an alcohol emergency, emotional distress, hazing, intimate partner violence, racial bias, sexual assault, and sexual harassment. A randomized controlled trial of undergraduate and graduate students (*N* = 1,243) was conducted to determine the effectiveness of the video as an intervention for increasing students' self-reported likelihood to engage in pro-social bystander behavior across these various situations. Results showed that participants who viewed the video online reported higher likelihood at 4 weeks post-viewing to intervene in situations involving hazing, intimate partner violence, racial bias, and sexual harassment than did their control group counterparts. *Intervene* is the first video-based bystander education intervention shown to be effective, even 4 weeks after viewing, at increasing college students' self-reported likelihood to intervene in multiple problematic social situations. Providing access to this free online video represents a cost-effective prevention and communication strategy that can be employed by other colleges and universities.

Sexual violence, high-risk drinking, hazing, emotional distress, and bias are prevalent problems on college campuses. According to the American College Health Association (ACHA) Spring 2018 National College Health Assessment, within the previous year, 10.2% of undergraduate students reported experiencing nonconsensual sexual touching and 9.6% of students were in an intimate relationship that was emotionally abusive (American College Health Association [ACHA], 2018). In the same time period, 41.9% of students reported feeling so depressed that it was difficult to function (ACHA, 2018). Additionally, the 2017 Monitoring the Future National Survey found that 33% of college students reported having 5 or more drinks of alcohol in a row on at least 1 occasion in the 2 weeks prior to the survey (Schulenberg et al., 2018). Also a national study found that 55% of college students who were involved in a group, team, or organization had experienced at least one hazing-related behavior during college (Allan & Madden, 2012). Using a public health approach is critical to preventing and addressing these complex problems for college students, which have an impact on individuals as well as on organizations and the larger campus community (Davidson & Locke, 2010). Although the behavioral dynamics vary across these college health problems, bystander interventions by peers and other community members can play an important role in successfully interrupting and preventing further harm.

Bystander intervention

A number of studies have explored various factors that support or prevent people from acting on behalf of others in emergencies or other problematic situations across various age groups including adults and adolescents; this phenomenon is sometimes referred to as pro-social bystander behavior (Darley & Latané, 1968; Latané & Darley, 1970). The pro-social bystander intervention model suggests that bystanders go through a series of steps in order to intervene in a problematic situation: (1) notice a behavior or an event, (2) interpret behavior or event as problematic, (3) feel a sense of personal responsibility to act, (4) decide what to do, and (5) implement action (Latané & Darley, 1970). This model has been applied to multiple topics including bullying (Thornberg & Jungert, 2013), alcohol emergencies (Lewis & Marchell, 2006), and sexual violence (Banyard, Moynihan, & Plante, 2007; Banyard, Plante, & Moynihan, 2004; Coker et al., 2011, 2015). Various individual differences and situational variables have been demonstrated to be crucial factors in whether or not an individual will intervene (Bennett, Banyard, & Garnhart, 2014). The gender of the bystander and familiarity or relationship to the victim (e.g., friend, stranger, etc.) are two such factors. Across several studies, women show greater intent to intervene (Burn, 2009), intervention efficacy (Amar, Sutherland, & Laughon, 2014), and recognition of and sympathy with potential victims (Thornberg & Jungert, 2013) than do men. Interveners who have closer relationships with

those in need – for example, closer friendship or more frequent contact – also show increased helping behavior (Bell, Grekul, Lamba, Minas, & Harrell, 2001; Levine, Prosser, Evans, & Reicher, 2005).

To date, many bystander intervention programs have focused on the prevention of sexual violence among college students and high school students through participation in face-to-face workshops. For example, *Bringing in the Bystander*, a one-session 90-minute in-person training (with a three session 90-minute version), is designed to explore options for bystanders to use in different situations involving sexual violence (Banyard et al., 2007, 2004). The *Green Dot Intervention Program*, which consists of a 50-minute motivational speech followed by an optional four to 6 hour intensive education session(s), was developed to increase active bystander behaviors and reduce dating and sexual violence on college campuses (Coker et al., 2011, 2015). The focus on the role of bystanders in preventing sexual violence has been reinforced by federal and state regulations requiring campuses to provide bystander intervention education and ongoing campaigns to prevent sexual violence (Violence Against Women Act, 1994; N.Y. Educ. Law § 6445, 2016).

In addition to sexual violence, college campuses face various other threats to student health and well-being for which researchers have yet to identify empirically tested, effective prevention strategies. The University of Arizona, in conjunction with the National Collegiate Athletic Association (NCAA), developed *Step UP! Be a Leader, Make a Difference*, a prosocial bystander intervention program that educates students to be proactive in helping others. Through facilitated discussions, *Step UP!* aims to: increase students' awareness of "helping behaviors" and motivation to help, encourage students to develop skills, and increase their confidence to respond to problems. The *Step UP!* program offers information about a variety of topics. The efficacy of *Step UP!* has been evaluated in one study to date, which examined effects of the program as administered at the University of Virginia, a member campus (Long, 2012). Pre- and post-intervention survey results suggested that the program was effective at increasing self-reported likelihood of students to assume responsibility in a problem situation and self-reported confidence in effectively intervening with their peers in a problem situation (Long, 2012). 2) Additionally, the program appeared to be more effective for student-athletes than non-student athletes (Long, 2012). American University, another *Step Up!* member campus, developed a five-and-a-half-minute *Step Up!* film. American University's film was the first video to apply bystander intervention across multiple topic areas in an effort to prevent multiple common college health concerns including alcohol poisoning, hazing, intimate partner violence, sexual assault, and suicide. The efficacy of this film, however, has not yet been evaluated.

The *Intervene* video

Building upon these existing bystander intervention programs, Cornell University's Skorton Center for Health Initiatives at Cornell Health developed a 20-min video entitled *Intervene* which models how students can successfully navigate the pro-social bystander intervention model in an authentic fashion, utilizing a variety of strategies to intervene in 7 distinct situations: an alcohol emergency, emotional distress, hazing, intimate partner violence, racial bias, sexual assault, and sexual harassment (see Figure 1).

