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Psychology of Women Quarterly 2011 35: 72

DOI: 10.1177/0361684310384101

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Emancipatory Sexuality Education and Sexual Assault Resistance: Does the Former Enhance the Latter?

Psychology of Women Quarterly
35(1) 72-91
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DOI: 10.1177/0361684310384101
http://pwq.sagepub.com


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Abstract

The current study examined whether adding emancipatory sexuality education, which encourages the exploration of women's own sexual values and desires, to a sexual assault resistance program would improve women's resistance to sexual assault by known men. The participants were 214 first-year university students. A randomized experimental design evaluated the effectiveness of a basic and sexuality enhanced version of a sexual assault resistance program against a no-program control. Both programs, compared to the control group, increased women's perception of their own risk, their confidence that they could defend themselves if attacked, and their use of more effective methods of self-defense in hypothetical situations of acquaintance sexual assault. Effects were maintained from 3 to 6 months after program completion. No significant reductions in completed sexual assault were found. The sexuality enhanced program was superior in several areas, particularly risk detection and initiation of sexual activity, which may be important to women's integration of the program's content to their lives. Future research will need to strengthen and continue to evaluate the promising programs for women which now exist. Until effective programming for men on campus is developed and implemented widely, our best hope to improve the health and safety of female students lays in comprehensive women-only multi-unit sexual assault resistance education.

Keywords

acquaintance rape, sex education, self-defense, resistance, intervention, program evaluation, self-efficacy

At least 18% of women in Canada and the United States will be victims of rape or attempted rape in their lifetimes (Randall & Haskell, 1995; Tjaden & Thoennes, 2000). The majority of these crimes are committed by men, and most of these men know their victims (Statistics Canada, 2006). Although women of all ages are sexually assaulted, young women are at particular risk, with 50% or more of sexual assaults occurring before women turn 18 (Randall & Haskell, 1995; Tjaden & Thoennes, 2000). On university campuses, sexual assault rates are high, with an estimated 5% of women experiencing attempted or completed rape each year (Fisher, Cullen, & Turner, 2000). Thus activists, educators, and researchers have made it a priority to direct sexual assault interventions at young men and women, with most existing research and programming focusing on university populations (Lonsway et al., 2009; Morrison, Hardison, Mathew, & O'Neil, 2004).

The current study contributes to this work by investigating the effectiveness of a newly developed program designed to increase first-year university women's sexual assault resistance. In particular, we explored whether a resistance program enhanced with emancipatory sexuality education performed better than the resistance content offered alone. Sexual assault resistance education, which is sometimes known as risk-reduction programs (e.g., Gidycz et al., 2001b), attempts through varied means to enhance women's ability to

physically, verbally, and psychologically resist men's attempts to sexually coerce or assault them (Rozee & Koss, 2001). Emancipatory sexuality education is designed to help individuals question traditional sexual roles and to encourage "free choices" (Schraag, 1989). For women, a critical element of this type of sex education is the exploration of their own sexual values and desires (Balanko, 2002; Fine, 1988). We use the term "sexual assault" to refer to the broader category of attempted and completed forced, drugged, or threatened sexual activities and "rape" to refer to forced, threatened, or drugged penetration (oral, anal, or vaginal).

A Brief History of Sexual Assault Prevention Programs

Within community settings since the late 1970s, rape crisis workers and other educators have been working on initiatives

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to combat sexual assault (e.g., Women Against Rape, Columbus, Ohio; Rape Relief, Vancouver, British Columbia). With few exceptions (e.g., Women Against Rape, 1980), these programs were not formally evaluated (Yeater & O'Donohue, 1999). Within academic settings, three major strands of research and theory related to sexual assault intervention have emerged.

The first and most common stream of evaluated programs are those aimed at mixed-sex audiences and focused on providing knowledge about rape and rape victims and debunking harmful rape myths. Reviews of this research suggest that, for the most part, these programs demonstrated only short-term changes in attitudes (e.g., Anderson & Whiston, 2005; Breitenbecher, 2000; Lonsway, 1996). More recently, approaches for mixed-sex audiences have been theoretically driven and have attempted to produce longer and more substantial changes in individuals' attitudes, beliefs, and behaviors (e.g., Banyard, Plante, & Moynihan, 2004; Carmody, 2009). Although theoretically promising, these programs have not yet been evaluated for sexual assault outcomes.

A second smaller strand of research focuses on male audiences to reduce their perpetration of sexual assault (e.g., Foubert & McEwen, 1998). The predominant view among researchers and educators is that this is where prevention efforts must be focused to bring an end to sexual assault (Rozee & Koss, 2001). However, evaluations of these programs have generally not measured sexual assault outcomes or have been unable to demonstrate reductions in sexual assault (Breitenbecher, 2000; Yeater & O'Donohue, 1999).

The third strand of research is focused on female audiences and is directed toward decreasing women's exposure to risk and increasing their resistance to coercive attempts when they occur (e.g., Hanson & Gidycz, 1993). This last stream of research and programming has the closest links to the early work of feminist activists who argued for the need to undo harmful gender socialization and provide self-defense training so that women could defend themselves against rape (e.g., Women Against Rape, 1980). There is now a consensus that relying solely on coeducational or men's programs is insufficient to fully protect women from sexual assault (see Rozee & Koss, 2001). The current program in our study therefore focused on developing and testing a sexual assault resistance program for university women.

Development and Effectiveness of Sexual Assault Resistance Programs

Researchers in the field began with the hope that a sexual assault resistance program could be developed, which would reduce sexual assaults experienced by all young women (e.g., Hanson & Gidycz, 1993). The first programs were normally a single session designed with attention to social learning principles and theories of persuasion (e.g., Breitenbecher & Gidycz, 1998; Hanson & Gidycz, 1993). These programs had positive effects on women's knowledge and attitudes about rape and, at times,

on behaviors theorized to be related to lowering risk of rape (Hanson & Gidycz, 1993). However, it quickly became apparent that these programs were either unable to produce reductions in completed sexual assaults (Breitenbecher & Gidycz, 1998; Gidycz et al., 2001b) or reduced completed rapes only for women who had no prior sexual assault history (Hanson & Gidycz, 1993). Hence, a consensus emerged that if programs were to be more broadly effective for all young women, then a number of changes would need to be made (e.g., Schewe, 2002). The suggested changes included a greater emphasis on theory (e.g., Yeater & O'Donohue, 1999), increased program length (e.g., Sochting, Fairbrother, & Koch, 2004), and deeper coverage of content (e.g., Anderson & Whiston, 2005).

Between 1996 and 2001, several theoretical developments provided inspiration for more effective sexual assault resistance programming. Nurius and Norris (1996) outlined a cognitive-ecological model of acquaintance sexual coercion. The model brought together factors in women's background, their interpersonal relationships, and the environment with a "cognitive analysis of the processes women use to formulate responses to sexual coercion" (p. 117). This work was particularly important in highlighting the obstacles for women in resisting sexual assaults by known men. Later, Rozee and Koss (2001) based their recommendations for rape resistance education on the Nurius and Norris (1996) model and expanded it to include self-defense training (Ullman, 1997). These formulations began to be used in the development and revision of sexual assault resistance programming, and they have been important contributors to greater effectiveness in some areas of women's resistance.

The addition of self-defense training to rape resistance programs increased women's use of assertive strategies to reduce risk but had no effect on the rate of sexual assault (Gidycz, Rich, Orchowski, King, & Miller, 2006). Similarly, enhancing programs with greater focus on helping women to overcome emotional and cognitive barriers to resistance did not reduce sexual assault completion (Breitenbecher & Scarce, 2001). A combination of these features, that is, increasing the focus on barriers to resistance *and* including substantial self-defense training, has been the most productive approach to date (Orchowski, Gidycz, & Raffle, 2008). Orchowski et al.'s (2008) program, which incorporated both elements, reduced completed sexual assaults for both previously victimized and non-victimized women. Unfortunately, these effects did not last beyond 2 months, even with a booster session. Thus, although addressing cognitive-ecological barriers to resistance and adding self-defense training have moved us forward, the goal to achieve lasting sexual assault reductions for all women has not been reached. Thus, sexual assault resistance education may not be enough to help women resist acquaintance rape.

Adding Sexuality Education

Feminists have long theorized that one of the features of acquaintance rape that makes it so difficult to recognize and

resist is that it is built on a foundation of socially accepted norms and beliefs regarding female and male sexuality and relationships (e.g., Kelly, 1987). Empirical research supports this claim. For example, many of the characteristics common in dating and sexual interactions, if present, are related to women not acknowledging that a rape occurred (e.g., Kahn, Jackson, Kully, Badger, & Halvorsen, 2003). Furthermore, Gavey (2005, p. 1) has suggested that several cultural discourses work together in Western societies to make sexual coercion of women by men normative and to blur the boundaries between what is considered “just sex” and what is rape or sexual assault. These discourses include a “male sexual drive discourse,” in which men are perpetually enthusiastic about sex; a “coital imperative,” where alternatives to penile penetration are not considered; and the complete absence of any “discourse of female desire.” “[T]hese everyday taken-for-granted normative forms of heterosexuality work as a cultural scaffolding for rape” (Gavey, 2005, p. 2). Thus, women’s inability to resist sexual assaults by acquaintances may be due, at least in part, to the grey area created by patriarchal notions of men’s and women’s sexual needs, desires, and perceptions of “normal” heterosexual practice. Under these conditions, emancipatory sexuality education focusing on women’s sexual desires and alternatives to coitus is critical to women’s increased abilities both to seek out sex they do want and to reject and actively resist sex that they do not want.

