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Violence Against Women 2014 20: 252 originally published online 12 March 2014

DOI: 10.1177/1077801214526046

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Violence Against Women
2014, Vol. 20(3) 252–269
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DOI: 10.1177/1077801214526046
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Jocelyn A. Hollander¹

Abstract

Self-defense classes are offered across the nation as a strategy for reducing women's vulnerability to sexual assault. Yet there has been little systematic research assessing the effectiveness of these classes. In this article, I use data from a mixed methods study of a 10-week, university-based, feminist self-defense class to examine the effectiveness of self-defense training over a 1-year follow-up period. My analyses indicate that women who participate in self-defense training are less likely to experience sexual assault and are more confident in their ability to effectively resist assault than similar women who have not taken such a class.

Keywords

prevention, self-defense training, sexual assault

Recent, nationally representative surveys report that nearly one in five U.S. women have been raped at some point in their lives (Black et al., 2011; see also Tjaden & Thoennes, 1998), and many others have experienced attempted rape or other unwanted sexual intrusions. The consequences are devastating and long-lasting, including physical and psychological trauma for the target (Black et al., 2011; Council on Scientific Affairs, American Medical Association, 1992; Koss, 1993), increased fear and self-restriction for other women (Gordon & Riger, 1989), and the costs of lost work, medical care, welfare, and criminal justice paid by society as a whole. Post, Mezey, Maxwell, and Wibert (2002) estimated that the annual national cost of rape and sexual assault (including both tangible and intangible costs) is more than US\$260 billion.

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Because of these individual and social costs, it is crucial to understand how best to prevent sexual assault. Until quite recently, most "prevention" efforts focused on identifying victim/survivors and mitigating the short- and long-term consequences of sexual assault (secondary and tertiary prevention as defined by the Centers for Disease Control and Prevention, 2004). While critical, these efforts do not reduce the incidence of sexual assault. Thus, attention has recently shifted to primary prevention (i.e., stopping sexual assault before it occurs).

Sexual assault prevention programs vary in their focus. Some focus on increasing awareness of sexual assault and its consequences; others attempt to teach skills for avoiding danger, change social norms, or encourage bystander intervention. Unfortunately, of the very few that have been evaluated, virtually none has been found to be effective in reducing the risk or prevalence of rape (e.g., Anderson & Whiston, 2005; Breitenbecher & Gidycz, 1998; Breitenbecher & Scarce, 1999; Gidycz et al., 2001). While they do seem to have some success at changing attitudes (e.g., sympathy for victims) over the short term (Bachar & Koss, 2001; Brecklin & Forde, 2001; Breitenbecher, 2000; Gidycz, Orchowski, & Edwards, 2011; Yeater & O'Donohue, 1999), these attitudes are not reliably linked to behavior.

One type of assault prevention program has more promise, however: women's self-defense training. Self-defense classes are operated by a variety of organizations, including police departments, universities, rape crisis centers, and martial arts studios. Although diverse, all teach women a range of strategies, both physical and verbal, to prevent and resist assault. Advocates contend that self-defense training empowers women to resist assault while not limiting their freedom (McCaughey, 1997; Ozer & Bandura, 1990; Rozee & Koss, 2001).

There is indirect evidence that these courses may increase women's effectiveness in resisting violence. Research has found that physical resistance (fighting or fleeing) and forceful verbal resistance (e.g., yelling) are associated with avoiding rape (see Ullman, 1997, 2007), and that women who forcefully resist sexual assault are more likely to avoid rape, with no increase in physical injury (Ullman, 1998; Ullman & Knight, 1992). It is logical, then, that specialized training in self-defense might further boost women's ability to prevent and resist violence.

The existing research on women's self-defense training finds that it has a host of positive consequences, including improvements in self-esteem, self-efficacy, assertiveness, and fighting skills, as well as reduced fear (Brecklin, 2008; Brecklin & Ullman, 2005; Hollander, 2004; McCaughey, 1997; McDaniel, 1993; Orchowski, Gidycz, & Raffle, 2008; Ozer & Bandura, 1990; Weitlauf, Smith, & Cervone, 2000). However, less is known as to whether self-defense training helps women avoid or resist assault. A few retrospective studies have found an association between self-defense training and rape avoidance. For example, Bart and O'Brien (1985) found that women who avoided rape were nearly twice as likely to have had some sort of self-defense training. Brecklin and Ullman (2005) found that college women with self-defense or assertiveness training were more likely to report experiencing attempted rather than completed rape and were more likely to say that their resistance stopped or lessened the assault. These studies, however, did not investigate the type or duration of self-defense training.

Three prospective studies have assessed the influence of self-defense training on subsequent sexual victimization. Gidycz, Rich, Orchowski, King, and Miller (2006) evaluated a 7-hour sexual assault “risk reduction” program for college women with a 2½ hour self-defense component, finding that participants increased their use of self-protective behaviors over the 6-month follow-up period but with no significant differences in rates of sexual victimization. Orchowski et al. (2008) evaluated a later version of the same program with a 2-hour feminist self-defense component and found increased self-protective behaviors, self-defense self-efficacy, and assertive sexual communication over a 4-month follow-up period, with some decrease in the quantity and severity of sexual victimization. Finally, Senn, Gee, and Thake (2011) developed and evaluated a 12-hour sexual assault resistance program with 3 hours of physical self-defense training. Participants reported higher levels of self-efficacy and an increased use of effective self-defense strategies in hypothetical situations, but no change in victimization rates over the 6-month follow-up period.

