


Summer 1999

An Analysis of Two Forms of Self-Defense Training and Their Impact on Women's Sense of Personal Safety Self-Efficacy

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**AN ANALYSIS OF TWO FORMS OF SELF DEFENSE
TRAINING AND THEIR IMPACT ON WOMEN'S SENSE
OF PERSONAL SAFETY SELF-EFFICACY**

by

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A Dissertation submitted to the Faculty of
The Virginia Consortium Program in Clinical Psychology
in Partial Fulfillment of the
Requirement for the Degree of

DOCTOR OF PSYCHOLOGY

EASTERN VIRGINIA MEDICAL SCHOOL
NORFOLK STATE UNIVERSITY
OLD DOMINION UNIVERSITY
THE COLLEGE OF WILLIAM AND MARY
August, 1999

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ABSTRACT

AN ANALYSIS OF TWO FORMS OF SELF DEFENSE TRAINING AND THEIR IMPACT ON WOMEN'S SENSE OF PERSONAL SAFETY SELF-EFFICACY

Darcy Shannon Cox
Virginia Consortium Program in Clinical Psychology, 1998
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It is estimated that a quarter to a third of women will be sexually assaulted in some way over the course of their lifetimes. Ozer and Bandura (1990) sought to study the ability of a mastery model self defense program for women to increase women's self efficacy about their ability to prevent assault. They found significant changes for all dependent variables used in their study at posttest and at a six month follow-up. The current study sought to compare their findings to those found using a mastery model self defense program for both genders and a vicarious model self defense program for women only.

Three groups were used in this study: a martial arts based self defense program for both men and women ($N = 27$), the Rape Aggression Defense Systems (RADS) program, a nationwide self defense program for women ($N = 33$), and a comparison group drawn from university undergraduate women ($N = 31$). Participants in the treatment groups were assessed at the beginning of the first class and at the end of the last class on a variety of measures of self-efficacy, behavior, anxiety, risk assessment, and sexual assault history. The comparison group was assessed twice with a six week time period between measurements.

Results revealed that both treatment groups showed a significantly increase in their self defense self-efficacy, interpersonal self-efficacy, and activity self-efficacy over the course of treatment and a significant decrease in the assessment of risk to women in general. No significant change occurred on other dependent variables. The comparison group evidenced a significant increase in interpersonal self efficacy. An examination of predictive variables for behavior sought to replicate the path structure found by Ozer and Bandura (1990) and was unable to do so completely. It appears that Ozer and Bandura's (1990) findings may not generalize to other self defense programs and participants. However, both martial arts type self defense classes and the RADS program appeared to be successful in raising the self-efficacy of college-age women around personal safety issues, at least in the short-term.

ACKNOWLEDGMENTS

I would like to thank the many people who have offered invaluable help and support with this project. My chair, Dr. Barbara Winstead, has been unflaggingly supportive, encouraging, and positive. Her faith in my ability to complete this project in a timely manner has at many times exceeded my own. I am very grateful to my committee members, including Dr. Barbara Cubic, Dr. Leonard Holmes, Dr. Robin Lewis, and Dr. Janis Sanchez-Hucles, for all of their valuable suggestions and for taking the time out of their busy schedules to be so available and helpful at all stages of the project.

Without the help of the many instructors who opened their classes to me, this project would never have been possible. I would like to thank Kim Baylor, Adjunct/Associate professor at ODU, Officers Arch Griffith and Shirleen Barry of the University of Maryland at Baltimore Police Department, and Officers Heidi Custer, Jennifer Mintz, John Brandt, and all others of the University of Maryland at College Park Police Department. Your enthusiasm, support, and experience make your classes so valuable and enriching for the women who take them. It has been a pleasure and an honor working with you.

Finally, I am very grateful to all my fellow students at the Virginia Consortium for their friendship and support. The warmth and collaboration between all students here makes this program so special. Melissa, thank you for all your encouragement and for making a long commute much too early in the morning a bearable experience. Tim, your practical assistance in all matters has been invaluable, including, but certainly not limited to, the videotaping and the wonderful desserts. Jessica, thank you so much for the keys to your place and your tolerance of my love affair with your computer.

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INTRODUCTION

Women are at a greater risk for sexual assault than men. However, this greater risk alone does not account for the high levels of fear and anxiety women have about their personal safety and the tendency for many women to avoid a variety of activities and environments in an attempt to remain safe. It is likely that women's high levels of fear, anxiety, and avoidance are related to a low sense of self-efficacy regarding personal safety and ability to avoid assault. The study proposed here sought to investigate whether women who take a self defense class increased their sense of self-efficacy in this area, and whether they experienced decreases in anxiety and avoidant behavior. Two types of self defense classes were examined. The first was a traditional martial arts based program that focused on mastering concrete physical self defense skills. The focus of this course was on the mastery of the physical skills and the successful application of them with simulated assailants. The course was designed for both women and men and the focus was primarily on the prevention of all types of assault. The second was a program specifically designed to teach women skills they can use to avoid sexual assault. These skills included avoidance and preparedness strategies, verbal skills, and physical self defense skills. This study sought specifically to examine the comparative effectiveness of these two separate methods of self-defensive training in the areas of increasing self-efficacy, decreasing anxiety, and increasing activity.

Women and the Fear of Sexual Assault

The *Psychology of Women Quarterly* provided a model journal article for this manuscript.

Women experience a different perception of danger and vulnerability to crime than men do. Women seem to feel significantly less confident about their ability to avoid becoming a victim of crime, or their ability to cope with an assault should it occur. Women's lesser self-efficacy about preventing violence seems to be based on some realistic factors and some unrealistic factors. While men and women are equally likely to be crime victims overall, women are exposed to a significantly increased risk of sexual violence and domestic violence. Stanko (1990) says that "the very meaning of the word safety differs between the sexes. Women understand it to be both sexual and physical, while men tend to think of their safety as physical" (p. 85). Women perceive a larger variety of environments to be unsafe, perceive a greater degree of danger in these environments, and spend much more of their time focusing on preserving their safety within most environments than men do (Klodawsky & Lundy, 1994; Koss et. al., 1994; Pipher, 1994). For example, a study by Klodawsky and Lundy (1994) examined women's fear for their safety in a university environment. Roughly two-thirds of female professors and graduate students were concerned about their safety on campus to the degree that they restricted their movements on campus to avoid areas where they felt unsafe. Four percent of male faculty and eight percent of male graduate students reported concerns about their safety to the degree where they restricted their movements. The actual concerns specified differed between genders as well. Women reported concerns specific to sexual assault, like avoiding underground tunnels and parking lots to avoid secluded areas because they were afraid they would be unable to get help if assaulted or harassed. Men reported general concerns about situations that could lead to fights or purely physical assaults, like "I try not to drink with certain

people [who mean] trouble” (Klodawsky & Lundy, 1994, p.132). Hickman and Muehlenhard (1998) found that the greater women’s fear of acquaintance rape, the higher the likelihood that they would engage in behaviors they hoped would decrease their risk of rape. However, women were more afraid of stranger rape, despite their knowledge that acquaintance rape is more common. The attempt to prevent becoming a victim of rape by avoiding situations with unknown men may provide an unrealistic sense of security to women. Overall, while men and women share the same risk for violence, most violence against women is perpetrated by someone the woman knows intimately. In 1996, 840,000 women were murdered, raped, sexually assaulted, robbed, or physically assaulted by someone they knew intimately, such as a close friend, family member, ex-husband or ex-boyfriend, (Fedstats, 1998) compared to 150,000 male victims of the same kinds of crimes. Thus, women who implement strategies primarily to protect themselves from rape by avoiding situations with strange men and being more cautious with strange men are not protecting themselves effectively from the real threat - the men they know. A strategy of avoidance to prevent sexual assault is not possible unless one is willing to avoid men entirely. A better self protective strategy would involve becoming able to defend oneself from any sexual assault, should it occur.