This is education most women do not receive. Most parents do not provide adequate (i.e., detailed) basic sexual education (e.g., Byers, Sears, & Weaver, 2008; Roberts, Kline, & Gagnon, 1978). When there is a void in accurate sexual knowledge, young women and men obtain their information primarily from their peers and from other sources of information, which tend to be inaccurate and/or focused solely on male sexual desires (e.g., pornography; Tjaden, 1988; Wood, Senn, Park, Verberg, & Desmarais, 2002). Schools, by default, become the major source of accurate sex education. The double bind for women is that early sexual education programming within schools, if present, is usually based on simple anatomy and, in later grades, on the dangers of sex including HIV risk, pregnancy risk, and rape (Fine, 1988). Circumstances where one can gain knowledge of what one does and does not desire sexually is lacking in most women’s background, education, and experiences (Fine, 1988; Holland, Ramazanoglu, Sharpe, & Thomson, 1998; Tolman, 1994; Wyatt, Newcombe, & Riederle, 1993). This lacuna is in stark contrast to the abundance of fear-based messages and to the focus on men’s sexual needs and desires in Western cultures (Forbes, 1996). Thus, emancipatory sexuality education may be required to maximize sexual assault resistance education efforts.

The only known empirical research regarding the connection between sex education and rape has investigated how sex education might influence rape-related attitudes. This approach has been assessed by comparing the attitudes of students in

sexuality courses to those in other university courses (e.g., Dallagher & Rosen, 1993; Fischer, 1986) or to rape education courses alone (e.g., Lonsway et al., 1998). These studies generally find that the rape education courses are superior in terms of combating rape myths and increasing rape knowledge, whereas sexuality courses, which provide a unit on rape, reveal much smaller benefits (Lonsway, 1996). These results are not surprising considering that human sexuality courses offered in universities focus on an academic exploration of the diversity of human sexual behavior. These courses are usually designed to be neutral or scientific (e.g., “the cognitive and affective domains of human sexuality;” Lonsway et al., 1998, p. 77) rather than values-based (i.e., exploring one’s own wants and needs in a nonjudgmental environment; Kimball, 2000). These academic courses would not necessarily help women develop a voice for their own desire or discover what kinds of sexual acts they would like to explore or avoid. On the other hand, small group emancipatory sex education could be expected to provide this deeper kind of processing. The current study is the first known attempt to assess the impact of the incorporation of emancipatory sex education on sexual assault resistance programming.

The Current Sexual Assault Resistance Program

Background

In 2004, we began developing a sexual assault resistance program based on the components of the cognitive–ecological model identified by Nurius and Norris (1996) and on the self-defense components (as well as other features) suggested by Rozee and Koss (2001). We paid tribute to Rozee and Koss’ integration and extension of this model by naming the 9-hour (three sessions) program as they had suggested: the *Assess, Acknowledge, Act* sexual assault resistance program (hereafter AAA). The program was specifically designed for the youngest women in university (i.e., first year) because risk of sexual assault is higher in early years (Gross, Winslett, Roberts, & Gohm, 2006). However, a range of scenarios and content were included to ensure that the materials could also generalize to women in upper years.

The sexual assault resistance program was designed and pilot tested (2005–2006) using a quasi-experimental design. We used self-report surveys to gather quantitative and qualitative data about targeted outcomes. Focus groups, session evaluations, and interviews (conducted with a random sample of program completers and all dropouts) provided qualitative data on women’s views of the program content and the educational process. This pilot program was found to be effective in terms of altering targeted beliefs (personal risk of sexual assault and self-defense self-efficacy), attitudes (rape myths and belief in female provocation), and knowledge (effective verbal and physical self-defense tactics) in the short term (1 week and/or 3 months; Senn, Gee, & Saunders, 2006a,

Table 1. Sample Size and Completion Rates for Each Condition and Phase of the Study

	Pretest <i>n</i>	Posttest <i>n</i> (% of Pretest <i>N</i>)	3-Month Follow-Up <i>n</i> (% of Study <i>N</i>)	6-Month Follow-Up <i>n</i> (% of Study <i>N</i>)
Full sample	244	214 ^a	159 (74)	142 (66)
Control	127	98 (77)	74 (76)	58 (59)
Basic AAA	67	67 (100)	47 (70)	48 (72)
Weekend	38			
Weekday	29			
Enhanced AAA	50	49 (98)	38 (76)	36 (72)
Weekend	22			
Weekday	28			

Note. All participants who did not show up for their posttest session after several attempts to schedule them were dropped from the study. Five participants neglected to put their codes on follow-up surveys and a number of participants provided a different code at one or more time points, thereby reducing sample size for the longitudinal analysis. The follow-up periods were counted from the posttest. AAA = Assess, Acknowledge, Act sexual assault resistance program.

^a Study *N*.

2006b; Senn, Saunders, & Gee, 2008). The program was strengthened based on these preliminary findings.

The Current Study and Hypotheses

The current study was an experimental comparison of two versions of the AAA program, Basic AAA (based on ideas from Rozee & Koss, 2001) and Enhanced AAA (a sexuality enhanced AAA program), against a no-program control group. The primary goals of both versions of the resistance program were to increase the likelihood that, when a woman is in a situation with a male acquaintance, she is capable of detecting elevated risk of sexual assault and then take action quickly, using the most effective methods of self-defense to resist sexual assault, and thus reducing the likelihood of rape (i.e., completed oral, vaginal, or anal intercourse). To ensure that the effects of the program were similar across women with and without a prior victimization history, previous sexual victimization was included as an independent variable in all analyses of continuous variables.

We expected that women who participated in either AAA program would detect risk in dangerous situations earlier and would take action earlier than control women who have not taken the program. We also hypothesized that the AAA programs would increase women's confidence that they could defend themselves in sexual assault situations compared to the control group. However, for this confidence to be useful, a woman also needs to know what to do to increase her chances of getting away with minimal harm (Nurius, 2000). Therefore, we further predicted that women taking the programs would know and intend to use more effective self-defense tactics (e.g., direct resistance, forceful verbal and forceful physical strategies) than women who did not have the training.

Given that sexual assault attempts are under men's control, we expected that the rate of attempted rape and other sexual assaults, which are often intermediary to forced intercourse (e.g., grabbing women's breasts, forcing a hand down her pants; Testa, VanZile-Tamsen, Livingston, & Koss, 2004), may not themselves decrease. However, we did

anticipate that graduates of the programs would be better positioned to interrupt sexual assault attempts and thus would experience fewer situations of completed rape than women who have not taken the programs. We also expected that women who completed the programs would have experienced more situations where they believed they had avoided sexual coercion and assaults through their actions ("close calls;" Testa et al., 2004) than control women.

There is a risk that the current AAA programs, which are purposefully attempting to increase women's belief that they are at risk of acquaintance sexual assault, may "foster[] a dangerous combination of high fear and low perceived self-efficacy" in participants (Nurius, 2000, p. 67). We therefore had two secondary goals: (a) to assess whether the attempt to personalize the material was successful in increasing women's perceptions that they were at risk of sexual assault by men they know and (b) to ensure that the program decreased, or at least did not increase, fear of stranger rape—which has been shown to restrict women's movements and quality of life for victims and non-victims (e.g., Gordon & Riger, 1989).

Given that our overarching research objective was to compare the two versions of the AAA program, we additionally postulated that the Enhanced AAA program would perform better than the Basic AAA program across all predicted positive program effects. We also predicted that only the Enhanced AAA program would produce increases in women's sexual assertiveness.

Method

Participants

We recruited 244 first-year undergraduate women ($M_{\text{age}} = 18.89$, $SD = 1.62$; Range 17–25), of whom 214 completed pre- and posttesting and thus were included in the study. See Table 1 for sample sizes for all phases of the evaluation. Participants received credit toward their psychology course grade or entry in a \$300 lottery for completing the pre- and post-survey packages. They were mailed a \$10 gift card for

completing the follow-ups. Program participants received a ballot for up to \$500 in lotteries for each session of the program they attended. A priori power analysis was conducted with G*power software. Our sample of 214, with power of .80 and alpha at .05 was sufficient to detect a small effect size (.10) among our continuous outcome variables. Within these parameters, only moderate effects sizes (.20) would be detected for categorical outcomes; thus we experienced reduced power to explore fully the categorical sexual assault outcomes.

The majority of the participants were heterosexual (95%) and White (81%), but a minority, representative to the area, were aboriginal (3%), Asian-Canadian (5%), Caribbean or African-Canadian (4%), or Middle Eastern-Canadian (7%). Half of the women were currently in a romantic relationship (53%) or sexual relationship (48%). Most of the participants (89%) had engaged in consensual heterosexual sex play, and more than half have had consensual sexual intercourse (56%) or consensual oral intercourse (67%) with a man. The average age of first intercourse was 16 years (Range 11–20; $SD = 1.52$). When women were categorized at the highest level of prior sexual victimization they have experienced (Koss, Gidycz, & Wisniewski, 1987), 41% ($n = 86$) of the participants had never been victimized (i.e., experienced coerced, threatened, or forced heterosexual sex of any kind since the age of 14); 10% ($n = 22$) had experienced forced, threatened, or drugged sexual contact, 10% ($n = 22$) had experienced sexual coercion through the misuse of authority or verbal pressure, 9% ($n = 19$) had experienced attempted rape (i.e., threatened, forced, or drugged attempted oral, anal, or vaginal penetration with a penis, fingers, or objects), and 29% ($n = 62$) had been raped.

Sexual Assault Resistance Education Programs

Design process and fidelity assessment. A plan for presentation of each element of the AAA theoretical framework (Rozee & Koss, 2001) was outlined. Where an appropriate exercise existed in a previously tested program or when research scenarios were found that would be appropriate for application of skills, they were used or adapted for the program (Breitenbecher, Marx, Muehlenhard, and others, personal communications, 2004–2005). For example, our program included some elements from *The Ohio State Rape Prevention Program* (Morrison, 1990), which served as the basis for Hanson and Gidycz's (1993) program. We developed new content and materials for missing theoretical and practical components of the program. Content and process were also influenced by knowledge gained in previous investigations (e.g., local statistics for increased personal relevance; Gray, Lesser, Quinn, & Bounds, 1990; Gidycz et al., 2001b: using social learning theory and the elaboration likelihood model of persuasion to guide process decisions; similar to Gidycz et al., 2001a).