In this article, I add to this growing literature on the effectiveness of self-defense training for preventing sexual assault. My research differs from previous studies in important ways. First, I study the effects of a 30-hour self-defense course, not a brief workshop. Second, I examine the effects of self-defense training over a much longer 1-year follow-up period. Finally, I compare women who chose to take a self-defense course with similar women enrolled in other university classes. I hypothesized that women who completed the self-defense class would report fewer sexual assaults and more confidence in their ability to protect themselves.

Method

Participants

Participants were recruited from a self-defense class offered each term through the Women’s and Gender Studies Program at a state university in the Pacific Northwest. Of the approximately 180 women enrolled in the self-defense class across six terms, 119 (66%) volunteered to participate. As a comparison group, 179 women who had not taken self-defense classes were recruited from unrelated classes such as English, Dance, Biology, and Geography. Twelve participants were dropped from further analysis because of incomplete or clearly inaccurate survey responses. The final sample size was 286, including 117 self-defense students and 169 students enrolled in other classes.

Participants ranged in age from 18 to 53, with a mean age of 21.1 years. The majority (82.5%) were White, 0.3% were African American, 5.9% were Asian and Pacific Islander, 3.8% were Latina, and 4% were Native American; this racial distribution is similar to the demographics of the university as a whole. The sample was comprised of 20.3% first-year students, 18.5% sophomores, 26.6% juniors, 30.8% seniors, and 3.8% graduate or exchange students. Just over 25% of participants reported an experience prior to the beginning of the study that met the legal definition of rape; 30.8% reported an attempted rape.

Chi-square analyses revealed no significant differences between the self-defense and comparison groups in reported race, previous experiences of rape or attempted rape, or intimate partner violence. However, the two groups did differ significantly on several dimensions. First, the self-defense students were, on average, 1 year older than the students recruited from other classes (21.73 vs. 20.73 years old) and significantly more likely to be upper-class students. One source for this difference was the popularity of the self-defense class, which meant that students were often juniors or seniors before they were able to enroll. Self-defense students were also more likely to report a past experience of unwanted sexual contact (72.4% vs. 51.5%) or sexual coercion (47.4% vs. 34.3%). Measures were taken to address these differences in the analysis.

College students are clearly not representative of U.S. women as a whole. Nonetheless, this population has several advantages for studying self-defense effectiveness. First, college students represent one of the major constituencies for self-defense classes, which are often offered in higher educational settings. Second, younger women are at particularly high risk of sexual assault: According to recent research, 20% to 30% of rapes occur between the ages of 18 and 24 (Fisher, Cullen, & Turner, 2000; Kilpatrick, Edmunds, & Seymour, 1992). Third, many current sexual assault prevention programs are aimed at college populations, in part because of federal funding requirements (Anderson & Whiston, 2005). Fourth, college students are a clearly defined, easily accessible population with known estimated rates of sexual assault. Thus, research on college students can provide a useful foundation for further studies with more diverse populations.

The Self-Defense Class

The self-defense class had been taught by the same female instructor for more than 20 years; it included training and practice in both physical and verbal self-defense, as well as academic study of issues related to violence against women. The class met for 3 hours per week over 10 weeks, and students also participated in a small group discussion that met for 1.5 hours per week. In class, students practiced physical techniques both in slow motion against other class members and full force against large pads held by class assistants. Students practiced verbal self-defense techniques in pairs and small groups, and there was also weekly discussion of the psychological and emotional aspects of self-defense. The class fit the criteria for effective self-defense classes laid out by the National Coalition Against Sexual Assault (NCASA; n.d.) and was similar to other feminist self-defense classes offered throughout the United States (see Cummings, 1992; Rentschler, 1999).

The class was explicitly feminist in its approach to self-defense (see Telsey, 2001). Class discussion and practice focused on sexual assault, although there was also discussion of other types of violence such as stalking or intimate partner violence. The physical techniques that students learned were chosen for their appropriateness for female bodies (e.g., requiring lower rather than upper body strength), their ease of learning, and their effectiveness in stopping assault. Finally, the class attended to the social-psychological factors that facilitate assault and inhibit self-protection, such as

gender ideals that suggest that women should prioritize others' feelings and desires instead of their own (see Rentschler, 1999; Telsey, 2001). The class included important elements of the "Assess, Acknowledge, Act" model proposed by Rozee and Koss (2001), including a focus on early recognition of risky situations and behavioral warning signs, attention to the psychological and emotional barriers to resistance, and discussion and practice of a wide range of strategies for resisting assault by strangers, acquaintances, and intimates.

Procedures

Students were invited to participate in the project during the first session of each class. Self-defense students were told that the project's goal was "to understand how taking a self-defense class affects women's lives"; students in the comparison group were told that the project's purpose was "to understand college women's lives, and what factors affect their experiences during their college years." All participants were volunteers and were paid US\$10 for each survey or interview they completed.

All students completed a baseline survey at the beginning of the term and a follow-up survey 1 year after the end of the term. Surveys were written and self-administered. Questions were both closed and open-ended, and included both original measures and pre-existing scales focusing on self-protection strategies, perceived self-efficacy, fear, perceptions of danger, and beliefs about violence. (The full text of the survey is available by contacting the author.) Self-defense students also completed items assessing their experiences in the self-defense class. Of the 286 students who completed the first survey, 75 (64.1%) of the self-defense students and 108 (63.9%) of the non-self-defense students completed the follow-up survey 1 year later. These rates reflect the fact that many students graduated before the administration of the follow-up survey and contacting them after graduation proved difficult. There were no differences in age, race, previous experiences of sexual assault or intimate partner violence, or class type (self-defense vs. comparison classes) between those who completed the study and those who did not.

