

7-1-2020

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Who Are the Mavens of Bystander Intervention? Implications for the Social Diffusion of Intervention Norms

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Abstract

A recent randomized controlled trial reported that Green Dot (GD)—a bystander intervention training program that targets popular opinion leaders for intensive training—reduced school-level interpersonal violence perpetration and victimization. Expanding GD's targeted group members to include “mavens” of bystander intervention—those who spread bystander intervention norms to others by communicating with peers—may increase the effectiveness of such training. Self-report data collected from students at the 13 intervention high schools in Kentucky are analyzed to identify characteristics of those who engage in discussions with peers about preventing interpersonal violence. Findings show that students who engage in more frequent bystander behaviors are more likely to have such conversations with peers, but GD participants were no more likely than nonparticipants to discuss preventing interpersonal violence with peers.

Keywords

victimization, popular opinion leaders, Green Dot, bystander intervention, peer discussion

With the advent of new social media forums, the dissemination of information can be faster and farther-reaching than at in any time in history. This social change could have important implications for the diffusion of social norms, especially for teenagers

who, on average, spend 6.5 hr on screen media each day, 26% of this time being spent communicating with others (Common Sense Media, 2015). Adolescents spend an average of 38 min per weekday and 1 hr and 6 min per weekend day socializing in person (not including time they spend communicating with peers during classes, extra-curriculars, and other activities) (“A Day in the Life,” 2019). Thus, teens have ample opportunities to communicate with their peers 24 hr a day, 365 days a year.

In an effort to reduce rates of interpersonal victimization and perpetration among adolescents, many schools in the United States have implemented bystander intervention (BI) training programs, such as Green Dot (GD), Bringing in the Bystander, Take Care, Mentors in Violence Prevention Program, Men’s Program, Step Up!, One Act, and One in Four, to name a few (Kingkade, 2016). The success of these programs depends heavily on the assumption that participating students will share with their peers the BI norms they learned during their training and that these norms will then diffuse throughout the student population. One medium to share and diffuse BI norms, that is, behaviors that are used to intervene to stop or prevent an act of violence from occurring, is through peer-to-peer communication about those norms. Despite potential to diffuse BI norms through the high rates of communication, it is surprising that this relationship has been largely overlooked by BI researchers. This oversight has resulted in an important unanswered question about whether the students who receive BI training are diffusing the prevention strategies through peer communication. This deceptively simple, yet unanswered, question is at the foundation of evaluating whether the distinct goal of diffusing BI norms is accomplished after training.

This study takes a logical next step in the BI training effectiveness field and focuses on the diffusion of BI norms through peer-to-peer communication in one BI training program, GD. In doing so, this study poses two research questions that are central to the diffusion of BI norms:

Research Question 1: Is there a relationship between certain characteristics and experiences of high school students and the likelihood that they engage with their friends in preventive and protective discussion about sexual and dating violence (herein referred to as peer discussion)?

Research Question 2: Is there a relationship between students' frequency of bystander experiences and whether they engage in peer discussion?

Addressing these questions contributes to more fully understanding the effectiveness of BI training programs in two ways. First, the answers will provide description of which students are most likely to diffuse BI norms, and therefore should be primary targets for training. Second, insight will be gained into whether those who intervene are also diffusing BI norms, the mechanism by which GD is expected to have a community-wide effect on violence victimization and perpetration. Collectively, the findings from this study can provide much-needed insight to BI researchers and trainers into which students may more actively work to diffuse BI norms apart from those students who programs may specifically target for BI training. We posit that in addition to targeting the most popular, well-respected students for training (i.e., popular opinion leaders [POLs]; see Rogers, 1983), GD should also consider targeting students who possess extensive knowledge about or have a vested interest in reducing interpersonal violence (i.e., "market mavens"; see Feick & Price, 1987).

To answer these two questions, we analyzed secondary survey data from students enrolled in 13 high schools throughout Kentucky collected as part of a 5-year randomized controlled trial (RCT) of the GD program. Before turning to the methods and findings, we first present a review of the empirical evidence of the effectiveness of BI training programs. Next, we describe how and why ideas underlying Rogers's (1983) diffusion of innovations model provide a theoretical basis and how the concept of "market mavens" offers a conceptual framework for understanding the diffusion of BI norms in our sample of high school students.

The Current State of Empirical Evidence on BI Training Programs

Results from the 2017 national Youth Risk Behavior Surveillance System (YRBSS) indicated that 9.7% of students in Grades 9 to 12 had been forced into sexual violence (e.g., kissing, touching, or being physically forced to have sexual intercourse when they did not want to) during the 12 months before the survey (Centers for Disease Control and Prevention, 2017). Among those who dated or went out with someone in

the last 12 months, 6.9% had experienced sexual violence and 8.0% had been physically hurt on purpose by someone they were dating during the 12 months before the survey. Federal stakeholders have called for BI programs to be used to combat the prevalence of sexual and dating violence among high school students (White House Task Force to Protect Students from Sexual Assault [U.S.], 2014).