Pilot testing of the program with an earlier cohort of students (Senn et al., 2008) included videotaping, facilitator

journals, and supervision meetings to assess facilitators' adherence to protocols. Training and program manual changes were made when a problem was identified. Adherence to program protocol in the current study was checked using facilitators' journals and protocol issue forms completed after every unit. Differences in practice time, which depended on group size and talkativeness, was the only meaningful variation that occurred.

Basic AAA program. The program consisted of three 3-hour units, with each representing one component of the AAA model (Rozee & Koss, 2001). Unit One, the Assess component, focused on improving assessment of risk for sexual assault in situations involving male acquaintances and developing problem-solving strategies to reduce risk. Unit Two, the Acknowledge component, assisted women to recognize more quickly the inherent danger in situations that have turned coercive and to explore ways to overcome emotional barriers to resistance. As part of this curriculum, the facilitators debunked the miscommunication hypothesis (i.e., the argument that women are not clear enough in their sexual refusals or do not mean "no" when they say "no;" Coulter, 2003) and provided practice for women to respond to common verbal coercion strategies. Unit Three, the Act component, presented a range of potential options for resistance depending on elements of the situation, the man's actions, and the success of early strategies. Physical self-defense training included the most effective strategies for defending oneself against a coercive acquaintance (e.g., breaking wrist or choke holds). (For an example of a feminist program, see *Wen-Do Women's Self Defence*, <http://www.wendo.ca/>.) The unit also explored ways for overcoming the emotional barriers to defending oneself against male acquaintances.

Enhanced AAA program. A 3-hour Sexuality and Relationships unit preceded the Basic AAA program. Several exercises from the Our Whole Lives (OWL) sexuality education curriculum (Goldfarb & Casparian, 2000; Kimball, 2000) were adapted for use in the current program. A six-unit subset of this sex education program was used previously by Balanko (2002). When compared to a wait-list control group, women who received the sexuality units increased their focus on their own needs, developed their assertiveness to get what they desired from sexuality (alone or with a partner), and were more willing to openly communicate about sexuality (Balanko, 2002). Units were selected with the purpose of expanding discussions of sexual practices beyond intercourse; facilitating identification of women's own sexual values and desires, sexual boundaries, and safety needs; providing practice in communicating this knowledge in an assertive and self-efficacious manner; as well as increasing women's overall understanding of what healthy sexual relationships mean to them. Although sexual communication is integrated in some risk-reduction programs (e.g., Orchowski et al., 2008), our program addresses this aspect in greater depth, with stronger emphasis on participants' own desires and preferred sexual activities. The Basic AAA program did not

fundamentally change when preceded by the sexuality unit, except that two additional sexual communication role plays (i.e., insisting on condom/latex dam use and negotiating desired sexual activities) were included in the Acknowledge unit.

Procedure and Design

First-year female students were recruited from a variety of sources on campus: through the Psychology Department participant pool (random lists generated and contacted; 75%), a student orientation play (21%), residence mailboxes and voice mail, and posters in campus washrooms. The study was described as an evaluation of a new sexual assault resistance education program. Following agreement to participate, women were randomly assigned to the no-program control group, the Basic AAA program, or the Enhanced AAA program conditions. Participants were provided with a choice of attending either one unit per week or all units in a single weekend. See Table 1 for *n*s. At the first session, all participants received a kit including relevant resources. The sexual assault resistance programs were all co-facilitated by the same two female graduate students who had been trained extensively. A group size of 15–20 was sought with the four groups (two of each program type) ranging from 9 to 21 women.

A between-subjects repeated measures design was used, with surveys completed by the participants on four occasions. All participants in the programs completed the baseline pretest survey in the week prior to their scheduled program. Women assigned to the control group were booked for pre- and posttesting to match the same intervals as women assigned to the programs. Posttests were conducted 1-week post-program. Pre- and posttests were conducted in a computer lab with questions presented using MediaLab research software (Empirisoft Corporation, 2006). This program facilitated computerized survey administration and allowed experimental components (e.g., random assignment and random ordering of measures) to be embedded. Three- and 6-month follow-up surveys were mailed to their home addresses with a prepaid postage envelope. Participants used a self-generated code to allow matching of surveys at all four time points (i.e., pre-, 1 week, 3 months, and 6 months post-program). Control participants were offered the option of completing the Basic AAA program in the following school year after their research participation ended.

Program Completion Rates

Although fully 78% of the women assigned to program conditions completed all program sessions, completion was significantly different between the two programs: Basic AAA (87%) and Enhanced AAA (66%), $\chi^2(1, N = 117) = 7.01$, $p = .01$. Higher attrition for Enhanced AAA was largely accounted for by women not returning to the program after the Sexuality weekday or combined Sexuality/Assess

weekend unit. All women assigned to Basic AAA attended Assess whereas 6% ($n = 3$) of the Enhanced AAA participants did not, $\chi^2(1, N = 114) = 4.24$, $p = .04$. Twenty percent ($n = 9$) of the Enhanced AAA participants did not attend either the Acknowledge or Act units compared to less than 2% ($n = 1$) of Basic AAA participants who missed the Acknowledge unit and 6% ($n = 4$) who missed Act, $\chi^2(1, N = 109) = 10.78$, $p = .001$ and $\chi^2(1, N = 110) = 4.89$, $p = .03$, respectively. In total, 116 women from both program conditions completed the 1-week pre- and 1-week post-program surveys and were included in the study. Table 1 presents sample sizes for all follow-up periods. Analyses included all women, regardless of how many sessions they completed following standard randomized controlled trial intention-to-treat protocol.

Primary Outcome Measures

See Table 2 for a list of program goals, the corresponding outcome measure, and the point at which it was assessed. Pretest means, standard deviations, and ranges for each outcome variable are presented below.

Situational sexual assault risk assessment. Two different measures were used to assess women's perceptions of sexual assault risk in hypothetical situations: a Perception of Risk scenario (Testa, VanZile-Tamsen, Livingston, & Buddie, 2006) and the Risk Perception Survey (RPS; Messman-Moore & Brown, 2006), given with two versions. Change on each measure could not be assessed due to the confounding effects of familiarity with the scenario; thus each was given only one time (see Table 2 for timing).

For the first measure of Perception of Risk, participants indicated what they believed was the likelihood of four positive and six negative outcomes; using a 7-point Likert-type scale ranging from 1 (*not at all likely*) to 7 (*very likely*) when engaging in a hypothetical interaction with an attractive man. Ratings were completed at two time points in the scenario: (Time 1) after the man (Michael) continued kissing without consent and (Time 2) after the man held her down and undid her pants. Sample negative items are "an evening that ends unpleasantly" and "you being upset by Michael's behavior." Higher summed scores indicated higher risk of a negative outcome. Testa et al. (2006) have demonstrated the validity of the scenario and the reliability (Cronbach's $\alpha > .85$) and validity of the scale. The current sample's scores ranged from 16 to 70 (Time 1, $M = 54.98$, $SD = 8.31$; Time 2, $M = 59.45$, $SD = 8.11$).

The second measure of risk, the RPS, included two vignettes, one describing an interaction with a stranger and the other describing an interaction with an acquaintance, which "were designed to incorporate risk factors identified in the literature and included factors that have been described by Norris, Nurius, and Graham [1999] as clear risk factors and ambiguous risk factors" (Messman-Moore & Brown, 2006, p. 162).

Table 2. Program Outcomes and Corresponding Measures

Program Outcomes	Corresponding Measures	Sample Cronbach's α	Assessment Period			
			Pre	Post	3-Month	6-Month
Primary						
Improved risk detection and associated action	<i>Perception of risk</i> (Testa et al., 2006) <i>Risk Prevention Survey</i> —stranger or acquaintance version randomized (Messman-Moore & Brown, 2006)	.74 n/a		✓	One version	Other version
Self-defense self-efficacy	<i>Self-defense self-efficacy</i> (Marx et al., 2001)	.83	✓		✓	✓
Knowledge of/use of effective self-defense strategies	Michael scenario (Direct-resistance subscale) (Testa et al., 2006)	.73		✓		
	Qualitative measure (coded for forceful verbal and forceful physical resistance)	n/a		✓	✓	✓
Sexual assault (since age of 14, in 3 months since program ended, in 3 months since follow-up)	<i>Sexual Experiences Survey</i> (revised Abbey et al., 2005; Kosson et al., 1997)	.90	✓		✓	✓
	Avoided sexual coercion or assault question	n/a	✓		✓	✓
Secondary						
Assessment of personal risk of sexual assault	Item adapted (Gray et al., 1990)	n/a	✓	✓	✓	✓
Fear of stranger rape and associated precautionary strategies (no elevation desired)	<i>Fear of Rape Scale</i> (Senn & Dzinis, 1996)	.92	✓	✓	✓	✓
Assertion of desires	<i>Sexual Assertiveness Scale (SAS) for Women</i> —Initiation and Refusal subscales (Morokoff et al., 1997)	.72, .71	✓		✓	✓

Each vignette is presented one line at a time for a total of 25 lines. Participants were asked to identify the line number at which they felt Uncomfortable (i.e., identify risk) and the point at which they would Leave (i.e., take action). Messman-Moore and Brown (2006) have demonstrated the validity of the assumptions underlying the measure and the construct validity of the scale. Higher scores indicated toleration of higher risk in the situation. Participants were randomly assigned to receive one version (acquaintance or stranger) at the 3-month follow-up and received the other version at 6 months. The range of scores in the current sample for Uncomfortable was 1–22 lines ($M = 11.51$, $SD = 5.33$) and for Leave was 3–24 lines ($M = 15.53$, $SD = 4.97$).

