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Predictors of Uptake and Retention in an Intervention to Improve Social Reactions to Disclosures of Sexual Assault and Partner Abuse

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Abstract

Objective.—Examine uptake (e.g., initial session participation) and retention (e.g., booster session participation) in an intervention about responding to sexual assault and partner abuse disclosures.

Participants.—Participants were 836 students (primarily White; upper-middle class) at a medium-sized university.

Method.—Participants completed baseline surveys, were invited to a two-session intervention, and responded to a follow-up survey.

Results.—Initial session attendance was 36.2% ($n = 303$); of those, 83.1% ($n = 252$) attended the booster. Women, sexual minority students, and students with fewer prior negative reactions, and higher initial session satisfaction were more likely to attend than other students. Participants' reported reasons for not attending included scheduling problems and topic discomfort. Participants reported that remote attendance and higher cash incentives would have made attendance more likely.

Conclusion.—Findings indicate the draw of cash incentives, a need to reach high-risk students and integrate into existing organizations, and the potential for individualized prevention.

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Declaration of Interest Statement

The authors declare no conflict of interest.

Keywords

sexual assault; intimate partner violence; intervention; recruitment; retention

Sexual assault (SA) and partner abuse (PA) are major public health issues that require interventions that not only prevent SA and PA but also improve response to SA and PA. However, recruitment and retention for SA and PA prevention and intervention initiatives remain major challenges in this field^{1,2} as in prevention science more widely.³ Because recruitment is a key issue facing both researchers and practitioners, researchers have begun to examine a broad range of factors associated with participation,⁴ including whether or not a potential participant attends an intervention. This initial attendance is also known as intervention uptake.⁵ Another important participation factor is retention, or whether a participant continues with the intervention after attending an initial session.³ Uptake and retention are important to researchers, as evaluating an intervention's effectiveness requires participants to both attend an intervention and to stay engaged long enough to receive sufficient dosage.⁶ Uptake and retention are also important for practitioners, as creating population-level change via an intervention requires enough community members to attend an intervention to receive enough information to apply it in their own lives.⁷

A growing body of research describes the uptake of and retention to behavioral interventions, however little of this work is related to SA and PA, which are both prevalent^{8,9} and harmful¹⁰⁻¹² experiences for college students, leading to numerous deleterious outcomes such as mental and physical health problems, academic failure, and school dropout. Because of the high prevalence of SA and PA on college campuses, there are also federal mandates that require colleges to offer programming to students, and some colleges have begun to make this mandatory. Nevertheless, uptake and retention for these interventions are particularly difficult, as SA, PA, and associated mental and physical health consequences are highly stigmatized.¹³ In addition, it is common for young adults to feel that SA prevention interventions are not personally relevant.¹⁴ Students often feel that they do not need SA prevention because they are not sexually aggressive, because they do not label their experiences as SA and/or PA, and/or because they perceive that their personal chances of being victimized are low.¹⁴ In addition, they may be disinclined to change their behavior around the risk factors for SA typically discussed in interventions, such as alcohol use, due to competing positive alcohol expectancies and perceived social costs of decreasing use.^{14,15} In this mixed-methods paper, we describe uptake and retention in a novel intervention teaching young adults how to respond to victims' disclosure of SA and PA. The findings from this study have broad implications for both researchers and practitioners committed to creating evidence-informed programming for college students that seeks to reduce the incidence of SA and PA and promote recovery among survivors of SA and PA.

Uptake and Retention in Behavioral Interventions Not Specific to SA/PA

Much research explores predictors of adherence to healthcare interventions such as HIV and diabetes treatments. Overall this research finds technical interventions (e.g., simplifying dosage) and behavioral interventions (e.g., incentives) can increase behavioral adherence

to healthcare interventions (i.e., taking medications as scheduled¹⁶). Compared to the literature on healthcare treatments, the body of literature describing uptake and retention in behavioral/psychosocial interventions is much smaller but growing.¹⁷⁻²⁰

In regard to uptake, studies show that that Latino families and families with married parents are more likely to join a family/parenting intervention, compared to Black and single families.¹⁷ More highly educated parents and those with fewer economic stressors are also more likely to join these interventions, compared to less educated parents and those with more economic stressors.^{17,18} Logistical factors, such as time and transportation, also play a role in participants' uptake of interventions,^{3,19} although amount of free time does not always predict intervention uptake.⁵ In an alcohol reduction intervention, findings indicated that college students were more likely to participate when the intervention was at a time and place of their choosing, and when they would receive a financial incentive.²⁰ The degree to which participants think they need or will use the intervention may also predict uptake. For example, baseline symptom severity and perceived benefits of the intervention predict participation in online psychological interventions.¹⁹ In regard to retention, some research suggests that participants in higher need of psychological services or parenting skills are more likely to stay involved in the intervention.^{17,18,21}

