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Abstract

Using a cross-sectional survey of a random sample of 7,945 college undergraduates, we report on the association between having received Green Dot active bystander behavior training and the frequency of actual and observed self-reported active bystander behaviors as well as violence acceptance norms. Of 2,504 students aged 18 to 26 who completed the survey, 46% had heard a Green Dot speech on campus, and 14% had received active bystander training during the past 2 years. Trained students had significantly lower rape myth acceptance scores than did students with no training. Trained students also reported engaging in significantly more bystander behaviors and observing more self-reported active bystander behaviors when compared with nontrained students. When comparing self-reported active bystander behavior scores of students trained with students hearing a Green Dot speech alone, the training was associated with significantly higher active bystander behavior scores. Those receiving bystander training appeared to report more active bystander behaviors than those simply hearing a Green Dot speech, and both intervention groups reported more observed and active bystander behaviors than nonexposed students.

Keywords

bystander strategies, campus violence, college students, prevention, sexual violence

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More than two decades have passed since Koss and her colleagues published the historic national study of the sexual victimization of college women (Koss, Gidycz, & Wisniewski, 1987), which revealed that more than one in four women (28%) had suffered a sexual victimization since the age of 14. Koss and her colleagues' work influenced countless studies, including two national studies, on the extent and nature of sexual victimization among college women (see Fisher, Daigle, & Cullen, 2010; Kilpatrick, Resnick, Ruggiero, Conoscenti, & McCauley, 2007). Collectively, the findings document a disquieting reality. Attending college is not a safe haven for women; many women experience sexual victimization throughout their college years, some repeatedly (Fisher, Cullen, & Turner, 2000; Fisher, Daigle, & Cullen, 2009). This grim reality means that women bear a significant "cost" of attending college, one that is widespread, serious, and disruptive to their lives and damaging to their psychological and/or physical well-being (Brenner, McMahon, Warren, & Douglas, 1999; Gidycz, Orchowski, King, & Rich, 2008; National Union of Students, 2010).

In response to the continuing salience of this issue, Congress passed several acts throughout the 1990s directed at addressing sexual assault on campuses, including the Student Right-to-Know and Campus Security Act of 1990, renamed in 1998 the Jeanne Clery Disclosure of Campus Security Policy and Campus Crime Statistics Act, now commonly known as the Clery Act. The Clery Act requires schools that receive Title IV funding to disclose publicly not only their annual crime statistics, including sex offenses, but also state their policy on sexual assault and describe the educational programs provided by the college to promote awareness of rape and other sex offenses. Congress has set aside monies for the Office of Violence Against Women (OVW) to fund grants encouraging the development of programs that address dating violence, sexual assault, and stalking on college campuses.

In response to legislation and the knowledge that campuses were experiencing an epidemic of sexual violence, advocates and administrations responded by implementing awareness and risk-reduction programs designed to decrease the likelihood that a woman would be attacked. Awareness strategies have sought to increase students' knowledge about the dangers of sexual violence and what intervention programs are available. Risk-reduction strategies seek to teach women strategies for reducing the likelihood of being victimized. Several studies suggest that although risk-reduction programs can be effective in the short term in increasing protective behaviors and changing attitudes (Anderson et al., 1998), no effect on rates of sexual violence was noted (Gidycz et al., 2001; Gidycz, Rich, Orchowski, King, & Miller, 2009). With little evidence to suggest that these strategies have been effective in decreasing the rate of sexual violence on college campuses, advocates and researchers began to refocus their attention on prevention.

Community-Based Sexual Violence Prevention: The Bystander Approach

Beginning in the mid-1990s, the bystander approach to the prevention of campus violence emerged (Banyard, Moynihan, & Crossman, 2009; Banyard, Moynihan, & Plante, 2007; Banyard, Plante, & Moynihan, 2004; Berkowitz, 2002a, 2002b; Burn, 2009; Ceckroun &

Brauer, 2002; DeKeseredy, Schwartz, & Alvi, 2000; Foubert, 2000; Katz, 1994). This shift came from recognition that what was missing from earlier strategies was a “broader perspective” to the problem of sexual violence on campus (Banyard et al., 2004). Banyard and her colleagues argue that to address campus violence, a shift in social and cultural norms must occur that requires the response of the campus as a community. Each community member is recognized as a bystander to norms that promote sexual violence and each bystander can then be given “a specific role, which they can identify with and adopt in preventing the community problem of sexual violence” (Banyard et al., 2007, p. 464). The ultimate goal is to educate students to recognize situations that promote sexual violence and to intervene in a safe and effective manner (Moynihan & Banyard, 2008).