Self-defense self-efficacy. To measure self-defense self-efficacy (Marx, Calhoun, Wilson, & Meyerson, 2001; adapted from a measure by Ozer & Bandura, 1990), participants rated their level of confidence that they could take action in various situations using a 7-point scale from 1 (*not at all*) to 7 (*very*). Seven questions include some hypothetical situations where the danger was more apparent (“If a situation develops in which you feel you could be in danger of sexual assault, how confident are you that you could successfully think up ways to get out of that situation and then execute your plan?”) and some instances where the risk of sexual assault was elevated but may have been less obvious (“If a man you were with was attempting to pay for your meal when you did not want him to, how confident are you that you could be assertive enough to tell him that you would pay for your own way?”). Higher

summed scores indicated greater self-defense self-efficacy. This instrument has shown evidence of internal consistency (Cronbach's $\alpha = .83$) and construct validity (e.g., Marx et al., 2001). Scores ranged from 19 to 49 ($M = 37.51$, $SD = 6.79$).

Self-defense tactics knowledge and use in hypothetical situations. The first of two measures assessed Resistance (Testa et al., 2006; VanZile-Tamsen, Testa, & Livingston, 2005) using three subscales that probed participants' “intended behavior” after reading the Perception of Risk scenario described previously. As before, these 26 questions were asked at two time points in the scenario and used a 7-point Likert-type scale from 1 (*not at all likely to do*) to 7 (*very likely to do*). The Direct-resistance subscale was of primary interest in the current study because it aligns with the most effective resistance strategies shown to reduce the severity of sexual assaults (e.g., forcefully push him away; Ullman, 1997). Higher total scores represented more direct resistance. Testa et al. (2006) demonstrated the subscale's high internal consistency (Cronbach's $\alpha = .93$). The measure's construct validity has also been demonstrated by its positive relationship with risk appraisal and negative relationships with sexual victimization history (VanZile-Tamsen et al., 2005) and amount of alcohol consumed (Testa et al., 2006). At Time 1, scores ranged from 12 to 49 ($M = 31.91$, $SD = 8.78$) and at Time 2, from 7 to 49 ($M = 35.63$, $SD = 8.81$).

The second measure captured Self-Defense Tactics for resisting acquaintance rape. In actual sexual assault situations, women do not have a physical list of tactics available to them.

To simulate this context, we measured choice of resistance strategies using an open-ended question: “If a man I knew (e.g., a date or acquaintance) tried to force me to have sex with him when I didn’t want to, I would . . .” Pilot testing was extensive to ensure clarity of the question and consistency of response coding. The open-ended responses were coded (based on Ullman, 1997) by two raters unaware of the condition. Coding identified whether or not participants generated forceful physical (e.g., punch him or kick him) and forceful verbal (e.g., yell at him or swear at him) strategies as well as the frequency with which these tactics were suggested. Interrater agreement was calculated at posttest as well as at 3 and 6 months. Agreement between raters for both forceful physical and forceful verbal strategies was found to be very high at each time of measurement, Cohen’s $Kappa = .92-.98$.

Sexual victimization and close calls. A revised 28-item version of the Sexual Experiences Survey (SES; Abbey, Parkhill, & Koss, 2005; Kosson, Kelly, & White, 1997), considered the gold standard measure of sexual coercion and sexual assault, was used to assess victimization. In their version, administration was simplified by collapsing occurrence and frequency information into a single question. Participants were asked to report on their experiences since the age of 14. All versions of the SES have acceptable internal consistency (Cronbach’s $\alpha > .70$), high reliability with scored descriptions of the victimization experiences (e.g., Testa et al., 2004), and good validity (see Koss & Gidycz, 1985). The SES instructions at the 3-month follow-up asked about the intervening time period since the posttest (e.g., “indicate the number of times that you have had the listed experience *in the last 3 months* [since you completed the last survey].” The instructions at the 6-month follow-up asked about the intervening 3-month period since the 3-month follow-up. To assess the rate of completed rape in the follow-up periods (in the 3 months since the program ended and in the subsequent 3 months between the 3- and 6-month follow-up), women were categorized as having experienced no attempted or completed sexual assaults (coded 0), sexual contact or attempted rape (including threatened, forced, or drugged sex play and/or attempted sexual intercourse but no penetration) (1), or completed rape (threatened, forced, or drugged oral, anal, and vaginal intercourse) (2). Due to the relatively low incidence of assaults within any 3-month period, a Full Follow-up period rate was created by recording whether a woman had experienced any of the categories of sexual assault in the 6 months following the posttest, that is, in either the first 3 months after the posttest or in the 3 months between the 3- and 6-month follow-ups. Sexual coercion was excluded from the sexual assault categorization because it does not meet legal criteria for sexual assault.

We included an additional question each time the SES was completed to capture “close calls” (Testa et al., 2004) with a focus on sexual victimization events where successful resistance was believed to have been employed. Testa et al.

(2004) found that these types of events are not always reported on the SES. Participants were asked to answer *yes* (1) or *no* (0) to the question: “Have you (since the program ended/in the last 3 months) had a dating situation where you believe you AVOIDED sexual coercion or sexual assault by your actions? (e.g., removing yourself from the situation, calling a friend, etc.)” If participants answered yes, they were then asked to provide more details (i.e., “Can you tell us what happened?”).

Secondary Outcome Measures

Perceived personal risk. Gray et al.’s (1990) single-item measure of perceived Personal Risk, which used a 5-point scale from 1 (*very unlikely*) to 5 (*very likely*), was modified slightly. The adapted question asked participants, “What are your chances of being raped by someone you know?” Scores ranged from 1 to 5 ($M = 1.94$, $SD = 1.02$).

Fear of rape. The Fear of Rape Scale (FORS; Senn & Dzinis, 1996) is a 31-item measure designed to assess women’s fear of stranger rape. Women were asked to respond to statements about their fear/anxiety (e.g., “I am afraid of being sexually assaulted” and “How safe do you feel in your apartment/house when you are by yourself?”) and the precautions they use to control or deal with that fear (e.g., “I avoid going out alone at night”) across a variety of situations using 5-point scales from 1 (*always*) to 5 (*never*) or 1 (*completely safe*) to 5 (*completely unsafe*). The scale’s authors reported that the scale has high internal consistency (Cronbach’s $\alpha = .91$) and construct validity (demonstrated by negative associations with length of time living in one’s neighborhood and positive associations with victimization status). Higher summed scores indicated heightened fear and ranged from 1 to 113 ($M = 69.49$, $SD = 19.25$).

Sexual assertiveness. We included two 6-item subscales of the Sexual Assertiveness Scale (SAS) for women (Morokoff et al., 1997): Initiation (sample item, reverse coded, “Women should wait for men to start things like breast touching”) and Refusal (sample item, reverse coded, “I have sex if my partner wants me to, even if I don’t want to”). Each item was rated on a 5-point scale ranging from 1 (*disagree strongly*) to 5 (*agree strongly*). The scale’s authors have demonstrated that the subscales have good internal consistency (Cronbach’s $\alpha = .82$ and $.80$, respectively), have moderate test-retest reliability, and good construct validity. Higher summed scores indicated stronger sexual assertiveness. Scores for Initiation ranged from 1 to 30 ($M = 20.00$, $SD = 4.92$) and for Refusal, from 2 to 30 ($M = 24.60$, $SD = 5.07$).

Results

Group Comparisons and Descriptive Statistics

A series of analyses of variance (ANOVAs) and Chi-squares indicated that participant randomization to conditions

Table 3. Intercorrelations Between Outcome Measures at Follow-Up

Outcome Variables	1a	1b	2a	2b	3a	3b	4	5	6	7	8	9	10	11	12
1. Risk perception (Testa)															
a. Time 1—early coercion	–														
b. Time 2—obvious coercion	.67**	–													
2. Risk perception (Messman-Moore & Brown)															
a. Uncomfortable	–.03	–.04	–												
b. Leave	–.12	–.04	.65**	–											
3. Direct resistance															
a. Time 1	.36**	.24**	–.18*	–.32**	–										
b. Time 2	.27**	.28**	–.19*	–.24**	.76**	–									
4. Forceful verbal resistance	.07	.12	–.00	–.06	.08	.17*	–								
5. Forceful physical resistance	.02	.13	.01	–.07	.04	.10	.21**	–							
6. Self-defense self-efficacy	.20*	.15	–.11	–.22**	.45**	.46**	.06	.08	–						
7. Sexual Experiences Survey (coded as 0,1,2)	–.07	–.07	.11	.07	–.06	.05	.00	.03	–.02	–					
8. Close calls (0,1)	–.14	–.08	.06	–.02	–.13	–.06	.03	–.03	–.09	.03	–				
9. Personal risk	.10	.06	.08	.05	.09	.12	.10	.08	–.02	.10	–.06	–			
10. Fear of rape	.20*	.15	–.17*	–.09	.12	.14	.01	–.06	–.06	–.07	.03	–.03	–		
11. Initiation	.16*	.21**	–.01	–.11	.23**	.22**	.16*	.03	.30**	–.16*	–.01	.07	–.12	–	
12. Refusal	.08	.11	–.08	–.08	.06	.13	.15	.13	.28**	–.09	–.07	.14	–.00	.28**	–

* $p < .05$. ** $p < .01$.

effectively controlled for pretest differences between groups on background and outcome variables. We used t tests and Chi-squares to examine pretest differences on background and outcome measures between women who dropped out at any of the follow-up assessments and women who remained in the study. A conservative $p < .01$ criterion was set because of the number of tests. The only difference observed was that women who dropped out between the posttest and 3-month follow-up reported lower pretest sexual assertiveness initiation scores ($M = 18.81$, $SD = 5.29$) than women who did not ($M = 20.64$, $SD = 4.44$), $t(211) = 2.54$, $p = .01$. To ensure that the difference on this factor was not specific to differential attrition, an ANOVA was performed on sexual assertiveness initiation scores examining the program assignment by drop-out status interaction. No interaction was found, $F(2, 207) = .77$, $p = .46$.