Brief Overview of Self-Efficacy

Self-efficacy refers to people’s perceptions about whether they will be able to respond successfully to the demands of a situation. Self-efficacy can be measured globally, in terms of people’s perceptions about their ability to handle all the situations they encounter in life. It can also be measured specifically, by examining people’s sense of self-efficacy in specific domains or in specific situations. Self-efficacy has a

powerful effect on people's initiation of behavior and their persistence in the face of adversity or failure (Maddux & Stanley, 1986). Self-efficacy measures a person's intention to behave in a certain way and their belief in their ability to do so successfully, rather than just their willingness to do so. Bandura, Reese, and Adams (1982) found that "people tend to avoid situations they believe exceed their coping capabilities and perform assuredly activities they judge themselves capable of performing" (p. 5). In addition, people who consider their self-efficacy to be high are likely to put more effort and time into overcoming obstacles or coping with negative experiences in the belief that their efforts will succeed. People who feel their self-efficacy is low are likely to give up quickly and after minimal efforts, making the assumption that their attempts are bound for failure. Self-reports of self-efficacy have been shown to be good predictors of actual self-efficacy, as measured by people's actual successful or unsuccessful coping behaviors (Bandura, Reese, & Adams, 1982). Some studies show low self-efficacy to be related to depression (Stanley & Maddux, 1986). A sense of helplessness or ineffectiveness is often found in people with depression. Leary and Atherton (1986) found that a sense of low self-efficacy can also contribute to social anxiety. They note that social skills training for these people may be effective in part because it increases self-efficacy.

Self-efficacy can be increased in a variety of ways. In general, mastery experiences, in which an individual physically experiences a situation and successfully manages it, are most effective in increasing self-efficacy. Leary and Atherton (1986) describe how social anxiety treatments which provide the opportunity to practice social skills and master them increase self-efficacy. People who gain their performance

successes through intense effort generally gain less self-efficacy from the experience than people who gain their performance successes through minimal effort. If an experience is very difficult, a failure experience is more likely, which will further reduce self-efficacy. If one is successful in a difficult situation only after maximal effort, many people will attribute success to variables other than oneself, which reduces self-efficacy. It is easier to view the success as a random occurrence that cannot be easily replicated. Instead of developing the belief “I can do this,” the participant may develop the belief “I got lucky” or “it was just chance” and develop lower self-efficacy. Or, the participant may attribute the success to an external force, for example, thinking “I only could do this because the experimenter made me,” again lowering self-efficacy. However, if the experiences are graduated to allow a series of small successes, the situation may be viewed as easily mastered. It will be viewed as something that can be replicated in any similar situation. It may then be more frequently attributed to one’s own personal characteristics and strengths, which would increase self-efficacy. People feel more self-efficacious when they gain performance success through a gradual and continuous process than through a trial and error process that involves reversals or plateaus (Bandura, et al., 1982). It appears that some type of concrete mastery or vicarious mastery is necessary for self-efficacy to increase. Merely reframing unpleasant sensations like fear or anxiety does not appear to be successful in increasing self-efficacy (Wurtele, 1986).

Wurtele (1986) investigated the use of self-efficacy theory in athletic training. She found that cognitive strategies such as encouraging athletes to reframe heightened physiological arousal (describing it as “getting psyched” rather than as “fear”) are not

successful at increasing self-efficacy. Riskind and Maddux (1993) found that when people who have low self-efficacy are placed in a potentially frightening situation, they experience more fear than people who have high self-efficacy and are placed in the same potentially frightening situation.

It is also possible to increase a person's perception of their self-efficacy vicariously. However, vicariously coping with a task does not produce as powerful gains in self-efficacy as mastery coping does. Bandura and Adams (1977) state "performance accomplishments provide the most influential efficacy information because they are based on personal mastery experiences. The other sources of efficacy information include the vicarious experiences of observing others succeed through their efforts, verbal persuasion that one possesses the capabilities to cope successfully, and states of physiological arousal from which people judge their level of anxiety and vulnerability to stress" (p. 288).

Whatever the mechanism used to increase self-efficacy about a situation, once a person experiences a gain in self-efficacy, his or her behavioral range in that situation will increase. He or she will feel more self-efficacious and will be able to exhibit behaviors that were previously not demonstrated. These gains in perception of self-efficacy and behavioral increases appear to be maintained for a considerable period of time (Bandura and Adams, 1977; Bandura, et al., 1982; Ozer and Bandura, 1990). Given the demonstrated relationship between mastery learning and vicarious learning and long-term increases in self-efficacy in many areas, it is likely that learning about self-defensive strategies could increase women's sense of self-efficacy. This, in turn, could result in fewer completed sexual assaults against women. The use of self-

defensive strategies, whether physical or verbal, appears to reduce greatly the risk of completed sexual assault, especially in stranger assaults (Bart & O'Brien, 1984; Quinsey & Upfold, 1985).

The Success of Self-Defensive Strategies for Women

Bart and O'Brien (1984), in a sample of 94 women who had been attacked and either had been raped or were able to successfully avoid rape found that, of women who used no resistance strategy, all were raped. Most women who avoided rape used two or more resistance strategies, including screaming or yelling, fleeing, reasoning, or physical force. Bart and O'Brien (1984) found that the more strategies women used, the less likely the assailant was to complete the rape. These strategies were effective when the women knew their assailants or when they were strangers, and in the presence or absence of a weapon. Bart and O'Brien (1984) stated that "women who resist physically are more likely to avoid rape [than women who do not]" (p. 95). Quinsey and Upfold (1985) raise an additional important point. The actual benefits of resisting vigorously and using multiple resistance strategies early in an assault may be understated in experimental data, because the assault never escalates to a degree where it is reported. They note "a strategy implemented early in an attempted rape may remove the incident from any possible data set. If a woman is grabbed and immediately kicks her assailant and walks away, it may be unclear what the assailant's intent was. The more easily the intended victim deals with her assailant, (i.e., the more effective the strategy) the less likely the act is to be reported" (Quinsey & Upfold, 1985, p.40).

Many authors (Bart & O'Brien, 1984; Cummings, 1992; Quinsey & Upfold, 1985; Whittaker, 1992) discuss a common perception that a woman who uses physical

resistance strategies is more likely to be physically harmed (aside from rape-specific physical harm) in the course of an assault than a woman who does not use physical resistance strategies. Quinsey and Upfold (1985), in their study of women who were assaulted primarily by strangers and who either were victims of rape or who successfully avoided rape, found a positive relationship between the use of physical resistance and injury to the woman. However, they note that “the positive relationship between victim resistance methods and injury . . . is spurious and a result of the fact that the victims resisted more strongly when they were being injured” (p. 46, Quinsey & Upfold, 1985). They found no probability of increased victim injuries in stranger rapes and attempted rapes as the result of physical resistance initiated after the rapist had already injured the victim. In cases of stranger assault, there appears to be little causal relationship between the resistance or nonresistance of the woman and the assailant’s infliction of other physical harm aside from the sexual assault (Bart & O’Brien, 1984; Quinsey & Upfold, 1985). Bart and O’Brien (1984) describe cases where women who were completely unconscious, and therefore completely nonresisting, were permanently injured in the course of a sexual assault (pg. 93-94).