Video interventions have demonstrated effectiveness in modifying a variety of health behaviors, including increasing health screenings for breast and prostate cancer, sunscreen adherence, and HIV testing (Tuong, Larsen, & Armstrong, 2014; Vaughan & Rogers, 2000). We developed and evaluated a stand-alone video because (a) campuses often have limited resources for addressing pervasive health-related challenges at a population level and (b) a video-based intervention is a less resource-intensive method for delivering educational content than in-person programming (Tuong et al., 2014). We also chose to focus on video as the vehicle for education since many current college students are members of the "millennial" generation who have grown up with the internet, YouTube, social media etc. and are avid consumers of video content (Sherer & Shea, 2011). Online videos are increasingly being used in higher education by faculty and staff alike to engage students in the learning process (Sherer & Shea, 2011). These trends contributed to our decision to develop a video-based approach for college students.

Bandura's social cognitive theory, also commonly known as social learning theory, posits that learning occurs in a social context with a dynamic and reciprocal interaction of the person, the environment, and the behavior (Bandura & Walters, 1963). This theory considers the ways in which individuals acquire and maintain behaviors, with an emphasis on social influence and observational learning. Essentially, people can acquire new behaviors by observing the actions of models and subsequently mimicking those behaviors (Bandura & Walters, 1963). Models are usually people within
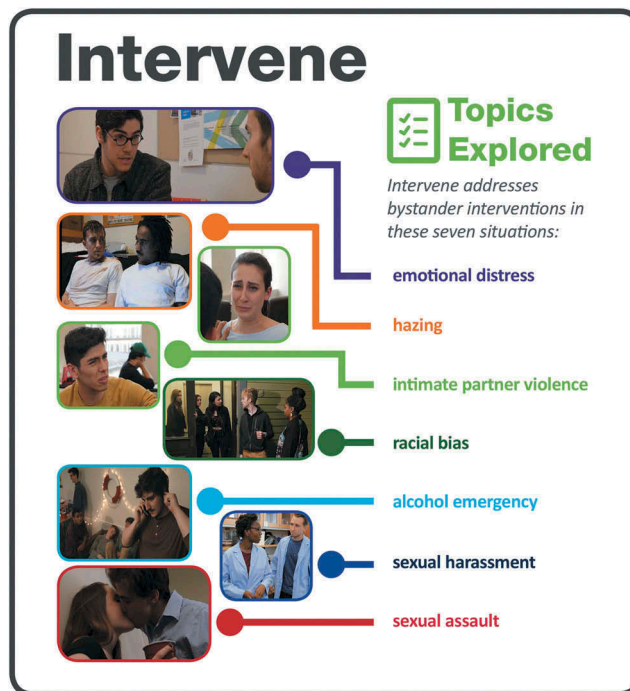

Figure 1. Topics explored in *Intervene*.

an individual's interpersonal network; however, they can also be characters in a mass media message (Bandura, 1997, 2001; Vaughan & Rogers, 2000).

The script for the *Intervene* video was informed by Bandura's social cognitive theory (Bandura, 1997, 2001; Bandura & Walters, 1963) and the pro-social bystander model (Darley & Latané, 1968; Latané & Darley, 1970). College-aged students were used as actors, or models, in the film to increase its authenticity. Each scenario reflects the pro-social bystander intervention model by portraying individuals going through a common set of steps when determining if and how to intervene for any type of situation (Latané & Darley, 1970). For example, in the alcohol emergency scenario, four friends head to an off-campus house party. It is clear that one of the friends "pre-gamed" early and continues drinking heavily at the house party. Later in the evening, one of the friends finds their friend passed out on the floor due to alcohol overconsumption and recognizes this as a problem. Another friend feels responsible that the group should help their friend and, ultimately, one of them decides to call 911 for medical help. In integrating these two theories, the video recognizes that if a student observes a successful bystander intervention performed by a model, that student would feel capable to complete the same behavior successfully. The video's script was also informed by social norms theory, which states that individuals often misperceive attitudes and behaviors of their peers to be less healthy than both their own attitudes and behaviors and the true attitudinal and behavioral norms of their peers (Berkowitz, 2003, 2010; Perkins & Berkowitz, 1986; Prentice & Miller, 1993). A primary goal of the video was to normalize college students intervening in problematic situations.

Intervene is a novel resource in several ways. It expands upon the American University *Step Up!* video by including sexual harassment and racial bias in the video content. The video addresses how to intervene in emergency situations and also demonstrates ways bystanders can intervene before a situation becomes a crisis. The video also portrays how a bystander's role can develop gradually over time, as often is the case with instances of intimate partner violence. *Intervene* addresses how to intervene in problematic situations involving a range of relationships including friends, classmates, roommates, and strangers. Additionally, *Intervene* portrays both undergraduate and graduate students intervening in various problematic situations in order to make the video relevant for all students. An overall goal of *Intervene* is to portray concern for others and willingness to intervene as socially normative responses to problematic situations. *Intervene* helps students view pro-social bystander behaviors as plausible and realistic options for them to adapt.

Present study

The purpose of this study was to evaluate if the *Intervene* video as a stand-alone intervention is effective at increasing students' self-reported likelihood to intervene, immediately post-viewing and at a 4-week follow-up, in a variety of problematic situations similar to those depicted in the film. We were also interested in the potential differential impact of viewing the video on (1) males versus females and (2) undergraduate versus graduate students. We predicted that viewing the video would be associated with larger increases in females' (versus males') self-reported likelihood to intervene across multiple situations and that there would be no differential effect of viewing the video for undergraduate versus graduate students.

Method

Study design, implementation, and participants

We conducted a randomized controlled trial (RCT) to evaluate the impact of viewing the *Intervene* video online among undergraduate and graduate students. Two random, stratified samples were pulled from the Cornell University Registrar database. The control sample was invited to complete a baseline survey online ($n= 799$), and those who did so were invited to complete a 4-week follow-up survey online ($n= 509$). The video sample was invited to complete a pre-video survey online, view the 20-min online film *Intervene*, and complete a post-video survey online ($n= 444$), all in one sitting. Those who submitted a pre-video survey and post-video survey online, were invited to complete a 4-week follow-up survey online ($n= 344$). It should be noted that although 511 participants submitted a pre-video survey online and a post-video survey online, 67 participants completed this portion of the study in less than 20 min, indicating that they could not have possibly viewed the video in its entirely; these participants were excluded from subsequent analyses.