Recent evaluations of BI training have reported promising results. For example, evaluations show that BI training effectively reduces rape myth acceptance (see, for example, Banyard et al., 2007; Coker et al., 2011), increases self-reported likelihood to intervene (Langhinrichsen-Rohling et al., 2011), and increases frequency of bystander behaviors (Banyard et al., 2007). Perhaps the most positive findings are that of the RCT of GD training of students at 26 high schools in Kentucky, which found that “Significant [condition by time] interactions indicated [GD] effectiveness to reduce sexual violence perpetration, victimization, and other forms of interpersonal violence over time” (Coker et al., 2017, p. 575).

Due to the limited nature of the research on BI training, the question of *how* training reduces violence perpetration or victimization remains. The GD curriculum emphasizes that violence perpetration and victimization may be reduced when trainees discuss BI norms with their peers, thereby diffusing BI norms throughout the high school community (Edwards, 2014). Drawing upon Rogers’s diffusion of innovations model, GD targets POLs for intensive training in which they learn BI techniques. However, greater knowledge of which students are more likely to communicate with peers about preventing such violence—those in Rogers’s model outside of persons who are identified as POLs—could inform participant selection processes for GD and other BI training programs.

The Diffusion of Innovations Model and GD BI Training

In 2006, Dr. Dorothy Edwards developed GD at the University of Kentucky (Cook-Craig et al., 2014). Unique from other BI programs, Edwards drew from Rogers’s (1983) diffusion of innovations model to develop her training materials that emphasize how sexual and dating violence can be reduced when a critical mass of individuals adopt BI norms and the norms diffuse throughout the community.

Rogers’s (1983) diffusion of innovations model proposes that adopters spread

innovation—for example, a new idea, norm, or practice—through communication channels. Adopters use these channels, which include inter- personal communication, to diffuse innovation to members of a social system. Rogers (1983) further suggests that early adopters of an innovation tend to have traits that affect their likelihood to adopt an innovation. One such trait, opinion leadership, is the ability “to influence other individuals’ attitudes or overt behavior informally in a desired way with relative frequency” (p. 27).

GD is premised on the notion that BI norms will diffuse throughout a community if those with opinion leadership are targeted for training. The program employs a systematic and empirically supported method of identifying influential students, whom GD labels “Popular Opinion Leaders.” The POLs are identified “using a qualitative strategy for triangulating information on influential students by asking a broad set of key informants to nominate persons based on a set of name-generator questions” (Cook-Craig et al., 2014, p. 1184). The nominated students are “the most popular, well- liked, and trusted” members of the population in which the program is implemented (Kelly, 2004, p. 141). The expectation is that when POLs “visibly adopt, endorse, and support an innovative behavior,” others will be more likely to follow their lead (Edwards, 2014, para. 4). The targeting and training of POLs may be among the reasons that GD has been shown to be effective in reducing interpersonal violence perpetration and victimization in schools (Coker et al., 2017).

In addition to opinion leadership, it is important to identify other characteristics of students who actively communicate with their peers to diffuse bystander norms. This information can then be used to target students who do not fit the POL “popular, well- liked and trusted” criteria but nonetheless are diffusing BI norms among their peers. Under Rogers’s diffusion of innovations model, opinion leaders are not the only type of people who influence the adoption of innovative behaviors; others—called “change agent aides”— can also support the diffusion process among their peers—peers that perhaps POLs are not reaching.

Regarding the GD program, students who are trained in BI could be considered change agent aides. Change agent aides can be particularly effective in facilitating diffusion when there is some “heterophily gap between professional change agents and

clients,” such as the gap that exists between social researchers with PhDs and high school students (Rogers, 1983, p. 313). Aides have some technical training, and although they are not professionals, they “are enough like the client to serve as a comparable role model” and “If the aide has already adopted an innovation that he or she is promoting, his or her personal experience with the new idea helps to reduce the clients’ uncertainty in evaluating it” (Rogers, 1983, p. 328). Unlike opinion leaders who “serve as a social model whose innovative behavior is imitated by many members of the [group],” change agent aides affect innovation adoption by actively communicating with members of the group about the innovation (Rogers, 1983, p. 28).