Bystander models share a literature that provides guidance on which factors increase the likelihood that a bystander will intervene to prevent violence. Briefly, the objective of bystander intervention is to involve both men and women to change the context or environment that may tacitly support violence against women. Past research sought to understand why some individuals choose to intervene when they are in the role of a possible bystander in a potentially risky, dangerous, or emergency situation. According to bystander intervention models, there are a number of important predictors of bystander behavior; what follows is a list of those that are relevant to the prevention efforts described in the current research. The first is *diffusion of responsibility* or the concept that individuals are less likely to respond in a crisis situation when more people are present because each assumes that someone else will handle it (Chekroun & Brauer, 2002; Darley & Latane, 1968). A second predictor is *evaluation apprehension* in which individuals are reluctant to respond in a high-risk situation because they are afraid they will look foolish (Latane & Darley, 1970). The third predictor of whether a bystander will intervene is *pluralistic ignorance* or the likelihood that when faced with an ambiguous, but potentially high-risk situation, individuals will defer to the cues given by those around them when deciding whether to respond (Clark & Word, 1974; Latane & Darley, 1970). The fourth predictor is *confidence in skills* in which individuals are more likely to intervene in a high-risk situation when they feel confident in their ability to do so effectively (Goldman & Harlow, 1993; Latane & Darley, 1970). The final predictor is *modeling*; individuals are more likely to intervene in a high-risk situation when they have seen someone else model active bystander behaviors first (Bryan & Test, 1967; Rushton & Campbell, 1977). These well-documented principles describe what inhibits bystanders from intervening. Prevention using a bystander framework attends to these factors to help prospective bystanders overcome barriers to become active bystanders.

Bystander prevention programs share a common philosophy that all members of the community have a role in shifting social norms to prevent violence. They all draw from a common literature on why and how bystanders intervene as well as the literature on best practices in prevention. The specific application of the bystander approach has varied. Among descriptions of bystander programs, differences can be noted regarding the length of training time for potential bystanders, the format in which training occurs, and whether students are trained in mixed-gender or gender-specific groups. Whereas some programs have trained mixed single groups (Banyard et al., 2007), other programs have specifically

explored the role of bystanders in relation to violence prevention and have focused on the effectiveness of the approach specifically for men (Berkowitz, 2002b; DeKeseredy et al., 2000; Foubert, 2000). Other programs have targeted specific groups such as student athletes (Katz, 1994), fraternity and sorority members (Moynihan & Banyard, 2008), and students identified as peer opinion leaders who are leaders, well-known, and/or respected among diverse social groups (Edwards, 2009).

Research on Bystander Approaches to Sexual Violence Prevention

Although bystander prevention programs are still relatively young interventions, early research indicates promising outcomes. For instance, the Mentors in Violence Prevention (MVP) program (Katz, 1994) trained leaders among high school-aged boys and girls to address violence and showed increased knowledge about violence and feelings of self-efficacy at taking action to prevent violence after attending the program (Ward, 2001).

Three recently published articles provide evidence for the promise of a bystander approach to address violence against women in college samples. Barone, Wolgemuth, and Linder (2007) examined how men's attitudes and behaviors were changed by their participation in the college-based study titled "Men's Project." The program recruited male college students on athletic teams, in fraternities, and in male residence halls. Men's Project was administered in a 10-week 2-hr training on prevention of violence against women. Four qualitative focus groups were conducted with 19 participants. Barone et al. (2007) found that men revealed that having a support group was essential to their ability to challenge their sexist environment and effectively use bystander behaviors. Banyard et al. (2007) provided the first empirical evidence that a bystander intervention for sexual violence prevention resulted in significant and sustained changes in knowledge, attitudes, and bystander behaviors in both college men and women. Finally, Moynihan and Banyard (2008) conducted an exploratory pilot study of a bystander intervention for sexual violence prevention among college athletes and fraternity members, groups considered to be at high risk of sexual violence perpetration. Results indicated that, in general, the intervention was effective in changing their knowledge, attitudes, and bystander efficacy. Collectively, these early studies provide evidence of the promise of bystander education; it seems to change students' attitudes and increase their bystander behavior. To date, however, its impact on assault perpetration and victimization has not been researched.

Green Dot Intervention Program at the University of Kentucky

The Green Dot intervention program was developed by Dr. Dorothy Edwards, former Director of the Violence Intervention and Prevention (VIP) Center at the University of Kentucky (UK), to increase proactive self-reported active bystander behaviors and reduce dating and sexual violence on college campuses. By bystander intervention, we mean training students to intervene to reduce violence in a way that is safe and effective. We term these varied actions as active bystander behaviors.

Program development. The Green Dot program was built first on a synthesis of literature on what inhibits bystanders from intervening (Bryan & Test, 1967; Chekroun & Brauer, 2002; Clark & Word, 1974; Darley & Latane, 1968; Goldman & Harlow, 1993; Latane & Darley, 1970; Rushton & Campbell, 1977). This work helped guide the Green Dot curriculum development to decrease barriers to engaging in active bystander behaviors and to develop competency in overcoming these barriers. Second, the work of Banyard et al. (Banyard et al., 2004, 2009, 2007), as well as Katz (2004) and Berkowitz (2002a, 2002b), provided the context of how the social-psychological research addressing active bystander behaviors could be applied to sexual violence prevention. Finally, Rogers's (1962) work on diffusion of innovation served as the basis for understanding how active bystander behaviors might be transferred or diffused from person to person. This work provided the basis for teaching students to engage their peers to bystand with them, thus increasing the likelihood that new norms will be spread across the college community. The development of the Green Dot program was also guided by literature related to how perpetrators target victims and commit acts of sexual violence (Koss, Leonard, Beezley, & Oros, 1985; Lisak & Miller, 2002; Lisak & Roth, 1988; Rapaport & Burkhart, 1984). By teaching students to understand the motivations and antecedents to sexual violence, Green Dot was designed to help students appraise situations and identify potential risks for violence. Understanding how perpetrators target victims allows the bystander to assess the situation, view their options for action, and select safe active bystander behaviors that they are willing to carry out.