Correlations between outcome variables are presented in Table 3. Our focus was on program effects and to a lesser extent on sexual victimization history; therefore, means are reported only for these main effects and interactions. Planned simple contrasts (for main effects) and linear contrasts (for interactions) compared control versus each program (i.e., control vs. Basic AAA, and control vs. Enhanced AAA) and compared programs against each other (Basic AAA vs. Enhanced AAA). All main effects and interactions were evaluated at the .05 criterion and, to control for familywise error, contrasts that probed these effects were evaluated at the

.01 criterion. Where violations of the assumption of sphericity occurred, Huynh-Feldt adjusted test of significance was used to examine within-subjects effects.

Primary Outcome Measures

Situational sexual assault risk assessment at posttest. A $2 \times 3 \times 3$ (Level of Coercion: first coercive attempt, repeated coercive attempts \times Program: control, Basic AAA, Enhanced AAA \times Previous Victimization: none, attempted sexual assault, completed sexual assault) mixed repeated measures ANOVA was conducted to assess differences in perceptions of risk. A main effect for Level of Coercion was found such that women reported perceiving the hypothetical situation as presenting significantly greater risk for sexual assault at Time 2 ($M = 59.31$, $SD = 8.11$, $n = 212$), when the man in the scenario held the woman down and undid her pants, compared to Time 1 ($M = 54.93$, $SD = 8.35$, $n = 212$) when the man in the scenario continued to kiss the woman without consent, $F(1, 203) = 57.18$, $p < .001$, $\eta^2 = .22$. A significant Program \times Previous Victimization interaction was also found, $F(4, 203) = 2.50$, $p = .04$, $\eta^2 = .05$, however when this interaction was examined, no significant simple effects were observed.

Situational sexual assault risk assessment at 3 and 6 months. Two $3 \times 2 \times 3$ (Program: Control, Basic AAA, Enhanced AAA \times Scenario: Acquaintance, Stranger \times Previous Victimization: None, Attempted Sexual Assault, Completed

Sexual Assault) multivariate analyses of variance (MANOVAs) were conducted with Uncomfortable and Leave as the dependent variables. Participants received one version of the vignette at the 3-month follow-up assessment and the other at the 6-month follow-up assessment. This procedure reduced the within-cell sample sizes and limited power (post hoc statistical power estimates for the significant effects of Program were .44 for uncomfortable and .58 for leave, and for Previous Victimization they were .52 for uncomfortable and .10 for leave). Therefore, Roy's greatest characteristic root (GCR) criterion was used to maximize the test of significance between the control group and the program groups (Harris, 1975). Planned contrasts were evaluated at the $p < .05$ criterion. The acquaintance and stranger scenarios are not directly parallel (the level of risk presented by the man occurs at different points in the two scenarios); therefore Scenario main effects were not interpreted. The 3-month follow-up assessment did not yield Program or Previous Victimization main effects. The 6-month follow-up assessment produced a significant main effect of Program, $F(2, 91) = 3.25, p = .04, \eta^2 = .07$, and Previous Victimization, $F(2, 91) = 3.12, p = .05, \eta^2 = .06$. Women from the Enhanced AAA program felt uncomfortable earlier ($M = 11.66, SD = 5.82, n = 29$) and decided to leave earlier ($M = 15.06, SD = 4.79, n = 29$), than the women from the control group (Uncomfortable, $M = 14.52, SD = 5.30, n = 46, p = .05$; Leave, $M = 17.54, SD = 4.19, n = 46, p = .03$). The main effect for Previous Victimization indicated that women who experienced completed assault reported discomfort later ($M = 14.36, SE = 1.12, n = 30$) than women who never experienced sexual assault ($M = 11.75, SE = .63, n = 62$), $p = .05$.

Self-defense self-efficacy at pretest, 3, and 6 months. A $3 \times 3 \times 3$ (Program: control, Basic AAA, Enhanced AAA \times Time: pre, 3-month follow-up, 6-month follow-up \times Previous Victimization: none, attempted sexual assault, completed sexual assault) mixed repeated measures ANOVA was conducted. A significant main effect for Previous Victimization was found, $F(2, 112) = 6.89, p < .002, \eta^2 = .11$. Specifically, self-defense self-efficacy scores did not differ between women who never experienced sexual assault ($M = 41.22, SE = .56, n = 69$) and women who experienced attempted sexual assault ($M = 38.87, SE = 1.09, n = 18$); however, women who experienced completed sexual assault ($M = 37.56, SE = .87, n = 34$) reported lower self-defense self-efficacy scores compared to women who had never experienced any degree of sexual assault, $p = .001$. A main effect for Time was also found, $F(2, 224) = 24.08, p < .001, \eta^2 = .18$.

The main effect for Time was qualified by a Program \times Time interaction, $F(4, 224) = 4.76, p = .001, \eta^2 = .08$. At the 3-month follow-up assessment, women who participated in the Basic AAA ($M = 40.80, SE = .93, n = 38$) and the Enhanced AAA ($M = 41.44, SE = 1.00, n = 31$) programs reported higher self-defense self-efficacy scores compared to women in the control group ($M = 37.83, SE = .86, n = 52$),

$p = .01$ and $p = .004$, respectively. At the 6-month follow-up assessment, women from Enhanced AAA ($M = 42.43, SE = 1.08, n = 31$) continued to report higher self-defense self-efficacy scores than women from the control group ($M = 38.23, SE = .86, n = 52$), $p = .001$. Women in the control group and Basic AAA ($M = 41.12, SE = 1.00, n = 38$) no longer differed.

Self-defense tactics knowledge and use in hypothetical situations—Direct-resistance at posttest. A $2 \times 3 \times 3$ (Level of Coercion: first coercive attempt, repeated coercive attempts \times Program: control, Basic AAA, Enhanced AAA \times Previous Victimization: none, attempted sexual assault, completed sexual assault) mixed repeated measures ANOVA was conducted. A main effect for Level of Coercion was found such that women reported significantly greater Direct Resistance at Time 2 ($M = 35.69, SD = 8.83, n = 212$) compared to Time 1 ($M = 32.05, SD = 8.77, n = 212$), $F(1, 207) = 68.58, p < .001, \eta^2 = .25$. A main effect for Program was also found, $F(2, 207) = 7.70, p = .001, \eta^2 = .07$. Women in the Basic AAA ($M = 35.34, SE = .96, n = 67$) and the Enhanced AAA ($M = 35.73, SE = 1.14, n = 49$) programs reported significantly higher Direct Resistance than women in the control group ($M = 31.31, SE = .82, n = 96$). In addition, there was a main effect for Previous Victimization, $F(2, 112) = 3.63, p = .03, \eta^2 = .06$. Specifically, Direct Resistance scores did not differ between women who never experienced sexual assault ($M = 35.89, SE = .76, n = 108$) and women who experienced attempted sexual assault ($M = 35.29, SE = 1.20, n = 42$); however, women who experienced completed sexual assault had significantly lower Direct Resistance scores ($M = 31.19, SE = 1.02, n = 62$) compared to women who never experienced any type of sexual assault, $p < .001$.

Self-defense tactics knowledge and use in hypothetical situations—Tactics for resisting acquaintance rape. Chi-square analyses for Program (control, Basic AAA, Enhanced AAA) \times Effective Tactics (presence, absence) were conducted for the two strategies (Forceful Physical/Forceful Verbal) at posttest ($N = 214$) and at the 3-month ($N = 158$) and 6-month ($N = 140$) follow-up assessments. For Forceful Verbal tactics at posttest, a greater percentage of the women in the Enhanced AAA (91.8%) program used the tactic compared to women in Basic AAA (71.6%) and the control group (64.3%), $\chi^2(2, 214) = 12.63, p = .001$. At the 3-month follow-up assessment, women from both programs (Enhanced AAA = 89.2%; Basic AAA = 80.9%) were more likely to suggest forceful verbal tactics compared to women from the control group (59.5%), $\chi^2(2, 158) = 13.20, p = .001$. By the 6-month assessment, a higher percentage of women in the control group suggested forceful verbal resistance strategies (69%) than they did previously, closely matching those who participated in the programs. For Forceful Physical tactics, more women who participated in the programs suggested this strategy at posttest compared to women in the control group (36.7%);

Table 4. Frequencies and Percentages for Sexual Assault Outcome

	SES % (freq)			Close Calls % (freq)
	None	Attempted Rape/Sexual Contact	Completed	Yes
3 months (since posttest)				
Control	81.1 (60)	5.4 (4)	13.5 (10)	4.1 (3)
Basic AAA	87.0 (40)	8.7 (4)	4.3 (2)	10.6 (5)
Enhanced AAA	83.8 (31)	8.1 (3)	8.1 (3)	2.7 (1)
6-month follow-up (three months since 3-month follow-up)				
Control	84.5 (49)	6.9 (4)	8.6 (5)	1.7 (1)
Basic AAA	87.0 (40)	8.7 (4)	4.3 (2)	10.9 (5)*
Enhanced AAA	88.9 (32)	5.6 (2)	5.6 (2)	2.8 (1)
Full follow-up period (6-month period since posttest)				
Control	75.6 (59)	9.0 (7)	15.4 (12)	5.1 (4)
Basic AAA	80.7 (46)	14.0 (8)	5.3 (3) ⁺	14.0 (8) ⁺
Enhanced AAA	81.0 (34)	9.5 (4)	9.5 (4)	4.8 (2)

Note. AAA = Assess, Acknowledge, Act sexual assault resistance program; SES = Sexual Experiences Survey.

⁺ $p \leq .10$. * $p < .05$.

although more women from Enhanced AAA suggested forceful physical tactics (63.3%) than did those in Basic AAA (52.2%), $\chi^2(2, 214) = 10.04, p = .01$. Even though at 3 months these differences were no longer present, there was evidence of a sleeper effect at 6 months such that 74% of the women in the Basic AAA group suggested at least one forceful physical tactic compared to women in Enhanced AAA (52.8%) and the control group (43.1%), $\chi^2(2, 140) = 10.04, p = .01$.