Consistent with this concept, part of the GD curriculum is that trainees are expected to communicate with others about sexual and dating violence and BI strategies (Edwards, 2014). If GD trainees are thought of as change agent aides as well as POLs, then GD trainers should consider what characteristics make for an effective change agent aide. Aside from being socially similar to the “clients” they wish could adopt the innovation, Rogers (1983) does not provide detailed guidelines by which agencies should select change agent aides, and aides have not been researched as extensively as change agents and opinion leaders (Vejlgaard, 2016). The concept of market mavens applied often in economics may be useful in identifying the characteristics of effective change agent aides.

Market Mavens as Conceptual Framework for Identifying Effective Change Agent Aides

Economists refer to people who spread information about products using personal knowledge upon which others are confident they can rely as “market mavens” (Feick & Price, 1987). Gladwell (2000) adopts this idea to explain that mavens, who possess extensive knowledge about certain topics or phenomena or who have a vested interest in the diffusion of that knowledge, can spread that knowledge through their unique desire and capacity to educate others. Individuals who fit these criteria for mavens may be effective change agent aides in that they possess some specialized knowledge about a topic and in that they actively seek to communicate with others about the topic. For example, BI mavens may view themselves as at risk of sexual or dating violence, and

therefore are more likely to make efforts to diffuse BI norms. Thus, it may be prudent to identify BI mavens by considering which students are most likely to have extensive knowledge of or experience with sexual and dating violence or who may have a strong stake in spreading knowledge about intervention strategies.

Characteristics of Possible BI Mavens

Various individual characteristics may be substantively important for identifying those who are more likely to have peer discussions. For example, young women are more likely to experience sexual or dating violence than men (see, for example, Cantor et al., 2015; Marquart et al., 2007; Smith et al., 2018), and researchers have consistently found over the past two decades that women have greater fear of crime than men do, and that this fear of crime in general is largely explained by women's fear of rape (see, for example, Fisher & Sloan, 2003). If women are more likely to experience sexual and dating violence and more likely to be fearful of crime than men, they may be more likely to have peer discussions about preventing sexual and dating violence. Thus, gender should be considered as a potential predictor of whether a student has peer discussions. In addition, an individual's experiences with sexual or dating violence may be related to their proclivity to engage in peer discussions. Only a small percentage of those who experience sexual assault report to law enforcement; they are more likely to disclose the assault to an informal resource (e.g., a friend, family member, intimate partner; see, for example, Cantor et al., 2015; Fisher et al., 2003). Conversations with peers may be one way that survivors of sexual assault cope with their victimization.

It is also possible that students who frequently engage in behaviors that are known to be risk factors for sexual or dating violence may be more likely to engage in peer discussions. One such risky behavior is alcohol use. Data from the 2003 YRBSS show, among high school students, that current drinkers "were more likely [than nondrinkers to] . . . experience dating violence [or] have forced intercourse" (Miller et al., 2007, p. 79). Vander Ven (2011) found that college students often recognize the risk of negative outcomes of drinking, including sexual and dating victimization, and use "drunk support": cooperative strategies to reduce risk and manage problems that arise while

drinking (p. 169). High-school students may also engage in collaborative risk reduction, and this may include preventive and protective discussions with co-drinkers. Thus, this study will consider whether engaging in risky drinking behaviors is associated with having peer discussions about preventing dating or sexual violence.

Perhaps most important to GD program developers is whether a person has preventive and protective discussions with their peers should be strongly related to whether they engage in preventive and protective behaviors. GD trainees are expected to not only intervene when there is an opportunity to do so, but also to discuss sexual and dating violence and bystander strategies with their peers (Edwards, 2014). Thus, students who more frequently intervene in situations where a person may be victimized are expected to be more likely to have peer discussions, as are students who have been more frequently exposed to others who engage in prosocial BI behaviors. The following section describes the hypothesized relationships between the key constructs discussed above and the likelihood a student has had a peer discussion about preventing dating and sexual violence.

The Current Study

Informed by Rogers's diffusion of innovations model and the concept of market mavens, this study explores change agent aides within a sample of students who attend high schools in Kentucky where GD was implemented for 4 years. If the characteristics described previously are associated with having had a peer discussion, they may be considered characteristics of BI mavens.

Research Question 1 asks, "Is there a relationship between certain characteristics and experiences of high school students and the likelihood that they engage with their friends in peer discussions?" To answer this question, we test three hypotheses: Students (1) who are female, (2) who have experienced more negative outcomes of alcohol consumption, and (3) who have higher scores on physical dating abuse, verbal/emotional dating abuse, stalking, or sexual assault scales are more likely to have had peer discussions than are students who are male, who have experienced fewer negative outcomes of alcohol consumption, and who have lower scores on the physical dating abuse, verbal/emotional dating abuse, stalking, or sexual assault scales,

controlling for race, socioeconomic status (SES), and year in school.

