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ORIGINAL PAPER

An Evaluation of a Mixed-Gender Sexual Assault Prevention Program

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Abstract This study evaluated the short-term effectiveness of a mixed-gender sexual assault prevention program developed for college students. Program participants ($n = 177$) were compared to non-program participants ($n = 132$) prior to the program and during a 2-week follow-up period on measures of rape myths, victim empathy, perceived negative consequences and estimated likelihood of committing rape, sexual communication, sexual assault awareness, and risky dating behavior. The prevention program was effective at increasing men's victim empathy and decreasing their adherence to rape myths but ineffective at changing women's assault-related knowledge, participation in risky dating behaviors, and sexual communication strategies. Limitations of the study and directions for future research in sexual assault prevention are addressed. *Editors' Strategic Implications*: This study provides an important example of the limitations of a single session prevention programming approach (even if it is well designed and executed) in addressing a systemic and pervasive problem like sexual assault on college campuses.

Keywords Sexual assault · Program evaluation · Mixed-gender · Prevention programming

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Introduction

Research has demonstrated that sexual victimization among college women is a common phenomenon (e.g., Fisher et al. 2000; Koss et al. 1987). Approximately 50% of college women experience some form of sexual aggression, with 25% of those women experiencing an attempted or completed rape (Fisher et al. 2000; Koss et al. 1987). Studies conducted with college men indicate that 1 out of 13 report having sexually assaulted a woman, and 35% report that they would engage in sexually coercive behavior if they knew they would not get caught for the offense (Malamuth 1981; Malamuth et al. 1991).

To deal with this serious problem, a variety of sexual assault prevention programs, targeting men and women either separately or in coed audiences, have been developed and evaluated (e.g., Hanson and Gidycz 1993; O'Donohue et al. 2003; Yeater et al. 2004). Several studies indicate some degree of effectiveness with both single-gender (e.g., Choate 2003; Foubert and Newberry 2006) and mixed-gender audiences (e.g., Millhausen et al. 2006; Rothman and Silverman 2007). Although some research has focused on both the short- and long-term efficacy of these interventions, the overwhelming majority of programs implemented on college campuses across the United States never are evaluated empirically. The typical program is provided on a volunteer basis (e.g., students or instructors request the information), is didactic or discussion-based in focus, and presents coed audiences with information about sexual assault (e.g., risk factors, rape myths, societal and media influences of rape). For example, at the University of North Dakota, instructors may request a presentation on sexual assault prevention from the local crisis intervention center that provides sexual assault-related services to the campus. The presentation provides didactic information about rape and encourages students to discuss how they feel about various topics (e.g., legal criteria for sex crimes, definitions of consent, the impact of alcohol on judgment). Most students at the University of North Dakota will never hear the prevention program. In addition, no formal evaluation is conducted on the program's effectiveness in changing rape-related attitudes or behavior. It is important to think conceptually about the content of prevention programs and conduct on-going evaluations of the effectiveness of this material and adjust content based on results to improve outcomes.

The sexual assault prevention program evaluated in the current study is similar to most prevention programs in that it was developed for both men and women and used a didactic, information-based approach. Despite research indicating that single-gender audiences may be more effective than mixed-gender audiences (e.g., Foubert 2000; Foubert and Newberry 2006; Foubert and Perry 2007), the primary reason for choosing a mixed-gender, information-based approach is often a pragmatic one: most university and college classes are comprised of men and women. Instructors who request such programs during their class need a program that addresses issues appropriate for both genders within one class period. It also is thought that men and women will learn more about each other and be less likely to engage in behaviors that could result in a sexual assault if they participate in a co-ed prevention program. Moreover, an information-based approach is routinely adopted because of the time and financial constraints involved in providing more extensive services to college students. For example,

faculty often are hesitant to use more than one class period for a prevention program; thus, the time allocated to present such material is limited and constrained to the standard 50-minute classroom hour. Given the large amount of information to be addressed, there is little time for discussion. In addition, funding for more elaborate presentations (e.g., alternative media) involving more presenters is lacking given strained university budgets. Finally, prospective studies, in which researchers track participants over time and evaluate whether the intervention is effective at decreasing actual rates of sexual assault, often are too cumbersome, impractical, and expensive to conduct on college campuses (Yeater and O'Donohue 1999).

The goal of this study was to assess the effectiveness of a common form of sexual assault prevention programming, the results of which may provide information on ways to improve prevention efforts in the future. Of interest was whether an information-based, mixed-gender sexual assault prevention program was more effective than a control condition at changing attitudes and behaviors putatively related to men's risk of sexual coercion and women's risk of sexual victimization. Of interest also was participants' perceptions of the "acceptability" and "likeability" of the prevention program (i.e., consumer satisfaction), as these may impact the degree to which instructors are willing to have the prevention program in their classrooms and participants are motivated to learn and apply the information presented in the program.