Uptake and Retention in SA/PA Interventions

A dearth of research has focused on uptake and retention to SA/PA-related interventions. In regard to uptake, perceived susceptibility to future violence and perceived intervention benefits predict intentions to participate in dating violence prevention²². In regard to retention, most SA/PA-related intervention studies have reported on retention to follow-up surveys, but not on retention to intervention sessions.^{1,23,24} One study examined demographic predictors of retention, finding that Black high school students were more likely to leave a SA and PA prevention study than White students.²⁵

Disclosure of SA and PA

The current paper explores uptake and retention in an intervention aiming to improve social reactions to SA and PA disclosure. When receiving a disclosure of SA or PA, disclosure recipients can provide a variety of verbal and nonverbal positive and negative responses to others, called social reactions.^{26,27} Negative social reactions (e.g., blaming a victim, taking control of decisions) are associated with a variety of negative effects for victims, such as psychological distress and drinking to cope.²⁸⁻³⁰ In an effort to improve victim outcomes, the current intervention was developed to teach young adults how to react when receiving a disclosure of SA or PA. Generally, the intervention taught young adults body language, empathetic responding, how to offer resources, and how to encourage healthy coping³².

The intervention is distinct from other behavioral interventions. The intervention taught participants how to help friends and family who have been victims of SA/PA. That is, the main aim of the intervention was to teach participants how to help others, whereas previous interventions focused on helping oneself (i.e., psychological therapy¹⁹) or one's family (i.e., family/parenting interventions^{21,31}). This distinction is crucial because motivations

to attend an intervention that teaches participants to help others might be different than motivations to attend an intervention focused on one's own difficulties. Indeed, a popular and related form of SA/PA prevention is bystander intervention, which teaches community members how to respond if they see or hear about violence although these interventions focus more on preventing violence rather than responding to victims.³² Nevertheless, the results of the current paper will be particularly applicable to universal interventions that engage community members in preventing and responding to violence.

The Current Paper

The current paper examines uptake and retention in a two-session intervention (initial session and booster session) to teach college students how to respond to informal SA and PA disclosures. Little previous research has described participation in SA and PA interventions. The results of this paper will have implications for both practitioners and researchers aiming to improve intervention attendance in college populations. Given the lack of existing research, the current paper was exploratory and we did not create a priori hypotheses. Our aims are as follows:

Intervention uptake aims.

First, we examine predictors of intervention uptake (i.e., participation in the initial session), including (a) personal characteristics (i.e., age, gender, race/ethnicity, sexual orientation, victimization history, family and SES), (b) key study variables (i.e., ever having received a disclosure; intended and actual positive and negative social reactions), and (c) recruitment method (Aim 1a). Second, among participants who attended the intervention, we examine why participants decided to come to the intervention (Aim 1b). Third, among participants who did not attend the intervention, we examine why they chose not to attend (Aim 1c). Fourth, among participants who did not attend the intervention, we examine factors that may have made them more likely to attend the intervention (Aim 1d).

Intervention retention aims.

First, among participants who attended the initial intervention session, we examine predictors of intervention retention (i.e., participation in the booster session), including (a) personal characteristics (age, gender, race/ethnicity, sexual orientation, victimization history, family SES, and whether or not one pays for tuition and room/board with their own earnings/savings), (b) key study variables (ever having received a disclosure; intended and actual positive and negative social reactions), (c) recruitment method, and (d) satisfaction with the initial session (Aim 2a). Second, among participants who only attended the initial session, we examine self-reported reasons for not attending the booster session (Aim 2b).

Methods

Procedures

The study took place at a residential, medium-size public university in the northeastern United States and received approval from the university's Institutional Review Board. The university's Dean of students sent emails to randomly selected, full-time, undergraduate

students on the behalf of the researchers. These emails were sent via mass email to 7,000 students in four batches across four weeks in the fall of 2018. Emails included information about the study and a direct link to an online (Qualtrics) survey. The email informed students that the survey was 20 minutes long and would ask about how they may have helped friends with difficult sexual and/or relationship experiences. Students who did not respond to this initial email were sent one to two reminder¹ emails across two weeks to those who had not yet completed their survey.

We also sent an email from the research team to all professors at the University with classes greater than 60 students ($n = 205$), as identified by the course catalog. We provided all university professors study information with recruitment messaging. At least 11 professors confirmed with us that they forwarded information to their students, mostly by email, although it is likely that more did so without responding back to the research team. Upon professors' request, we visited approximately five classrooms to pass on the information. Lastly, we posted fliers in residence halls and other shared spaces about the study.