Rape is not primarily a crime of passion or sexuality. It is a crime of anger and violence. Ledray (1994) discusses the motives for men who rape. Roughly eighty percent of men who rape do so to exert power over women in order to reassure themselves of their own masculinity, virility, strength, and sexual adequacy. These rapists are less likely to injure the victim physically and may flee the scene if the victim resists. Ten to twelve percent of rapists rape in order to gain power and enjoyment from inducing fear in the victim and degrading her. They frequently will use other physical

violence as part of the assault, regardless of whether the victim initially complies or resists. Only two percent of rapists are considered “sexual sadists” who will kidnap, torture, and eventually murder their victims. The resistance of the intended victim, regardless of the type of rapist who attacks her, is unlikely to make the situation worse and may, in roughly 80% of cases, make her situation better.

There may be different relationships between the risk of injury and the method of resistance based on whether the assailant is a stranger or known to the victim. Quinsey and Upfold (1985) found that only verbal resistance to a known assailant was associated with further injury during sexual assault, while physical resistance to a known assailant was associated with reduced risk of further injury. However, Bachman and Carmody (1994), in their study of 656 women who were nonsexually assaulted by people they knew well (boyfriends, husbands, ex-husbands, etc.) and 265 women who were nonsexually assaulted by strangers, found that any type of victim resistance toward nonsexual assault by intimates increased the risk of injury. Verbal or physical resistance to nonsexual assault by strangers did not increase the risk of injury. Thus, it appears that a woman resisting physically or verbally a physical assault by an intimate may increase her own risk of injury. Avoidance of situations of domestic violence by leaving the situation or the relationship may be the only possible solution for women who are nonsexually assaulted by intimates.

Given that multiple resistance strategies, including physical resistance, appear to reduce the likelihood of a woman being sexually assaulted without dramatically increasing the risk of nonsexual injury, seeking out training in physical self defense skills would be of benefit to all women. Women who seek out training in resistance

methods as a way to cope with fear of assault should experience an increase in self-efficacy about their ability to defend themselves. This should lead to increased participation in previously avoided preferred activities and an increase in overall positive adjustment. In addition, this greater self-efficacy and the skills they have learned should leave them better prepared to cope with a sexual assault, should one occur, than they would be if they relied on avoidance strategies alone.

Factors Potentially Contributing to Women's Lack of Self-efficacy about the Ability to Protect Themselves from Assault

In spite of the demonstrated efficacy of self-defensive strategies, many women do not appear to have a sense of self-efficacy about self-defensive strategies. This could be due to many factors. Women may be unfamiliar with self-defensive techniques due to cultural socialization to “be nice.” Women may consider a potential sexual assault to be such an intense stimulus that they are unable to utilize the skills they do have to defend themselves. As Riskind and Maddux (1993) demonstrated, the experience of having something scary looming towards a person who experiences low self-efficacy can increase fear. The depiction of sexual crimes in the media may contribute to a sense of helplessness in the face of overwhelming and seemingly random violence. The majority of crimes given extensive coverage are sensational crimes committed by strangers: those involving multiple victims, torture, child victims, or multiple perpetrators. In the popular media, like movies and television, sexual assaults by strangers are often portrayed. While the perpetrators may be caught and punished, women are rarely portrayed as successfully resisting or preventing assault. The perpetrators are often portrayed as sexual sadists who were unknown to their victims,

although this type of rape is least common. All these factors may be contributing to women's fear of rape, especially stranger rape. In addition, many women have previous experiences of completed physical or sexual assault by either people known to them or strangers, and these experiences may be contributing to their lack of self-efficacy (Keane, 1995).

Warr (1984) reports that for women under 35 years of age, rape is the most feared crime, and for women in general, rape is considered as serious a crime as murder. Hall (1985) discusses less serious, but even more pervasive, forms of sexual assault that women encounter. Crimes like flashing, obscene phone calls, and frottage are almost always committed by men with women as victims. Keane (1995) conducted a random telephone survey of 12,300 Canadian women, and found that 23% reported having been assaulted physically or sexually in some way by a stranger and 24% reported having been assaulted physically or sexually by an acquaintance. Of those assaulted by someone they knew, 49% were assaulted by a previous husband, 16% by a previous date or boyfriend, and 16% reported that they were assaulted by their current boyfriend or spouse. These are startling statistics. In addition, 64% of women reported some worry about walking alone after dark in their neighborhoods, and 39% reported worry about being alone at home in the evening. Koss et. al. (1994) in a review of the literature, found evidence suggesting that four million women experience severe or life-threatening assault from male domestic partners in the United States in any given year, and that 1 in 3 women will be assaulted by a partner at some point in their adult lives. This suggests that from past personal experience of completed sexual and nonsexual

assaults, especially in domestic situations, many women are experiencing a lack of self-efficacy based on realistic data drawn from their own lives.

According to a database of federal statistics (Fedstats, 1997), in 1995 in the United States 1 in 625 women was raped. However, this statistic excludes women who were under age 12 or women were raped by someone with whom they lived. This statistic is based solely on the number of rapes reported to the police, and it is estimated that fewer than a 1/3 of rapes are reported (Fedstats, 1997). This study did not report how broadly or narrowly “rape” was defined in their calculations, and did not include other forms of sexual assault. Other federal statistics (FBI Crime Homepage, 1997) define rape quite narrowly, limiting rape to vaginal penetration by a penis, and do not track other forms of sexual assault, including sodomy, oral copulation, etc. Thus, the actual yearly occurrence of non-domestic rape may be significantly higher than 1.6 percent of women. In the State of Virginia in 1994, 1,862 cases of rape were reported to the police and 13,000 incidents of sexual assault were estimated to have occurred (Violence Against Women Homepage, 1997). Four thousand two hundred ninety women sought treatment at sexual assault treatment centers, and 83% of them were related to or knew their assailants. Across the nation, the Department of Justice estimates that roughly half of women who are raped are raped by acquaintances, roughly a quarter are raped by intimates, and a quarter are raped by strangers (Violence Against Women Homepage, 1998). The threat of sexual assault against women by men is very real. It is appropriate for women to have fear and concern about this, and to adopt self-protective strategies. However, the fears women have and the strategies that they adopt are not always adaptive. Women report more fear of being sexually assaulted by a

stranger than by an acquaintance, although the majority of sexual assaults are perpetrated by acquaintances or intimates (Hickman & Muehlenhard, 1997; Violence Against Women Homepage, 1998). Strategies to prevent stranger rape may not be effective for preventing acquaintance rape. In fact, some strategies, like not being alone at night or looking for a man to walk you to your car at night, may increase somewhat the risk of acquaintance rape.

Women are exposed to other information which may lead to a reduction in a sense of self-efficacy, but which is not based on accurate data. Heath (1984) found that violent crimes featured by the media that are local, appear random, and are sensational increase fear and avoidance behavior. She hypothesizes that this is due to lack of perceived control over the crime (lack of self-efficacy), and notes that when crimes are local and sensational, but described in a way in which the victim is seen as having precipitated the crime (walking home from a bar drunk, being a drug dealer, having an expensive car), the crimes induce less fear. She feels this is because readers feel able to manage the situation cognitively-- "I don't have an expensive car, therefore, I won't be carjacked," or "I won't be raped because I don't walk to the parking lot after dark without my boyfriend." These assumptions are not based on realistic information, because most sexual assaults are committed by men known to the victims. Thus, a prevention strategy that would be more likely to prevent sexual assault would be to examine closely women's relationships with the men in their lives and to look for indicants of overcontrolling behavior, beliefs in rape myths, etc. In the end, the responsibility for rape rests with society as a whole, how we socialize children about sexual consent, how we cope with sexuality in general, and with individuals who choose

to rape, not with individual women who have been raped. However, women's beliefs of personal invulnerability due to safety precautions designed to avoid doing whatever the victim of a recent assault did to "provoke it" do provide a comforting (although false) reduction of fear, sense of self-efficacy and feelings of control.