Implementation of Green Dot. The Green Dot program was implemented in two phases. Phase 1 included a 50-min motivational speech provided to students, school leaders, faculty, and administrators to introduce the concept of active bystander behaviors and build the audience's commitment to prevention. The purpose of this speech was to help students find their connection to dating and sexual violence, build awareness of the problem of dating and sexual violence on college campuses, present a bystander intervention as a manageable and simple activity, persuade and motivate students to get involved in prevention, and link students to the UK VIP Center. VIP staff, including the former center director, provided the persuasive speech to students via introductory-level college courses. In particular, most 1st-year students take UK 101, a 1-credit-hour course designed to help new students transition to university life, build a strong foundation for academic success, and embrace opportunities that promote intellectual and personal growth.

Phase 2 of Green Dot training consisted of an intervention program called Students Educating and Empowering to Develop Safety (SEEDS), which focuses on preventing perpetration behavior by providing students with skills to be a proactive bystander to prevent violence. In this phase, students attended small-group, intensive sessions where they were trained in recognizing and implementing proactive bystander behaviors. SEEDS training took into account what is known about bystanders, barriers to intervening, perpetrators, and patterns of perpetration. This training took place in campus meeting rooms and was facilitated by VIP staff, including the former center director. SEEDS attendance was voluntary and open to all students. Students were invited to attend SEEDS training at the end of the persuasive speech. In addition, students were recruited to attend SEEDS using a Peer Opinion Leaders (POL) strategy. The POL strategy was a systematic method for selecting peer leaders who have influence in a particular community. According to the

POL literature, diffusion of new behaviors is more readily accepted in a community when behaviors are modeled by influential peers. In a well-defined community, diffusion of new behaviors throughout the community occurs when 15% of POLs are selected using ethnographic techniques and trained to endorse new behaviors (see Kelly, 2004 for a detailed description of the core elements of the POL strategy). The POL strategy has been demonstrated to be effective in the endorsement of new behaviors for low-income women in HIV prevention education programs (Sikkema et al., 2000).

Recognizing that there are many different subcultures on a college campus, student leaders from a variety of different groups were recruited to enhance the likelihood that a widespread group of influential leaders would be trained. Faculty, staff, students, and resident assistants identified and nominated POLs whom they believed were respected influential students. Students who were nominated more than once were identified as POLs. POLs were sent a letter stating they had been nominated to come to a training reception to help influence the legacy they will leave behind at UK.

The Green Dot program was similar to existing bystander prevention programs and included an overview of violence against women, discussions of the bystander role, and skill-building opportunities. There is one primary distinction between Green Dot and other bystander prevention programs in that the Green Dot bystander strategy emphasizes targeted recruitment strategies based on POLs. The utilization of the POL framework potentially optimizes the effectiveness and efficiency of the bystander approach as those who are most socially influential are most likely to influence others to also engage in proactive bystander behaviors. Like the Bringing in the Bystander (BITB) program, Green Dot uses detailed perpetrator information to guide and inform the bystander responses. By shifting the focus away from solely helping victims and onto identifying high-risk potential perpetrator behavior, bystanders may be better able to respond to a potentially violent situation earlier in its development.

The purpose of the present study was to determine whether the two phases of the Green Dot bystander intervention changed social norms supporting violence and increased actual active bystander behaviors. The current study adds to the growing literature evaluating bystander training intervention by using a large population-based sample of college undergraduates. As SEEDS training provided the skills needed to safely and effectively be an active bystander, we hypothesized that students receiving SEEDS training would report more helpful bystander behaviors relative to those receiving neither SEEDS training nor hearing a Green Dot speech. Hearing a Green Dot speech alone was hypothesized to result in these same changes but to a lesser extent.

Method

Participants

A random sample of 2,000 students from each class (freshmen, sophomores, juniors, and seniors) was selected from the UK registrar's list for the spring 2010; half of the sample per class was male and all were undergraduates between the ages of 18 and 26. A staff

member of the registrar's office prepared a random sample from the student database. Those with Kentucky addresses were selected so that the majority of these students had the chance to receive the US\$2 incentive in advance of the electronic invitation to complete the survey; 80% of UK undergraduates have Kentucky addresses. A stratified random sample was taken using the SAS procedure `survey select` with student classification as freshmen, sophomores, juniors, and seniors as the primary strata and gender as the secondary strata within student classification. The sample size was fixed to 1,000 students in each of the eight strata. As the total number of female juniors in the population was only 945 students, all of them were included in the sample ($n = 7,945$).

Approach to participants. Researchers mailed students an invitation letter to participate in a web-based survey with US\$2 cash enclosed. Invitation letters were mailed to students' local addresses in April 2010. A reminder email was sent to students' university email addresses approximately every third day. Students had 16 days to complete the survey. Zoomerang, a web-based survey program, does not have the capacity to calculate an average time required to complete the survey, but pilot tests of survey times ranged from 20 to 25 min.