Overall, 1,831 students started the survey, of which 1,268 qualified for, consented to, and completed the survey. Of the 563 who did not complete the survey, 243 did not consent, 253 did not finish the survey, 49 were duplicates (we used the first response), 11 were excluded due to age (participants had to be 18-24 years), and 7 were excluded due to educational status (participants had to be a current undergraduate student). Of our final 1,268 participants, 78.4% ($n = 994$) were recruited via official email from the Dean of Students, 14.4% ($n = 183$) were recruited via a friend (i.e., a friend forwarded the study information), 4.9% ($n = 62$) were recruited via professors, 1.3% ($n = 16$) were recruited via fliers, 0.6% ($n = 8$) were recruited via the website, and 0.4% ($n = 5$) were recruited in another way (e.g., "Facebook"). Participants randomized into the intervention group were invited to attend the intervention which was conducted in two sessions (initial session and booster session). Session were approximately four weeks apart. Participants who did not attend the initial (first) intervention session were not eligible to attend the booster session. Following the baseline survey (Time 1), we implemented a six-month follow-up survey (Time 2). Intervention participants received the follow-up survey via email approximately six months after their initial intervention session (see Figure 1). Participants received \$15 for completing the baseline survey, \$25 each for attending the initial session and completing the post-program survey, \$25 each for attending the booster session and completing the post-program survey, and \$25 each for completing the follow-up survey.

Measures

Demographics.—At Time 1, participants reported their race and ethnicity (check all that apply; coded so that 0 = *Non-White or Hispanic* and 1 = *White/Non-Hispanic*), gender (multiple choice; coded so that 0 = *man*, 1 = *woman*), and sexual orientation (multiple choice; coded so that 0 = *heterosexual*, 1 = *sexual minority*). At Time 2, participants reported their parent/guardian income, and whether or not one they paid for tuition and

¹Most participants received two reminder emails. However, one wave of participants only received one reminder email due to scheduling difficulties with the Dean of students' email broadcasts.

room/board with personal earnings/savings, at least in part (check all that apply; coded so that 0 = *no*, 1 = *yes*).

Experiences of disclosure.—At Time 1, participants responded to the item, “In the past 6 months, has someone (e.g., friend, acquaintance, family member, dating/romantic partner) told you they experienced any of the following.” This item was followed by three SA items (e.g., “someone [including, but not limited to, a romantic partner] used physical force, threats of physical force, alcohol/drugs to incapacitated to have sexual intercourse [oral, anal, vaginal]”) and 13 items of physical, verbal, and psychological partner abuse (e.g., “their partner threw something at them”, “their partner refused to talk to them”, “their partner monitored their phone, email, social media account”). Participants who received a disclosure (i.e., disclosure recipients) were asked how many disclosures they received. Because a second part of the study involved recruiting these disclosing survivors, we asked participants to answer the subsequent questions about a person who is over 18 and a student at the university where the study was held, if applicable. Participants who did not experience disclosure (i.e., disclosure non-recipients) received questions about a hypothetical scenario where a friend, family member, or someone else told them that they had been a victim of SA and/or partner abuse. Participants responded to an initial version of the Social Reactions Questionnaire- Shortened.³³ Disclosure recipients answered questions about their actual behavior, and disclosure nonrecipients answered questions about their intended behavior. This questionnaire includes three subscales assessing both negative reactions of turning against (6 items; e.g., “Told them that they were irresponsible or not cautious enough”) and unsupportive acknowledgement (4 items; e.g., “Tried to take control of what they did/decisions they made”), and positive reactions (4 items; e.g., “Listened to their feelings”). Response items ranged from 1 = *never/extremely unlikely* to 5 = *always/extremely likely*. Final score on the subscales was a mean of items so that higher scores represented more negative or more positive reactions. Reliability for actual/intended was $\alpha = .83/.80$ for negative reactions, and $\alpha = .70/.76$ for positive reactions.

SA victimization.—At Time 1, participants responded to two questions asking if they had ever, in their lifetime, experienced unwanted sexual contact or unwanted sexual intercourse (multiple choice; 0 = *no*, 1 = *yes*), with the questions³⁴, “In your lifetime, have you had sexual contact with someone when you didn’t want to?” and “In your lifetime, have you had sexual intercourse with someone when you didn’t want to?” Sexual intercourse was defined as, “any form of sexual penetration including vaginal intercourse, oral sex, and anal intercourse,” and sexual contact was defined as “touching of genitals without a person’s permission (but there is no penetration)”. Unwanted sexual intercourse/contact was defined as “those situations in which you were certain at the time that you did not want to engage in the sexual experience and you either communicated this in some way (e.g., you said no; you protested; you said you didn’t want to; you physically struggled; you cried), or you were intimidated or forced by someone or you were incapacitated (e.g., drunk, passed out).”