The authors developed the prevention program, which was offered on an ongoing basis to university students for 5 years prior to the present study. The program contained elements common to other mixed-gender prevention programs, including sections on rape myths and facts (e.g., Hanson and Gidycz 1993; Yeater et al. 2004), sexual assault risk factors (e.g., Hanson and Gidycz 1993; Yeater et al. 2004), strategies for reducing sexual assault risk (e.g., Hanson and Gidycz 1993; Yeater et al. 2004), victim empathy (e.g., O'Donohue et al. 2003), and negative consequences for engaging in sexually coercive behavior (e.g., O'Donohue et al. 2003). Although the program was labeled as sexual assault prevention, the content addressing women's behavior may best be thought of as risk reduction, rather than actual prevention. However, for the sake of simplicity, and because researchers who have evaluated mixed-gender programs have called them prevention programs, the same label was used in the current study.

A Theoretically Based Program

Two theoretical models were used to derive the content included in the prevention program. One model addressed psychological constructs thought to be related to men's propensity to engage in sexually coercive behavior; the other targeted constructs hypothesized to be related to reduction in women's risk for sexual assault.

Finkelhor and Hotaling's (1984) model was utilized to develop content targeting the behavior of men. In this model, sexual offending is hypothesized to be the outcome of four individually necessary and conjointly sufficient factors: (a) factors that enhance motivation to sexually assault (e.g., deviant sexual arousal); (b) factors that reduce internal inhibitions (e.g., rape myth acceptance); (c) factors that reduce

external inhibitions (e.g., privacy, after hours socializing); and (d) factors that reduce victim resistance (e.g., poor self-defense strategies in combination with a–c). The program segments targeting men's behavior focused primarily on the second factor (i.e., changing sexual assault myths, poor victim empathy, and problematic outcome expectancies). The program also attempted to intervene at the first stage (i.e., decreasing motivation for engaging in sexually coercive behaviors) by describing the negative consequences that can occur as a result of engaging in sexually coercive behavior.

The content developed to help women reduce their risk of sexual assault was derived from McFall's social information processing model (McFall 1982). This model posits that individuals progress through a series of stages when attempting to solve problems in a social setting. The first stage, decoding skills, requires an individual to accurately receive, perceive, and interpret stimuli from the environment. The second stage, decision skills, requires the individual to generate solutions for responding to a problem situation. The third stage, enactment, requires the individual to respond to the problem situation in an effective manner. The program segments targeting women's behavior attempted to improve women's reception, perception, and interpretation of rape-related stimuli (e.g., decoding skills) and refine their ability to generate, emit, and evaluate the potential utility of responses that may decrease risk of sexual assault (e.g., decision skills).

Prevention material from a program developed by Hanson and Gidycz (1993) was included to improve women's ability to identify situational and behavioral risk factors for sexual assault (i.e., improve decoding skills) and teach strategies for reducing this risk (i.e., improve decision skills). Hanson and Gidycz (1993) found that, when provided with information that discussed risk factors and strategies for responding to high-risk situations, women without a prior history of sexual assault were less likely to be victimized during the course of a college semester. Thus, this information was included in the current program.

Description of the Mixed-Gender Sexual Assault Prevention Program

The prevention program was 50 min in length and presented by the first author, a woman, and one of two female undergraduate peer educators. To ensure that the all of the material was delivered and presented correctly, the presenters followed a scripted manual during the presentation. Media used to deliver the program included overheads and video. The prevention program included a total of five program segments: (a) rape myths and facts, (b) risk factors and risk perception, (c) response strategies, (d) victim empathy, and (e) outcome expectancies. Sections (a) through (c) were delivered with overheads; Sections d and e were delivered via a video presentation. The rape myth and facts segment addressed both rape myths and sexual assault-related knowledge. The risk factors and risk perception and response strategies segments targeted behaviors hypothesized to decrease women's risk of sexual victimization. The victim empathy and outcome expectancies segments targeted behavior thought to decrease men's risk of engaging in sexually coercive behavior. Each segment of the program is described below in more detail.

Section A (Rape Myths and Facts)

This section was didactic and covered two areas: rape myths and assault-related information. Rape myths were presented on PowerPoint slides and students were encouraged to guess whether the statement was true or false. The myth was discussed and challenged by facts and beliefs that conveyed healthy and factual sexual behavior. This content targeted men's behavior, as research demonstrates that men who believe such myths are more likely to report engaging in sexually coercive behavior (e.g., Muehlenhard and Linton 1987). An example of a rape myth included "Women really mean 'yes' when they say 'no' to sex." Information on sexual assault also was included as this is a common component of prevention programs for women (e.g., Hanson and Gidycz 1993). An example of this information included "Acquaintance rape is more common than stranger rape." In this section the presenters also discussed the fact that, although the majority of reported victims of sexual assault are women who were assaulted by men, men are also victims of sexual assault, and sexual assault does occur in same-sex interactions. The goal of this segment was to decrease men's rape myth acceptance and increase men and women's knowledge of rape-related information.

Section B (Risk Factors and Risk Perception)

This section was didactic and described behaviors that increase women's risk for sexual victimization (Muehlenhard and Linton 1987). Information was provided on PowerPoint slides and read to the audience. Then, the audience was encouraged to discuss the information on the slides (e.g., asking students how often they think an event on a specific slide occurs or whether or why a specific behavior may increase risk of sexual victimization). After this discussion, statistics (both local and national) were presented, as well as theoretical basis for why specific behaviors may increase risk. The goal of the segment was to improve women's ability to identify situations and behaviors that could increase their risk of victimization in dating or other social situations. Examples of risk factors included: (a) the use of alcohol and/or drugs in a dating situation, and (b) being isolated from others in a dating situation.