Self-efficacy in areas related to personal safety seems to be frequently enhanced for women through self-imposed restrictions on their mobility and by dependence on males to keep them safe at home and to take them places they otherwise fear to go. Unfortunately, as the majority of sexual assaults are perpetrated by men known to their victims, the strategy of relying on a male presence for protection may actually be harmful, rather than helpful. As Hickman and Muehlenhard (1997) found, women tend to adopt coping strategies designed to prevent stranger rape. They examined college women's fears of rape and they found that, although participants were aware the risk of acquaintance rape is greater than the risk of stranger rape, that women adopted precautionary behaviors such as defensive behaviors (carrying mace or other self defense aids), caution in drinking situations, and avoiding outdoor behaviors primarily as a result of fears of stranger rape and as an attempt to avoid stranger rape. In this sample (total N =139), 23.7% of women had been raped by one or more acquaintances. Only one woman in the sample had been raped by a stranger. Thus, in spite of women's knowledge of the greater prevalence of acquaintance rape and their greater potential of having been assaulted by an acquaintance, women act to try to prevent stranger rape more actively. Hickman and Muehlenhard (1997) also found that the women in their sample considered themselves personally to be about equally at risk for stranger and acquaintance rape in the future and to be at lower risk overall than other college women.

They (1997) speculate that these findings may be related to both feelings of unique invulnerability and to a perception of greater control over acquaintance rape. These women in their reported feeling that they could accurately judge whether their male acquaintances were likely to rape them. Hickman and Muehlenhard (1997) suggest that “logically, women should be more fearful of acquaintances-- the same men whom many women trust” (p. 544). They note that women have been socialized to turn to men they know to protect them from men they do not know, and that women’s greater fear of stranger assault reflects this socialization. They suggest that the way out of this double bind is to focus rape prevention on educating men, reducing stereotypes about rape, and educating women about prevention strategies so they can cope with any situation that should arise (Hickman & Muehlenhard, 1997). A strong sense of personal self-efficacy in interpersonal situations with men, in one’s daily activities, and in one’s ability to defend oneself physically if necessary would contribute greatly to prevention efforts.

Relationship Between Lack of Self-Efficacy, Self-Restrictive Coping Strategies, and Anxiety about Sexual Assault

It appears that most women do not feel self-efficacious about handling a situation where they may be attacked. Research demonstrates (Hickman & Muehlenhard, 1998; Keane, 1995; Koss et. al., 1988) that for many women, this belief may be partially based on a past experience of at least one assault which they were unable to prevent or stop. It appears that women do not feel self-efficacious about changing the conditions in society that contribute to these situations. Women do seem to gain some sense of self-efficacy from comparing themselves to victims of “random” crime (as portrayed by the media) and choosing to avoid behavior like that of the crime

victims. Thus, they may adopt strategies to try to prevent stranger rape. These attributions and the behavioral changes women employ to “keep themselves safe” result in women limiting participation in activities they enjoy and increasing their dependence on men they do know. This increased dependence on men may actually increase the risk of sexual or physical assault for some women, as the majority of sexual assaults are perpetrated by men known to the victim (Bart & O’Brien, 1984; Koss et al. 1994; Hickman & Muehlenhard, 1998; Quinsey & Upfold, 1985; Violence Against Women Homepage, 1997). However, these precautionary measures are based on the faulty assumptions that one is more likely to be attacked by a stranger and that avoidance alone will provide protection. These precautionary measures are still no true guarantee of safety and many women experience a great deal of anxiety and fear about their personal safety and intrusive thoughts about sexual assault (Hickman & Muehlenhard, 1998; Ozer & Bandura, 1990). Feminist theorists (Fredrickson & Roberts, 1997; Hanmer & Maynard, 1987; Hickman & Muehlenhard, 1998; Kaschak, 1992; Koss et al., 1994) suggest that this perpetuation, sensationalization, and tolerance of violence against women is a tool of patriarchal control. Whatever the cause, it results in many women experiencing undue anxiety and fear and restricting their lives unnecessarily. While the ability to defend oneself physically and a strong sense of personal self-efficacy also cannot provide a guarantee that one will never be the victim of a completed sexual assault, these precautionary measures are not restrictive and do not increase the risk of injury.

The Use of Self Defense Training to Increase Self-Efficacy, Increase Freedom of Movement, and Reduce Anxiety

Ozer and Bandura (1990) found that women who participated in a self defense class based on a mastery model experienced a significant increase in self-efficacy, and a corresponding reduction in anxiety about sexual assault and an increase in activities previously avoided due to fear of sexual assault. Their results indicated this significant increase for both women who had been sexually assaulted in the past and women who had not experienced sexual assault personally.

The treatment was administered by two female instructors who were blind to the experimenter's causal model. Two large male assistants, wearing special protective gear, participated as "assailants" in simulated assaults. The female instructors taught the class in the same manner as they usually taught it. The instructors did not differ on any measure of competence on self defense skills or teaching ability. Participants did not differ based on which instructor taught the class they attended.

Treatment was a mastery modeling program consisting of five 4 1/2 hour sessions which focused on instilling a robust sense of coping efficacy in response to physical attack. Primary emphasis was on mastery experiences in simulated assaults. The students participated in up to 70 assaults in a vicarious manner, by cheering on other students and offering suggestions, and also participated as the "victim" in 5 simulated assaults themselves. The class included verbal persuasion strategies, ways to determine an assailants likely physical capabilities, practice yelling to frighten off an attacker and attract help, how to convey a confident demeanor, how to deal assertively with inappropriate personal encroachment, and how to issue firm verbal warnings. There was some discussion of the students' previous experiences, risks, and precautionary measures they used in the past. Ozer and Bandura (1990) examined

videotapes of the women demonstrating their skills, and found that the vast majority learned the skills effectively. They found that 79% of their subjects were highly effective at escaping from the simulated assaults and disabling their attackers, with the remaining students demonstrating “medium” proficiency, and only one student showing proficiency below that level (Ozer and Bandura, 1990).

Ozer and Bandura (1990) created a questionnaire that measured their participants’ sense of self-efficacy about self defensive strategies, level of anxiety, level of intrusive negative thoughts about sexual assault, restriction of preferred activities due to fear of sexual assault, and other variables contributing to a decrease in self-efficacy. They administered this questionnaire before the self defense class, immediately after the class, and at a six month follow-up period. Their results showed significant posttest gains on all scales of self-efficacy and ability to discern risk. Their results also demonstrated significant increases in participation in previously avoided. They (Ozer & Bandura, 1990) found significant decreases in feelings of personal vulnerability, anxiety, and avoidant behavior.