Although the analysis below focuses mostly on these survey data, it is also informed by interviews and participant observation. I conducted face-to-face, in-depth interviews with 20 self-defense students to gain a richer understanding of their experiences. All students in four of the five self-defense classes studied (98 total students) were invited to participate; 52 expressed interest and 20 followed through by making and keeping interview appointments. Interview questions were open-ended and focused on participants' experiences of the self-defense class, self-perceptions, and relevant experiences subsequent to completing the class. The interviews lasted 45 to 90 minutes and were recorded and transcribed verbatim. Finally, I conducted participant observation in the self-defense class across one academic term. My formal role was as an assistant; I demonstrated techniques and held heavy bags and pads for the students to strike. After each class, I recorded my observations of both class content and interactions.

Outcome Measures

Experiences of sexual assault. Participants completed the Sexual Experiences Survey (SES; Koss, Gidycz, & Wisniewski, 1987) to assess their sexual victimization prior to the study and during the follow-up period. The SES is widely used to assess sexual assault history and has good reliability and validity (Koss & Gidycz, 1985). It includes 10 behaviorally specific questions under four categories of unwanted sexual experiences:

1. Sexual Contact (unwanted fondling, kissing, or petting as a result of someone's arguments, pressure, use of authority, force, or threat of force),
2. Sexual Coercion (unwanted sexual intercourse as a result of someone's arguments, pressure, or use of authority),
3. Attempted Rape (an unsuccessful attempt at sexual intercourse using force, threat of force, or alcohol/drugs), and
4. Rape (completed sexual intercourse using force, threat of force, or alcohol/drugs).

The original SES was modeled on Ohio rape laws in force in the late 1970s, which required perpetrator intent for alcohol/drug incapacitated sex to qualify as rape. These laws have since been reformed (although some other states still differentiate degrees of sexual assault based on perpetrator intent), and the recent revision of the SES (Koss et al., 2007) reflects those changes. At the time this research was conducted, however, the original SES was the only version available. As a result, participants' responses may undercount experiences of incapacitated attempted rape, as well as experiences in which the victim expressed non-consent but the perpetrator continued with the sex act, though without verbal pressure or physical force.

Self-efficacy. All participants completed a modified version of the Self-Defense Self-Efficacy Scale (Weitlauf, Cervone, Smith, & Wright, 2001). This scale assesses respondents' perceptions of their ability to use various types of self-defense skills (punches or strikes, kicks, blocks, wrist grab releases, chokehold releases), recognize dangerous situations, prevent a sexual assault, or get legal or medical help after an assault. Possible responses ranged from 1 (*not confident at all*) to 10 (*very confident*). Weitlauf's original measure includes questions about both respondents' perceptions of their skills and their confidence that they would be able to use those skills if attacked. However, only the questions about confidence were used in this project.

Assailant types. The Self-Defense Self-Efficacy Scale does not distinguish between stranger assailants and those known to the target. However, Ullman (2007) found that women are more reluctant to resist known assailants. Two items asked participants how effectively they feel they would be able to defend themselves against a stranger versus an acquaintance or intimate; possible responses ranged from 1 (*not effectively at all*) to 7 (*very effectively*).

Table 1. Total Reports of Unwanted Sexual Experiences, by Type of Class.

	Self-defense classes		Comparison classes		Overall	
	<i>n</i>	% of subjects (<i>n</i> = 75)	<i>n</i>	% of subjects (<i>n</i> = 108)	<i>n</i>	% of subjects (<i>n</i> = 183)
Sexual Experiences Survey						
Sexual contact	7	9.3	22	20.4	29	15.8
Sexual coercion	3	4.0	14	13.0	17	9.3
Attempted rape	2	2.7	9	8.3	11	6.0
Rape	0	0	3	2.8	3	1.6
No reported assault	66	88.0	75	69.4	141	77.0

Note. Percentages do not sum to 100% because some participants reported multiple types of unwanted experiences.

Results

Does Self-Defense Training Reduce Women's Risk of Assault?

I began by examining patterns of participants' responses to the SES on the follow-up survey. Table 1 describes all responses to the SES items. Overall, 23% of participants reported at least one unwanted sexual experience during the follow-up period. Most reports involved sexual contact or coercion; 6% reported an attempted rape, and 1.6% reported an experience that met the legal definition of rape. These rates are consistent with college incidence rates reported by other researchers (e.g., Fisher et al., 2000; Gidycz, Coble, Latham, & Layman, 1993; Gidycz, Hanson, & Layman, 1995). In each category, those in the comparison group reported proportionately more assaults than those in the self-defense group. In total, 12.0% of the self-defense students and 30.6% of the non-self-defense students reported a sexual victimization during the follow-up period. It is worth noting that *no* self-defense student, but 2.8% of the students in comparison classes, reported an experience of rape. Note that using the SES in this way likely undercounts experiences of sexual assault, because the original SES asks respondents *whether* they have experienced a given type of sexual assault in the relevant time period, not *how many times* they experienced that type of assault. Thus, repeated experiences of the same type of assault are not measured.

While Table 1 summarizes the total number of assaults, Table 2 classifies participants in terms of the highest level of sexual assault reported. Thus, an individual participant may be represented in multiple categories in Table 1, because she may have experienced different types of assault at the hands of one or more perpetrators. In Table 2, each respondent is represented only once, based on the most severe type of assault reported. Parallel patterns were found here: The more severe the assault, the fewer students reported experiencing it, and in every category, self-defense students were less likely to report an assault than students in comparison classes.