Section C (Response Strategies)

This section also was didactic and described specific behaviors that may decrease women's risk of sexual assault (Carlson et al. 1988; Hanson and Gidycz 1993). These behaviors were directly related to the risk factors discussed in Section B of the program. Examples of response strategies included: (a) monitoring or refraining from the use of alcohol and/or drugs in a dating situation, and (b) meeting in a public place or going out with a group rather than becoming isolated in a dating situation. The goal of this segment was to increase women's ability to generate solutions for dealing with high-risk dating and social situations. Although this section of the prevention program addressed women's risk reduction behaviors, this should not impact perceptions of responsibility for the crime of sexual assault

(which always is carried fully by the perpetrator). To prevent this misconception, the program presenters specifically stated that the perpetrator always carries all responsibility/culpability for sexual assault. This point was highlighted by using an example and encouraging discussion about this point among the group.

Section D (Victim Empathy)

This section was video-based and designed to increase men's empathy for victims of sexual assault through the use of victim testimonials (O'Donohue et al. 2003). The testimonials were provided by professional actors (using scripts) who appeared natural in their conversation and displayed a range of affect (e.g., crying). Victim testimonials were included because past research indicates that men with poor victim empathy (i.e., a hostile and combative attitude toward women) are more likely to commit an act of sexual assault (Malamuth 1986; Schewe and O'Donohue 1993). The goal of this segment was to increase men's empathy for victims of sexual assault and hence decrease the probability that these participants would engage in sexually abusive behavior in the future.

Section E (Outcome Expectancies)

This section was video-based and depicted potential negative consequences for engaging in sexually coercive behavior (O'Donohue et al. 2003). As with the victim empathy section, this video segment was based on written scripts and delivered by an actor, the district attorney, and a man who had been convicted of sexual assault. Included was a description of: (a) the prison sentences men could receive if they engaged in sexual assault (presented by the district attorney); (b) the consequences of living in prison, such as loss of personal freedom and the possibility of being raped themselves; and (c) the difficulties they could experience reentering society (e.g., obtaining employment) upon their release from prison. The male actor and man who had been convicted of sexual assault presented components (b) and (c). The male actor was a "proximal" model for the average male college student at the university; Caucasian, early 20's, attractive, and casually but neatly dressed. He described a "typical" acquaintance rape scenario (as described by Hanson and Gidycz 1993) involving a party and alcohol use. This information was included because research indicates that men who commit sexually abusive acts are less likely to identify the negative consequences of doing so and to believe that negative consequences will happen to them (Malamuth 1986). The goal of this segment was to help male participants identify these negative consequences, thereby decreasing the probability that they would engage in sexual aggression in the future.

Study Hypotheses

We predicted that relative to women in the control group, women who received the prevention program would report increases in knowledge of assault-related information and sexual communication strategies, and a decrease in risky dating behaviors. We expected that men who received the prevention program, as

compared to men in the control group, would report decreases in rape myth acceptance, acceptance of interpersonal violence, and adversarial sexual beliefs, and increases in victim empathy and ability to identify negative consequences for engaging in sexually coercive behavior.

Method

Participants

Participants were 309 undergraduate men and women selected from 11 classes at a mid-sized West Coast university (Control group = 132, Experimental group = 177). Mean age of the sample was 23.2 (SD = 6.0). The most frequently occurring ages were 19 ($n = 53$), 20 ($n = 62$), and 21 ($n = 48$). Seventy-nine percent of the sample was under 25. Men comprised 36.6% (113) of the sample and women 63.4% (196). Given the limited time allotted to present the program information (i.e., 50 min), additional demographic information was not obtained due to the need to collect other outcome measures. Classes ranged in size from fewer than 35 to over 100 students.

Dependent Measures Completed by Women

Sexual Assault Awareness Survey (SAAS; Hanson and Gidycz 1993)

The SAAS is a 20-item, true/false, self-report questionnaire designed to measure general awareness of sexual assault and accuracy of beliefs held about sexual assault. Higher scores indicate better awareness and greater accuracy of these beliefs. This questionnaire was given only to women for two reasons: (a) its psychometric properties were established with a female sample, and (b) the questionnaire made the women's packet similar in length (and time to complete) as the men's packet. The SAAS items overlap significantly with the Program Information Quiz.

Dating Behavior Survey (DBS; Hanson and Gidycz 1993)

The DBS is a 15-item self-report questionnaire designed to measure participation in dating behaviors associated with an increased risk for sexual victimization. Items are scored on a 7-point Likert scale. Higher scores indicate greater participation in risky dating behaviors. The Dating Behavior Survey has an alpha coefficient of .63 and 1-week test–retest reliability of .77 (Hanson and Gidycz 1993).

Sexual Communication Survey (SCS; Hanson and Gidycz 1993)

The SCS is a 21-item self-report questionnaire that measures perceived ability to communicate sexual intentions in dating situations. Higher scores on this instrument indicate poorer perceived ability to respond clearly in dating situations. The Sexual

Communication Survey has an alpha coefficient of .56 and a 1-week test–retest reliability of .79 (Hanson and Gidycz 1993).