Research Question 2 asks, “Is there a relationship between students’ frequency of bystander experiences and whether they engage in peer discussion?” We hypothesize that students who have a higher score on BI behavior scales are more likely to have had peer discussion than students who did not engage, controlling for race, SES, and year in school. Specifically, students who more (4) frequently intervene or (5) observe others intervening are more likely to have had peer discussion than are students who have fewer such bystander experiences, controlling for race, SES, and year in school. Testing these hypotheses to answer these two research questions contributes to the ability of BI programs to identify and target students for training who will be most impactful in the social diffusion of BI norms.

Method

Data from the final year of a 5-year RCT assessing GD effectiveness among high school students throughout Kentucky were analyzed to answer the posed research questions and to test the five hypotheses. The University of Kentucky Institutional Review Board approved the primary study conducted by Coker and colleagues (2017). Students completed a 99-item paper and pencil survey which was administered either in classrooms or in an auditorium during school hours in the 2015 Spring semester:

Letters describing the study were mailed to all parents annually. If parents did not want their child to participate, parents could contact researchers by phone or email with their student’s name and school; surveys were not given to these students. (Coker et al., 2017, p. 568)

On the day the survey was administered, “research staff read elements of assent to all students” either via a video recording or using a script in person. After the presentation of the instructions, students could also choose not to participate. No compensation or reward was given for participation. Of the students in the Year 5 sample who attended the schools that received GD training ($n = 10,587$), 20.58% ($n = 2,079$) declined to participate or did not participate because their parents refused

consent. The response rate was 79.5% ($n = 8,408$).

Sample

Cluster random sampling was used to identify public high schools for the RCT (Coker et al., 2017). The researchers identified 46 high schools within the regions of 13 rape crisis centers in Kentucky. Schools with fewer than 100 students per grade ($n = 10$) were excluded from the sampling frame. Then, “two demographically similar high schools [within each of the 13 regions] were identified and randomized” to receive the intervention (GD training annually over 4 years) or the control (no training) (Coker et al., 2017, p. 568). Only students from the 13 schools that received GD training are included in this study.

Students who report having no opportunity to engage in any peer discussion (30.80%, $n = 2,590$) were excluded. Multiple imputation was used with the *mi estimate* program in Stata to retain all remaining cases for analysis; the final analytic sample is 5,818 students.

The demographic characteristics of the sample (see Table 1) are similar to statewide demographics of K-12 students in 2016. For example, the Kentucky Department of Education lists the “ethnicity of public school students” as 79% White (compared with 80% in the current sample) and lists the percent- age of public school students “eligible for free or reduced-price meals in public schools” at 70.57% (compared with 52% in the current sample). Some variation is to be expected given that these statistics are all for public school students while the sample includes high school students only (“Kentucky Education Facts,” 2017).

Measures

Table 1 presents the descriptive statistics for all the variables of interest. We also report the factor loadings, variance explained, and Cronbach’s alpha for all multi-item measures; all Cronbach’s alpha levels are acceptable ($\alpha = .60$ or higher; see Tavakol & Dennick, 2011). As Koss and colleagues (2007) explain, with some multi-item variables, “observed variables combine to form a new variable that represents a category or set of experiences” (p. 363). Similarly, Streiner (2003) argues that Cronbach’s alpha is not

Table 1. Descriptive Statistics for Variables of Interest.

Variables	\bar{X}	SD	Percent Missing
Dependent variable			
Peer discussion	0.42	0.49	0.00
Independent variables			
<i>Characteristics</i>			
Female	0.54	0.50	0.17
Risky drinking	0.42	0.87	1.56
<i>Victimization experiences</i>			
Physical abuse	1.29	3.99	6.33
Verbal/Emotional abuse	2.36	4.63	7.08
Stalked	1.62	3.77	0.14
Sexual assault	1.07	3.90	0.15
<i>Bystander experiences</i>			
Bystander behaviors	4.13	7.04	0.03
Observed intervention	4.42	7.35	1.80
Control variables			
Non-White	0.20	0.40	0.46
Year in school	2.23	1.08	0.36
Free/Reduced meal	0.52	0.50	0.91
GD POLs training	0.08	0.27	0.40

Note. Descriptive statistics are reported for all cases who reported at least one opportunity to have a peer discussion with valid (i.e., not missing) data prior to multiple imputation ($n = 5,204$). Percent missing reflects the percentage of cases in the initial sample who reported at least one opportunity to have a peer discussion ($n = 5,818$) with missing values prior to listwise deletion of these cases. The items used for all multi-item measures can be found in Cook-Craig et al. (2014). GD POLs = Green Dot Popular Opinion Leaders.

necessarily an appropriate indicator of the reliability of a measure when the measure is composed of items which themselves are “causal indicators” that “define the construct” rather than “effect indicators” of the construct (p. 217). For the victimization experiences variables and bystander experiences and observations variables, the items included in the multi-item measures are indicators of experiences which define the constructs, rather than indicators of the effects of the construct. Therefore, the relatively low Cronbach’s alpha levels should not be considered serious threats to the reliability (i.e., internal consistency) of these measures (Koss et al., 2007; Streiner, 2003).