Participant scores on interpersonal self-efficacy, activity self-efficacy, cognitive control, risk discernment, and participant behavior slightly increased at a six month follow-up. At six month follow-up, participant scores on self defense self-efficacy showed a significant increase in feelings of self-efficacy about personal self defense skills, and negative thoughts about sexual assault and avoidant behavior showed a significant decrease. The number and diversity of activities in which women participated were significantly increased at posttest and also at follow-up. Interestingly, participants’ opinions about the risk in society as a whole remained constant, but their

views of themselves as vulnerable significantly declined at posttest and follow-up. This suggests that the participants maintained their views of society as inherently dangerous for women, but now saw themselves as more able to manage the inevitable dangers. The gains in self-efficacy and drops in anxiety were the same for women who had previously been sexually assaulted as for women who had not been previously sexually assaulted. At the pretest, women who had been previously sexually assaulted scored lower on measures of self-efficacy than women who had not had this experience. At posttest, there were no significant differences between the scores of women who had survived assault and women who had not been assaulted. This suggests that self defense classes may be especially beneficial for women who have been assaulted, as they experience the same gains as other women despite lower baseline efficacy scores.

Ozer and Bandura (1990) found that the experience of intrusive negative thoughts about sexual assault, perceptions of personal vulnerability, and self-efficacy about personal ability to discern the riskiness of situations were predictive of increases in women's behavior after taking a mastery model self defense class. They found that perceptions of low self defense self-efficacy and feelings of personal vulnerability contributed to the assessment of personal risk. They found that self defense efficacy contributed to the perceived ability to control intrusive negative thoughts about sexual assault. These thoughts contributed most to avoidance or participation behaviors in activities in the pretest condition, which suggests that women who experienced intrusive negative thoughts of assault were likely to avoid situations where they felt unable to cope effectively with potential safety risks. Perceptions of high self-efficacy about ability to decide which activities are risky and low feelings of personal vulnerability

contributed to increased range of participatory behaviors in the posttest and follow-up conditions. They also found that inability to control thoughts of sexual assault contributed to experienced anxiety, and that the amount of anxiety experienced decreased significantly over the course of the three measurements as the belief in the ability to control these thoughts increased. Thus, it appears that the relationship between controlling negative intrusive thoughts and anxiety is stable and that the mastery experiences provided by the self defense class significantly reduced the anxiety the participants experienced by providing them with a sense of control over their cognitions about sexual assault, their personal risk, and increasing their self-efficacy interpersonally, about activities in which they participate, and about their ability to defend themselves. (Ozer and Bandura, 1990).

Present Study

The study compares the effects of a martial arts based self defense class that has no specific focus on sexual assault and a self defense course which primarily focuses on how women can prevent sexual assault. The variables examined were participants' sense of self-efficacy about personal safety, their level of anxiety, and their participation in activities which they enjoy but have avoided out of fear. Participants in the martial arts class practice various forms of physical self defense until they attain a mastery level. These students learn many basic and complicated defensive skills, escape skills, and disabling strikes. Students learn to chain groups of strikes and defensive maneuvers. Participants in the women's self defense class learn information and discuss alternatives. They also have some exposure to simulated assailants. The instructor dons a padded protective suit, and the students have the opportunity to

practice their skills on him or her. Past research (Bandura, et al.,1982) has shown that vicarious exposure leads to some gain in self-efficacy, although not as strong a gain as mastery experiences. However, most women's self defense classes are taught from a primarily vicarious model. Possible reasons for this phenomenon could be the added expense of additional employees in the role of simulated assailants; the extra training these simulated assailants and the instructors who use them require; the opinion that for women who want a full contact self defense class, the traditional martial arts are available; perceptions of the role of women which do not incorporate the use of physical self defense; or just the overall tendency to use vicarious learning in many learning situations. Given the prevalence of vicarious programs compared to mastery programs, information about whether these programs have comparable effectiveness is useful.

HYPOTHESES

Hypothesis 1. Participants in the marital arts program and the RADS program will demonstrate significant gains in self defense self-efficacy at posttest compared to participants in the comparison group.

Hypothesis 2. Participants in the marital arts program and the RADS program will demonstrate significant gains in interpersonal self-efficacy at posttest compared to participants in the comparison group.

Hypothesis 3. Participants in the marital arts program and the RADS program will demonstrate significant gains in the perceived ability to discern the riskiness of situations at posttest compared to participants in the comparison group.

Hypothesis 4. Participants in the marital arts program and the RADS program will demonstrate significant gains in participation in activities at posttest compared to participants in the comparison group.

Hypothesis 5. Participants in the marital arts program and the RADS program will demonstrate significant reductions in anxiety at posttest compared to participants in the comparison group.

Hypothesis 6. Participants in the marital arts program and the RADS program will demonstrate significant reductions in feelings of personal vulnerability at posttest compared to participants in the comparison group.

Hypothesis 7. Participants in the martial arts program will have significantly higher gains on the measure of physical self defense self-efficacy (the ability to perform various strikes) than participants in the RADS program from pretest to posttest.

Hypothesis 8. Participants in the RADS program will have significantly higher increases in the number and type of activities performed than participants in the martial arts program from pretest to posttest.

Hypothesis 9. For the two treatment groups, physical self defense self-efficacy will be negatively predictive of perceived personal vulnerability, which will be negatively predictive of perceived activity efficacy, which will be positively predictive of participant behavior at pretest for both treatment groups (see Figure 1).

Hypothesis 10. For the two treatment groups, physical self defense self-efficacy will be negatively predictive of perceived personal vulnerability, which will be negatively predictive of perceived activity efficacy, which will be negatively predictive of avoidant behavior at pretest for both treatment groups (see Figure 1).

Hypothesis 11. For the two treatment groups, physical self defense self-efficacy will be negatively predictive of perceived personal vulnerability, which will be directly negatively predictive of activity self-efficacy and negatively predictive of participatory behavior at posttest. Activity self-efficacy will be directly positively predictive of participatory behavior (see Figure 2).

Hypothesis 12. For the two treatment groups, physical self defense self-efficacy will be negatively predictive of perceived personal vulnerability, which will be directly negatively predictive of activity self-efficacy and indirectly positively predictive of avoidance behavior at posttest. Activity self-efficacy will be directly negatively predictive of avoidance behavior (see Figure 2).