Partner abuse victimization.—At Time 1, participants responded to four questions asking if they had ever, in their lifetime, experienced verbal, physical, or psychological partner abuse (multiple choice; 0 = *no*, 1 = *yes*): “My partner insulted or swore or shouted or

yelled at me”, “Punched or kicked or beat me up”, “Destroyed something belonging to me or threatened to hit me”, “Pushed, shoved or slapped me”. These questions were taken from the Revised Conflict Tactics Scale³⁵.

Recruitment method.—At Time 1, participants responded to one question, “How did you hear about the survey?” The question was multiple choice and for the current paper, we created a dichotomous variable to describe recruitment method, either *official email from Dean of Students* (1) or *other recruitment method* (0). Other recruitment methods included a friend, through a class or professor, flyer, the website, and other methods.

Satisfaction with initial session.—Directly after the initial session, participants responded to the multiple choice Client Satisfaction Questionnaire³⁶ which includes eight items such as, “How would you rate the quality of service you received?” Response items ranged from 1 = *poor* to 4 = *excellent*. Final score on the subscales was a mean of items so that higher scores represent greater satisfaction. Reliability was $\alpha = .82$.

Attendance decisions.—At Time 2 (i.e., 6-month online follow-up), participants responded to a series of questions that asked about their decisions to attend or not attend the initial and booster sessions. Participants who attended the initial session responded to the check all that apply question, “What was your initial reason for coming to the Supporting Survivors and the Self workshop?” with the response choices *Wanted to earn a cash incentive*, *Topic of how to respond to disclosures of sexual assault/violence was of interest to me*, and *Other (please specify)*. Participants who did not attend the initial session responded to the question, “Why did you decide to not attend the Supporting Survivors and the Self workshop you were invited to for this research?” with the response options, *Topic did not interest me*, *Not comfortable discussing the topic in a group setting*, *I feel that I already know how to respond to someone who might share an experience with assault/violence*, *Could not fit it in to my schedule*, and *Other (please specify)*. Participants who did not attend the initial session also responded to the question, “Which of the following, if any, would have made you more likely to attend the Supporting Survivors and the Self workshops?” with the response options, *Higher cash incentive*, *Being able to attend remotely/online*, *More food*, *More available workshop times*, and *Other (please specify)*. Participants who did not attend the booster session responded to the question, “Why did you not attend the 2nd Supporting Survivors and the Self workshop you were scheduled for?” with the response options, *Learned all that I needed to in the first workshop*, *Did not enjoy the first workshop*, *Was not comfortable with the topic*, *Could not fit it in to my schedule*, and *Other (please specify)*. In all these questions, participants could choose as many options as applied and we coded so that 1 = *endorsement of answer* and 0 = *no endorsement of answer*.

Results

Sample Description

Participants² were 1,268 full-time undergraduate students. Of these participants, 836 were randomized into the intervention group³ and thus were included in the current paper. The mean age of participants was 19.6 (range 18-24, *SD* = 1.2). Of the sample, 25.7% were in

their first year ($n = 215$), 25.8% were in their second year ($n = 216$), 25.4% were in their third year ($n = 212$), 22.5% were in their fourth year ($n = 188$), and 0.6% were in their fifth year or beyond ($n = 5$). Over two-thirds of students identified as a woman (70.6%; $n = 590$), 28.4% identified as a man ($n = 237$), 0.5% identified as gender variant and/or gender queer ($n = 4$), and 0.4% identified as another gender (e.g., transgender male; $n = 3$). Participants were 90.9% White ($n = 751$), 5.1% Asian/Asian American ($n = 42$), 1.1% Black/African American ($n = 9$), 0.2% American Indian or Alaska Native ($n = 2$), and 2.7% multiracial ($n = 22$). Regarding ethnicity, 5.2% were Hispanic/Latino ($n = 43$). Participants were 86.9% heterosexual/straight ($n = 722$), 7.2% bisexual ($n = 60$), 1.6% not sure ($n = 13$), 1.3% gay ($n = 11$), 1.0% pansexual ($n = 8$), 0.8% lesbian ($n = 7$), 0.7% asexual ($n = 6$), and 0.5% identified with another sexual orientation (e.g., demisexual; $n = 4$). Also, 69.1% of the sample had dated or been in a romantic relationship in the past year ($n = 572$). In regard to income level⁴, 58.8% ($n = 287$) of students reported that their parents/guardians earned over \$75,00 per year, 69.4% ($n = 394$) that their parents/guardians, at least in part, paid for their tuition, and 65.0% ($n = 368$) that their parents/guardians paid, at least in part, for their room, board, and other living expenses.