Dependent Variable

The dependent variable is engagement in peer discussion. As presented in Table

2, the four items used to measure peer discussion capture different modes of communication where friends talk about the prevention of or protection against dating violence or unwanted sexual activity (the reference period for each item was “in the past 12 months”). For example, students may discuss specific bystander interventions that they can use if they believe one of their friends is experiencing sexual or dating violence. Exploratory factor analysis (EFA) shows that the four items load on one factor and Cronbach’s alpha is acceptable at .83. A dichotomous variable was created that measured whether respondents indicated they engaged in any one of four *peer discussions* in the past 12 months (1 = yes) or not (0 = no). Forty-two percent indicated they had engaged in at least one peer discussion in the past 12 months.

Independent Variables

The independent variables are divided into the following categories: (a) characteristics, (b) victimization experiences, and (c) bystander experiences.

Characteristics. Two characteristics of students are measured: *female* and *risky drinking*. Female is measured as students’ self-identified sex, either male (0) or female (1). Females comprise over half (54%) of the sample.

The four items that captured negative outcomes of alcohol use load onto one factor and have an acceptable Cronbach’s alpha. The *risky drinking* measure is a count from 0 to 4 of the number of negative outcomes the student had experienced in the past 12 months from drinking alcohol. The majority of students ($n = 3,973$; 77.20%) indicated that they had not experienced any of the negative outcomes, whereas few students had experienced all four negative outcomes ($n = 80$; 1.5%).

Victimization experiences. EFA was conducted with 12 victimization items; four factors were extracted (42.36% variance explained): *physical abuse* (three items, for example, a boyfriend or girlfriend “hit, slapped, or physically hurt you on purpose”; factor loadings range from .74 to .89; Cronbach’s $\alpha = .79$), *verbal/emotional abuse* (two items, for example, a boyfriend or girlfriend “shouted, yelled, insulted, or swore at you”; both factor loadings were .89; Cronbach’s $\alpha = .73$), *stalked* (three items, for example, “showed up at

Table 2. Exploratory Factor Analysis: Peer Discussion and Risky Drinking.

Variable and Items	Loading Factor	\bar{X}	SD
Peer Discussion: KMO = .76; Bartlett's test of sphericity ($\chi^2 = 7,287.99$; $df = 6$; $p = .000$); Cronbach's $\alpha = .83$.			
How many times have you and your friends ever text-messaged, instant messaged, blogged, emailed each other, or used other technology to discuss activities or things you could do to prevent dating violence or unwanted sexual activity?	.85	.46	1.33
How many times have you talked with your friends about what you can do to keep yourself or others safe from dating violence or unwanted sexual activity?	.84	.38	1.24
How many times have you and your friends ever talked about activities you could do or join them in activities that might help prevent dating violence or unwanted sex in your school or your community?	.78	.58	1.54
How many times have you talked with your friends about being safe in dating relationships?	.81	.32	1.14
Risky Drinking: KMO = .70; Bartlett's test of sphericity ($\chi^2 = 3,951.77$, $df = 6$, $p = .000$); Cronbach's $\alpha = .72$.			
Afterwards been unable to remember things that happened while you were drinking? (things you would normally remember)	.80	.15	0.36
Done things when drinking that you normally would not do and you now regret doing?	.77	.13	0.33
Gotten into a fight or done poorly at work or school due to drinking alcohol?	.70	.06	0.24
Missed a day or more of work or school due to drinking alcohol?	.69	.05	0.22

Note. Exploratory factor analysis (EFA) results are reported for all cases with valid (i.e., not missing) data prior to multiple imputation ($n = 5,204$). All items were prefaced with a version of "in the past 12 months." EFA used varimax rotation and principal components extraction. For all multi-item measures, the value of the measure was computed for all cases that had a valid value for at least one item in the measure. KMO = Kaiser–Meyer–Olkin.

your home, school, or work or waited for you when you did not want them to"; factor loadings range from .72 to .81; Cronbach's $\alpha = .61$), and *sexual assault* (four items, including having sexual activities by threat of force, physical injury, threatening to end

relationship, or when drunk or using drugs; factor loadings range from .78 to .85 (Cronbach's $\alpha = .82$). Each item is coded as follows: 0 = 0 times, 1 = 1 to 2 times, 3 = 3 to 5 times, 6 = 6 to 9 times, 10 = 10+ times. Using the same items and coding scheme as Coker et al. (2017) in the GD RCT, each victimization variable is an additive sum of all items that loaded onto the respective factor. The reference period for each item was in the past 12 months.