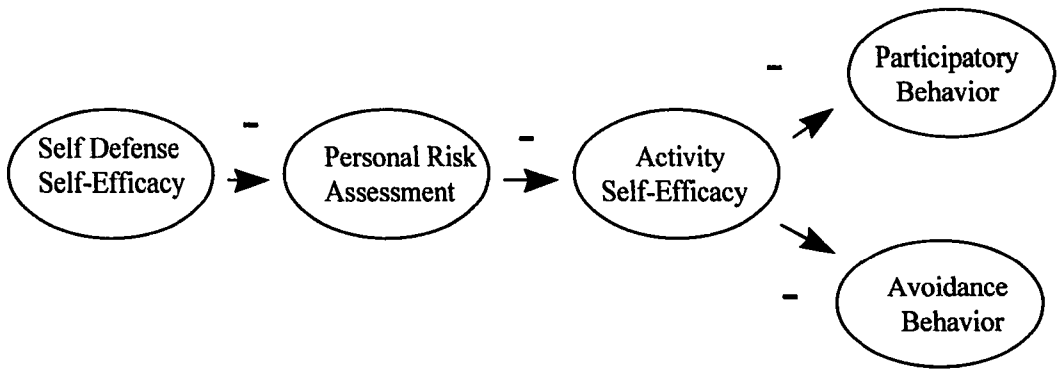


Figure 1. Hypotheses 9 and 10

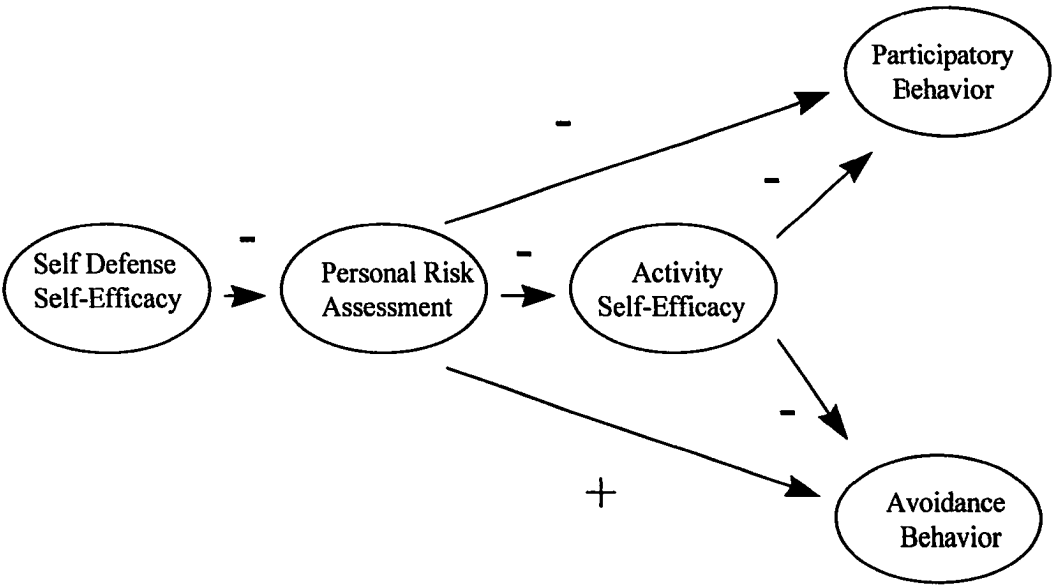


Figure 2. Hypotheses 11 and 12

METHOD

Participants

Prior to initial recruiting, the use of human participants in this experiment was approved by the Human Subjects Review Committee at Old Dominion University. A large effect size was expected for the dependent variables across time and between the treatment groups. Aron and Aron (1994) suggest that at least 30 participants be used in each group to ensure sufficient power to find a large effect size when comparing three groups. A small or moderate effect size was expected when comparing the two treatment groups against each other. While a larger number of participants would be required to definitively examine these differences, recruiting more participants was not possible, given the scope of this dissertation.

Bordens and Abbott (1996) recommend multiplying the number of predictor variables in a multiple regression by twenty to calculate the necessary number of subjects to achieve sufficient power. The current study uses three predictor variables or fewer in multiple regressions when examining both treatment groups (combined $N = 60$).

The participants in the two treatment groups were women enrolled in self defense programs in the mid-Atlantic area. They were initially recruited at the first class meeting of either the martial arts based self defense class or the women's self defense class. In addition, a comparison group was recruited from introductory psychology classes. Neither of the self defense programs had waiting lists, so a waiting list control was not available. The ethical problems raised by withholding self defense training for several weeks from women who are otherwise interested in this training by creating a

waiting list control solely for experimental purposes, the difficulties in finding subjects who would voluntarily risk control group assignment for a training experience they are purchasing, and the difficulties finding instructors willing to allow an experimenter this type of control over their class indicated that no pure control group can be used in this study. A comparison group was used consisting of female undergraduates who did not express an interest in taking self defense classes at this time. The comparison group allowed investigation of possible differences between women who choose to take a self defense class and women who do not choose to do this. In addition, women's reasons for taking the self defense classes were collected. Because one of the classes was offered for credit by an university, it was important to assess the possibility that some women took it for reasons other than an interest in self defense (they viewed it as an "easy A" and a way to fulfill a requirement, they took it to support a friend, they had an interest in the martial arts, etc.).

Two types of programs were examined: a martial-arts based program and a women's self defense program. A third of participants were drawn from martial arts based programs at a urban university. A third of participants were drawn from participants in the Rape Aggression Defense Systems (RADS), a nationwide program which provides training for women interested in self defense. A third of participants were drawn from undergraduate women who were not enrolled in a self defense class at this time. They were offered psychology course credit for participating.

Few women declined to participate during the initial classes. Forty eight women completed the initial questionnaire in the RADS program and thirty three women completed the second questionnaire as well. Thirty nine women completed the initial

questionnaire in the martial arts program, and twenty seven completed the second questionnaire as well. Thirty two women initially participated in the comparison group, and thirty one women completed the second questionnaire to earn their credits. No women refused to complete the second questionnaire after completing their class. The only significant difference between women who completed the classes and women who did not was participant age $F(1,85) = 8.96, p = .01$. Women who did not complete the class, as measured by attendance on the last day, were significantly older ($x = 27.3$) than women who did complete the class ($x = 22.8$).

No significant differences were found between groups in participant ethnicity, family income level, current work or student status, history of surviving sexual assault, or history of successfully preventing an attempted sexual assault. Participants were asked to briefly explain their reasons for taking the course. Their answers were scored as “relating to self-defense” and “other”. The majority of the women in the two treatment courses took the course for reasons related to self defense, such as “to be able to protect myself in any situation that might arise.” Some women in the martial arts program, which was offered for school credit, took the class to try to improve their GPA or to get needed credits. In the RADS program, some women reported taking the course to support friends or relatives who were also in their classes. There were no significant differences between the two groups on this variable. The average age of participants was 22 years, 8 months (see Table 1). The majority of the sample was Caucasian (61.5%, $N = 56$). African-American women composed 26.4% ($N = 24$) of the sample, with Hispanic women (4.4%, $N = 4$), Asian women (3.3%, $N = 3$), Native American (2.2%, $N = 2$) and women who identified themselves as belonging to other ethnic groups

(2.2%, $N = 2$) comprising the rest of the sample. Roughly a third (28.6%, $N = 26$) of the women reported they had survived a sexual assault (defined as any form of unwanted physical sexual contact). Eighteen women (19.8%) reported that they had successfully prevented a sexual assault at some point in their lives. No data were gathered examining whether the perpetrators or attempted perpetrators of these assaults were known to the survivor. Most of the women (89%, $N = 81$) had no children and were single (82.4%, $N = 75$). Women from a variety of family income levels were sampled roughly evenly. Most of the women were full-time (73.6%, $N = 67$) or part-time (4.4%, $N = 4$) students. Frequencies for each of the three groups are presented in Tables 2, 3, and 4.

Nonparametric tests and analysis of variance revealed some significant differences between groups. Women from all groups were more likely to be from an urban or suburban environment than from a rural environment. A chi square analysis was performed to search for possible differences between groups based on marital status. No significant differences were found. Analysis of variance revealed that women in the comparison group had children more often $F(2,88) = 4.10, p < .05$ than women in the other two groups. The significant difference for children is the result of two outliers-- one participant in the comparison group had four children and one had five children.

An analysis of variance revealed a trend level effect for participant age $F(2,88) = 2.57, p = .08$. Further analysis (Tukey's HSD = 3.49, $p = .068$) revealed a trend level difference between the age of the women in the RADS program ($M = 24.3$ years) and the age of the women in the martial arts program ($M = 20.8$ years). There were no

significant differences in age between the women in the RADS program and the women in the comparison group. Thus, the hypotheses were tested using multivariate analysis of covariance tests with age as a covariate.