Participants received compensation in the form of electronic gift cards for each phase of the study completed, and compensation amounts were based on estimated average completion time for each phase ($5 for the control baseline survey, $10 for the video condition pre- and post-survey session, and $5 for all 4-week follow-up surveys). Overall, the control and video samples were well-matched on demographics including gender (male or female), race, student status (i.e., undergraduate or graduate student), class year, varsity athlete status, and fraternity/sorority membership status. Both baseline samples consisted of slightly more than half female (56% control; 58% video) participants, predominantly participants of White (38% control, 35% video), International (23% control; 22% video), and/or Asian (15% control; 19% video) racial/ethnic identity, approximately even numbers of undergraduate and graduate participants (with more first-year and sophomore undergraduate participants than upperclassmen), and some undergraduate participants who identified as varsity athletes (5% control; 9% video) or members of social Greek organizations (25% control; 19% video). See Table 1 for additional information about the demographic composition of both baseline groups and both 4-week follow-up groups. Cornell University's Institutional Review Board (IRB) reviewed and approved this study of human subjects. Participants provided informed consent in accordance with IRB standards.

Table 1. Demographic variables for control and video condition samples at baseline and at four-week follow-up.

	Control		Video	
Demographic Variable	Baseline n (Valid %)	4-week follow-up n (Valid %)	Baseline n (Valid %)	4-week follow-up n (Valid %)
Gender				
Female	449 (56.2%)	283 (55.6%)	256 (57.7%)	202 (58.7%)
Male	350 (43.8%)	226 (44.4%)	188 (42.3%)	142 (41.3%)
Race/Ethnicity				
Asian	121 (15.1%)	77 (15.1%)	84 (18.9%)	68 (19.8%)
Black or African American	28 (3.5%)	16 (3.1%)	20 (4.5%)	14 (4.1%)
Native Hawaiian or Other Pacific Islander	1 (0.1%)	1 (0.2%)	0 (0.0%)	0 (0.0%)
Hispanic or Latino	80 (10.0%)	51 (10.0%)	48 (10.8%)	38 (11.0%)
International	181 (22.7%)	108 (21.2%)	97 (21.8%)	71 (20.6%)
Multi-Racial	26 (3.3%)	17 (3.3%)	17 (3.8%)	14 (4.1%)
Unknown	57 (7.1%)	44 (8.6%)	24 (5.4%)	20 (5.8%)
White	305 (38.2%)	195 (38.3%)	154 (34.7%)	119 (34.6%)
Student Status				
Undergraduate	414 (51.8%)	259 (50.9%)	222 (50.0%)	168 (48.8%)
Graduate/Professional	385 (48.2%)	250 (49.1%)	222 (50.0%)	176 (51.2%)
Class Year (undergraduate)				
First Year	117 (28.3%)	80 (30.9%)	80 (36.0%)	53 (31.5%)
Sophomore	108 (26.1%)	60 (23.2%)	54 (24.3%)	42 (25.0%)
Junior	99 (23.9%)	67 (25.9%)	53 (23.9%)	43 (25.6%)
Senior	90 (21.7%)	52 (20.1%)	35 (15.8%)	30 (17.9%)
Varsity Athlete (undergraduate)				
Yes	21 (5.1%)	10 (3.9%)	19 (8.6%)	15 (8.9%)
No	392 (94.9%)	248 (96.1%)	203 (91.4%)	153 (91.1%)
Greek (undergraduate)				
Yes	104 (25.2%)	59 (23.0%)	43 (19.4%)	36 (21.4%)
No	308 (74.8%)	198 (77.0%)	179 (80.6%)	132 (78.6%)
TOTAL (n)	**799**	**509**	**444**	**344**

Materials

Video

The Skorton Center for Health Initiatives developed the 20-minute stand-alone film *Intervene* in conjunction with the Cornell Interactive Theater Ensemble and Photosynthesis Productions. The video includes brief scenarios portraying ways in which student bystanders can successfully intervene in seven problematic situations including an alcohol emergency, emotional distress, hazing, intimate partner violence, racial bias, sexual assault, and sexual harassment. Here is a brief description of each of the scenarios in the order in which they take place in the video:

(1) Sexual assault – At a house party, a male bystander notices a couple kissing against a wall and it is clear the female student has had a lot to drink and the male student is being sexually aggressive. The bystander asks someone standing near him if she knows them and is directed to a group of friends in another part of the room. The bystander approaches this group and points out that their female friend may need some help. A group member checks in on this friend and realizes the group needs to do something.

(2) Racial bias – A group of four female friends are waiting in line to a party. When the group reaches the front door, the white women in the group are invited inside and the black woman of the group is denied access. The group of friends address the white man at the front door and the women decide to leave the party together.

(3) Hazing – Two male roommates are in their residence hall room studying for a test one night. One of them receives a text and abruptly starts getting ready and leaves. Later that night he returns disoriented, disheveled, and exhausted, waking up his roommate. His roommate is concerned about his well-being and feels responsible to do something.

(4) Emotional distress – A young graduate student is sitting in an academic hallway, visibly upset, talking on the phone, holding a marked up paper. An older graduate student passing by overhears the phone conversation and decides to say something.

(5) Sexual harassment – A group of graduate students in a science lab are being given instructions that require the post-doc to demonstrate the protocol. The Post-doc asks the only female in the class to hang back and clean up while he takes the male students away to demonstrate. He then makes a sexist comment about the female student. Two male students are clearly uncomfortable and decide to offer their support to her.

(6) Intimate partner violence – Two friends are getting coffee catching up since they haven't seen each other for a while. While talking it's clear that the female friend is in an unhealthy relationship with her boyfriend, as she receives multiple text messages that escalate in severity and prevent her from being present with her male friend. Her friend expresses his concern, but she is resistant to this feedback. A few weeks later, she approaches her male friend and admits that the relationship has gotten worse. She shares that she has made an appointment to talk with someone, and she asks her male friend to go with her for support.

(7) Alcohol emergency – In this scenario, four male friends head to a house party. One of them pre-gamed early and continued drinking heavily at the house party. When he passes out due to alcohol poisoning, his friends debate whether or not to call 911 or just let him sleep it off. Eventually they make the decision to call 911 for help.