The largest percentage of students experienced *verbal/emotional abuse* (42.5%) at least once in the past 12 months. A smaller percentage of students experienced *stalking* (36.3%), *physical abuse* (23.1%), or *sexual assault* (19.5%) at least once in the past 12 months.

Bystander experiences. Two bystander experiences variables were created. First, *bystander behaviors* is a measure comprising seven items (e.g., "talk to a friend who was being physically hurt by a boyfriend/girlfriend"; each coded 0 = 0 times, 1 = 1 to 2 times, 3 = 3 to 5 times, 6 = 6 to 9 times, 10 = 10+ times) that load onto a single factor (factor loadings range from .58 to .78) and has an acceptable level of reliability (Cronbach's $\alpha = .78$). Students' responses to the seven survey items were summed to capture the frequency the respondent used a BI strategy in the last 12 months.

Second, *observed intervention* is a composite measure summed across seven items (e.g., "tell someone to stop talking down to, harassing, or messing with someone else"; each coded 0 = 0 times, 1 = 1 to 2 times, 3 = 3 to 5 times, 6 = 6 to 9 times, 10 = 10+ times) that captured the frequency the respondent observed someone at their school engaging in a BI behavior in the last 12 months (factor loadings range from .62 to .82; Cronbach's $\alpha = .85$).

Control Variables

Four control variables are included: *non-White*, *year in school*, *free/reduced meal*, and *GD POLs training*. To account for potential racial differences in likelihood to have peer discussions, we use *non-White* as a measure of race: White (0) or Non-White (1). Non-White includes American Indian or Alaska Native, Asian, Black or African American, Hispanic or Latino/Latina, or Other. Twenty percent of the students selected

non-White racial responses. We also control for *year in school*: Freshman (coded 1; 33.1%), Sophomore (coded 2; 27.1%), Junior (coded 3; 23.6%), or Senior (coded 4; 16.2%).

SES is measured with a proxy measure, *free/reduced meal*. Respondents were asked, “Do you receive a free or reduced-price meal through your high school?” and coded No (0) or Yes (1). Whether a student receives a free or reduced-price meal from their school has been used as an indicator of SES in prior research and has been evaluated as a valid and reliable proxy for SES in adolescent school-based samples (Nicholson et al., 2014). Over half, 52%, of the students indicated they received free or reduced-price meals.

Whether a student received in-depth *GD POLs training* was also controlled for statistically. As the data analyzed included only students who attended schools where GD was implemented, it would be possible for the students who had peer discussions to be mostly those who had received in-depth GD training as POLs (Coker et al., 2017, para. 1). Furthermore, there may be some overlap between those who fit the criteria for POLs and those who may be mavens. Thus, controlling for GD training allows for the estimation of the effect of the independent variables on whether or not a student has had a peer discussion, accounting for the variation explained by whether or not that student was identified as a POL and received training. The full training was for 5 hr (Cook-Craig et al., 2014), but to more conservatively capture students who were identified as POLs, *GD POLs training* was coded with 0 = 2 hr of GD training or less (less than half of the full training) received and 1 = 3 hr of GD training or more (more than half of the full training). Respondents who had received ≥ 3 hr of GD training comprise 7.8% of the sample.

Multivariate Analyses

Multivariate logistic regression is used to test the stated five hypotheses about whether or not a student engaged in peer discussion. Model diagnostics (available upon request) indicate that the assumptions of linearity and model discrimination are met. Additional diagnostics were conducted with the logistic model prior to multiple imputation (i.e., using listwise deletion). Model calibration was assessed with the

Hosmer–Lemeshow goodness-of-fit test. The null hypothesis of this test is rejected ($\chi^2 = 288.827$, $df = 8$, $p = .000$), indicating poor model fit. However, this may be due to the large number of cases, which can inflate the chi-square test statistic (Norusis, 2008). Tolerance and variance inflation factor (VIF) values indicate that multicollinearity is likely not a statistical issue (Norusis, 2008; all tolerance values were ≥ 0.532 , all VIF values were ≤ 1.88).

Results

The results of the logistic regression model estimated are reported in Table 3. Although the measures for having experienced *physical abuse*, *verbal/emotional abuse*, *stalking*, and *sexual assault* and having engaged in *bystander behaviors* and *observed intervention* were recoded so that they could be treated as continuous variables, we caution against interpreting the odds ratio as indicating the change in the odds of having a peer discussion for each “incident” of abuse/assault/bystanding because the variables were initially captured with ordinal categories.