Intervention Uptake

Of participants invited to the intervention ($N = 836$), 303 attended the initial session (36.2%), and 531 did not attend the initial session (63.5%). Two participants (0.2%) attended the initial session but left early; these participants are not included in analyses.

Aim 1a.—We ran a series of t -tests and chi-square tests to determine how participants who attended the initial intervention session (uptake = 1) compared to participants who did not attend the initial intervention session (uptake = 0). We provide results for each test in Table 1. Results indicated that participants who attended the initial session gave less actual negative social reactions (at Time 1) than participants who did not attend the initial session. Men were less likely to attend the initial session compared to women, whereas sexual minority participants were more likely to attend the initial session than heterosexual participants. Due to multiple tests, we selected .01 as the p -value denoting significance. Thus, SA victimization was marginally associated ($p = .03$) with attendance; participants who had experienced SA victimization in their lifetime were more likely to attend the initial session than participants and those who had not experienced SA victimization. Groups did not differ on age, family SES, actual positive social reactions, intended social reactions, using one's own earnings to pay for tuition or room/board, race/ethnicity, lifetime partner abuse victimization, being a disclosure recipient, or recruitment method.

Aim 1b.—We found that 196 participants (64.6%) attended because they wanted to earn the cash incentive, 125 participants (41.3%) thought the topic was of interest to them, and 16 (5.3%) indicated other responses. Open-ended responses were content analyzed³⁷⁻³⁹

²The percentages describing participants are valid meaning they do not include participants who refused to answer the question. Participant refusal on these questions was small, ranging from 3 participants (0.2%) to 13 participants (1.0%).

³We randomized more participants into the intervention than the control group; see Edwards et al.,³² for more details.

⁴Data on income level and expense was collected at Time 2, and the percentages describing participants are valid meaning they do not include participants who refused to answer the question or did not respond to Time 2.

and results demonstrated that most of these other 16 responses could be recoded into the categories of incentive or topic. That is, 11 of the responses (3.6%) indicated interest in the topic (e.g., “Wanted to be able to help a friend in need or others in the future”), and four of the responses (1.3%) indicated both (e.g., “Mostly the topic but the incentive was a plus”). Only one of the participants indicated another reason for joining (i.e., “I have never participated in a study before and it was on something I have not had a lot of exposure too [*sic*]”).

Aim 1c.—We found that 221 participants (41.6%) did not attend because they could not fit the intervention into their schedule, 51 participants (9.6%) were not comfortable discussing the topic in a group setting, 26 participants (4.9%) felt they already knew how to respond to someone who might share an experience with assault/violence, 19 participants (3.6%) felt the topic did not interest them, and 27 participants (5.1%) indicated other responses. Content coding of these 17 participants’ responses (3.2%) indicated that they did not know about the session (e.g., “I didn’t see the invite”⁵), three participants (0.6%) indicated that they were studying abroad (e.g., “Studying abroad”), two participants (0.4%) indicated they were sick or had an emergency (e.g., “I was sick on the one day I was available”), and five participants (0.9%) indicated another response (e.g., “forgot”).

We conducted two follow-up chi-square tests to determine whether the participants who were not comfortable discussing the topic in a group setting were more likely to be men or SA victims; no differences emerged.

Aim 1d.—In regard to what would have made them more likely to attend the intervention, 209 participants (39.4%) selected being able to attend remotely/online, 136 participants (25.6%) selected higher cash incentive, 45 participants (8.5%) selected more food, 29 participants (5.5%) selected more available workshop times, and 15 participants (2.8%) selected other. The other responses were varied, including two participants (0.4%) who wanted more information about the workshop (e.g., “I didn’t know what the workshop was about”), three participants (0.6%) who would be anxious in a group or were not comfortable discussing these issues in a group (e.g., “I have been sexually assaulted and can become anxious in situations like these workshops”), and two participants (0.4%) who would have attended if they were on campus (e.g., “If I were on-campus”). Two participants (0.4%) indicated nothing would have made them more likely to attend (e.g., “None”). Six participants (1.1%) indicated other things that would have made them more likely to attend (e.g., “reminder”; “shorter events”).