Separate 3×3 (Program: control, Basic AAA, Enhanced AAA \times Time: posttest, 3-month, 6-month) mixed ANOVAs were conducted with frequency of use for each self-defense tactic (Forceful Verbal/Forceful Physical) as the dependent variable. For the Frequency of Forceful Verbal tactics in acquaintance sexual assault situations, a main effect for Program was found, $F(2, 118) = 6.88, p = .001, \eta^2 = .10$. Women from the Basic AAA ($M = 1.44, SE = .12, n = 36$) condition reported significantly more forceful verbal tactics than women in the control group ($M = .89, SE = .10, n = 54$), $p = .001$. Scores of women enrolled in the Basic AAA and Enhanced AAA ($M = 1.24, SD = .13, n = 31$) programs did not differ. For Frequency of Forceful Physical strategies, a main effect for Program was also found, $F(2, 118) = 10.65, p = .001, \eta^2 = .15$. Women from Basic AAA generated significantly more forceful physical tactics ($M = 1.51, SE = .15, n = 36$) than women from Enhanced AAA ($M = .94, SE = .16, n = 31, p = .03$) and the control group ($M = .62, SE = .12, n = 54, p < .001$).

Sexual victimization and close calls. Two outcomes were used to assess the success of the programs in reducing completed sexual assaults at the 3-month and 6-month follow-up assessments: (a) women's categorized responses to the SES and (b) women's self-reported close calls. Because the frequency of sexual assault within a 3-month period was relatively low and the sample sizes within the program groups were uneven,

one-tailed. Exact significance values were calculated (our hypothesis is directional with lower completed rape expected in program groups). Previous sexual victimization was excluded from the analysis because there were insufficient cell sizes to allow for a multivariate log-linear analysis. The sexual assault outcomes are presented in Table 4. Although there appeared to be reductions in completed sexual assault among women in the programs compared to the control group at 3 months and among women in Basic AAA and the control group at 6 months, these differences did not reach significance.

In terms of Close Calls, during the interim between the 3- and 6-month follow-up, women who participated in Basic AAA (10.9%) more frequently reported that they believed they had avoided sexual coercion or sexual assault through their actions than either the women from Enhanced AAA (2.8%) or in the control group (1.7%), $\chi^2(1, 140) = 3.63, p = .04$. Women also provided detail of what happened if they answered "yes" to this question. The descriptions of the situations suggested that these experiences fell in two primary categories: (a) when a woman noticed/perceived that a situation was becoming risky (e.g., man's implicit or explicit assumptions that sex was going to happen, one's own alcohol consumption) and (b) taking steps to reduce risk (e.g., being assertive about what was not going to happen, asking someone for a ride home) or when a woman used resistance of some type to a man's efforts to coerce her to have sex she did not want (e.g., pushed him away and left the situation).

Secondary Outcome Measures

Perceived personal risk. A $3 \times 4 \times 3$ (Program: control, Basic AAA, Enhanced AAA \times Time: pre, post, 3-month follow-up, 6-month follow-up \times Previous Victimization: none, attempted sexual assault, completed sexual assault) mixed repeated measures ANOVA was conducted. Main effects for Time, $F(3, 324) = 42.11, p < .001, \eta^2 = .28$, and

Program, $F(2, 108) = 9.64, p < .001, \eta^2 = .15$ were found. The main effect for Previous Victimization showed that women who experienced previous completed sexual assault ($M = 2.93, SE = .17, n = 33$) rated their own risk as higher than either women who experienced attempted sexual assault ($M = 2.91, SE = .22, n = 17$) or had never been victimized ($M = 2.40, SE = .11, n = 67$), $F(2, 108) = 4.66, p < .001, \eta^2 = .08$.

The main effects for Program, Time, and Previous Victimization were qualified by Program \times Time, $F(6, 324) = 7.86, p < .001, \eta^2 = .13$, and Program \times Time \times Previous Victimization interactions, $F(12, 324) = 1.95, p = .03, \eta^2 = .07$. Specifically for the Program \times Time interaction, women from the Basic AAA ($M = 3.77, SE = .26, n = 34$) and the Enhanced AAA ($M = 3.64, SE = .25, n = 31$) programs rated their personal risk higher than women in the control group ($M = 2.21, SE = .20, n = 52$) at the post-test assessment, $p < .001$. These effects were maintained at the 3- and 6-month follow-ups: Women from Basic AAA (3-month: $M = 3.30, SE = .25, n = 34$; 6-month: $M = 3.44, SE = .24, n = 34$) and Enhanced AAA (3-month $M = 3.05, SE = .24, n = 31$; 6-month: $M = 3.19, SE = .24, n = 31$) reported greater personal risk than women in the control group (3-months: $M = 2.25, SE = .19, n = 34$; 6-month: $M = 2.33, SE = .18, n = 52, p = .001$ and $p = .01$ respectively).

The Program \times Time \times Previous Victimization interaction yielded differential effects based upon women's previous victimization history. Among women who never experienced sexual assault, participants in both AAA programs (Basic AAA: $M = 3.68, SE = .23, n = 21$; Enhanced AAA: $M = 3.49, SE = .23, n = 19$) reported higher levels of personal risk at posttest compared to women in the control group ($M = 2.28, SE = .18, n = 27$), $p < .001$. These effects were maintained at the 3-month (Basic AAA: $M = 3.18, SE = .23, n = 21$; Enhanced AAA: $M = 3.19, SE = .23, n = 19$; Control: $M = 2.27, SE = .17, n = 27, p < .001$) and 6-month (Basic AAA: $M = 3.23, SE = .21, n = 21$; Enhanced AAA: $M = 3.15, SE = .21, n = 19$; Control: $M = 2.46, SE = .17, n = 27, p = .001$) follow-up assessments. Significant differences were not observed among women who experienced attempted or completed sexual assault compared to the control women at the posttest or follow-ups.

Fear of rape. A $3 \times 4 \times 3$ (Program: control, Basic AAA, Enhanced AAA \times Time: pre, post, 3-month follow-up, 6-month follow-up \times Previous Victimization: none, attempted sexual assault, completed sexual assault) mixed repeated measures ANOVA was conducted. A main effect for Time was the only effect found, $F(3, 336) = 11.35, p = .001, \eta^2 = .09$. Levels of fear of stranger rape significantly decreased from pretest ($M = 66.30, SD = 16.88, n = 121$) to posttest ($M = 65.74, SD = 16.58, n = 121$), $p = .01$, and from pretest to the 6-month follow-up assessment ($M = 61.83, SD = 16.43, n = 121$), $p < .001$.

Sexual assertiveness. Two $3 \times 3 \times 3$ (Program: control, Basic AAA, Enhanced AAA \times Time: pre, 3-month follow-up,

6-month follow-up \times Previous Victimization: none, attempted sexual assault, completed sexual assault) mixed repeated measures ANOVAs were conducted. Analysis of the Initiation subscale yielded a main effect for Time, $F(2, 222) = 6.17, p = .002, \eta^2 = .05$, which was qualified by a Program \times Time interaction, $F(4, 222) = 2.54, p = .04, \eta^2 = .04$. At 3 months, an increase in levels of sexual initiation assertiveness was observed for women in Enhanced AAA ($M = 22.61, SE = .88, n = 30$) compared to women in the control group ($M = 19.84, SE = .69, n = 52, p = .01$). At the 6-month follow-up assessment, no significant differences were observed between the women in the programs (Basic AAA: $M = 21.54, SE = .76, n = 38$; Enhanced AAA: $M = 22.48, SE = .83, n = 30$) and the control group ($M = 21.29, SE = .65, n = 52$), $ps = ns$, although women's scores in Enhanced AAA did not drop between 3 and 6 months.

Analysis of the Refusal subscale revealed a main effect for Time, $F(2, 224) = 11.93, p < .001, \eta^2 = .10$. Women reported significantly higher levels of sexual refusal assertiveness from pretest to all follow-up assessments, $p < .001$. A main effect for Previous Victimization was also found, $F(2, 112) = 3.63, p = .03, \eta^2 = .06$. Specifically, sexual refusal assertiveness scores did not differ between women who never experienced sexual assault ($M = 26.57, SE = .39, n = 69$) and women who experienced attempted sexual assault ($M = 25.59, SE = .77, n = 18$); however, women who experienced completed sexual assault ($M = 24.64, SE = .61, n = 34$) reported significantly lower levels of sexual refusal assertiveness compared to women who had never experienced any type of sexual assault, $p = .01$.

Discussion

In 2001, Rozee and Koss outlined a sexual assault resistance program for women named Assess, Acknowledge, Act (AAA). Their vision for this program was built heavily upon the empirical evidence of risk factors for sexual assault, the cognitive-ecological model developed by Nurius and Norris (1996), and on Ullman's (1997) body of research on effective rape resistance strategies. Rozee and Koss (2001) postulated that successful sexual assault resistance would be facilitated by a program which helps women to (a) assess increased risk in particular situations and in men's behavior more quickly, (b) overcome emotional barriers to acknowledging that a man they know has become a danger to them, and (c) act forcefully in their own defense by resisting verbally, and if necessary, physically. We developed our basic program based on these principles and named it AAA in tribute to Rozee and Koss. We also created an enhanced version of the AAA program that included a session assisting women to identify their own sexual values and desires and to feel empowered to communicate and stand up for their sexual rights. Our findings indicated that the AAA framework is productive for developing university women's knowledge, self-efficacy, and skills related to sexual assault resistance.

Table 5. Comparison of Significant Effects for Each Version of Program Compared to Controls at All Time Periods

Primary Outcomes	Basic AAA Program	Enhanced AAA Program
Improved risk detection and associated action in hypothetical situations	No effects	> risk detection at 6 months
Knowledge of/use of effective self-defense strategies [presence indicates higher likelihood the tactic will be used; frequency (freq.) indicates more strategies within a tactic category were suggested]	> direct resistance at posttest; > presence of forceful verbal tactics at 3 months and forceful physical at posttest and 6 months; > freq forceful verbal and physical overall	> direct resistance at posttest; > presence of forceful verbal tactics at posttest and 3 months and forceful physical at posttest
Self-defense self-efficacy	> at 3 months	> at 3 and 6 months
Sexual assault (in 3 months since program ended, in 3 months since follow-up)	> avoidance of close calls between 3- and 6-month follow-up	
Secondary outcomes		
Assessment of personal risk of sexual assault	> personal risk assessment at all time periods	> personal risk assessment at all time periods
Fear of stranger rape and associated precautionary strategies (no elevation desired)	No effects	No effects
Assertion of desires	No effects	> Initiation at 3 months

Note. > indicates higher than controls; AAA = Assess, Acknowledge, Act sexual assault resistance program.