Student response rates. Of the 7,945 students invited to participate in the web-based survey, 3,872 clicked on the link to the website and 3,417 completed the survey. The overall response rate was 43%; 88% of those who clicked on the link completed the survey. Only students aged 18 to 26 were included in this analysis ($n = 2,872$); thus, we excluded 141 who did not complete the question on age and 404 students who were outside this age range. We excluded 368 students with missing data on Green Dot or SEEDS exposure ($n = 80$), one of the outcome measures ($n = 237$), and 51 students who were missing current relationship status, parental education level, or social fraternity or sorority affiliation. The total number of eligible students who remained for this analysis was 2,504.

Demographic profile of those sampled and those responding to the survey. In Table 1, the demographic profiles are presented for the entire UK undergraduate student body for the spring 2010 semester, those sampled, those who completed the survey, and those with no missing data on the relevant dependent and independent variables. Briefly, there were no differences in the demographic profile of the full UK student body relative to our random sample with the exception that 80% of the UK student body were Kentucky permanent residents, while all students in the sample were residents by virtue of our inclusion criteria for mailing the incentive (comparison of columns 2 and 3 in Table 1). There were demographic differences between those included in the random sample and those who completed the survey. Compared with the UK undergraduate student body and those included in the random sample, those completing the survey were significantly more likely to be female ($\chi^2 = 99.96, p < .001$), freshman ($\chi^2 = 13.08, p = .001$), and in a social fraternity or sorority ($\chi^2 = 5.96, p = .01$). Among those completing the survey, over half were currently in a dating relationship (58%) and 6% had never dated.

POL recruitment versus open enrollment. Between the academic years 2009 and 2010, approximately 300 POLs were invited to SEEDS training. Approximately one third of those POLs received SEEDS training. In addition, students were universally recruited to SEEDS training through Green Dot speeches. In academic year 2009-2010, more than

Table 1. Demographic Comparison of the University of Kentucky Undergraduate Student Population to That of Students Sampled and Students Responding

| Demographic characteristic | University of Kentucky undergraduate population (Spring 2010), <i>n</i> = 18,806 | Stratified random sample, <i>n</i> = 7,945 | Completed survey sample, <i>n</i> = 2,872 | Analytic sample (no missing data), <i>n</i> = 2,504 |
|-----------------------------------|--|--|---|---|
| % female | 49.8 | 49.6 | 60.4** | 60.5 |
| % White | 84.1 | 83.8 | 85.3 | 85.7 |
| <i>M</i> (<i>SD</i>) | 22.1 (4.4) | 22.4 (5.0) | 21.1 (1.8) | 21.0 (1.7) |
| % freshman | 21.2 | 25.1 | 29.6** | 29.0 |
| % fraternity/ sorority members | 13.0 | Unknown | 16.0* | 17.0 |

Note: There were no statistically significant differences in the demographic profiles of those completing the survey and the analytic sample nor were there differences between the full University of Kentucky undergraduate population in Spring 2010 and those sampled.

* $p < .001$ (compared with the University of Kentucky undergraduate student body and those included in the stratified random sample, those completing the survey were significantly more likely to be female and freshman). ** $p = .001$ (compared with the University of Kentucky undergraduate student body, those completing the survey were significantly more likely to be in a social fraternity or sorority).

5,000 were then recruited to SEEDS training. With the cross-sectional data that are available, we cannot determine how those who received SEEDS training were recruited, but based on the number invited through Green Dot speeches versus POLs, it is likely that the majority of those receiving SEEDS training were recruited from the general population.

Measures

Prevention intervention: Green Dot exposure. As noted above, the Green Dot training was conducted in two phases: a Green Dot speech and SEEDS training. In our sample, almost half (47%) of students surveyed responded that they had heard a Green Dot speech during their freshman orientation, UK 101, or other classes. Ninety-five percent of those receiving SEEDS training had heard a Green Dot speech and 42% had volunteered at VIP or received VIP services. Among those volunteering or receiving services at VIP, 86% also had heard a Green Dot speech.

Those involved with or receiving services at VIP include survivors as well as volunteers with a strong interest in violence prevention. We hypothesized that these motivated individuals were more likely to have experienced violence and thus were more engaged in violence-prevention activities including active bystander behaviors. Because of the two-phase implementation of the Green Dot program as well as the advocacy and treatment available through VIP, we created a hierarchical Green Dot Exposure matrix in which students with SEEDS training were grouped together regardless of whether they had heard a Green Dot speech or were VIP volunteers or clients ($n = 351$; 42% were VIP volunteers or clients and 95% had heard a Green Dot speech; there were insufficient numbers of

students to examine differences between SEEDS-trained students and those who also heard Green Dot speeches); we termed this group “SEEDS trained.” The second group included those who had volunteered at or received services from VIP but had not received SEEDS training ($n = 159$; 77% had heard a Green Dot speech); we termed this group “VIP engaged but not SEEDS trained.” The final intervention group included students who had heard a Green Dot speech but had not received SEEDS training or volunteered at or received services from VIP ($n = 693$); we termed this group “Green Dot speech alone.” The unexposed group was made up of students with no SEEDS training and had neither heard a Green Dot speech nor volunteered at or received services from VIP ($n = 1,301$); we termed this group “no intervention.”