Dependent Measures Completed by Men

Rape Myth Acceptance Scale (RMAS; Burt 1980)

The RMAS is an 11-item self-report questionnaire that measures the degree to which an individual believes false information about rape (e.g., Women who get raped while hitchhiking get what they deserve). Higher scores on the RMAS indicate greater rape myth acceptance in men and increased risk of having committed a sexual assault. The RMAS has an alpha coefficient of .88 and has been found to discriminate between convicted rapists and non-rapists (Burt 1980). This scale (as opposed to other rape myth scales) was chosen because of its extensive prior use in sexual assault prevention and assault-related research (e.g., Emmers-Sommer et al. 2006; Millhausen et al. 2006).

Acceptance of Interpersonal Violence Scale (AIV; Burt 1980)

The AIV is a self-report questionnaire that measures attitudes that condone the use of force in relationships. Higher scores indicate greater adherence to these beliefs. Malamuth (1986) found this scale to have a stronger relationship with sexual aggression than any of Burt's other scales. Reliability studies for this scale report an alpha coefficient of .60, likely because scale items tap two overlapping but distinct constructs: intimate partner violence and sexual violence (Burt 1980; Malamuth 1986). The AIV has been used extensively in previous research (e.g., Chapleau et al. 2008), and a recent study demonstrated an internal consistency of .70 for male respondents (Mosher and Danoff-Burg 2005).

Adversarial Sexual Beliefs Scale (ASB; Burt 1980)

The ASB is a self-report questionnaire that measures the degree to which a person believes that sexual relationships are exploitive or adversarial in nature. A higher score indicates greater adherence to adversarial sexual beliefs. The alpha coefficient for the Adversarial Sexual Beliefs Scale is .80 (Burt 1980).

Adjective Checklist (Fultz et al. 1988)

The Adjective Checklist is a 24-item self-report measure designed to assess respondents' affective states. All items are rated on a 7-point Likert scale with higher scores indicating a higher valence of the emotion. For the purposes of the current study, only the empathy, sadness, and distress indices were used. The Adjective Checklist has an alpha coefficient of .91 for the empathy index, .92 for sadness, and .88 for distress (Fultz et al. 1988). Changes in scores from pre-intervention to post-intervention (after viewing victim empathy segment) indicate

an increase in empathy-related emotions which correlate significantly with other measures of victim empathy (O'Donohue et al. 2003).

Rape Outcome Expectancy Scale (O'Donohue et al. 1996)

The Rape Outcome Expectancy Scale is part of the Probability Questionnaire developed by O'Donohue et al. (1996). Participants rated how likely they thought a variety of possible outcomes were for committing a sexual assault (i.e., liking it, being arrested, contracting a STD). These responses were combined with participants' ratings of how much they valued each potential outcome to create the Rape Outcome Expectancy scale. Higher scores are associated with an increased risk of committing sexual assault. O'Donohue et al. (1996) reported an alpha coefficient of .82 for this scale.

Dependent Measures Completed by All Participants

Program Information Quiz

This is a multiple choice, 11-item quiz that includes content-specific questions about information included within the prevention program. This quiz was developed by the authors to assess participants' knowledge of the prevention material at the follow-up period.

Consumer Satisfaction Survey

This is a 6-item multiple-choice questionnaire designed by the authors to assess the degree to which participants: (a) thought they knew the material presented prior to participation in the study, (b) liked the presentation, (c) experienced the prevention material as offensive, and (d) found the information presented useful. This questionnaire also asked whether the participants had attended a previous sexual assault prevention program.

Design and Procedure

The study was approved by and conducted in compliance with the university's Internal Review Board. Participants were recruited by contacting instructors on campus via e-mail and asking them whether they were willing to have their class participate in a study that was attempting to evaluate the effectiveness of a sexual assault prevention program. A quasi-experimental design was used in which classes, not participants, were assigned to condition. Those classes for which the instructor volunteered to participate (11 classes including English, biology, psychology, sociology, math, university life, and philosophy) were assigned to a condition such that every other class of that size category (i.e., over 100 students, over 35 students, under 35 students) that agreed to participate received the prevention program (i.e., the experimental group) or completed the dependent measures only (i.e., the control group). All participants were told that they would

receive the prevention program, regardless of whether they completed the questionnaires (the experimental group received a prevention program that week and the control group received the prevention program in 3 weeks, after Time 3 data was collected). Students were informed that they were not required to complete the questionnaires and could choose not to do so without consequence. To protect the anonymity of participants who chose not to participate, all participants were provided with questionnaires that they then returned in a box (completed or not). Men and women completed different measures to assess gender-specific program goals. Participants were not told that they were receiving different measures and both packets were designed to take the same amount of time to complete.

The first author and one of two female undergraduate peer educators presented the prevention program (including components (a) through (e) previously discussed). The first author trained both peer educators to co-deliver the prevention program. The peer educators memorized the presentation, observed the presentation being given by the first author, and practiced with the first author until mastering the presentation. The procedures for each condition and gender group are described next.