Because few self-defense students reported any kind of assault during the follow-up year, cell sizes were quite small. Following Gidycz and her colleagues (Gidycz

Table 2. Highest Level of Assault Reported, by Type of Class.

	Self-defense classes		Comparison classes		Overall	
	<i>n</i>	% of subjects	<i>n</i>	% of subjects	<i>n</i>	% of subjects
Sexual Experiences Survey						
Sexual contact	4	5.3	10	9.3	14	7.7
Sexual coercion	3	4.0	11	10.2	14	7.7
Attempted rape	2	2.7	9	8.3	11	6.0
Rape	0	0	3	2.8	3	1.6
No reported assault	66	88.0	75	69.4	141	77.0
Total	75	100	108	100	183	100

et al., 2006; Orchowski et al., 2008), I collapsed the five SES categories in Table 2 into three to test for statistical significance: (a) no history of sexual victimization, (b) moderate sexual victimization (any unwanted sexual experience other than rape), and (c) rape (penetration achieved using force, threat of force, or alcohol or drugs). A chi-square test of independence showed that sexual assault and class type were significantly associated, $\chi^2(2) = 9.23, p = .01$, Cramer's $V = .23$. Examination of the observed frequencies and standardized residuals showed that self-defense participants were less likely to report experiencing sexual assault than the comparison group.

However, the significant pre-existing differences between the self-defense and comparison groups indicated the need for further analysis. The two groups differed in mean age, class standing, and likelihood of reporting a prior experience of sexual contact or coercion. This is not uncommon; groups may differ systematically on background variables, which may bias estimates of the effects of an intervention. Propensity scores, which summarize "the conditional probability of assignment to a particular treatment given a vector of observed covariates" (Rosenbaum & Rubin, 1984, p. 516), are useful for reducing possible bias. The propensity score uses logistic regression to collapse any number of covariates into a single predictor, which is then used in subsequent analyses as if it were the only confounding covariate. Here, all variables that differed significantly between the two groups, as well as the non-significant variables (as recommended by Rubin & Thomas, 1996), were used to develop propensity scores, which represent the estimated probability, as determined by the covariate values, of being in the self-defense course rather than the comparison course. This propensity score was then used in subsequent analyses to control for the pre-existing differences between the two groups.

A logistic regression was conducted to assess the two groups' likelihood of experiencing any type of assault across the follow-up year. As expected, women in the comparison group were 1.58 times more likely to report sexual assault. This difference approached significance, $B = -0.46$, $\text{Wald}(1) = 3.66, p = .056$. There was no effect of the propensity score, $B = -1.66$, $\text{Wald}(1) = 2.76, p = .19$. Given the small sample size, and together with the frequencies described above, this analysis suggests that the self-defense class was effective in reducing rates of sexual assault.

Does Self-Defense Training Increase Women's Confidence That They Can Defend Themselves Effectively?

The Self-Defense Self-Efficacy Scale (adapted from Weitlauf et al., 2001) summarizes the respondent's confidence that she could defend herself in various ways against sexual assault. A repeated-measures ANCOVA (using the propensity score as a covariate) was used to test this hypothesis. The focal test of my hypothesis was an interaction of time and class. This interaction was significant, $F(1, 175) = 46.33, p < .001, \eta_p^2 = .21$. There was no effect of the propensity score, $F(1, 175) = 0.05, p = .83, \eta_p^2 = .000$. Examination of the means shows that this interaction is explained by an increase in self-efficacy over time for women who took the self-defense course, whereas the women who took the comparison courses showed no increase (see Figure 1). Simple effects tests show that compared with women in the comparison courses, women in the self-defense course had significantly *lower* self-efficacy at the beginning of the term, $t(280) = 2.70, p = .007$. At the post-intervention follow-up, however, the positions of the two groups were reversed, and the self-defense students had significantly *higher* self-efficacy at $t(180) = -6.25, p < .001$. These results parallel findings from other studies (McDaniel, 1993; Ozer & Bandura, 1990; Weitlauf et al., 2001; Weitlauf et al., 2000), finding increased self-confidence and self-efficacy following a self-defense class. However, previous studies have used briefer follow-up periods (between 1 and 6 months); my research confirms that these changes are sustained over a follow-up period of approximately 1 year.

The Self-Defense Self-Efficacy Scale does not distinguish between assailants who are strangers and those who are known to the target. Two original items on the survey asked participants to evaluate how effectively they believed they could defend themselves against these different types of perpetrators. The first question focused on assaults perpetrated by strangers. As depicted in Figure 2, both groups of participants began with a baseline mean score of just over the midpoint (4.28 for the self-defense students and 4.34 for the comparison group). At the time of the follow-up, the self-defense students' mean score had jumped to 5.68 on the 7-point scale, while the other students' mean score had remained at the baseline level (4.44).

A repeated-measures ANCOVA (using the propensity score as a covariate) found a significant main effect of time, $F(1, 176) = 4.45, p = .004, \eta_p^2 = .03$, as well as class type, $F(1, 176) = 16.37, p < .001, \eta_p^2 = .09$. However, these main effects were qualified by a significant interaction of time and class type, $F(1, 176) = 25.40, p < .001, \eta_p^2 = .13$. There was no effect of the propensity score, $F(1, 176) = 2.63, p = .11, \eta_p^2 = .02$. Examination of the means (see Figure 2) showed that this interaction is explained by an increase in self-confidence over time for women who took the self-defense course, whereas the women who took the comparison courses showed no increase. Simple effects tests showed that women in the self-defense course did not differ from the women in the comparison courses at baseline, $t(282) = 0.46, p = .65$, whereas they showed significantly higher self-efficacy about defending themselves against strangers at the post-intervention follow-up, $t(179) = -7.10, p < .001$.