The development of *Intervene* was informed by American University's *Step Up!* video, focus groups conducted with Cornell undergraduate and graduate students, Cornell's campus survey research on the prevalence of various problematic behaviors, and interviews with key stakeholders, including students, staff, and administrators. Once the script was drafted, it was then further reviewed by students, staff, and administrators who helped finalize the language and confirm that the script authentically depicted common, real-life situations that college students encounter. *Intervene* was designed to be used primarily among undergraduate and graduate college students, with secondary audiences including high school students, university staff, faculty, alumni, and parents. See Supplemental Online Materials for full video.

Survey measures

In order to evaluate participants' likelihood of engaging in pro-social bystander behavior for each specific situation depicted in the video, we developed a survey measure that condensed the five-step bystander model into three questions assessing (1) the extent to which participants would consider a particular situation to be a problem, (2) the extent to which participants would feel responsible to do something in a particular situation, and (3) how likely a participant would be to intervene somehow in a particular situation. Participants responded to each question along a four-point Likert scale. These 5 questions (3 pro-social bystander model and 2 social norms) were asked for 12 different situations, 7 of which were directly portrayed in *Intervene*. Here are how the scenarios portrayed in the film correspond to the scenarios described on the survey instrument: The sexual assault scenario in the film corresponds with Scenario 6 and Scenario 7 on the survey instrument. We selected Scenario 7, describing intervening on behalf of a female whom you don't know on the survey instrument to represent this situation in our results. The racial bias scenario in the film corresponds with Scenario 12 on the survey instrument. The hazing scenario in the film corresponds with Scenario 5 on the survey instrument. The emotional distress scenario in the film corresponds with Scenario 10 on the survey instrument. The sexual harassment scenario in the film corresponds with Scenario 8 on the survey instrument. The intimate partner violence scenario in the film corresponds with Scenario 9 on the survey instrument. The alcohol emergency scenario in the film corresponds with Scenario 1 on the survey instrument. There are additional scenarios on the survey instrument (2, 3, 4, and 11) that describe scenarios that were not portrayed in the film. We do not present that information in this paper. See Appendix A for the full survey instrument. The survey also asked questions to assess their perception of the social norm of intervening in a particular situation (e.g., what participants thought most of their peers would think and what participants themselves thought about how socially acceptable it would be to intervene in a particular situation).

Statistical analysis

Descriptive statistics were calculated for all variables (see Tables 1 and 2). Inferential analyses evaluated effectiveness of the video for increasing self-reported likelihood to intervene in the seven situations depicted in the film. Likelihood to intervene, as an attitudinal proxy for the final step of the bystander intervention model, action, was our primary variable of interest. Nonparametric analysis allowed for comparison of responses on our ordinal variables of interest. We utilized nonparametric Wilcoxon signed-rank and Mann–Whitney U tests for within- and between-subjects differences, respectively. We first compared baseline video condition responses to immediately post-viewing video condition responses as a check of our experimental manipulation (i.e., viewing the video). We then compared control and video treatment responses at 4-week follow-up.

In order to better understand the role of gender (male or female, in this sample) and of student status (undergraduate or graduate, in this sample) among the various influences on self-reported likelihood to intervene after 4 weeks, we integrated these and other hypothesized factors into more comprehensive models. This analysis entailed the creation of ordinal logistic regression models to predict reported likelihood of intervening at the 4-week follow-up. To model likelihood to intervene at the 4-week follow-up in response to each situation featured in the film, we included condition (control, video) × gender (male, female), condition (control, video) × student status (undergraduate, graduate), and baseline likelihood to intervene as factors.

For all tests, statistical significance was determined by alpha levels of $p < .05$. All analyses were performed using IBM SPSS Statistics Version 24.

Results

RCT of video: Effectiveness of video immediately post-viewing and 4-weeks after viewing

Participants in the video condition reported being more likely to intervene across all seven situations immediately post-viewing the video than before viewing the video (baseline) (see Table 3). After 4 weeks, those who had seen the video reported being more likely to intervene across 4 of the 7 situations than were their control group counterparts (see Table 3). Those who saw the video were significantly more likely to intervene when encountering: (1) hazing; (2) intimate partner violence; (3) racial bias; and (4) sexual harassment (see Figure 2).

Modeling self-reported likelihood to intervene at 4-week follow-Up

Significant interaction between condition and gender at 4-week follow-up: Females report higher likelihood of intervening after viewing the video

When controlling for self-reported likelihood to intervene at baseline, there was a significant interaction effect between condition and gender. The odds of female participants in the video condition indicating higher likelihood to intervene at 4-week follow-up were significantly greater than for male participants, across 6 out of the 7 topics in the video: alcohol emergency, emotional distress, hazing, intimate partner violence, sexual assault, and sexual harassment. The odds of female participants in the video condition indicating higher likelihood to intervene at 4-week follow-up in a situation

Table 2. Self-reported likelihood of intervening – frequencies and valid percentages.