Experimental Group

Women assigned to the experimental group completed the Sexual Communication Survey, Sexual Assault Awareness Survey, and Dating Behavior Survey prior to receiving the prevention program (Time 1). They then received the mixed-gender sexual assault prevention program. Immediately following the prevention program, women were given the Consumer Satisfaction Survey (Time 2). At the 2-week follow-up (Time 3), women completed the Sexual Communication Survey, Sexual Assault Awareness Survey, Dating Behavior Survey, and Program Information Quiz.

Men assigned to the experimental group were given the 24-item Adjective Checklist, Probability Questionnaire, Rape Myth Acceptance Scale, Acceptance of Interpersonal Violence Scale, and Adversarial Sexual Beliefs Scale prior to receiving the prevention program (Time 1). They then participated in the prevention program simultaneously with the women in the experimental group. The men then were given the 24-item adjective checklist and Consumer Satisfaction Survey (Time 2). At the 2-week follow-up (Time 3), men were given the 24-item Adjective Checklist, Probability Questionnaire, Rape Myth Acceptance Scale, Acceptance of Interpersonal Violence Scale, Adversarial Sexual Beliefs Scale, and Program Information Quiz.

Control Group

Women assigned to the control group were given the Sexual Communication Survey, Sexual Assault Awareness Survey, and Dating Behavior Survey at Time 1. These measures and the Program Information Quiz were administered again at Time 3 (2-week follow-up). Men assigned to the control group completed the 24-item adjective checklist, Probability Questionnaire, Rape Myth Acceptance Scale, Acceptance of Interpersonal Violence Scale, and Adversarial Sexual Beliefs Scale

at Time 1. These measures and the Program Information Quiz were administered again at Time 3 (2-week follow-up).

Results

Women (Experimental and Control)

Table 1 presents the means and standard deviations for the dependent measures given to the women in the experimental and control groups. Prior to conducting the main analyses, independent-samples *t*-tests were conducted to evaluate whether the groups differed on the dependent measures prior to the intervention. Results revealed a significant difference between the experimental and control groups on the Sexual Communication Survey [$t(1, 191) = 2.15, p < .05$] and the Dating Behavior Survey [$t(1, 193) = 2.42, p < .05$], with women assigned to the experimental group reporting more risky dating behaviors and less assertive communication strategies than women assigned to the control group. To control for these group differences at Time 1, two separate analyses of covariance (ANCOVAs) were conducted on the Dating Behavior Survey and the Sexual Communication Survey, using the scores on these measures at Time 1 as a covariate. Results indicated that there were no significant differences between the experimental and control groups at the 2-week follow-up on the Dating Behavior Survey, $F(1, 168) = .34$, ns, or the Sexual Communication Survey, $F(1, 163) = .001$, ns. An ANOVA further revealed that there were no significant differences in scores between the experimental and control groups on the Sexual Assault Awareness Survey at the 2-week follow-up, $F(1, 168) = 1.15$, ns.

There also was no significant difference between the experimental and control group on the Program Information Quiz at the 2-week follow-up period [$t(1, 193) = -2.0$, ns]. The highest score possible on the quiz was 22, which suggests that there were ceiling effects for this measure. This indicates that women

Table 1 Means and standard deviations for the dependent measures used at pre-intervention and follow-up for women

Measure	Group	Time 1		Time 2		Time 3	
		M	SD	*M*	SD	*M*	SD
DBS	Experimental	46.02	(18.24)			43.04	(18.09)
	Control	39.45	(19.03)			37.64	(21.19)
SCS	Experimental	41.17	(18.91)			37.98	(19.24)
	Control	35.33	(17.72)			33.83	(22.29)
SAAS	Experimental	14.33	(1.65)			13.72	(4.89)
	Control	14.26	(1.78)			14.15	(2.05)
PIQ	Experimental					19.20	(2.90)
	Control					19.97	(0.78)

Note: The PIQ was administered only at Time 3. *DBS* Dating Behavior Survey, *SCS* Sexual Communication Survey, *SAAS* Sexual Assault Awareness Survey, and *PIQ* Program Information Quiz

in both the experimental and control groups knew much of the factual information included in the prevention program.

Men (Experimental and Control)

Table 2 presents the means and standard deviations for the dependent measures given to the men in the experimental and control groups. Responses on the adjective checklist were assessed pre-intervention (Time 1), immediately after the intervention (Time 2), and at 2-week follow-up (Time 3). Responses to the checklist were divided into three scales: empathy, sadness, and distress. There was a significant difference between the experimental and control groups in empathy at Time 1 [$t(1, 110) = 3.87$, $p < .01$], indicating that men in the experimental group were feeling more empathy before the prevention program was given than men in the control group. There were no significant differences at pre-intervention between the experimental and control groups on sadness [$t(1, 111) = .28$, ns] or distress [$t(1, 111) = -1.69$, ns]. A repeated measures ANOVA was used to test for differences in responses to the adjective checklist at Time 1, 2, and 3. Results indicated that participants in the experimental group reported a significant increase in empathy, distress, and sadness

Table 2 Means and standard deviations for the dependent measures used at pre, post, and follow-up for men