The second survey question paralleled the first but asked about acquaintances or intimates rather than strangers. The same pattern was apparent here. At baseline, both



Figure 1. Self-defense self-efficacy.

Note. This figure displays means controlling for propensity scores.

groups' mean scores were very similar (4.61 for self-defense students and 4.69 for other students); after 1 year, the self-defense students' mean score had risen to 5.79, while the non-self-defense students' mean score had increased only slightly, to 4.88. A repeated-measures ANCOVA (using the propensity score as a covariate) was used to test this hypothesis. There was a significant main effect of time, $F(1, 174) = 6.13$, $p = .014$, $\eta_p^2 = .03$, as well as class type, $F(1, 174) = 10.09$, $p = .002$, $\eta_p^2 = .06$. However, these main effects were qualified by a significant interaction of time and class type, $F(1, 174) = 9.59$, $p = .002$, $\eta_p^2 = .05$. There was no effect of the propensity score, $F(1, 174) = 3.11$, $p = .08$, $\eta_p^2 = .02$. Examination of the means (see Figure 3) shows that this interaction is explained by an increase in self-confidence over time for women who took the self-defense course, whereas the women who took the comparison courses showed no self-confidence increase. Simple effects tests show that women in the self-defense course did not differ from the women in the comparison courses at baseline, $t(280) = 0.45$, $p = .65$, whereas they showed significantly higher self-efficacy about defending themselves against acquaintances or intimates at the post-intervention follow-up, $t(174) = -4.49$, $p < .001$.

Does women's change in confidence over time depend on the type of perpetrator? A repeated-measures ANCOVA (using the propensity score as a covariate) on the difference scores (Confidence at Time 2–Confidence at Time 1), with type of perpetrator as a within-subjects factor and class type as a between-subjects factor, was used to examine this question. There was a significant main effect of class type, $F(1, 174) = 25.97$, $p < .001$, $\eta_p^2 = .13$. The main effect of perpetrator type was non-significant, $F(1, 174) = 0.164$, $p = .69$, $\eta_p^2 = .001$, as was the class type by perpetrator type interaction, $F(1, 174) = 2.45$, $p = .12$, $\eta_p^2 = .01$. There was no effect of the propensity score, $F(1, 173) = 0.48$, $p = .49$, $\eta_p^2 = .003$. Overall, women in the self-defense course showed



Figure 2. Anticipated self-defense effectiveness if attacked by a stranger.

greater gains in confidence than women in the comparison courses, regardless of whether the perpetrator was a stranger, acquaintance, or intimate.

These quantitative findings are bolstered by results from the qualitative responses to the survey and interview questions. Qualitative analysis followed accepted practices (see Miles & Huberman, 1994) and focused on open-ended survey responses, interview transcripts, and field notes from participant observation. After reading through a subset of the data, I developed a coding scheme that captured the major themes in the data. I then coded all the data based on this scheme. I read and reread excerpts associated with particular codes to detect both patterns and exceptions, and then returned to the full transcripts to place these excerpts in context. Selected quotes were representative of multiple participants' comments and sentiments.

Self-defense students overwhelmingly reported that learning self-defense had bolstered their confidence in their ability to defend themselves from violence:

I feel more confident that if I were put in a bad situation that I now possess the skills to either avoid the situation or get out of the situation. I don't feel that prior to the class that I had that much confidence. (survey)

And,

And after [taking the class], I really felt more confident just walking at night. And not overconfident where nothing bad can happen to me now, but I still felt like I stood a chance. Because I remember before thinking about like, if anything ever happened to me, I would probably just stand there and scream and not do anything and not know what to do. Now I feel like I've got a list of things that I could probably come up with to do. (interview)

Interestingly, this increased self-confidence extends beyond situations where physical self-defense might be used. As other studies have found (e.g., McCaughey, 1997;

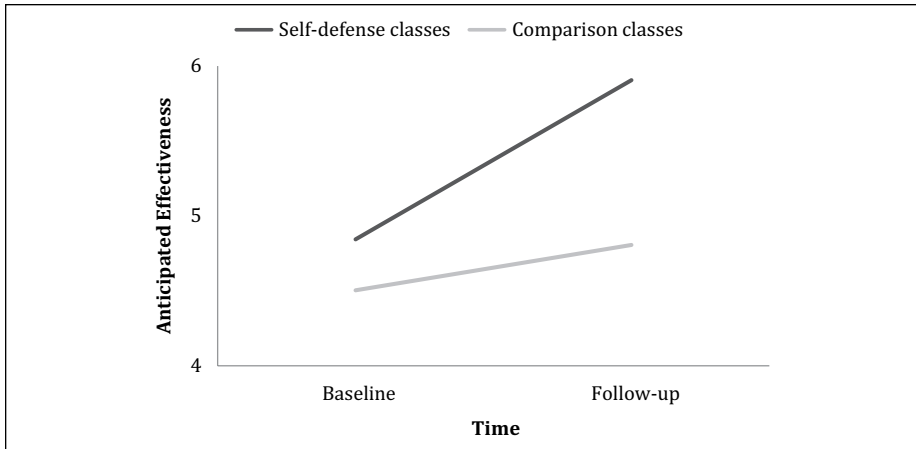


Figure 3. Anticipated self-defense effectiveness if attacked by an acquaintance or intimate.

Weitlauf et al., 2001), self-defense students reported feeling more confident in a broad range of situations, such as participating in their other classes, being assertive with their families, saying no to potential dates, expressing anger or discomfort, and simply trusting their own perceptions.