Moreover, the sexuality enhancement to the AAA program had particular benefits that are likely to be important to the integration of knowledge into women's daily lives. Although the AAA program is effective on its own, we believe that the sexuality enhancement advances the program's objectives in important ways and so is a valuable addition. See Table 5 for a comparison of outcomes by program.

Although the basic version of the program performed better on some outcomes in our study, we believe that these particular results are being influenced by the lower number of participants in the enhanced program who received all of the AAA units. Unexpectedly, our decision to put the sexuality unit first led to differential attrition—with approximately 20% of the women who were assigned to the Enhanced AAA program not completing the components of the program on overcoming risk cues, discussion of overcoming barriers to resistance, debunking myths about self-defense, or effective physical and verbal self-defense. The intention-to-treat protocol requires that comparisons be between women who have attended *any* program session and women in the control group. It is therefore an extremely conservative test of effectiveness. We have no reason to suspect that the content of the sexuality unit would undermine the effectiveness of the AAA program. We believe, therefore, that the few advantages of the Basic AAA program over the enhanced program found in our study are likely due to the differential dropout between the two programs affecting the quantity of AAA content received by Enhanced AAA participants. In another study conducted since the current experiment was completed, we were able to eliminate the differential attrition by presenting the sexuality unit last (Senn & Ali, 2009). Given the unique strengths of the Enhanced AAA program, further research on its effectiveness is warranted.

Situational Sexual Assault Risk Assessment

Improved risk assessment was facilitated by the addition of the sexuality unit to the basic sexual assault resistance education. By the 6-month follow-up, women who participated in the Enhanced AAA program felt discomfort faster and decided to leave earlier when confronted with a hypothetical situation that progressed to sexual assault compared to women in the Basic AAA program or control group. The specific mechanism for this improvement and the reason for its appearance at 6 months cannot be confirmed here. We suspect that emancipatory sexuality education is protective for women because it challenges the male focus presumed in normative heterosexual interactions and scripts that support rape (Gavey, 2005). These lessons are likely to be developed into women's personal practices over time or reinforced by experience. Future researchers could test whether improved risk detection (and subsequent resistance) is predicted by programs aimed at encouraging women to focus on their own needs and desires in a given situation, rather than focusing only on their potential partner's. Participants' personal reflections on this process would also be an interesting area for exploration.

Self-Defense Self-Efficacy

Self-efficacy beliefs are critical to empowerment (Ozer & Bandura, 1990) and to reducing the perceived emotional and cognitive barriers to defending oneself against sexual assault (Nurius & Norris, 1996). The AAA sexual assault resistance programs (Basic and Enhanced) had a robust positive influence on this outcome, increasing women's beliefs that they could successfully defend themselves and their interests across a variety of situations. This effect persisted for at least

3 months for the Basic AAA program and 6 months for the Enhanced AAA program.

Self-Defense Tactics (Resistance) Knowledge and Use in Hypothetical Situations

No matter how skilled women are at detecting risk cues, situations may still arise where they are confronted by men who attempt to sexually assault them (Rozee & Koss, 2001). Nurius (2000) expressed concern that “the average woman’s perceptions of options for assault response (a) are relatively limited in number, (b) indicate a relative ignorance of strategies aimed at . . . coping [self-defense] with assault by acquaintances, and (c) contain notable disparities between strategies women believe other women can do but that they themselves do not do” (p. 69). Both versions of the AAA program designed for this study are successful in increasing participants’ self-defense knowledge and their willingness to use this knowledge in risky (hypothetical) situations. These effects were maintained to, or developed within, 6 months post-program. One week after the program ended, when women were presented with a variety of responses from which to choose, women in both versions of the AAA program produced higher reports of direct (i.e., forceful) responses compared to the control group. Similarly, and likely more importantly, when women were asked to generate their own responses to a hypothetical acquaintance rape situation, both programs were found to be effective for at least one of the follow-up periods (1 week posttest, 3- or 6-month follow-up). The programs increased the chance that women would generate at least one forceful verbal and physical tactic compared to the control group. The Enhanced AAA program had stronger immediate effects on participants’ likelihood of responding with forceful verbal resistance strategies such as yelling. Six months later, however, the Basic AAA program was superior, increasing the likelihood that women would suggest a forceful physical strategy (e.g., hitting) and increasing the number of forceful tactics (verbal or physical) women generated overall. Thus, the AAA programs both successfully armed women with knowledge of the most effective self-defense tactics and increased their intention to use one or more of them in hypothetical situations against a known assailant. Although these findings are very positive overall, there is some inconsistency in the maintenance of some of these effects over time. This incongruence suggests that the self-defense portion of the program should be strengthened, perhaps, by providing more practice in brainstorming strategies for specific situations and by adding a booster session with a refresher as well as practice of self-defense tactics.

Sexual Victimization and Close Calls

The failure of past studies to demonstrate the effects of sexual assault resistance programs on sexual assault outcomes may

have been the result of program content issues, insufficient power to detect effects because of small sample sizes, and the relative infrequency of sexual assault across just a few months (see Cuijpers, 2003, for review of power issues in evaluations), or other unidentified factors. The current study faced many of the same issues. Although our study had a moderately large sample size with satisfactory rates of return at the follow-up, the sample would have had to be considerably larger to detect small effects. Moreover, our anticipated power was reduced by the differential attrition in the Enhanced AAA program. Using a 5% error statistical criterion, neither program was effective in reducing the rate of completed rape. The study we plan to carry out next will increase the sample size to ensure that small effects are detectable if they are present.

If women are successful in avoiding or resisting sexual assault, there is evidence that they sometimes may not record these experiences on the SES (Testa et al., 2004) and therefore the success of educational programs could be masked. We attempted to tap into these experiences by asking women whether they believed they had averted sexual coercion and sexual assault through their actions. Women who completed the basic program were more likely to answer “yes” to this question than were women in the control group. Responses to the qualitative questions included in the study suggested that many of these situations are what Testa et al. (2004) referred to as “close calls” where women have used verbal or physical strategies in threatening situations which, in their view, stopped an impending assault. For example, one participant said, “I told him to stop what he was doing or I would never talk to him again.” Another reported, “After hanging out with one of my guy friends, we went back to his car. We were making out and he tried to go down my pants. I firmly grabbed his hand and told him to stop. He did.” Other reports are of strategies used by women to counteract the increased risk for unwanted sex (Gavey, 2005) in a particular situation. For example, one woman said, “This guy I had gone on a few dates with seemed to always take me out and get me drunk. One night I was very drunk he wanted to have sex with me (suggested this by taking out a condom). But I knew how much I drank and knew I did not want that with him so I said no and asked [someone else] for a ride home.” These situations would not necessarily have been captured by women’s responses on the SES due either to the situations not having progressed yet to sexual coercion or sexual assault, or because they had, but the woman believed she had handled it. In this way, increased affirmative responses to the question asked could reflect increased skill at identifying risk of sexual assault and taking action to reduce these risks before they progress. Another explanation for the increased number of close calls reported by the women in the Basic AAA program could be that the program expands women’s conceptions of what constitutes sexual assault and sexual coercion. As the above quotes suggest, women interpreted the question quite broadly. Women who have taken the program may identify

situations as being sexually coercive or dangerous when in the past they might not have labeled them this way. Although further testing and refinement of the question is warranted, the Basic AAA program does increase women's perceptions of their own close calls or avoidance of unwanted sexual activity. Perceiving oneself as successful in these kinds of situations may reinforce women's self-defense self-efficacy over the longer term (Ozer & Bandura, 1990).

Balancing Perceived Personal Risk and Fear of Rape

Increased knowledge of how to identify situational risks and increased confidence in one's self-defense abilities are not effective without the application of the knowledge to one's own life. Acknowledgment of personal risk of rape and personal relevance of knowledge obtained are necessary for this introspection to occur (Nurius & Norris, 1996). Many women do not relate information about sexual assault to their own situation. For example, Hickman and Muehlenhard (1997) have shown that college women rate their own risk of sexual assault as relatively low, despite their recognition of the risk of sexual assault for other women. This phenomenon is exaggerated for women who have never been sexually victimized (Norris, Nurius, & Graham, 1999). Norris et al. (1999) suggest that overcoming this "positivity bias" is critical to resistance programming efforts. The AAA sexual assault resistance programs were successful in increasing women's judgments that they were at risk of sexual assault by an acquaintance compared to the control group even 6 months after program completion. The large increase in ratings of personal risk was explained primarily by the increased scores of those women who had never previously been victimized. This finding reveals that the program had an effect on the hardest to convince group of participants—never victimized women (Norris et al., 1999). Further, the group differences found between the programs and the control group are psychologically meaningful as well as statistically significant. Women reported some likelihood of sexual assault by an acquaintance following programming (score above the midpoint); women in the control group thought it unlikely that acquaintance sexual assault would happen to them (score below the midpoint).

Creating resistance education that raises perceptions of risk without simultaneously increasing fear (and lowering self-efficacy) is very difficult (Nurius, 2000). Fear of sexual assault by strangers unnecessarily restricts women's freedom of movement without offering protection from the more common acquaintance rape (Stanko, 1985). The AAA sexual assault resistance programs did not increase participants' fear of stranger rape. All first-year women experienced decreases in their fear of stranger rape over time, perhaps representing adjustment to living on their own or familiarity with the campus. Together, these findings suggest that the AAA programs have the right balance between realistically increasing women's perception of their own risk of acquaintance sexual

assault and complimenting this awareness with increased confidence that they could assert and defend themselves if the situation arises.