Measure	Group	Time 1		Time 2		Time 3	
		M	SD	*M*	SD	*M*	SD
Empathy	Experimental	16.19	(4.68)	17.05	(5.33)	15.98	(5.24)
	Control	12.80	(4.60)			14.89	(5.67)
Distress	Experimental	9.38	(5.86)	11.10	(5.65)	10.95	(6.61)
	Control	11.40	(6.87)			8.32	(5.12)
Sadness	Experimental	10.09	(5.65)	11.66	(6.21)	9.04	(4.92)
	Control	9.78	(5.86)			8.21	(4.71)
ASBS	Experimental	26.37	(10.30)			25.10	(11.27)
	Control	29.08	(11.57)			26.66	(12.10)
RMAS	Experimental	25.92	(6.81)			23.49	(7.50)
	Control	27.41	(9.49)			25.44	(9.79)
OES	Experimental	720.31	(211.68)			690.61	(237.71)
	Control	566.55	(282.29)			659.24	(225.95)
AIVS	Experimental	21.58	(4.06)			21.39	(3.67)
	Control	21.12	(4.87)			22.59	(4.26)
PIQ	Experimental			20.12	(.98)	20.18	(.65)
	Control					19.61	(.99)

Note: *Empathy* Empathy Scale of the Adjective Checklist, *Distress* Distress Scale of the Adjective Checklist, *Sadness* Sadness Scale of the Adjective Checklist, *ASBS* Adversarial Sexual Beliefs Scale, *RMAS* Rape Myth Acceptance Scale, *OES* Outcome Expectancy Scale, *AIVS* Acceptance of Interpersonal Violence Scale at pre-intervention (Time 1), post-intervention (Time 2), and 2-week follow-up (Time 3), and *PIQ* Program Information Quiz at post-intervention (Time 2) and 2-week follow-up (Time 3)

immediately after the prevention program [$F(1, 53) = 4.19$, $p < .05$, $\eta^2 = .07$; $F(1, 54) = 6.05$, $p < .05$, $\eta^2 = .10$; and $F(1, 54) = 9.17$, $p < .05$, $\eta^2 = .15$, respectively].

To control for differences at Time 1 between the experimental and control groups on the Rape Myth Acceptance Scale, Acceptance of Interpersonal Violence Scale, and Adversarial Sexual Beliefs Scale, ANCOVAs (using Time 1 scores as the covariate) were performed. Results indicated that men in the experimental group displayed a significant decrease in scores on the Rape Myth Acceptance Scale between Time 1 and Time 3 [$F(1, 90) = 2.67$, $p < .05$, $\eta^2 = .52$]. However, there was no significant change in scores on either the Acceptance of Interpersonal Violence Scale [$F(1, 89) = 3.11$, ns], or the Adversarial Sexual Beliefs Scale [$F(1, 92) = .76$, ns] at the 2-week follow-up.

Prior to the intervention, men in the experimental condition rated potential negative consequences to sexual assault (the Outcome Expectancy Scale) as significantly more likely [$t(1, 111) = 3.29$, $p < .05$] than the control group. To control for these differences, the Outcome Expectancy Scale scores at Time 1 were included as a covariate in the ANCOVA. The results revealed no significant differences in responses to the Outcome Expectancy Scale between Time 1 and Time 3 in the experimental or control groups.

Men's scores on the Program Information Quiz were significantly different between the experimental and control groups at Time 3 [$t(1, 111) = 3.06$, $p < .05$], which indicates that, 2 weeks after the presentation, men in the experimental group knew more information about sexual assault than men in the control group.

Subanalyses

Men and women in the experimental group completed the Consumer Satisfaction Survey immediately after the prevention program (Time 2). Results of the survey indicated that the majority of men (86.2%) and women (87.4%) believed that they already knew "most" or "all" of the information provided in the prevention program but still believed that the prevention program would be beneficial for most college students (93.1% of men and 98.3% of women). Sixty-one percent of women and 36.2% of men also thought that the presentation was entertaining, indicating a significant gender difference in the "likeability" of the presentation, ($X^2 = 17.92$, $p = .003$). A small minority of students (3.4% of women and 6.9% of men) found some of the information presented to be offensive. However, the overwhelming majority of participants (92.4% of women and 91.4% of men) thought that the presentation was useful in decreasing the likelihood of either being assaulted or committing a sexual assault. Forty-two percent of women and 62.1% of men indicated that they had been to a sexual assault prevention program (at the university or elsewhere) in the past.

Although the majority of women (87.4%) believed that they already knew "most" or "all" of the sexual assault prevention material prior to the presentation, these ratings were not correlated to Time 1 scores on the Dating Behavior Survey or Sexual Communication Survey. This indicates that women's beliefs about their knowledge of sexual assault do not necessarily correlate with their participation in

less risky dating behaviors and more assertive communication in dating situations. Previous participation in a sexual assault prevention program also did not correlate significantly with any measures given at Time 1.

Unfortunately, a small percentage of men in the experimental group (8.9%) reported feeling "turned on" immediately after the prevention program. This suggests that the prevention program may have had an undesirable effect on a minority of male participants.