Measures of Violence Acceptance

Illinois Rape Myth Acceptance Scale (IRMA). A reduced version of the 20-item IRMA (Payne, Lonsway, & Fitzgerald, 1999) was used to measure students’ beliefs about rape that may indicate social norms supporting sexual violence. The following are the seven items used from this scale: (a) “Rape accusations are often used as a way of getting back at men” (b) “It is usually only women who dress suggestively that are raped” (c) “Women tend to exaggerate how much rape affects them” (d) “A lot of women lead a man on and then they claim rape” (e) “Women that ‘tease’ men deserve anything that might happen” (f) “When women are raped, it is often because the way they said ‘no’ was unclear” and (g) “A woman who dresses in skimpy clothes should not be surprised if a man tries to force her to have sex.” Response options ranged from 1 = *strongly disagree* to 4 = *strongly agree*, for a range of scores from 7 to 28. Higher scores indicate greater acceptance of rape myths. The Cronbach’s alpha for this shortened scale was .85. We reduced this scale because the length of the entire survey approached 45 min and we did not feel students would participate in an online survey of this length. The measure of internal consistency for this reduced scale was high.

Acceptance of General Dating Violence Scale. The five-item Acceptance of General Dating Violence Scale (Foshee et al., 1996) was used to measure norms supporting dating violence. The five items used were (a) “There are times when dating violence between couples is okay” (b) “Someone who makes their partner jealous on purpose deserves to be hit” (c) “Sometimes violence is the only way to express your feelings” (d) “Some couples have to use violence to solve their problems” and (e) “Violence between couples is a private matter and people should not get in the way or get involved.” Response options ranged from 1 = *strongly disagree* to 4 = *strongly agree*, for a range of scores from 5 to 20. Higher scores indicate greater acceptance of dating violence. The Cronbach’s alpha for this five-item scale was .79.

Self-reported observed and actual active bystander behaviors. Observed and actual active bystander behaviors used to prevent violence were assessed using the modified Bystander Behaviors Scale developed by Banyard (Banyard et al., 2005). Our reduced scale included the following 12 items: expressed concern to a friend whose partner was acting very jealous and trying to control him or her, spoke up if somebody said that someone deserved to

be raped or to be hit by their partner, talked to a friend who was raped or hit by a partner, asked someone who looked very upset if they were okay or needed help, asked a friend if they needed to be walked or driven home, spoke up to someone who was bragging or making excuses for forcing someone to have sex with them, got help for a friend because they had been forced to have sex or were hurt by a partner, discussed the possible dangers of drinking too much with friends, told someone you were concerned about their drinking, told someone that getting drunk puts them at risk for being a victim of violence, expressed concern when someone was talking about how they got “so wasted,” and made sure someone who had too much to drink got home safely. Participants were asked to indicate the frequency with which they actually used a specific active bystander behavior in the past school year (Fall 2009-Spring 2010). Bystander behavior response options ranged from 0 to 3 (0 = *not at all*, 1 = *1-2 times*, 2 = *3-5 times*, 3 = *6 or more times*). We created an additive scale that summed the frequency with which students reported the 12 self-reported active bystander behaviors; scores ranged from 0 to 36, and Cronbach’s alpha for this measure was .80.

Observed bystander behaviors were measured using the same list of behaviors with the instructions to respond on the frequency with which the student had seen or heard someone else do the active bystander behaviors. The same timeframe was used for all active bystander behavior items (Fall 2009-Spring 2010). Response options were the same as used for actual active bystander behavior items described above. Cronbach’s alpha for this 12-item scale was .90; scores ranged from 0 to 36.

Statistical Analysis

Multiple Analysis of Variance (MANOVA) was used to test all hypotheses. As gender, class, and social fraternity or sorority affiliation were associated with completing the survey if sampled, and current relationship status was associated with intervention exposure, all analyses were statistically adjusted for these four factors. The intervention exposures were included as SEEDS trained, VIP no SEEDS, and Green Dot speech alone, and all were compared with those who received none of these interventions (three dummy variables with the reference group being those with no intervention exposure). The four outcomes of interest (IRMA, Acceptance of General Dating Violence Scale, self-reported observed and actual active bystander behaviors scores) were all included in one MANOVA model. As we were interested in which aspects of the intervention had the greatest impact on the four selected outcomes, we included in this same MANOVA model three dummy variables to represent those receiving SEEDS, VIP but no SEEDS, and Green Dot Speech alone, with the referent group being those not exposed to SEEDS, VIP, or Green Dot speeches. MANOVA was used to adjust for gender, class, social fraternity or sorority, and current relationship status. The F test and p value were obtained from the same MANOVA model and reported for each of the three intervention exposures relative to the nonintervention referent group. We also provide the Wilks’s Lambda test statistic for the MANOVA model as a test of the combined interventions relative to the nonintervention group, adjusting for confounders and considering all four outcomes. All analyses were conducted using SAS 9.2.