Self-reported likelihood of intervening item response frequencies: 7 situations shown in the film	Control			Video		
	Baseline (n = 799)	N/A	4-week follow-up (n = 509)	Baseline (n = 444)	Post treatment (n = 444)	4-week follow-up (n = 344)
Alcohol Emergency		N/A				
Not at all likely	28 (3.5%)		11 (2.2%)	14 (3.2%)	5 (1.1%)	6 (1.8%)
2	83(10.4%)		81 (16.2%)	62 (14.1%)	22 (5.0%)	43 (12.6%)
3	263 (33.0%)		170 (33.9%)	139 (31.5%)	131 (29.9%)	119 (34.9%)
Very likely	424 (53.1%)		239 (47.7%)	226 (51.2%)	280 (63.9%)	173 (50.7%)
Emotional Distress		N/A				
Not at all likely	162 (20.4%)		75 (14.9%)	84 (19.0%)	25 (5.6%)	51 (14.9%)
2	305 (38.5%)		188 (37.2%)	192 (43.3%)	117 (26.4%)	121 (35.4%)
3	236 (29.8%)		186 (36.8%)	119 (26.9%)	194 (43.8%)	116 (33.9%)
Very likely	90 (11.3%)		56 (11.1%)	48 (10.8%)	107 (24.2%)	54 (15.8%)
Hazing		N/A				
Not at all likely	107 (13.5%)		62 (12.4%)	62 (14.1%)	16 (3.7%)	28 (8.1%)
2	282 (35.5%)		154 (30.9%)	148 (33.6%)	78 (17.9%)	80 (23.3%)
3	252 (31.7%)		181 (36.3%)	156 (35.5%)	150 (34.4%)	142 (41.3%)
Very likely	153 (19.3%)		101 (20.3%)	74 (16.8%)	192 (44.0%)	94 (27.3%)
Intimate Partner Violence		N/A				
Not at all likely	80 (10.1%)		32 (6.3%)	39 (8.9%)	6 (1.4%)	11 (3.2%)
2	265 (33.5%)		128 (25.4%)	133 (30.3%)	56 (12.6%)	67 (19.6%)
3	255 (32.3%)		196 (38.9%)	144 (32.8%)	166 (37.5%)	133 (39.0%)
Very likely	190 (24.1%)		148 (29.4%)	123 (28.0%)	215 (48.5%)	130 (38.1%)
Racial Bias		N/A				
Not at all likely	92 (11.6%)		43 (8.5%)	56 (12.8%)	13 (2.9%)	14 (4.1%)
2	242 (30.6%)		137 (27.2%)	139 (31.7%)	72 (16.3%)	88 (25.7%)
3	262 (33.2%)		178 (35.4%)	145 (33.0%)	168 (38.0%)	111 (32.4%)
Very likely	194 (24.6%)		145 (28.8%)	99 (22.6%)	189 (42.8%)	130 (37.9%)
Sexual Assault		N/A				
Not at all likely	81 (10.2%)		51 (10.2%)	49 (11.0%)	18 (4.1%)	29 (8.5%)
2	209 (26.4%)		125 (24.9%)	114 (25.7%)	65 (14.7%)	75 (21.9%)
3	242 (30.5%)		181 (36.1%)	138 (31.1%)	156 (35.3%)	137 (40.1%)
Very likely	261 (32.9%)		145 (28.9%)	143 (32.2%)	203 (45.9%)	101 (29.5%)
Sexual Harassment		N/A				
Not at all likely	65 (8.2%)		30 (6.0%)	33 (7.5%)	7 (1.6%)	16 (4.7%)
2	209 (26.5%)		97 (19.3%)	110 (24.9%)	50 (11.4%)	52 (15.2%)
3	270 (34.2%)		209 (41.6%)	156 (35.4%)	162 (36.8%)	131 (38.4%)
Very likely	246 (31.1%)		167 (33.2%)	142 (32.2%)	221 (50.2%)	142 (41.6%)

Table 3. Results of nonparametric tests of self-reported likelihood to intervene.

Wilcoxon signed-rank: Video Baseline/Post-Video (Within subjects)		z	p		Mean Rank Baseline	Mean Rank Post-Video
Alcohol Emergency		−6.85	0.000	***	78.74	90.37
Emotional Distress		−11.67	0.000	***	93.80	123.34
Hazing		−11.87	0.000	***	119.27	132.41
Intimate Partner Violence		−11.39	0.000	***	92.98	116.60
Racial Bias		−11.71	0.000	***	97.44	122.21
Sexual Assault		−8.44	0.000	***	94.16	106.43
Sexual Harassment		−10.13	0.000	***	90.86	109.85
Mann–Whitney U: Video/Control 4-week follow-up (Between subjects)	U	z	p		Mean Rank Control	Mean Rank Video
Alcohol Emergency	81,531.00	−1.23	0.220	n.s.	413.74	432.91
Emotional Distress	83,294.50	−0.92	0.356	n.s.	417.94	432.95
Hazing	73,736.00	−3.61	0.000	***	397.56	456.15
Intimate Partner Violence	75,042.00	−3.31	0.001	**	401.39	454.94
Racial Bias	76,592.00	−2.91	0.004	**	404.27	451.70
Sexual Assault	82,542.00	−1.00	0.319	n.s.	415.93	432.15
Sexual Harassment	77,305.50	−2.59	0.009	**	405.69	447.30

***Denotes $p < 0.001$ and **denotes $p < 0.01$.

involving: (1) an alcohol emergency was 1.80 times that of male participants; (2) emotional distress was 1.77 times that of male participants; (3) hazing was 1.51 times that of male participants; (4) intimate partner violence was 2.16 times that of male participants; (5) sexual assault was 1.68 times that of male participants; and (6) sexual harassment was 1.58 times that of male participants (see Table 4).

No interaction between condition and student status (undergraduate vs. graduate) at 4-week follow-up

When controlling for self-reported likelihood to intervene at baseline, the odds of undergraduate student participants in the video condition indicating higher likelihood to intervene at 4-week follow-up were no different than for graduate student participants, across all 7 situations (see Table 4).

Figure 2. Percent of respondents who reported being likely to intervene in various scenarios at 4-week follow-up.

Discussion

The results of this study supported the hypothesis that the video as a stand-alone intervention was effective at increasing students' reported likelihood to intervene across all seven situations portrayed in the film immediately post-viewing. Moreover, participants who viewed the video online (versus their control group counterparts) reported higher likelihood to intervene even after 4 weeks post-viewing in 4 of the 7 scenarios: racial bias, hazing, intimate partner violence, and sexual harassment. These results indicate that a 20-min video can have sustained effects on college students' intentions to intervene, and colleges and universities grappling with delivering bystander intervention educational trainings could use this no-cost intervention to effect positive change.

For the other three situations (sexual assault, emotional distress, and alcohol emergency), the positive impact of the video identified immediately post-viewing was no longer significant at 4 weeks after viewing the video. One factor that may have contributed to the lack of a sustained impact is a potential ceiling effect for the alcohol emergency and sexual assault situations. Notably, the baseline level of self-reported likelihood of intervening was highest for the alcohol emergency and sexual assault situations. These relatively high baseline levels may reflect the campus-wide educational campaigns and policies Cornell University has implemented promoting bystander intervention for alcohol emergencies

and sexual assault. For example, Cornell University requires all incoming students to attend an in-person training on how to intervene to prevent sexual assault. The university also requires all incoming students to complete an online alcohol education program before arriving on campus; this program reviews the signs of alcohol poisoning and includes information about the New York State Good Samaritan Law and Cornell's Good Samaritan Protocol, which were designed to encourage bystanders to call for medical assistance when they see the signs of an alcohol emergency. Since the baseline levels of self-reported likelihood to intervene in these types of situations were high, there was less room for increases to occur from exposure to other educational strategies such as *Intervene.*

Two of the three scenarios in which the effect was not sustained (emotional distress and sexual assault) depicted a stranger taking action on behalf of a person in need. The emotional distress and sexual assault scenarios were the only situations in the film that depicted how to help a stranger, rather than a friend, roommate, or classmate. Therefore, one possible explanation for the lack of a sustained effect is that students may be less comfortable intervening on behalf of someone they do not know, especially when they are experiencing some form of emotional distress or vulnerability. Lack of familiarity between the person in need of help and the person willing to intervene may be a particularly important barrier to acting, as previous work has shown that interveners

Table 4. Results of ordinal logistic regression models for self-reported likelihood to intervene at 4-week follow-up.