Discussion

This study evaluated the effectiveness of a mixed-gender sexual assault prevention program as commonly delivered in college settings. The prevention program was designed to: (a) decrease men's adherence to rape myths, (b) increase women's sexual assault-related knowledge, (c) increase women's ability to identify behaviors associated with an increased risk of sexual assault, (d) increase women's ability to respond effectively to high risk dating situations, (e) increase men's victim empathy, and (f) increase men's ability to identify negative consequences for engaging in sexually coercive behavior. Overall, the results of this study indicate that the mixed-gender prevention program was effective for some, but clearly not all, of its targets.

Results suggested that participants rated the program as beneficial and potentially useful in reducing the prevalence of sexual assault on campus, which indicates its acceptability within the college population. However, results also suggested that the prevention program was ineffective at increasing women's assault-related knowledge and assertive communication strategies, as well as in decreasing their participation in risky dating behavior. Other research indicates similar lack of changes in sexual communication and knowledge but significant changes in risky dating behaviors over longer follow-up periods (Gidycz et al. 2006; Sochting et al. 2004).

The program was marginally effective with men, increasing their victim empathy and decreasing their adherence to rape myths. Men reported a significant increase in feelings of empathy, distress, and sadness after the prevention program, indicating an increase in experiencing victim empathy immediately after the prevention program. Research indicates that these indices correlate significantly with other measures of victim empathy (O'Donohue et al. 2003) and socially desirable responding is less likely to play a role. The prevention program also was effective in decreasing male adherence to rape myths, although scores on the Adversarial Sexual Beliefs Scale and Acceptance of Interpersonal Violence Scale did not change significantly as a result of the intervention. Other studies of prevention program outcomes have also been mixed, with some showing an increase in empathy and decreases in rape myth acceptance and adversarial sexual beliefs and others finding no effects (e.g., Anderson and Whiston 2005; Foubert and Newberry 2006; Kress et al. 2007; Millhausen et al. 2006). The lack of change in scores on the AIV and ASBS may be due to the fact that, although these constructs are related to sexual violence, they were only targeted indirectly by the prevention program.

There was a gender difference in the likeability of the program, with significantly more women reporting that the presentation was entertaining. This gender difference may be due to the fact that the content of the program tends to characterize men as perpetrators. In addition, the video clips emphasizing the consequences for engaging in sexual assault were meant to create negative emotional responses in men; this may have reduced the likeability of the program for male participants.

The majority of men (62.1%) and almost half of the women (42%) had attended a sexual assault prevention program in the past; this indicates that prevention programming at the high school and college level is reaching a larger number of students. This may also explain the ceiling effects on the sexual assault awareness measure at Time 1. However, despite participation in these programs, base rates of sexual assault still are quite high for the college population (Fisher et al. 2000; Koss et al. 1987). Alternative prevention strategies need to be investigated in hopes of finding interventions that may reduce risk within this group.

An interesting finding was the lack of a significant relationship between whether women had previously participated in a sexual assault prevention program and their scores on the Time 1 measures. It is possible that women's Time 1 scores on these measures were an improvement over what they would have been prior to participation in previous sexual assault prevention programs. However, it is also possible that the previous programs either had little impact or had little long-term impact. This finding highlights the need for long-term (e.g., 1- and 2-year) follow-up periods in prevention research. Future studies also should assess the efficacy of "booster" prevention programs, that is, brief programs designed to review the main topics of previous, longer prevention programs, which may cue in memory more specific content presented previously.

The lack of a relationship between whether women thought that they already knew the material and their scores on the Sexual Communication Survey and Dating Behavior Survey was another interesting finding. Pre-intervention scores on these measures indicated relatively high levels of high risk dating behaviors and difficulties communicating assertively in dating situations. A possible (and likely) explanation is that the great majority of prevention programs (including this one) are information based and do not offer role playing or other exercises with concrete examples of what to do in specific high risk dating situations. Many women may know in general how to respond to high risk situations but experience difficulty translating this knowledge into overt behavior. Thus, having women practice ways in which to respond to high risk situations may increase the effectiveness of prevention efforts. Indeed, Marx et al. (2001) found that women who participated in a program that included covert modeling (i.e., women imagined responding assertively to high risk situations) were significantly less likely to report an incident of rape at the 2-month follow-up period than women who did not receive the program. Future prevention research might focus on evaluating the utility of behavioral rehearsal in reducing women's risk of sexual assault. For example, a 2-day prevention program could provide women with information-based content during one class and, in the next, have them practice skills for responding to high risk situations. Assuming women already know a large amount of information about

sexual assault, an alternative prevention program could greatly reduce the amount of information presented and allow more time to practice, for example, assertive communication skills and identification of high risk situations (e.g., through the use of video or written vignettes). Future research then could assess the effectiveness of these prevention strategies over the current information-based model.

Unfortunately, 8% of men reported feeling aroused after the prevention program. It is unclear what impact this arousal may have on the likelihood of committing rape in the future. It is possible that men who become aroused while thinking or fantasizing about sexual assault are at higher risk for committing sexual assault. An alternative explanation for this finding may be that men are often initially exposed to sex through paper and internet pornography, which pairs sex with male supremacy and violence (Jensen 1994). This may in turn lead to an arousal pattern for some men that includes male aggressive or violent behavior.