The follow-up survey also asked self-defense students whether they had ever used the skills they learned in the class. A few students reported having had occasion to use the physical techniques:

A man at the bus stop was invading my space and . . . using ploys to see if I would do what he asked. He acted like he was joking with me and grabbed my arm near my wrist. I used the wrist release I learned and said loudly for him to leave me alone . . . I think if I had been less resistant he would have taken it further. (survey)

Many other students replied that they had used the verbal and emotional strategies they learned in the class, and recounted stories such as the following:

I was at a football game and this drunk guy was stomping all over the place. And he put his arm around me. And normally I would keep in to my space and I'd just, I wouldn't say anything normally. I was just like, "Oh, whatever, you know, he's just drunk. Let it go." But I actually spoke up and I said, "Get your hand off of me." That's something I would have never done before. [Q: Did he get his hands off you?] Oh yeah. He was, "Oh, I'm sorry. I didn't mean to . . ." So it worked . . . That's a really small thing, but to me it was just so empowering. (interview)

And,

The first thing that happened to me after walking into a bar the other night, a man grabbed the back of my cowgirl hat and when I turned around continued to screw with it. I looked

him in the eye and said, "We don't know each other. Don't touch me." This is huge for me, I didn't used to look men in the eye, and most often when I say things, it's too quiet for people to hear. I did the same thing at work to a kid who was harassing me, I turned, looked him in the eye, and said, "I don't want to talk to you," and turned around. It stopped a few days later. (survey)

Students were clear that these changes were due directly to the self-defense class. One wrote,

I learned to stand up for myself and to voice what I'm thinking and to not be such a pushover any more. I think about it all the time when I'm dealing with people and I stand up for myself, and I'm like, "That's from self-defense. I got that from that class."

Discussion and Conclusion

This project examined the relationship between women's completion of a feminist self-defense class and their subsequent victimization. Women in the one-term (30-hour) self-defense class reported significantly fewer sexual assaults during the subsequent year than women enrolled in other classes at the same university, even when controlling for pre-existing differences between the two groups. Although further testing was limited by the small cell sizes, women in the two groups appeared to differ both in the overall *quantity* of sexual assaults reported and the *severity* of the assault; no women in the self-defense group, but 3% of the comparison group, reported completed rape. In addition, self-defense training bolsters women's confidence in their defensive abilities: Self-defense students, but not comparison group students, reported significant increases in their confidence that they could defend themselves against an attack from a stranger, acquaintance, or intimate. Finally, only self-defense students reported a significant increase in their mean self-defense self-efficacy. Because women's resistance intentions predict their behavior if assaulted (Gidycz, Van Wynsberghe, & Edwards, 2008), these increases in confidence provide further evidence that women are better equipped to resist assault after taking a self-defense class. These findings are especially notable because of the 1-year follow-up period, compared with the 1-month to 6-month periods used in previous research.

The implications are profound. Sexual assault is a widespread problem with far-reaching effects for both individuals and communities. Virtually every other prevention strategy has proved ineffective at reducing sexual victimization. If self-defense training reduces women's subsequent risk of sexual assault, it would provide an effective and fairly simple way to reduce women's vulnerability to violence. Future research should replicate this study with larger and more diverse samples. However, the project described here suggests that, at least on college campuses, self-defense training is a potentially powerful tool for reducing rates of sexual assault.

Notably, not only did self-defense students report fewer rapes and sexual assaults, but they also reported proportionately fewer *attacks*. In other words, women were not simply less likely to be raped if attacked—in which case we would expect to see a

large increase in *attempted* rapes among the self-defense group—but were less likely to be attacked at all. This suggests that self-defense training both changes women's responses to assault *and* changes women's behavioral or interactional patterns such that they are less likely to be targeted by potential assailants. Although the causes for this change remain to be explored, participants' qualitative comments above suggest possible mechanisms. Self-defense students' assertive responses to intrusion, even relatively minor intrusions, may well have deterred further unwanted interaction. These findings suggest that after taking a self-defense class, women are better able to discern the warning signs of assault, clearer about their own desires in an interaction, and more willing to speak and act on their own behalf, all elements that may reduce the odds of attempted or completed sexual assault.

These results are also notable in light of the fact that women who undergo self-defense training might be expected to be *more* likely to recognize and report an unwanted sexual experience as sexual assault. Feminist self-defense classes include a clear discussion of the legal definition of rape and encourage women to see a wide range of unwanted sexual experiences as assault. Indeed, a number of interviewees commented that they had reevaluated past experiences and redefined them as assault after taking this class (Hollander, 2013). Given this expanded understanding of sexual assault, the fact that self-defense students reported fewer unwanted sexual experiences than other women is even more marked.

One important limitation of this study is its quasi-experimental design. Because I studied women enrolled in college classes, I could not randomly assign participants to the self-defense and comparison groups. I used propensity scores to address this situation, but it is possible that the two groups may have differed in systematic ways not controlled by this approach. It is also possible that participants in the comparison group may have been less motivated than the self-defense students to participate in the survey. In addition, participants in the self-defense group may have been influenced by demand characteristics to not report sexual assaults they had experienced. Nonetheless, this project also had significant advantages: It examined a real-world, long-term self-defense class in a natural setting, with an extended follow-up period of 1 year.