Results

An exploration of how students' demographic profile varied by intervention training is presented in Table 2. The intervention training categories were presented as SEEDS trained, VIP engaged but not SEEDS trained, Green Dot speech alone, and no intervention (as the referent group for all comparisons). There were no significant differences in receipt of training by students' gender, race, or parental education levels. Students receiving SEEDS training were significantly more likely to be in a fraternity or sorority (66.1%) relative to no intervention students (6.3%). VIP engaged but not SEEDS trained students and those receiving Green Dot speech alone were also more likely to be in fraternities or sororities. Relative to those receiving no intervention, those receiving some form of intervention training were more likely to be in a dating relationship and less likely to be married or living with a partner.

When the four outcomes were included in the MANOVA model with the Green Dot matrix variable (SEEDS training, VIP engaged yet no SEEDS, Green Dot alone, and no intervention) and the confounders, the overall F statistic for this model was significant ($F = 9.28; p < .01$).

Intervention and Rape Myth Acceptance and Dating Violence Acceptance

To test our hypothesis that SEEDS training would confer the greatest effect of the three intervention groups on reducing rape myth acceptance scores, dating violence acceptance scores, and increasing both observed and actual active self-reported bystander behaviors, MANOVA was used and results are presented in Table 3. When compared with students receiving no intervention, those who were SEEDS trained ($F = 5.29, p = .01$) or VIP engaged but not SEEDS trained ($F = 4.85, p = .02$) had lower IRMA scores than students receiving no intervention.

Intervention and Observed Self-Reported Active Bystander Behaviors

Scores for observed self-reported active bystander behaviors were significantly higher among those who were SEEDS trained ($F = 146.11, p < .001$) as were those who were VIP engaged but not SEEDS trained ($F = 23.01, p < .001$) or those receiving a Green Dot speech alone ($F = 38.80, p < .001$) relative to students who received no intervention.

Intervention and Actual Self-Reported Active Bystander Behaviors

Finally, when we conducted MANOVA for actual self-reported active bystander behaviors used by students and intervention received, actual active bystander scores were significantly higher among those who were SEEDS trained ($F = 95.97, p < .001$) as were scores for students who were VIP engaged but received no SEEDS training ($F = 19.60, p < .001$) and students who only heard a Green Dot speech ($F = 18.26, p < .001$) relative to students receiving no intervention.

Table 2. Demographic Characteristics of Students by Receipt of Intervention Training

| Demographic characteristics | Intervention training received, % (χ^2 , <i>p</i> value) | | | |
|---|--|---|--|---|
| | SEEDS trained, <i>n</i> = 351 | VIP engaged but not SEEDS trained, <i>n</i> = 159 | Green Dot speech alone, <i>n</i> = 693 | No intervention, <i>n</i> = 1,301 |
| Gender: % female | 63.3 (1.21, .27) | 56.6 (1.12, .29) | 61.2 (0.14, .70) | 60.0 (REF) |
| College class | | | | |
| Freshman | 30.2 | 26.4 | 28.9 | 29.1 |
| Sophomore | 23.6 | 27.7 | 24.5 | 28.5 |
| Junior | 20.8 | 20.1 | 21.8 | 18.5 |
| Senior | 25.4 | 25.8 | 24.8 | 23.9 |
| Test for trend (χ^2 , <i>p</i> value) | (1.92, .58) | (0.57, .90) | (3.52, .31) | (REF) |
| Race: % White | 86.3 (4.87, .55) | 83.0 (15.2, .01) | 82.4 (33.1, <.001) | 87.6 (REF) |
| Social fraternities or sororities status: % yes | 66.1 (696.6, <.001) | 13.2 (1.74, .18) | 13.1 (10.22, .001) | 6.3 (REF) |
| Current relationship status | | | | |
| Never dated | 4.5 | 3.8 | 5.8 | 4.7 |
| Not currently dating | 23.1 | 22.6 | 22.7 | 21.1 |
| Dating, but not relationship | 18.0 | 18.9 | 16.6 | 12.6 |
| Relationship, but not living together | 50.1 | 44.6 | 47.3 | 38.4 |
| Married or living with partner | 4.3 | 10.1 | 7.6 | 23.2 |
| Test for trend (χ^2 , <i>p</i> value) | (40.85, <.001) | (5.60, .23) | (45.52, <.001) | (REF) |
| Parent's highest educational attainment | | | | |
| No college | 13.7 | 14.5 | 16.3 | 20.2 |
| Some college | 19.3 | 20.8 | 22.5 | 22.8 |
| College graduate | 30.8 | 31.4 | 29.6 | 29.0 |
| Master's degree | 22.5 | 20.1 | 21.2 | 18.1 |
| Doctorate or professional degree (MD, JD) | 13.7 | 13.2 | 10.4 | 9.9 |
| Test for trend (χ^2 , <i>p</i> value) | (10.54, .22) | (7.37, .49) | (8.52, .38) | (REF) |

Note: SEEDS = Students Educating and Empowering to Develop Safety; VIP = Violence Intervention and Prevention; REF = referent group.