Variable Interactions, by Situation	B	Odds Ratio	SE	95% CI Lower	95% CI Upper	Wald χ^2	df	p	
Alcohol Emergency									
Condition (Video) × Gender (Female vs. Male)	0.59	1.80	0.22	0.16	1.02	7.09	1	0.008	**
Condition (Video) × Student Status (Grad vs. UG)	0.01	1.01	0.22	−0.42	0.45	0.00	1	0.950	n.s.
Emotional Distress									
Condition (Video) × Gender (Female vs. Male)	0.57	1.77	0.21	0.16	0.98	7.28	1	0.007	**
Condition (Video) × Student Status (Grad vs. UG)	0.21	1.23	0.21	−0.19	0.62	1.06	1	0.303	n.s.
Hazing									
Condition (Video) × Gender (Female vs. Male)	0.41	1.51	0.21	0.00	0.82	3.87	1	0.049	*
Condition (Video) × Student Status (Grad vs. UG)	0.20	1.22	0.21	−0.21	0.61	0.93	1	0.335	n.s.
Intimate Partner Violence									
Condition (Video) × Gender (Female vs. Male)	0.77	2.16	0.22	0.34	1.20	12.46	1	0.000	***
Condition (Video) × Student Status (Grad vs. UG)	0.35	1.42	0.22	−0.08	0.77	2.57	1	0.109	n.s.
Racial Bias									
Condition (Video) × Gender (Female vs. Male)	0.30	1.35	0.21	−0.12	0.72	1.96	1	0.162	n.s.
Condition (Video) × Student Status (Grad vs. UG)	0.16	1.17	0.21	−0.26	0.57	0.56	1	0.454	n.s.
Sexual Assault									
Condition (Video) x Gender (Female vs. Male)	0.52	1.68	0.21	0.11	0.92	6.25	1	0.012	*
Condition (Video) x Student Status (Grad vs. UG)	0.18	1.20	0.21	−0.23	0.59	0.76	1	0.384	n.s.
Sexual Harassment									
Condition (Video) x Gender (Female vs. Male)	0.46	1.58	0.21	0.03	0.88	4.49	1	0.034	*
Condition (Video) x Student Status (Grad vs. UG)	0.05	1.05	0.21	−0.37	0.46	0.05	1	0.819	n.s.

***Denotes $p < 0.001$, **denotes $p < 0.01$, and *denotes $p < 0.05$.

are more likely to help a friend than a stranger (e.g., Bell et al., 2001; Levine et al., 2005).

Gender and student status (undergraduate vs. graduate) interaction effects at 4-week follow-up

We also observed an interaction between gender and condition (control versus video) for six out of the seven situations portrayed in the film: an alcohol emergency, emotional distress, intimate partner violence, racial bias, sexual assault, and sexual harassment. Across these six situations, females in the video condition reported higher likelihood to intervene at 4-week follow-up than their male counterparts. Past literature has suggested that females have higher intervention efficacy (Amar et al., 2014), show higher sensitivity to, recognition of, and sympathy with potential victims (Thornberg & Jungert, 2013), and that there is often a higher, gender-typical expectation for females to defend others (Rigby & Johnson, 2006). Males, by contrast, are less likely to act as pro-social bystanders, reporting less positive attitudes and greater barriers toward doing so (Burn, 2009; McMahon & Banyard, 2012; McMahon, Postmus, & Koenick, 2011). Another hypothesis explaining this pattern of gender differences is that there may be a fear of perceived malintent or of being accused of misconduct. In other words, it is possible that males do not intervene in a situation involving a female peer, because they worry that there is a chance that they themselves will

be seen as a perpetrator of sexual violence. Additionally, the video was equally as effective for undergraduate and graduate students in the RCT.

Limitations

One limitation of the study is that we did not measure actual bystander intervention behavior, but rather only self-reported likelihood to intervene in a variety of situations. Additionally, due to survey length constraints, we were not able to fully counterbalance for and examine the effects of two well-documented factors for intervening: familiarity with and gender of the victim. Instead of focusing our efforts on assessing these nuanced effects, we designed the video to demonstrate effective interventions across various types of relationships and genders of interveners, as well as across seven different types of problematic situations. Additionally, the script and casting decisions were deliberate knowing that it was not feasible to counterbalance all scenarios for gender and familiarity.

Also, the treatment condition was surveyed a total of three times: the first as a baseline before viewing the video, the second immediately following viewing the video, and the third 4 weeks after viewing the video, compared to the control condition, which was surveyed a total of 2 times: the first as a baseline measure and the second 4 weeks later. This repeated testing of the treatment condition serves as a threat

to internal validity. Furthermore, the current study only involved Cornell University students, and therefore it is unclear if these findings are generalizable to other campuses. The video was developed to be generalizable beyond Cornell University (e.g., no references to Cornell), and multiple other college campuses are utilizing *Intervene*; however, we do not yet have evidence of its effectiveness with other campus populations. All of these topics remain a promising avenue for future research in the field of college health, and we recommend that each of these limitations be addressed in future studies.

Conclusion

This study evaluated the effectiveness of Cornell University's new video, *Intervene*, which portrays student bystanders successfully intervening in multiple problematic situations. We found that the video was effective at increasing undergraduate and graduate participants' self-reported likelihood to intervene in several of these situations up to 4-weeks post viewing the video, with notable interactions between gender and condition differences (e.g., females reported higher likelihood to intervene after viewing the video in the majority of situations compared to males).