Conclusions Regarding the Basic and Enhanced AAA Programs

When considering the entire evaluation, the AAA (Rozee & Koss, 2001) sexual assault resistance programs have strong potential to improve the lives of first-year university women by increasing their perception of their own risk, their knowledge, confidence, and abilities related to recognizing environmental and behavioral risks and defending themselves against acquaintance sexual assault (see Table 5). The programs were, however, unable to produce a significant reduction in the incidence of completed sexual assault.

The Basic AAA program was superior to the Enhanced AAA program in increasing participants' knowledge and use of forceful physical self-defense strategies in hypothetical acquaintance sexual assault situations for as long as 6 months after program completion. Further, women from the Basic AAA program were more likely to have identified instances since the end of the program in which they believed they had avoided sexual coercion or assault through their actions than women in the enhanced program or women in the control. The Enhanced AAA program was superior to the Basic AAA program in decreasing the time to detect risk and maintaining gains in self-defense self-efficacy to 6 months post-program.

Overall, the Basic AAA program can stand alone and has many positive effects. All outcomes lasted for at least 3 months and often were maintained to, or developed at, 6 months without the use of a booster session. There are situations where there may be resistance to offering the Enhanced program because of its sexual content. For these situations, or others where time is limited, the Basic AAA program may be preferable. Improvements in program content will continue to be made particularly to those areas where outcomes were not evident (e.g., risk perception). The AAA program envisioned by Rozee and Koss (2001) appears to be on the right track in laying the groundwork to assist women in resisting coercive sexual attempts by men who are known to them.

Enhancing the AAA program with sexuality education appears to have some important advantages. Women in the Enhanced AAA program showed faster perception of risk and the corresponding acknowledgment that leaving the dangerous situation is necessary compared to all other women. They also demonstrated increased knowledge and willingness to use verbal self-defense in the short term. These outcomes are critical to reduction of risk (Nurius & Norris, 1996) and better resistance (Ullman, 1997) and may result in less exposure to more intrusive sexual impositions. Women are often reluctant to physically resist a male acquaintance, particularly where he has not yet begun to use physical force (Nurius, Norris, Young, Graham, & Gaylord, 2000). Program content that increases the use of effective verbal strategies, alone or in

addition to later physical tactics, could be expected to reduce the severity or completion of sexual assault attempts.

Whereas women who received the sexuality programming were not better at refusing sex than women in other groups, they reported greater sexual assertiveness related to the initiation of sexual activity. Feminist scholars (e.g., Gavey, 2005) have explored how dominant heterosexual scripts that require female passivity support acquaintance sexual assault. Women are put in the position of having to simply accept or refuse male advances. Increased sexual assertiveness in the form of more initiation of sexual relations undermines these norms. The areas in which the women in the Enhanced AAA program performed better than those in the Basic AAA program are particularly important when attempting to integrate sexual assault resistance education into a healthy and positive sexual life. It is possible that the enhanced program produced these improved outcomes, despite participant attrition, because of the strong focus on relationships, desire, and sexual rights that may have facilitated the application of sexual assault resistance information to acquaintance perpetrators. Presenting the sexuality unit after the three AAA units would ensure that women are more ready to engage with this content and that attrition is minimized.

Effects of Prior Sexual Victimization

Women who have been sexually assaulted are at higher risk of sexual assault than other women (Gidycz, Coble, Latham, & Layman, 1993). Recent research has suggested that revictimization is increased by nondisclosure because the reasons for the nondisclosure decrease the possibility of certain kinds of posttraumatic growth (Miller, Canales, Amacker, Backstrom, & Gidycz, 2011). Sexual assault resistance education must very carefully present its content so that it reduces stigma and provides the possibility of positive growth for previously victimized women. Our study provides evidence that meeting the needs of previously victimized and non-victimized women is possible with the AAA content. Also our findings replicate the work of other scholars on the negative influence of prior victimization on risk perception and resistance (e.g., Norris et al., 1999). Women who had been raped prior to their entrance into university exhibited slower risk perception, lower self-defense efficacy, lower intentions to use direct assertive self-defense tactics, and lower sexual refusal assertiveness. However, only one of the program effects was specific to the women's sexual victimization history, and this finding enhances rather than diminishes the AAA program's impact. The strength of the AAA program is demonstrated in that never-victimized women, who tend to underestimate their personal risk, come to acknowledge their risk, something that previously victimized women already do (Norris et al., 1999). As a result, women without a prior history of sexual assault should be better positioned to apply the knowledge and skills they learn.

Limitations and Strengths of Our Study

Despite satisfactory follow-up rates, we had lower power for two analyses (i.e., when sample was subdivided further in the Messman-Moore and Brown, 2006, situational risk perception task and for sexual assault during follow-up). A larger sample size would have increased our confidence in the assessment of effects related to these outcomes. This shortcoming is especially true for the sexual assault outcomes where the effect sizes were small (approximately .10). We would have required 785 women to detect a significant difference at this level, far beyond what we would be able to accomplish within one school year. With a large sample we would also be able to assess the impact of prior sexual victimization on sexual assault outcomes and differences in the effectiveness of the program between women based on other characteristics such as ethnicity. We are currently planning a randomized controlled trial at several universities that will have sufficient power to detect these effects if they are present and meaningful.

Female students in the current study were aware that they were participating in an evaluation of a new sexual assault resistance program. Subject selection biases might be expected as a result. However, our participants were primarily (75%) selected randomly from a participant pool. Selection biases are therefore likely to be smaller than in other published research in the field (e.g., Breitenbecher & Gidycz, 1998) where recruitment was entirely by methods known to have substantial effects on volunteering for research on sensitive topics (e.g., Wolchik, Braver, & Jensen, 1985). The ethnic diversity of our sample may also be the result of recruiting participants with more randomized procedures. We were able to retain a higher proportion of participants at 3 and 6 months than has been achieved by some other researchers (e.g., Orchowski et al., 2008). Further, as a follow-up to random assignment, only one pretest difference, sexual assertiveness related to sexual initiation, predicted follow-up participation across groups, increasing our confidence in our internal validity. To increase retention, we are now using web-based follow-up surveys and will assess whether this reduces the sexual assertiveness difference in drop-out rates.

Another limitation of our study is our use of a no-program control condition rather than using an unrelated educational program as a placebo control. With programs of 9- and 12-hours duration, it is difficult to come up with a realistic comparison program that women would agree to attend. Orchowski et al. (2008) are the only known researchers in the field to have avoided this limitation with their use of a placebo control (vaccine education). Their findings based on this design do not stand out from other work in the field and suggest contact effects are not a major contributor to effects in resistance program evaluations.

There are limitations to our use of self-reports of self-defense knowledge in hypothetical situations rather than behavioral measures or gathering data on real interactions

in the follow-up period. An important next step would be to evaluate whether increased use of effective verbal and physical self-defense tactics is also evident in real situations confronting women following programming. Recent research by Orchowski et al. (2008) is suggestive that women do increase their use of some assertive strategies that they learn in risk reduction and self-defense programs.

Any empirically validated educational program is only useful if it can be rolled out effectively. Our program is currently 9-hours (Basic AAA) or 12-hours (Enhanced AAA) in duration offered across multiple sessions. This time commitment may be an obstacle for some campuses. Our experience has been that staff members responsible for student safety on campus are open to longer programs if they are funded and if staff can be provided with ideas on how to recruit and maintain student interest. Much can be learned from researchers' successful use of incentives to keep students engaged long after their programs are over. We are also investigating ways to shorten the program without losing its effectiveness.

The AAA program was developed specifically for first-year university women because the risk of sexual assault is greatest within the first 2 years of university (Gross et al., 2006). The results of this program evaluation should generalize to upper-year students who are at similar phases of their social lives (e.g., dating rather than married). We are currently adapting the program for use with younger women in high school as well.

Future research will need to strengthen and continue to evaluate the promising programs for women which now exist (e.g., Orchowski et al., 2008 and AAA reported here), ensuring that they work for all university women, regardless of prior victimization status. Qualitative studies exploring how women use, develop, and revise the information and skills they obtain in sexual assault resistance programs would help us to refine resistance programs as well as to design and plan appropriate booster sessions. As the effectiveness of these programs is confirmed, it would be productive for research to explore how programs for women might be combined with broader campuswide educational programs (such as bystander programs, e.g., Banyard et al., 2004) and programs to reduce men's perpetration (e.g., Foubert, Newberry, & Tatum, 2007) to ensure that all students on campus are reached and that broader campus norms challenge sexual assault (Casey & Lindhorst, 2009; Lonsway et al., 2009).

The results of our study suggest that sexual assault resistance training for women that prepares women for sexual assault attempts by known men, presents risk factors in a way that carefully avoids blaming women, provides an environment in which barriers to women's resistance are faced, and gives practice in problem solving to overcome risk and emotional barriers to resistance (along with physical self-defense training focused on acquaintance perpetrator contexts) is one of the most productive approaches available to date. Additional content to develop

women's awareness of their own sexual values and desires enhances the application of the material in important ways. Past research has long since suggested that effective programming for women cannot be done in brief sessions focused only on knowledge, myths, and facts (Schewe, 2002). Until effective programming for men on campus is developed and implemented widely, our best hope to improve the health and safety of female students lays in women-only multi-unit sexual assault resistance education dealing with the issues in their full complexity

Authors' Note

Stephanie Gee is now at Street Health, Toronto, Ontario. Jennifer Thake is now at Department of Psychology, Carleton University, Ottawa, Ontario.

Acknowledgment

The first author particularly thanks Kristin Saunders, one of the first facilitators of the program who also contributed to the development of the basic program, and long-term Research Assistants Jessica Portelli and Melissa St. Pierre for their work and commitment to the project.

Declaration of Conflicting Interests

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

Funding

The author(s) disclosed receipt of the following financial support for the research and/or authorship of this article: Canadian Institutes of Health Research grant, an Ontario Women's Health Council Career award, and the University of Windsor.

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