Table 1
Participant Age By Group

Group	<i>N</i>	<i>Mean</i>	<i>SD</i>	<i>Range</i>
RADS	33	24.3	5.4	26
Martial Arts	27	20.8	2.6	10
Comparison	31	23.0	8.2	33
Total	91	22.9	6.1	33

Table 2
Demographic Variables for Participants
In the RADS Group

	<i>Frequency</i>	<i>Percentage</i>	<i>Cummulative</i>
<i>Ethnicity</i>			
White	20	60.6	60.6
Black	8	24.2	84.8
Hispanic	3	9.1	93.9
Native Am.	1	3.0	97.0
Other	1	3.0	100.0
Total	33	100.0	
<i>Family Income</i>			
Under \$15k	10	30.3	30.3
\$15k-\$25k	5	15.2	45.5
\$25k-\$40k	7	21.2	66.7
\$40k-\$70k	7	21.2	87.9
Over \$70k	4	12.1	100.0
Total	33	100.0	
<i>Location</i>			
City	16	48.5	48.5
Suburban	15	45.5	93.9
Rural	2	6.1	100.0
Total	33	100.0	
<i>Marital Status</i>			
Single	27	81.8	93.9
Married	5	15.2	97.0
Divorced	1	3.0	100.0
Total	33	100.0	
<i>Children</i>			
None	31	93.9	93.9
1	1	3.0	97.0
2	1	3.0	100.0
Total	33	100.0	

Table 2 Continued

	<i>Frequency</i>	<i>Percentage</i>	<i>Cummulative</i>
<i>Work Status</i>			
FT Paid	8	24.2	24.2
FT Student	25	75.8	100.0
Total	33	100.0	
<i>Previous S.A.</i>			
Yes	11	33.3	33.3
No	22	66.7	100.0
Total	33	100.0	
<i>Prevent S.A.</i>			
Yes	6	13.2	18.2
No	27	81.8	100.00
Total	33	100.0	
<i>Course</i>			
Self Defense	29	87.9	87.9
Other	4	12.1	100.0
Total	33	100.0	

Location= Location of participant's home

Previous S.A.= History of sexual assault

Prevent S.A.= History of successfully preventing a sexual assault

Table 3
Demographic Variables for Participants
In the Martial Arts Group

	<i>Frequency</i>	<i>Percentage</i>	<i>Cummulative</i>
<i>Ethnicity</i>			
White	15	55.6	55.6
Black	8	29.6	85.2
Hispanic	1	3.7	88.9
Asian	3	11.1	100.0
Total	27	100.0	
<i>Family Income</i>			
Under \$15k	4	14.8	14.8
\$15k-\$25k	8	29.6	44.4
\$25k-\$40k	4	14.8	59.3
\$40k-\$70k	5	18.5	77.8
Over \$70k	6	22.2	100.0
Total	27	100.0	
<i>Location</i>			
City	12	44.4	44.4
Suburban	8	29.6	74.1
Rural	7	25.9	100.0
Total	27	100.0	
<i>Marital Status</i>			
Single	26	96.3	96.3
Married	1	3.7	100.0
Total	27	100.0	
<i>Children</i>			
None	26	96.3	96.3
1	1	3.7	100.0
Total	27	100.0	

Table 3 Continued

	<i>Frequency</i>	<i>Percentage</i>	<i>Cummulative</i>
<i>Work Status</i>			
FT Paid	2	7.4	7.4
PT Paid	3	11.1	18.5
FT Student	20	74.1	92.6
PT Student	1	3.7	96.3
Looking	1	3.7	100.0
Total	27	100.0	
<i>Previous S.A.</i>			
Yes	7	25.9	25.9
No	20	74.1	100.0
Total	27	100.0	
<i>Prevent S.A.</i>			
Yes	3	11.1	11.1
No	24	88.9	100.00
Total	27	100.0	
<i>Course</i>			
Self Defense	21	77.8	77.8
Other	6	22.2	100.0
Total	27	100.0	

Location= Location of participant's home

Previous S.A.= History of sexual assault

Prevent S.A.= History of successfully preventing a sexual assault

Table 4
Demographic Variables for Participants
In the Comparison Group

	<i>Frequency</i>	<i>Percentage</i>	<i>Cummulative</i>
<i>Ethnicity</i>			
White	21	67.7	67.7
Black	8	25.8	93.5
Native Am.	1	3.2	96.8
Other	1	3.2	100.0
Total	31	100.0	
<i>Family Income</i>			
Under \$15k	2	6.5	7.1
\$15k-\$25k	5	16.1	25.0
\$25k-\$40k	9	29.0	57.1
\$40k-\$70k	7	22.6	82.1
Over \$70k	5	16.1	100.0
Total	28	90.3	
Missing Data	3	9.7	
<i>Location</i>			
City	19	61.3	61.3
Suburban	11	35.5	96.8
Rural	1	3.2	100.0
Total	31	100.0	
<i>Marital Status</i>			
Single	22	71.0	71.0
Married	6	19.4	90.3
Divorced	2	6.5	96.8
Widowed	1	3.2	100.0
Total	31	100.0	

Table 4 Continued

	<i>Frequency</i>	<i>Percentage</i>	<i>Cummulative</i>
<i>Children</i>			
None	24	77.4	77.4
1	2	6.5	83.9
2	3	9.7	93.5
4	1	3.2	96.8
5	1	3.2	100.0
Total	31	100.0	
<i>Work History</i>			
FT Paid	1	3.2	3.2
PT Paid	4	12.9	16.1
FT Student	22	71.0	87.1
PT Student	3	9.7	96.8
Looking	1	3.2	100.0
Total	31	100.0	
<i>Previous S.A.</i>			
Yes	8	25.8	25.8
No	23	74.2	100.0
Total	31	100.0	
<i>Prevent S.A.</i>			
Yes	9	29.0	29.0
No	22	71.0	100.00
Total	31	100.0	

Location= Location of participant's home

Previous S.A.= History of sexual assault

Prevent S.A.= History of successfully preventing a sexual assault

Martial Arts Based Program

The marital arts program was offered to students at a local university, accepted male and female students, and had a Caucasian female instructor. Twenty seven participants were drawn from this program. The class counted for two physical education credits at a Mid-Atlantic university. All of the assessment measures were given to participants at the beginning of the class. The experimenter provided packets with the measures to participants, explained briefly the nature of the study, and reiterated that participation was voluntary. No penalty was given to those who didn't wish to participate, and no in-class (extra credit) benefits were given to those who chose to participate. Measures were administered in the first half hour of the first class meeting and again in the last half hour of the final class meeting.

The self defense program is heavily martial arts based, drawing primarily from the teachings of karate and akido. The class met for 6 weeks. The participants attended class 2 hours and 45 minutes a week, and were encouraged to practice between sessions. The female instructor taught the class with several assistants, both male and female. The class was run as a traditional martial arts school, with an emphasis on traditions such as bowing and demonstrating respect for self and opponents. In each class, the participants practiced self defense skills full-force with an assailant or group of assailants who wore some protective gear. Students participated in at least ten simulated assaults. Some simulated assaults involved the skills needed to disarm or escape from an assailant using a knife. Students also practiced full-speed defensive pattern drills (practicing strikes full-speed and power, but with no assailant and an emphasis on correctness of form) as they would in a marital arts based program. The

class included some of the material offered by the mastery program used in Ozer and Bandura's (1990) study, including indicants of physical capabilities, how to convey a confident demeanor, how to deal assertively with inappropriate personal encroachment, how to issue firm verbal warnings, and practicing yelling to frighten off an attacker. Discussion of the students' previous experiences, risks, precautionary measures they used, and the self-impeding effects of viewing themselves as helpless were also included. The class also taught the skills to assess the dangerousness of situations and discussed different methods for dealing with them.