Given that increased self-reported likelihood to intervene was demonstrated for all scenarios immediately post viewing and 4 scenarios after 4 weeks, further study is required to determine if repeated viewing may help sustain the initial effects over time. The results suggest that implementation of booster exposures, especially to the scenarios for which the positive impact was no longer observed after 4 weeks, may contribute to longer-term effects. We recommend that future applications and evaluation of *Intervene* should consider including repeated or enhanced exposures, such as showing the video again and/or having students participate in group-level discussion about the content of the film. Future studies evaluating the impact of *Intervene* or other pro-social bystander intervention programs could also benefit from considering social norms as factors related to intervening.

We believe *Intervene* can be implemented effectively at other colleges, keeping some critical recommendations in mind. Importantly, we found the video to be effective when viewed by itself, indicating that other campuses do not necessarily need to devote time and resources to facilitating discussion about the video in-person. We found that when viewed alone, the video was effective at increasing self-reported likelihood across 4 of the 7 domains at 4 weeks, suggesting preventive effects can be achieved simply by having students view the video online. Campuses that are interested in implementing *Intervene* should consider how the video would fit in relation to their other campus initiatives and resources. We recommend employing this resource in the context of broader prevention strategies; in doing so, it is important to get stakeholder buy-in to increase student exposure to the video and support for the concepts portrayed in the film.

Intervene is a stand-alone video, available online at no cost, that effectively applies bystander intervention broadly to various college health topics, and it is unique in that it recognizes all members of a campus as collaborative partners in the cultivation of campus health and well-being. This program and our evaluation demonstrate the versatility of bystander intervention as an evidence-based strategy that can be used to address a variety of campus issues.

Author contributions

The authors consider that the first two authors should be regarded as joint first authors. All authors contributed to study design, data analysis, and the interpretation of results.

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Appendix A

Intervene Survey Measures

The following questions ask you about several different scenarios. For each scenario, please answer the following questions (circle your responses):

Scenario 1: *During a party you find a **male friend** passed out and unresponsive from drinking too much alcohol.*

		Not at all			A great deal
[1a]	To what extent would you consider this situation to be a problem?	1	2	3	4
[1b]	To what extent would you **feel responsible** to do something (take an action or get someone else to do so) in this situation?	1	2	3	4

		Not at all likely			Very likely
[1c]	How likely would you be **to intervene somehow** in a situation like this?	1		2 3	4

[1d] I think **most Cornell students (51% or more)** believe that intervening in a situation like this would be (circle one):
- o Always socially acceptable
- o Often socially acceptable
- o Sometimes socially acceptable
- o Rarely socially acceptable
- o Never socially acceptable

[1e] I believe that intervening in a situation like this would be (circle one):
- o Always socially acceptable
- o Often socially acceptable
- o Sometimes socially acceptable
- o Rarely socially acceptable
- o Never socially acceptable

Scenario 2: *During a party you find a **female friend** passed out and unresponsive from drinking too much.*

		Not at all			A great deal
[2a]	To what extent would you consider this situation to be a problem?	1	2	3	4
[2b]	To what extent would you **feel responsible** to do something (take an action or get someone else to do so) in this situation?	1	2	3	4

		Not at all likely			Very likely
[2c]	How likely would you be **to intervene somehow** in a situation like this?	1		2 3	4

[2d] I think **most Cornell students (51% or more)** believe that intervening in a situation like this would be
(circle one):
o Always socially acceptable
o Often socially acceptable
o Sometimes socially acceptable
o Rarely socially acceptable
o Never socially acceptable

[2e] **I believe** that intervening in a situation like this would be (circle one):
o Always socially acceptable
o Often socially acceptable
o Sometimes socially acceptable
o Rarely socially acceptable
o Never socially acceptable

Scenario 3: *During a party, you find a **male partygoer whom you don't know** passed out and unresponsive from drinking too much.*

		Not at all			A great deal
[3a]	To what extent would you consider this situation to be a problem?	1	2	3	4
[3b]	To what extent would you **feel responsible** to do something (take an action or get someone else to do so) in this situation?	1	2	3	4

		Not at all likely			Very likely
[3c]	How likely would you be **to intervene somehow** in a situation like this?	1	2	3	4

[3d] I think **most Cornell students (51% or more)** believe that intervening in a situation like this would be
(circle one):
o Always socially acceptable
o Often socially acceptable
o Sometimes socially acceptable
o Rarely socially acceptable
o Never socially acceptable

[3e] **I believe** that intervening in a situation like this would be (circle one):
(circle one):
o Always socially acceptable
o Often socially acceptable
o Sometimes socially acceptable
o Rarely socially acceptable
o Never socially acceptable

Scenario 4: *During a party, you find a **female partygoer whom you don't know** passed out and unresponsive from drinking too much.*

		Not at all			A great deal
[4a]	To what extent would you consider this situation to be a problem?	1	2	3	4
[4b]	To what extent would you **feel responsible** to do something (take an action or get someone else to do so) in this situation?	1	2	3	4

		Not at all likely			Very likely
[4c]	How likely would you be **to intervene somehow** in a situation like this?	1	2	3	4

[4d] I think **most Cornell students (51% or more)** believe that intervening in a situation like this would be

(circle one):
o Always socially acceptable
o Often socially acceptable
o Sometimes socially acceptable
o Rarely socially acceptable
o Never socially acceptable

Scenario 5: *You notice that **someone whom you know is distressed** about the new member initiation process for their group, in which they are being humiliated and intimidated.*

		Not at all			A great deal
[5a]	To what extent would you consider this situation to be a problem?	1	2	3	4
[5b]	To what extent would you **feel responsible** to do something (take an action or get someone else to do so) in this situation?	1	2	3	4

		Not at all likely			Very likely
[5c]	How likely would you be **to intervene somehow** in a situation like this?	1	2	3	4

[5d] I think **most Cornell students (51% or more)** believe that intervening in a situation like this would be
(circle one):
o Always socially acceptable
o Often socially acceptable
o Sometimes socially acceptable
o Rarely socially acceptable
o Never socially acceptable

Scenario 6: *At a party, you observe a highly intoxicated **female friend** (e.g., who is having trouble standing) being kissed and groped and led upstairs by a **male student whom you don't know**.*

		Not at all			A great deal
[6a]	To what extent would you consider this situation to be a problem?	1	2	3	4
[6b]	To what extent would you **feel responsible** to do something (take an action or get someone else to do so) in this situation?	1	2	3	4