Intervention Retention

Of participants attending the initial intervention session ($n = 303$), 252 attended the booster session (83.1%), and 51 did not (16.8%). Due to unforeseen circumstances, one session was cancelled right before it started when participants had already arrived. Most participants rescheduled and attended a later session, however three (1.0%) did not. These three

⁵Although we sent multiple text, call, and email reminders about sessions to participants, some participants did not leave a number, and thus did not receive text and call reminders. If these participants did not check their emails, they may have not seen the invitation.

participants are counted in the 252 (for retention analyses) since they did attend and the session cancellation was out of their control.

Aim 2a.—We ran a series of *t*-tests and chi-square tests to determine, among participants who attended the initial session, how those who attended the booster intervention session (retention = 1) compared to participants who did not (retention = 0). As presented in Table 2, participants who attended the booster session reported higher satisfaction with the initial session than participants who did not attend the booster session. There were no significant differences between participants retained for the booster session and those not retained on demographics or on key study variables.

Aim 2b.—Of those who did not attend the booster session ($n = 51$), 32 participants (62.7%) could not fit the session into their schedule, four (7.8%) did not attend because they learned all that they need in the initial workshop, and one (2.0%) did not enjoy the initial workshop. Although we offered an option, “Was not comfortable with the topic,” no participants chose this response. Four participants (7.8%) indicated other responses including two (3.9%) who forgot (e.g., “Escaped my mind”) and two (3.9%) didn’t attend for logistical reasons (e.g., “Proctor didn’t show up and they didn’t schedule me for a makeup”; this comment indicates they attended the session that was cancelled).

Discussion

The current paper examined uptake (i.e., participation in an initial session) and retention (i.e., participation in subsequent intervention sessions) in a two-session program developed to improve social reactions to SA and PA disclosure among college students. Although recruitment and retention are challenges in this field,^{1,2} little research has explored uptake and retention in SA and PA-related programming, particularly in college populations.

Intervention Uptake

Just over one third of invited participants attended the initial session. The primary reason for not participating was scheduling. Indeed, almost 40% of participants stated that being able to attend remotely or online would have increased their chance of attending. Previous research on alcohol reduction interventions among college students shows that flexible scheduling does increase likelihood of uptake.²⁰ However, this intervention was facilitated in a group classroom setting; flexible scheduling would be more logistically feasible for an intervention that was delivered individually or online. One future direction for this program might be to deliver it online. However, the in-person aspects of the program (e.g., modeling skills, paired practice) are important for building empathy and communication skills, so it would be important to find creative ways to keep these aspects in the online program and to explore whether there is differential efficacy across the in-person and online programs.

Another often-mentioned reason for not attending was discomfort. Just under 10% of participants who did not attend stated that they were not comfortable discussing the topic in a group setting. At first glance, one might be concerned that trauma history might negatively impact participants’ attendance, in that participants with a victimization history might not attend due to fear of discomfort or triggering trauma. However, we found that participants

who had experienced SA were actually more likely to attend the intervention than participants who had never experienced SA, although this difference was only marginally significant, and there were no significant differences in booster session attendance. In addition, SA survivors were not more likely than other participants to mention discomfort as a reason for not attending. Thus, it is more likely that participants who endorsed this item were just not comfortable generally discussing SA and PA. It is also possible that individuals less likely to attend had experiences of perpetrating sexual aggression although this is only speculative given that we did not measure sexual perpetration in our study. Although this discomfort is understandable given the stigma attached to SA and PA¹³ and the unpleasantness of considering negative experiences could happen to one's friends, it is a major barrier to all SA and PA programming. Reducing stigma and acknowledging that these issues are unpleasant but important may be key to recruitment.

We found that women and sexual minority participants were more likely to attend the intervention than men and heterosexual participants. Women and sexual minority young adults are disproportionally victims of SA and PA, compared to men and heterosexual individuals, respectively.^{8,40-42} It is likely that women, and sexual minority participants have empathy for victims and know the importance of responses from informal supports.⁴³ Another potential explanation is that these groups are more likely to be disclosure recipients⁴⁴⁻⁴⁶ and thus want to know how to respond; however, we did not find that disclosure recipients were more likely to attend than nonrecipients.

Participants who reported more negative social reactions in the past were less likely to attend the intervention than participants who reported less negative social reactions. This finding is consistent with some previous literature that shows participants most at risk are less likely to attend an intervention.³¹ Reaching these participants is crucial for campus-wide intervention impact. One strategy is to reach these participants using their social networks, either by inviting their friends to the intervention in the hopes that they will be more likely to attend, or by implementing the program in existing social groups (e.g., student organizations, classrooms, fraternities/sororities, or sports teams) or university structures (e.g., new student orientations). Even if not all individuals within a social group attended, students who do attend could be encouraged to diffuse, or share, the information that they learned with their peers. It is also possible that these students could be reached through less direct programming (e.g., social media campaigns, online programming), or through increased incentives, although the latter poses challenges for dissemination and sustainability, since incentives are not always feasible.