A particularly valuable feature of self-defense training is that it does not reduce women's lives or restrict their freedom, as do many other prevention strategies and advice to women (Stanko, 1997). Rather, it empowers women and thus increases their freedom (McCaughy, 1997; Ozer & Bandura, 1990). Graduates report feeling more confident in all aspects of their lives (Hollander, 2004; McCaughy, 1997). As one participant said, "The self-confidence this class instills affects the way you interact with everyone. It affects your work environment, home environment, everything." Self-defense training may also help women even if they are assaulted; Mouilso, Calhoun, and Gidycz (2011) found that women who participated in a sexual assault risk reduction program reported significantly less psychological distress after a subsequent assault.

These findings should not be taken to imply that the burden for preventing sexual assault should lie with women. It is important to state clearly that just because women have the ability to defend themselves against violence, they are not responsible for

preventing that violence. The responsibility for violence lies with perpetrators, and women should not be expected to prevent it, nor blamed if they do not or cannot do so. The best way to reduce rates of violence against women would be for perpetrators to stop committing it. Many exciting and innovative strategies for primary prevention targeted at perpetrators are currently being developed. Until such time as these are found to be effective and widely implemented, however, women should be afforded all possible tools to keep themselves safe. Self-defense training is one of those tools; this research suggests that it deserves serious attention as a strategy for reducing sexual assault.

Acknowledgment

My thanks to Karyn Lewis for assistance with the statistical analysis, and my deepest gratitude to the research participants, for sharing their experiences with me.

Declaration of Conflicting Interests

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

Funding

The author(s) disclosed receipt of the following financial support for the research, authorship, and/or publication of this article: This research was supported in part by the Center for the Study of Women in Society and the Office of the Vice President for Research at the University of Oregon.

References

- Anderson, L. A., & Whiston, S. C. (2005). Sexual assault education programs: A meta-analytic examination of their effectiveness. *Psychology of Women Quarterly*, 29, 374-388.
- Bachar, K. J., & Koss, M. P. (2001). From prevalence to prevention: Closing the gap between what we know about rape and what we do. In C. M. Renzetti, J. L. Edleson, & R. K. Bergen (Eds.), *Sourcebook on violence against women* (pp. 117-141). Thousand Oaks, CA: SAGE.
- Bart, P. B., & O'Brien, P. H. (1985). *Stopping rape: Successful survival strategies*. Elmsford, NY: Pergamon Press.
- Black, M. C., Basile, K. C., Breiding, M. J., Smith, S. G., Waters, M. L., Merrick, M. T., et al. (2011). *The national intimate partner and sexual violence survey (NISVS): 2010 summary report*. Atlanta, GA: National Center for Injury Prevention and Control, Centers for Disease Control and Prevention.
- Brecklin, L. R. (2008). Evaluation outcomes of self-defense training for women: A review. *Aggression and Violent Behavior*, 13, 60-76.
- Brecklin, L. R., & Forde, D. R. (2001). A meta-analysis of rape education programs. *Violence and Victims*, 16, 303-321.
- Brecklin, L. R., & Ullman, S. E. (2005). Self-defense or assertiveness training and women's responses to sexual attacks. *Journal of Interpersonal Violence*, 20, 738-762.
- Breitenbecher, K. H. (2000). Sexual assault on college campuses: Is an ounce of prevention enough? *Applied & Preventive Psychology*, 9, 23-52.

- Breitenbecher, K. H., & Gidycz, C. A. (1998). An empirical evaluation of a program designed to reduce the risk of multiple sexual victimization. *Journal of Interpersonal Violence, 13*, 472-488.
- Breitenbecher, K. H., & Scarce, M. (1999). A longitudinal evaluation of the effectiveness of a sexual assault education program. *Journal of Interpersonal Violence, 14*, 459-478.
- Centers for Disease Control and Prevention. (2004). *Sexual violence prevention: Beginning the dialogue*. Atlanta, GA: Author.
- Council on Scientific Affairs, American Medical Association. (1992). Violence against women: Relevance for medical practitioners. *Journal of the American Medical Association, 267*, 3184-3189.
- Cummings, N. (1992). Self-defense training for college women. *Journal of American College Health, 40*, 183-188.
- Fisher, B. S., Cullen, F. T., & Turner, M. G. (2000). *The sexual victimization of college women* (No. NCJ 182369). Washington, DC: National Institute of Justice.
- Gidycz, C. A., Coble, C. N., Latham, L., & Layman, M. J. (1993). Sexual assault experience in adulthood and prior victimization experiences: A prospective analysis. *Psychology of Women Quarterly, 17*, 151-168.
- Gidycz, C. A., Hanson, K., & Layman, M. (1995). A prospective analysis of the relationships among sexual assault experiences. *Psychology of Women Quarterly, 19*, 5-29.
- Gidycz, C. A., Layman, M. J., Rich, C. L., Crothers, M., Gyls, J., Matorin, A., & Jacobs, C. D. (2001). An evaluation of an acquaintance rape prevention program: Impact on attitudes, sexual aggression, and sexual victimization. *Journal of Interpersonal Violence, 16*, 1120-1138.
- Gidycz, C. A., Orchowski, L. M., & Edwards, K. M. (2011). Primary prevention of sexual violence. In M. P. Koss, J. W. White, & A. E. Kazdin (Eds.), *Violence against women and children. Vol. 2: Navigating solutions* (pp. 159-179). Washington, DC: American Psychological Association.
- Gidycz, C. A., Rich, C. L., Orchowski, L., King, C., & Miller, A. K. (2006). The evaluation of a sexual assault self-defense and risk-reduction program for college women: A prospective study. *Psychology of Women Quarterly, 30*, 173-186.
- Gidycz, C. A., Van Wynsberghe, A., & Edwards, K. M. (2008). Prediction of women's utilization of resistance strategies in a sexual assault situation. *Journal of Interpersonal Violence, 23*, 571-588.
- Gordon, M. T., & Riger, S. (1989). *The female fear*. Urbana: University of Illinois Press.
- Hollander, J. A. (2004). "I can take care of myself": The impact of self-defense training on women's lives. *Violence Against Women, 10*, 205-235.
- Hollander, J. A. (2013). "I demand more of people": Accountability, interaction, and gender change. *Gender & Society, 27*, 5-29.
- Kilpatrick, D. G., Edmunds, C., & Seymour, A. (1992). *Rape in America: A report to the nation*. Arlington, VA: National Victim Center.
- Koss, M. P. (1993). Detecting the scope of rape: A review of prevalence research methods. *Journal of Interpersonal Violence, 8*, 198-222.
- Koss, M. P., Abbey, A., Campbell, R., Cook, S., Norris, J., Testa, M., et al. (2007). Revising the SES: A collaborative process to improve assessment of sexual aggression and victimization. *Psychology of Women Quarterly, 31*, 357-370.
- Koss, M. P., & Gidycz, C. A. (1985). Sexual Experiences Survey: Reliability and validity. *Journal of Consulting and Clinical Psychology, 53*, 422-423.