Table 3. Intervention Group Differences on Four Violence Prevention Outcome Measures

| | Adjusted mean scores (<i>F</i> , <i>p</i> value) ^a | | | |
|---|---|---|--|---|
| | SEEDS trained, <i>n</i> = 351 | VIP engaged but not SEEDS trained, <i>n</i> = 159 | Green Dot speech alone, <i>n</i> = 693 | No intervention, <i>n</i> = 1,301 |
| Illinois Rape Myth Acceptance Scale–Short Form | 9.39 (6.29, .01) | 9.35 (4.85, .02) | 9.57 (2.54, .11) | 10.48 (REF) |
| Acceptance of General Dating Violence Scale score | 5.64 (1.13, .28) | 5.59 (0.46, .49) | 5.64 (0.04, .83) | 5.71 (REF) |
| Observed active bystander behavior score | 12.29 (146.11, <.001) | 12.05 (23.01, <.001) | 11.45 (38.80, <.001) | 7.15 (REF) |
| Actual active bystander behaviors score | 12.23 (95.97, <.001) | 12.08 (19.60, <.001) | 11.45 (18.26, <.001) | 8.34 (REF) |
| Wilks's Lambda test statistic | Value: 0.971; <i>F</i> value: 18.53; Num <i>df</i> : 4; <i>p</i> < .001 | Value: 0.984; <i>F</i> value: 10.46; Num <i>df</i> : 4; <i>p</i> < .001 | Value: 0.986; <i>F</i> value: 8.70; Num <i>df</i> : 4; <i>p</i> < .001 | REF |

Note: SEEDS = Students Educating and Empowering to Develop Safety; VIP = Violence Intervention and Prevention; REF = referent group.

a. Adjusted for current relationship status, gender, class, social fraternity or sorority affiliation, and parental education.

Differences in Outcomes Among Students Receiving One of the Three Interventions

Although not reported in Table 3, we tested, again with MANOVA, whether there were differences in the four outcomes among those receiving SEEDS, VIP but no SEEDS, and Green Dot Speeches alone. There were no significant differences in IRMA scores between SEEDS trained and VIP engaged but not SEEDS trained students ($F = 1.27, p = .26$), SEEDS and Green Dot speech alone trained students ($F = 2.76, p = .09$), or VIP engaged but not SEEDS trained and Green Dot speech alone ($F = 2.27, p = .13$). Scores for Acceptance of General Dating Violence also did not differ by intervention received. When we compared observed active bystander scores among those who received some form of

intervention, no differences were noted between SEEDS trained and VIP engaged but no SEEDS training groups ($F = 0.08, p = .77$); however, a significant difference between SEEDS-trained students and those who received Green Dot speech alone ($F = 66.41, p < .001$) was evident. Students who received SEEDS compared with Green Dot only were significantly more likely to report observing active bystander behaviors during the past academic year. A more modest difference was noted between those students who were VIP engaged but not SEEDS trained and those receiving a Green Dot speech alone ($F = 5.39, p = .02$). When comparing actual active bystander behavior scores within those receiving some form of intervention, no differences were observed between SEEDS trained and VIP engaged but not SEEDS trained groups ($F = 0.86, p = .35$). However, significant differences were observed between the SEEDS-trained students and those hearing only a Green Dot speech ($F = 49.25, p < .001$). SEEDS-trained students reported doing more actual active bystander behaviors than students who only heard the Green Dot speech. VIP engaged but not SEEDS trained students were slightly more likely to actively bystand compared with those who had only heard a Green Dot speech ($F = 7.06, p = .01$).

Discussion

We observed that those receiving Green Dot speeches alone reported significantly more actual active bystander behaviors and more observed bystander behaviors when compared with students receiving no intervention. In this analysis, we do not have data to address the extent to which more active bystander behaviors translate into a reduction in dating and sexual violence. However, if active bystander behaviors do reduce violence, finding that Green Dot speeches alone are associated with more active bystander behaviors than no intervention can have intervention implications. Green Dot speeches are quick (50 min), relatively simple, and can be widely disseminated to large numbers of students across a college campus. At UK, almost half the student body had heard a Green Dot speech.

Our finding that Green Dot-trained students (either Green Dot speech alone or SEEDS trained) were more likely to report observing active bystander behaviors than those who received no intervention suggests that the intervention may be diffused through students' social networks such that those trained are more likely to report observing active bystander behaviors in their own environment, which likely includes those in their personal social network. We cannot determine whether Green Dot-trained students are more likely to notice active bystander behaviors in others because the training identifies examples of these behaviors or whether more active bystander behaviors are actually occurring. Time trend analyses and social network assessments are needed to distinguish these possibilities.

An important implementation question is whether it matters who provides the Green Dot speeches. Although not entirely scripted, the majority of Green Dot speeches include core elements that must be presented. Individual speakers do have their own passion, charisma, and engagement with college students. To explore whether the speaker mattered in terms of training of active bystander behaviors, we included pictures of the six speakers who provided the Green Dot speeches over the past 3 years at UK in our Zoomerang survey. Dr. Edwards, author of the Green Dot program, was identified as providing Green Dot

speeches to 40% of the students completing the survey. As other speakers were added during the past year (Fall 2009-Spring 2010), we only have study power to look at speeches provided by Dr. Edwards versus all other speakers. We conducted a MANOVA with the actual active bystander behavior score as the primary outcome as well as the three other outcomes and the same set of confounders included in Table 3 and found no differences in actual active bystander behavior scores of students to whom Dr. Edwards provided the speech (mean score = 9.61) and students to whom other speakers provided the speech (mean score = 10.03; $F = 0.74$; $p = .57$). This finding supports the hypothesis that the Green Dot persuasive speeches are transferable to other speakers and perhaps to other locations.