Participants who attended the initial session stressed the importance of a cash incentive, with almost two-thirds of participants citing that the cash incentive was, in part, their reason for attending. In addition, a quarter of participants who did not attend expressed that a higher cash incentive may have motivated them to do so. Cash incentives in intervention attendance have been discussed previously in the literature,⁴⁷ and certainly much research finds cash incentives important in obtaining survey participants.^{48,49} Nonetheless, these findings were somewhat disappointing because cash incentives are expensive, and thus requiring these incentives dramatically reduces program sustainability. A future direction for this programming is to identify sustainable facilitation strategies. These strategies might include

integrating the program into existing introductory courses, orientations, and trainings, such as those for resident assistants and other student leaders that are strongly encouraged or even mandated. However, this must be done with caution given that mandated programming may not be as effective. That said, many participants did say that the intervention topic was of interest to them, which is encouraging.

Intervention Retention

Although the intervention uptake was somewhat low, intervention retention was high; over 80 percent of participants returned after the initial session to complete the booster session. The only factor associated with retention to the booster was satisfaction with the initial session. Future research should examine the factors that predict satisfaction with programming, which could provide important insights for program development and revisions. Perhaps not surprisingly, participants who were more satisfied with the first session were more likely to attend the second. Most participants who did not attend cited logistical reasons as their reason for not attending. Perhaps participants who enjoyed the session more were more likely to go out of their way to attend the second session. These findings speak to the need for an engaging and informative first session, which can be achieved with relevant content presented by highly trained facilitators.⁶

Clinical and Research Implications

The results of the current paper have implications for research and practice in college populations. It may be difficult to recruit college students to a programming session without cash incentives. Thus, researchers and practitioners should integrate with previously existing student organizations, as has been done in some previous SA and PA prevention initiatives.⁵⁰ Online programs might alleviate scheduling barriers,¹ however in-person aspects of the programming such as modelling and in-person might be key ingredients for efficacy. One option might be to deliver short, one-on-one, individualized programs (especially among higher risk students, i.e., those most likely to provide negative social reactions), similar to motivational interviewing programs that are often used with college students to prevent high-risk alcohol use.²⁰ This strategy has the disadvantage of needing intensive facilitation time (i.e., it would be costly) but has the advantage of personalization. That is, the intervention could focus on scenarios most relevant to the individuals' life and answer their specific questions. Personalized interventions are increasingly popular in other areas of prevention.⁵¹

Findings indicate that women, sexual minority students, SA victims, and participants who gave less negative social reactions to disclosure were over-represented at programming. We suspect this pattern is present throughout much SA- and PA-related programming. On one hand, this finding suggests that programs should be sensitive to the needs of these groups. In particular, SA and PA prevention could be more inclusive of sexual minority students.⁴¹ On the other hand, researchers and practitioners should attempt to overcome selection effects in programming by integrating into existing student organizations.

Limitations and Future Directions

Limitations of the current paper indicate several directions for future research. First, the intervention was offered at a mid-sized, predominantly White northeastern university. The

results may not generalize to larger or more diverse universities, or to SA and PA prevention that occurs in other contexts such as community centers or middle and high schools. For example, future research should examine what factors predict whether a parent grants their middle/high school student permission to attend these interventions. Second, we conducted a relatively large number of statistical comparisons and did not provide a priori hypotheses. Nevertheless, we did adjust our alpha to .01. Future research should examine predictors of uptake and retention in other studies related to SA/PA. Third, and similarly, our relatively simple approach to analysis did not allow for interactions between variables. Future studies with larger sample sizes could explore these types of interactions. Fourth, we examined a relatively limited range of participant-level factors associated with uptake and retention. According to Supplee and colleagues,³ reasons for uptake and retention may also include provider-level, program-level, and community-level characteristics; these factors should be explored in future research.

Conclusion

In the current paper, we found that women, sexual minority students, and students who gave fewer negative reactions to disclosure were more likely to attend an initial session of an intervention program to improve college students' responses to SA and PA disclosure. Participants stated that cash incentives were a motivating factor for attendance, and that scheduling was a major barrier to attendance. Participants also stated that being able to attend remotely/online would have made some more likely to attend. In regard to retention, satisfaction with the initial session was the only predictor of booster attendance, with scheduling again being the major barrier to attendance. Based on these findings, we call for creativity in scheduling interventions, such as integrating interventions into student organizations, or using flexible and individualized prevention. In addition, we call for intervention programs to reach students at higher risk, given they are less likely to attend programming. Researchers and practitioners alike can use this information to reach more students and increase the impact of programs.