Table 3. Logistic Regression of Peer Discussion on Independent and Control Variables (N = 5,818).

Variable	β (SE)	OR	95% CI for OR
<i>Characteristics</i>			
Female	.360 (.064)***	1.433	[1.263, 1.625]
Risky drinking	.283 (.039)***	1.327	[1.229, 1.433]
<i>Victimization experiences</i>			
Physical abuse	-.020 (.012)	0.980	[0.958, 1.003]
Verbal/Emotional abuse	-.007 (.009)	0.993	[0.975, 1.011]
Stalked	.020 (.011)	1.020	[0.999, 1.041]
Sexual assault	-.008 (.012)	0.992	[0.969, 1.016]
<i>Bystander experiences</i>			
Bystander behaviors	.155 (.009)***	1.167	[1.148, 1.188]
Observed intervention	.129 (.009)***	1.138	[1.119, 1.158]
<i>Control variables</i>			
Non-White	.262 (.078)**	1.300	[1.115, 1.516]
Year in school	.001 (.007)	1.001	[0.988, 1.014]
Free/Reduced meal	-.232 (.063)***	0.793	[0.701, 0.898]
GD POLs training	-.045 (.067)	0.956	[0.889, 1.029]

Note. Largest Fraction of Missing Information (FMI) = 0.098. OR = odds ratio; CI = confidence interval; GD POLs = Green Dot popular opinion leaders.

* $p \leq .05$. ** $p \leq .01$. *** $p \leq .001$.

Hypothesis 1 was supported by the model, given the respective statistical significance of the β coefficients for *female* ($p \leq .001$) and *risky drinking* ($p \leq .001$). Female students were 1.43 times more likely to have a peer discussion than male students. Hypothesis 2 was supported, as the odds of having a peer discussion increases by a factor of 1.33 for each additional negative outcome of *risky drinking* a student has experienced.

Hypotheses 4 and 5 were fully supported by the model. Students were significantly more likely ($p \leq .001$), by a factor 1.17, to have a peer discussion for each additional unit on our scale of BI behaviors. Students were 1.14 times more likely ($p \leq .001$) to have a peer discussion for each additional unit on our scale of observed BIs.

However, the coefficients for *physical abuse*, *verbal/emotional abuse*, *stalked*, and *sexual assault* were nonsignificant. The hypothesized relationship between these variables and *peer discussions* was not supported. Students who received a *free/reduced meal* were significantly ($p \leq .001$) less likely (by a factor of 0.79) to have a peer discussion than students who did not receive a free/reduced meal, and *non-White* students were significantly ($p \leq .001$) more likely (by a factor of 1.30) to have a peer discussion than were White students. The coefficients for the other control variables, *year in school* and *GD POLs training*, were not statistically significant.

Discussion

Rogers's (1983) concept of change agent aides are distinct social actors who can influence the adoption of social norms. We use the criteria for market mavens (Feick & Price, 1987; Gladwell, 2000) to identify the characteristics of students who may be BI mavens, and therefore effective change agent aides. We argue that BI mavens can aid in the adoption of BI norms but may not be the same students as those who are identified as POLs for intensive BI training.

The hypotheses that students who are *female* and students who have experienced more negative outcomes of *risky drinking* are more likely to have had a peer discussion than are students who are male and students who have experienced fewer negative outcomes of risky drinking were supported by the data. This was expected given that prior research shows women are more likely to fear sexual and dating

violence than men (Fisher & Sloan, 2003) and students who engage in risky drinking may be at greater risk of sexual or dating violence victimization (Miller et al., 2007). Thus, these students may have a greater stake in diffusing norms that can reduce sexual violence and interpersonal violence than their peers who do not perceive themselves at risk due to their gender or drinking behaviors. The model also supports the hypotheses that the more a student had engaged in or observed BI behaviors, the more likely they are to have had peer discussions. This suggests GD's underlying theory—that students who engage in BI or observe others intervening will attempt to spread intervention norms to their peers—is empirically supported.

Having experienced *physical abuse, verbal/emotional abuse, stalking, and sexual assault* was not a significant predictor of whether a student had a peer discussion. Given that this study analyzed the data collected during the fifth year of the RCT, and considering that Coker and colleagues (2017) found that GD reduced interpersonal violence perpetration and victimization at the schools where it was implemented, it is possible that differences in victimization experiences between those who engaged in peer discussions and those who did not existed at baseline (before GD was implemented) but diminished over the course of the GD program. Future studies of the diffusion of BI norms should consider examining how and why victimization experiences differentially affect peer discussions over time as violence is reduced and BI norms are diffused.