Some researchers have questioned whether mixed-gender prevention programs are the most effective way in which to decrease the prevalence of sexual assault on college campuses, especially given the success of many single-gender programs (Yeater and O'Donohue 1999). Yeater and O'Donohue (1999) have argued that some mixed-gender programs assume that the psychological constructs related to behavioral change are the same for both men and women when, in fact, there is some evidence to suggest that men and women may require disparate interventions (Hanson and Gidycz 1993; Schewe and O'Donohue 1993). In addition, men may learn in these programs that sexual assault is a common experience, and that there are few negative consequences for men who rape. More importantly, men who are at high risk for being sexually aggressive will learn strategies used by women to decrease their victimization risk. This information might allow them to adjust their own strategies, thus increasing their success at coercing women into unwanted sexual activity. Additionally, because mixed-gender programs do, at times, target different behaviors for men and women (e.g., victim empathy for men and risk perception for women), at any given time during a typical 50–60 min presentation, only half of the information presented will be directly relevant to the participants. Thus, the intervention itself may fail to contain an adequate "dosage" of material to change the behavior of either men or women. In addition, previous research indicates that men may be more honest in discussing masculinity and violence in a male-only program (Foubert and Perry 2007). All of these are strong arguments for the use of single-gender prevention programming.

Limitations and Future Directions

There are several methodological limitations of the current study that should be addressed in future research. First, several of the measures (i.e., the Outcome Expectancy Scale, Acceptance of Interpersonal Violence Scale, Adversarial Sexual Beliefs Scale, and Program Information Quiz) had either ceiling or floor effects, reducing the sensitivity of the measures. Second, participants were not assigned randomly to the experimental and control groups. Instead, classes were assigned to the groups, which likely led to Time 1 differences on various dependent measures. However, this was an effectiveness study and random assignment of students (and

classes) was not possible. Third, a limitation of this and most other studies on sexual assault prevention programming is the reliance on self-report. It is possible that participants' self-report did not reflect their actual behavior in the real life settings. For this reason, long-term follow-up of actual rates of sexual coercion and victimization are essential.

Fourth, the follow-up period was relatively short (i.e., 2 weeks). This likely influenced women's responses to the Dating Behavior Survey at the 2-week follow-up, as many women may not have engaged in any dating behavior during that period. Gidycz et al. (2006) found that women significantly increased protective behaviors post-risk reduction and self-defense programs after a 6-month follow-up period. It is entirely possible that, had the follow-up period been longer, there would have been changes in dating behaviors. Prospective studies that track participants for significant periods of time are greatly needed (e.g., Rothman and Silverman 2007). Fifth, using only women as program presenters may have influenced participants' responses to the questionnaires. For example, men may have been reluctant to report certain attitudes or behaviors because women provided the program content. Some research has been conducted on the effects of gender, gender roles, and race in response to sexual assault prevention programming (e.g., Foubert and Cremedy 2007; Foubert and Sholley 1996). This study did not obtain information on these variables due to time constraints and scope of the study. However, further research on such demographics is greatly needed, as these variables may influence the effectiveness of mixed-gender prevention programs.

Sixth, the prevention program focused solely on male-to-female sexual violence. Given that men may also be victims of such acts, prevention programs might consider including content (more than a passing statement that men can be victims) that addresses such issues. Seventh, due to time constraints, this study included a limited number of outcome measures. Future studies should assess outcomes with a variety of other measures (e.g., Illinois Rape Myth Acceptance Scale: Payne et al. 1999; Self-Protection against Rape Scale: Moore and Waterman 1999) in an effort to evaluate nuances in behavioral and attitudinal changes.

Conclusion

This study assessed the effectiveness of a mixed-gender sexual assault prevention program as usually administered in a college classroom setting. The results suggest that these programs, as commonly delivered, may be relatively ineffective at changing undergraduates' behavior. Although the program was effective at decreasing men's adherence to rape myths and increasing their victim empathy, it was ineffective at changing women's assault-related knowledge and behavior. Despite the few positive outcomes obtained for men, more work remains to be done. It is clear that the "typical" mixed-gender sexual assault prevention program must be improved, as funding continues to be funneled into these types of prevention efforts. We should consider changing our prevention formula, as the "one-shot" 50-min mixed gender program as generally administered may be insufficient in changing attitudes and behavior. In fact, a recent meta-analysis of sexual assault

prevention program outcomes indicates that longer interventions are much more effective than short ones (Anderson and Whiston 2005). Although the one-class-period mixed gender program may provide an introduction to sexual assault prevention and risk reduction, more intensive (e.g., single-gender or extended programs) intervention strategies may be needed to change college students' behavior over the long term.

A viable solution for eliminating men's sexual aggression remains elusive at present. Continuing research on interventions focused on intervention with perpetrators is greatly needed to address the source of the problem. Until such effective intervention strategies are identified, programs that focus on helping women reduce their victimization risk are necessary. Such programs might improve their effectiveness by including modeling of risk-reducing behaviors or by practicing behaviors that may decrease their risk of victimization. In addition, female-only and male-only prevention programs should be investigated further, as they may provide better outcomes.

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