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Figure 1. Participant retention and attrition across data collection time points (N = 1,268)

Note. ^aTwo participants attended but left early; these participants are not included in analyses. ^bWe conducted a series of chi-square and *t*-test analyses to compare intervention group participants who completed the Time 2 survey to those who did not complete the Time 2 survey on Time 1 constructs. Participants who completed the Time 2 survey were more likely to be women, less likely to be a PA victim during their lifetime, gave less negative social reactions, and were more likely to have attended both the initial and booster session. Groups did not differ at baseline on year of college, race, ethnicity, sexual orientation, receiving a SA/PA disclosure in the past six months, lifetime SA victimization, or whether they had provided positive social reactions or intended to provide positive and negative social reactions.

Table 1
Aim 1a: Differences between non-uptake (n = 531) and uptake participants (n = 303)

	Uptake					
	No			Yes		
	n	M (SD)	n	M (SD)	t	p-value
Age	531	19.64 (1.23)	303	19.49 (1.17)	1.75	.080
Family socioeconomic status	258	7.26 (2.67)	228	7.10 (2.60)	0.65	.518
Actual negative social reactions	310	1.38 (0.50)	190	1.23 (0.29)	4.01	>.000
Actual positive social reactions	308	3.88 (0.80)	187	3.97 (0.78)	1.29	.199
Intended negative social reactions	207	1.54 (0.53)	109	1.46 (0.47)	1.26	.210
Intended positive social reactions	207	4.62 (0.54)	109	4.70 (0.38)	1.42	.157
Gender (Man)	174	33.14%	62	20.67%	14.55	>.000
Tuition: own earnings/savings	102	32.90%	97	37.89%	1.53	.250
Room/board: own earnings/savings	114	36.89%	110	42.97%	2.16	.143
White non-Hispanic	461	88.15%	273	90.70%	1.28	.297
Sexual minority	48	9.23%	47	15.93%	8.21	.006
SA victimization	177	34.24%	126	42.00%	4.91	.029
PA victimization	207	40.12%	118	39.20%	0.07	.824
Disclosure recipient	325	62.14%	198	65.35%	0.85	.370
Recruitment method	435	81.92%	232	76.57%	3.45	.072

Note.

^a Percentages are the valid percents among participants who did or did not attend the initial session. All constructs were measured at Time 1 except Tuition: own earning/savings and Room/board: own earnings/savings, which were measured at Time 2. Significant constructs are bolded; due to multiple tests we selected .01 as the *p*-value denoting significance.

Table 2

Aim 2a: Differences between non-retention (n = 51) and retention participants (n = 252)

	Retention					
	No			Yes		
	<i>n</i>	<i>M (SD)</i>	<i>n</i>	<i>M (SD)</i>	<i>t</i>	<i>p-value</i>
Age	51	19.51 (1.14)	252	19.49 (1.18)	0.12	.904
Family socioeconomic status	32	7.22 (2.72)	196	7.08 (2.59)	0.28	.783
Actual negative social reactions	35	1.18 (0.31)	155	1.25 (0.28)	1.16	.248
Actual positive social reactions	33	3.78 (0.83)	154	4.01 (0.77)	1.58	.115
Intended negative social reactions	16	1.46 (0.44)	93	1.47 (0.48)	0.07	.942
Intended positive social reactions	16	4.66 (0.43)	93	4.71 (0.38)	0.53	.596
Satisfaction with initial session	51	27.92 (2.97)	249	29.20 (2.73)	3.01	.003
	<i>n</i>	% ^a	<i>n</i>	% ^a	χ^2	<i>p-value</i>
Gender (Man)	13	26.00%	49	19.60%	1.04	.339
Tuition: own earnings/savings	9	25.00%	88	40.00%	2.96	.097
Room/board: own earnings/savings	11	30.56%	99	45.00%	2.63	.146
White non-Hispanic	46	90.20%	227	90.80%	0.02	.797
Sexual minority	7	14.29%	40	16.26%	0.12	.833
SA victimization	22	43.14%	104	41.77%	0.03	.877
PA victimization	24	47.06%	94	37.60%	1.59	.212
Disclosure recipient	35	68.63%	163	64.68%	0.29	.632
Recruitment method	38	74.51%	194	76.98%	0.15	.718

Note.

^a Percentages are the valid percents among participants who did or did not attend the booster session. All constructs were measured at Time 1 except satisfaction with the initial session, which was measure directly after the session, and tuition: own earnings/savings and room/board: own earnings/savings, which were measured at Time 2. Significant constructs are bolded; due to multiple tests we selected .01 as the *p*-value denoting significance.