- Koss, M. P., Gidycz, C. A., & Wisniewski, N. (1987). The scope of rape: Incidence and prevalence of sexual aggression and victimization in a national sample of higher education students. *Journal of Consulting and Clinical Psychology, 55*, 162-170.
- McCaughey, M. (1997). *Real knockouts: The physical feminism of women's self-defense*. New York: New York University Press.
- McDaniel, P. (1993). Self defense training and women's fear of crime. *Women's Studies International Forum, 16*, 37-45.
- Miles, M. B., & Huberman, A. M. (1994). *Qualitative data analysis: An expanded sourcebook* (2nd ed.). Thousand Oaks, CA: SAGE.
- Mouilso, E. R., Calhoun, K. S., & Gidycz, C. A. (2011). Effects of participation in a sexual assault risk reduction program on psychological distress following revictimization. *Journal of Interpersonal Violence, 26*, 769-788.
- National Coalition Against Sexual Assault. (n.d.). *Guidelines on choosing a women's self-defense course*. Retrieved from <http://www.portlandonline.com/Police/index.cfm?a=61885&c=35911>
- Orchowski, L. M., Gidycz, C. A., & Raffle, H. (2008). Evaluation of a sexual assault risk reduction and self-defense program: A prospective analysis of a revised protocol. *Psychology of Women Quarterly, 32*, 204-218.
- Ozer, E. M., & Bandura, A. (1990). Mechanisms governing empowerment effects: A self-efficacy analysis. *Journal of Personality and Social Psychology, 58*, 472-486.
- Post, L. A., Mezey, N. J., Maxwell, C., & Wibert, W. N. (2002). The rape tax: Tangible and intangible costs of sexual violence. *Journal of Interpersonal Violence, 17*, 773-782.
- Rentschler, C. A. (1999). Women's self-defense: Physical education for everyday life. *Women's Studies Quarterly, 27*, 152-161.
- Rosenbaum, P. R., & Rubin, D. B. (1984). Reducing bias in observational studies using subclassification on the propensity score. *Journal of the American Statistical Association, 79*, 516-524.
- Rozee, P. D., & Koss, M. P. (2001). Rape: A century of resistance. *Psychology of Women Quarterly, 25*, 295-311.
- Rubin, D. B., & Thomas, N. (1996). Matching using estimated propensity scores: Relating theory to practice. *Biometrics, 52*, 249-264.
- Senn, C. Y., Gee, S. S., & Thake, J. (2011). Emancipatory sexuality education and sexual assault resistance: Does the former enhance the latter? *Psychology of Women Quarterly, 35*, 72-91.
- Stanko, E. A. (1997). Safety talk: Conceptualizing women's risk assessment as a "technology of the soul." *Theoretical Criminology, 1*, 479-499.
- Telsey, N. (2001). *What is feminist self-defense?* Unpublished paper.
- Tjaden, P., & Thoennes, N. (1998). *Prevalence, incidence, and consequences of violence against women: Findings from the national violence against women survey*. Washington, DC: National Institute of Justice.
- Ullman, S. E. (1997). Review and critique of empirical studies of rape avoidance. *Criminal Justice and Behavior, 24*, 177-204.
- Ullman, S. E. (1998). Does offender violence escalate when women fight back? *Journal of Interpersonal Violence, 13*, 179-192.
- Ullman, S. E. (2007). A 10-year update of "Review and critique of empirical studies of rape avoidance." *Criminal Justice and Behavior, 34*, 1-19.
- Ullman, S. E., & Knight, R. A. (1992). Fighting back: Women's resistance to rape. *Journal of Interpersonal Violence, 7*, 31-43.

- Weitlauf, J. C., Cervone, D., Smith, R. E., & Wright, P. M. (2001). Assessing generalization in perceived self-efficacy: Multidomain and global assessments of the effects of self-defense training for women. *Personality & Social Psychology Bulletin*, *27*, 1683-1691.
- Weitlauf, J. C., Smith, R. E., & Cervone, D. (2000). Generalization effects of coping skills training: Influence of self-defense training on women's efficacy beliefs, assertiveness, and aggression. *Journal of Applied Psychology*, *85*, 625-633.
- Yeater, E. A., & O'Donohue, W. (1999). Sexual assault prevention programs: Current issues, future directions, and the potential efficacy of interventions with women. *Clinical Psychology Review*, *19*, 739-771.

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