Two demographic variables also were statistically significant predictors of whether students had peer discussions. First, *non-White* students were significantly more likely than White students to have had peer discussions. Considering this finding, and the fact that students from all racial groups experience victimization, BI programs may want to consider ways to ensure the group of individuals who receive intensive training is inclusive to persons of color. Future research should explore whether there are barriers to BI that are unique to students of color or that are unique to White students. Second, students who received or were eligible to receive a *free/reduced lunch* were significantly less likely to engage in peer discussions than students who were not eligible, net of other factors. Rogers (1983) argues that opinion leaders tend to be of higher SES relative to others in a social group. This proposition, in concert with the findings of this

study, suggests there may be unique barriers to students to having peer discussions that are related to SES.

The finding that *GD POLs training* was not a significant predictor of whether a student had a peer discussion suggests that POLs may not be the only students who spread bystander norms. One possibility is that bystander norms had diffused throughout the school culture by the fifth year of data collection, and as such, students who did not receive training were just as likely to have had a peer discussion as those who did receive training. Another possibility is that there are students who are not identified as POLs but are “mavens” of BI, who have advanced knowledge of or experience with sexual and/or dating violence and a vested interest in spreading bystander norms. If this is the case, BI programs may want to consider how they can identify mavens outside of the POL identification process to better target for training the change agent aides with the most influence potential.

Although these findings have interesting program implications, their interpretations may not be generalizable to populations outside of Kentucky high school students. Given that GD is implemented in various types of organizations, including university and corporate settings, future research should explore the research questions of this study with samples of individuals that represent these different groups. Similarly, this was the last year of data collection in schools that had received GD training, and given the positive findings of the RCT (Coker et al., 2017), the degree to which students have peer discussions may be different among students from schools that have not implemented GD. Thus, the implications of this study may be most relevant for considering how students are identified for GD training in subsequent years of the program, after the process of social diffusion has already begun. From these findings, limitations, and directions for future research, several conclusions can be drawn.

Conclusion

We sought to identify the characteristics, victimization experiences, and bystander behaviors/observations of students who engage their peers in discussions about preventing sexual and dating violence. We argued that students with extensive knowledge about or a vested interest in preventing sexual and dating violence could be

considered mavens of BI, and therefore could fulfill the role of change agent aides described in Rogers's (1983) diffusion of innovations model.

Despite the aforementioned limitations of this study, our analysis provides several important insights to GD program coordinators and BI programs in general. First, BI program developers may want to consider using a process for selecting students for training, which accounts for whether a student is already frequently engaging in or observing intervention behaviors and therefore may be more likely to have peer discussions. We also found that students who have experienced physical dating abuse, verbal/emotional dating abuse, stalking, or sexual violence were not significantly more likely than students who have not experienced these forms of violence to have a peer discussion; therefore, it may be useful for BI programs to address prior victimization and issues of trauma that may be barriers to participants' efforts to diffuse bystander norms.

It is also important to note that these findings are only generalizable to students who had an opportunity to have peer discussions (because those who reported having "no opportunity" to all peer discussion variables were excluded from the sample—30.80% of all survey respondents). Thus, another interesting topic for future research is to explore the characteristics of those who reported having "no opportunity" to have peer discussion. These students may have unique characteristics that are barriers to having discussions with peers, or they simply may not experience risky situations that could prompt them to have such discussions. Future development of the GD program (and evaluations of the program) could consider how trainers can engage students who are less likely to have peer discussions so that diffusion might occur more quickly and more broadly among a high school population. Assessment of such outcomes is an empirical question that would need to be answered by building relevant measures into future evaluations of BI training programs.

Given the implications of the conclusions drawn here, future research should explore whether the mavens of BI are captured in the POL identification process. As conceptualized here, the mavens of BI are those who are most enthusiastic about preventing sexual and dating violence or who have the greatest stake in protecting themselves from sexual and dating violence. These may not be the most popular students in the school (POLs), yet they may still be influential in diffusing BI norms

throughout the student population at their school if they fit the role of Rogers's (1983) change agent aides. BI program developers should ask "who are the mavens of BI?" and consider the findings of this study as they continue to implement and evaluate the effectiveness of BI training.

Acknowledgments

The authors would like to thank Dr. Ann Coker and Dr. Heather Bush of the University of Kentucky for providing the data set analyzed in the current study and for providing feedback on drafts of the manuscript.

Declaration of Conflicting Interests

The author(s) declared no potential conflicts of interest with respect to the research, authorship, and/or publication of this article.

Funding

The author(s) disclosed receipt of the following financial support for the research, authorship, and/or publication of this article: The original Green Dot across the Blue Grass study was funded by the Centers for Disease Control and Prevention Cooperative Agreement 5U01CE001675.

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