We observed that active bystander training in the form of SEEDS was associated with lower IRMA scores and higher actual and observed active bystander behavior scores when compared with those receiving no intervention training. It is important to note that the Green Dot program does not explicitly address norms related to either rape myths or dating violence acceptance; instead, this program focuses on the premise that bystanders can make positive behavioral interventions regardless of their adherence to historical myths related to these forms of violence. These measures were included to explore the possibility that SEEDS training had an impact on changing norms within the college community.

We observed that the addition of SEEDS training beyond that of having heard a Green Dot speech alone significantly increased self-reported actual and observed active bystander behaviors. This finding indicates that while having heard a Green Dot speech alone may have an effect on increasing active bystander behaviors, the addition of SEEDS training noticeably increased active bystander behaviors and was associated with a reduction in rape myth scores. As students were not randomly assigned to intervention conditions, we cannot be certain that these changes in behavior were exclusively due to the intervention. This finding has implications for prevention in that it appears that the addition of SEEDS training increases active bystander behaviors beyond that conferred by only hearing a Green Dot speech. Additional careful research is needed to determine what settings and combinations of programs and tools are needed to increase active bystander behaviors and, most importantly, reduce violence. Our finding that SEEDS training appears to be associated with greater self-reported active bystander behaviors relative to Green Dot speeches alone is important as an indication that specific training for students in how to safely and effectively engage their peers in violence prevention is an essential curriculum component of bystander intervention training. It is also possible that students recruited or volunteering for SEEDS training may be more motivated toward prevention interventions than other students.

These findings are consistent with recently published manuscripts that provide evidence for the promise of a bystander approach to address sexual violence (Barone et al., 2007; Banyard et al., 2007, 2009; Ward, 2001). As reported by Banyard et al. (2007), a bystander intervention for sexual violence prevention not only changed knowledge and attitudes but also increased bystander behaviors in both college men and women. Although these early evaluations provide evidence for the promise of bystander interventions to change attitudes and increase active bystander behaviors, no data are available as yet to address the efficacy

of bystander interventions to reduce sexual and dating violence incidence. This study extends prior published research by indicating that Green Dot persuasive speeches alone (50-min intervention) do have some effect on increasing active bystander behaviors, and it has implications for cost-effective prevention intervention. However, more in-depth SEEDS training, which provided skills building on safe and effective active bystander behavior techniques, appears to result in more self-reported active bystander behaviors than does listening to a Green Dot speech alone. These findings indicate that bystander prevention interventions require both the communication of information regarding violence (here in the form of Green Dot speeches) and perhaps also skill building of bystanders (as SEEDS training).

This study has limitations. Self-selection bias may well be operating in this study and may have produced a stronger relationship between training and active bystander behaviors than we might see in a student randomized intervention with Green Dot and SEEDS training. Indeed, VIP-involved students who did not receive SEEDS training also performed better on outcome measures than Green-Dot-only or no intervention participants. It is likely that those who chose to receive SEEDS training and volunteer at VIP may be those with greater interest in violence prevention and possibly those who are already more likely to engage in active bystander behaviors because they or someone they know may have experienced violence or they had another important connection to violence and need for prevention efforts. Unfortunately, the question used to determine VIP involvement (“Have you been to or volunteered at the VIP on campus?”) does not allow us to distinguish those who received services (primarily counseling) at VIP from those who were exclusively volunteers. Students in these two groups may differ in their motivations to engage in violence-prevention efforts, including active bystander behaviors. For this reason, we opted to use a hierarchical Green Dot matrix to distinguish those who had SEEDS training from those engaged at VIP yet had not received SEEDS training. This is a limitation we are also planning to address in future data collection efforts. The SEEDS/Green Dot training program is based on the identification and recruitment of POLs for training. Although training is open to all interested students, there is a targeted effort toward POLs. With this recruitment strategy, we cannot assume that those who receive training are the same as those who do not. Thus, it is possible that student characteristics (e.g., interest in violence prevention) may explain the observed increase in reported active bystander behaviors. We do not have information on whether students receiving SEEDS training were identified and recruited as POLs or whether they were campuswide volunteers. SEEDS training, as noted, is open to all students. This lack of data is a limitation that we will also address in ongoing data-collection and analysis efforts.

A randomized trial is needed to determine whether training alone increases active bystander behaviors and ultimately reduces violence rates among college students. VIP has made a conscious effort to engage the social fraternities and sororities in both Green Dot and SEEDS training. Longitudinal studies are needed to measure changes in attitudes, active bystander behaviors, and sexual and dating violence incidence among those receiving bystander intervention training relative to those receiving no intervention over multiple time periods and multiple college campuses.

Our results suggest that Green Dot significantly increased both observed and actual active bystander behaviors in the general population of UK students. What remains to be understood is to what extent SEEDS training, which is primarily bystander capacity and efficacy building, may be superior to Green Dot speeches.

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