		Not at all likely			Very likely
[6c]	How likely would you be **to intervene somehow** in a situation like this?	1	2	3	4

[6d] I think **most Cornell students (51% or more)** believe that intervening in a situation like this would be
(circle one):
o Always socially acceptable
o Often socially acceptable
o Sometimes socially acceptable
o Rarely socially acceptable
o Never socially acceptable

[6e] **I believe** that intervening in a situation like this would be (circle one):
o Always socially acceptable
o Often socially acceptable
o Sometimes socially acceptable
o Rarely socially acceptable
o Never socially acceptable

Scenario 7: *At a party, you observe a highly intoxicated **female whom you don't know** (who is having trouble standing) being groped and led upstairs by a **male student whom you don't know**.*

		Not at all			A great deal
[7a]	To what extent would you consider this situation to be a problem?	1	2	3	4
[7b]	To what extent would you **feel responsible** to do something (take an action or get someone else to do so) in this situation?	1	2	3	4

		Not at all likely			Very likely
[7c]	How likely would you be **to intervene somehow** in a situation like this?	1	2	3	4

[7d] I think **most Cornell students (51% or more)** believe that intervening in a situation like this would be
(circle one):
  o Always socially acceptable
  o Often socially acceptable
  o Sometimes socially acceptable
  o Rarely socially acceptable
  o Never socially acceptable

[7e] I believe that intervening in a situation like this would be (circle one):
  o Always socially acceptable
  o Often socially acceptable
  o Sometimes socially acceptable
  o Rarely socially acceptable
  o Never socially acceptable

Scenario 8: *You hear a **male acquaintance (classmate, co-worker)** make degrading or offensive sexual comments to a **female classmate or co-worker**.*

		Not at all			A great deal
[8a]	To what extent would you consider this situation to be a problem?	1	2	3	4
[8b]	To what extent would you **feel responsible** to do something (take an action or get someone else to do so) in this situation?	1	2	3	4

		Not at all likely			Very likely
[8c]	How likely would you be **to intervene somehow** in a situation like this?	1	2	3	4

[8d] I think **most Cornell students (51% or more)** believe that intervening in a situation like this would be
(circle one):
  o Always socially acceptable
  o Often socially acceptable
  o Sometimes socially acceptable
  o Rarely socially acceptable
  o Never socially acceptable

[8e] I believe that intervening in a situation like this would be (circle one):
  o Always socially acceptable
  o Often socially acceptable
  o Sometimes socially acceptable
  o Rarely socially acceptable
  o Never socially acceptable

Scenario 9: *You notice **a female friend** is being emotionally controlled **by someone she is in a relationship with** (i.e., being told what she can and can't do and who she can socialize with).*

		Not at all			A great deal
[9a]	To what extent would you consider this situation to be a problem?	1	2	3	4
[9b]	To what extent would you **feel responsible** to do something (take an action or get someone else to do so) in this situation?	1	2	3	4

		Not at all likely			Very likely
[9c]	How likely would you be **to intervene somehow** in a situation like this?	1	2	3	4

[9d] I think **most Cornell students (51% or more)** believe that intervening in a situation like this would be
(circle one):
  o Always socially acceptable
  o Often socially acceptable
  o Sometimes socially acceptable
  o Rarely socially acceptable
  o Never socially acceptable

[9e] I believe that intervening in a situation like this would be (circle one):
  o Always socially acceptable
  o Often socially acceptable
  o Sometimes socially acceptable
  o Rarely socially acceptable
  o Never socially acceptable

Scenario 10: *You notice **someone whom you don't know well** is sitting alone outside a classroom, in visible emotional distress.*

		Not at all			A great deal
[10a]	To what extent would you consider this situation to be a problem?	1	2	3	4
[10b]	To what extent would you **feel responsible** to do something (take an action or get someone else to do so) in this situation?	1	2	3	4

		Not at all likely			Very likely
[10c]	How likely would you be **to intervene somehow** in a situation like this?	1	2	3	4

[10d] I think **most Cornell students (51% or more)** believe that intervening in a situation like this would be
(circle one):
  o Always socially acceptable
  o Often socially acceptable
  o Sometimes socially acceptable
  o Rarely socially acceptable
  o Never socially acceptable

[10e] I believe that intervening in a situation like this would be (circle one):
  o Always socially acceptable
  o Often socially acceptable
  o Sometimes socially acceptable
  o Rarely socially acceptable
  o Never socially acceptable

Scenario 11: *You notice that **a friend** seems very depressed and has become withdrawn.*

	Not at all			A great deal
[11a] To what extent would you consider this situation to be a problem?	1	2	3	4
[11b] To what extent would you **feel responsible** to do something (take an action or get someone else to do so) in this situation?	1	2	3	4

	Not at all likely			Very likely
[11c] How likely would you be **to intervene somehow** in a situation like this?	1	2	3	4

[11d] I think **most Cornell students (51% or more)** believe that intervening in a situation like this would be
    (circle one):
        o Always socially acceptable
        o Often socially acceptable
        o Sometimes socially acceptable
        o Rarely socially acceptable
        o Never socially acceptable

[11e] **I believe** that intervening in a situation like this would be (circle one):
        o Always socially acceptable
        o Often socially acceptable
        o Sometimes socially acceptable
        o Rarely socially acceptable
        o Never socially acceptable

Scenario 12: *You observe **someone whom you don't know** say or do something that is racially offensive **to someone (a friend, acquaintance, someone you don't know)**.*

	Not at all			A great deal
[12a] To what extent would you consider this situation to be a problem?	1	2	3	4
[12b] To what extent would you **feel responsible** to do something (take an action or get someone else to do so) in this situation?	1	2	3	4

	Not at all likely			Very likely
[12c] How likely would you be **to intervene somehow** in a situation like this?	1	2	3	4

[12d] I think **most Cornell students (51% or more)** believe that intervening in a situation like this would be
    (circle one):
        o Always socially acceptable
        o Often socially acceptable
        o Sometimes socially acceptable
        o Rarely socially acceptable
        o Never socially acceptable

[12e] **I believe** that intervening in a situation like this would be (circle one):
        o Always socially acceptable
        o Often socially acceptable
        o Sometimes socially acceptable
        o Rarely socially acceptable
        o Never socially acceptable