Rape Aggression Defense System (RADS) Program

The vicarious learning program was designed to provide women with skills to avoid dangerous situations. Thirty three participants were drawn from this program. This class follows the Rape Aggression Defense Systems (RADS) model, which is currently the most commonly taught school of women's self defense. The classes were taught by certified RADS instructors at two universities in a Mid Atlantic state. In both universities, the class was offered by the Campus Police and was not for credit. Participants in both universities paid a small fee (under \$20.00) for the class. All of the assessment measures were given to participants at the beginning of the class. The experimenter provided packets with the measures to participants, explained briefly the nature of the study, and reiterated that participation was voluntary. No penalty was given to those who didn't wish to participate, and no in-class (extra credit) benefits were given to those who chose to participate. Measures were administered in the first half hour of the first class meeting and again in the last half hour of the final class meeting.

The RADS model is being taught throughout the country. The RADS program has been demonstrated to increase women's sense of self-efficacy about self defense up to four weeks after the class ends (Michener, S., 1996; Michener T., 1997). The classes met for between 2 and 3 hours a week, for between 4 and 6 weeks. The instructors included African-American men and women, Caucasian men and women, and a Hispanic man. All instructors were officers in the campus police departments of the university that offered the class. The focus of this class was primarily on learning prevention and risk reduction strategies in order to avoid assault. The class focused on providing students with information about the legal definitions and occurrence rates and patterns of various forms of sexual assault and provided information about how to avoid being in situations which are potentially dangerous. The class focused on developing an assertive attitude, home security strategies, and other types of prevention strategies. The RADS program can be taught either with simulated assaults or without simulated assaults. In the programs used in this study, simulated assaults were offered in all classes. All participants choose to participate in at least two simulated assaults. The RADS program has been shown to increase self-efficacy when taught both with and without simulated assaults (Michener, T., 1997). Verbal methods of dealing with assault (screaming, reasoning, expressed compliance, and compliance) were discussed in all classes. About half of the class time was spent reviewing material verbally and on paper using workbook exercises. The other half of the class was spent in pattern drills practicing physical self defense skills. In the final session, students participated in two to three simulated assaults with one attacker. During these sessions, the instructor wore a specially padded suit full body suit to allow students to practice blows full force.

Students were also padded, allowing them to use full force strikes without risk of injury to them. These assaults were videotaped, and students were critiqued on their performance afterward. Techniques taught included some strikes and kicks, distraction techniques, and many forms of escape strategies. The RADS program sought to teach basic strategies for physical self defense. Vulnerable locations on assailants were discussed. The use of weapons (mace, guns) was discouraged unless students specifically seek out and receive further training in their use. The option of compliance as a way to preserve one's life and to attempt to avoid further physical harm was also discussed. The main focus of the course was to provide women with the skills necessary to survive sexual assault.

Comparison Group

The comparison group was drawn from undergraduate psychology classes at a large urban university. Thirty one women participated in this group. Participants were excluded if they had previously taken a self defense course or a martial arts class. Measures were administered initially and again six weeks later in an office on campus. Participants needed to complete both packets to receive 2 hours of credit toward psychology class requirements.

MEASURES

Ozer and Bandura (1990) used several Likert type measures to investigate their dependent variables. While this limits the assessment measures to self-report, self report in the area of self-efficacy has been shown to be an effective predictor of performance. (Bandura, et al., 1982). They performed a factor analysis on the three self-efficacy measures and found that these factors tap similar but only partly overlapping constructs. The following measures were used in the present study.

1. Interpersonal self-efficacy: This scale consists of 29 items involving coping with potential social threats, hassles, and coercive encounters in dating situations, at work, at parties, on the street, on public transportation, in parking lots, and in elevators and other secluded public areas. Ozer and Bandura (1990) reported an internal consistency reliability for this scale in their study of $\alpha = .88$. In the current study, one item was dropped from the Interpersonal Self-efficacy scale. This item involved responding to a scenario where the participant was asked to imagine being verbally hassled by a man at a bus stop. The item read “Stay silent and act as if you are ignoring him.” Participants were asked to rate their ability to do this on a 10 point Likert scale from Cannot do at all (0) to Certain can do (10). Responses to this item differed significantly from responses to all other items and were significantly lower. It seems that most women would either choose not to remain silent in this situation or do not feel that they could remain silent in this situation. Thus, this item was deleted from analysis at pretest and posttest. After removal of this item, this scale possessed good internal consistency, with reliability estimates ranging from $\alpha = .88$ at the first measurement and $\alpha = .91$ at the second measurement (see Table 5). Ozer and Bandura did not use their waiting list

control group data to calculate test-retest reliability for this scale. The test-retest correlation for this scale in the comparison group of the current study was rather low ($r = .582, p < .01$). This suggests that pretest to posttest changes may be due to instability in the scale as well as the effects of treatment. This scale is drawn from questions 1 to 9 on the questionnaire (see Appendix A).

2. *Activities of self-efficacy*: This scale consists of 21 items, including outdoor recreational activities, attending cultural events, and going by oneself hiking or to movies or restaurants or concerts. Ozer and Bandura (1990) reported an internal consistency reliability for this scale in their study of $\alpha = .96$. In the present study, internal consistency reliability for this scale was .85 at the initial measurement and .94 at the second measurement (see Table 5). This scale is drawn from questions 10 through 12 on the questionnaire (see Appendix A). Ozer and Bandura did not use their waiting list control group data to calculate test-retest reliability for this scale. The test-retest correlation for this scale in the comparison group of the current study was good ($r = .770, p < .001$).

3. *Self defense self-efficacy*: This scale consists of 80 items, describing capabilities to execute different types of disabling strikes under varied types of assaultive attacks, distinguishing between attacks by strangers and by acquaintances. Ozer and Bandura (1990) reported an internal consistency reliability for this scale in their study of $\alpha = .97$. In the present study, internal consistency reliability for this scale was $\alpha = .98$ at the first measurement and $\alpha = .98$ at the second measurement (see Table 5). This scale is drawn from questions 13 through 24 on the questionnaire (see Appendix A). Ozer and Bandura did not use their waiting list control group data to calculate test-retest

reliability for this scale. The test-retest correlation for this scale in the comparison group of the current study was good ($r = .792, p < .001$).

4. *Participatory behaviors*: This scale consists of a list of ten potential behaviors (outdoor exercise, travel, using public transportation) in which women might participate. Participants ranked each behavior they actually do on a ten point Likert scale from Don't do many (0) to Do many (10). Ozer and Bandura (1990) did not calculate internal consistency reliability estimates for this scale. One item was dropped for this scale. This item measures women's participation in the use of public transportation. In one of the geographic areas sampled in this study, there is very little public transportation. Thus, women's reports of the behaviors in which they currently participate were skewed because they do not have the opportunity to use public transportation. After the removal of this item, internal consistency as measured by Cronbach's alpha was adequate for this scale in the current sample. In the present study, internal consistency reliability for this scale was $alpha = .77$ at the first measurement and $alpha = .81$ at the second measurement (see Table 5). This scale is drawn from the first page after the demographic sheet on the questionnaire (see Appendix A). Test-retest for this scale was calculated using the comparison group. Test-retest reliability was acceptable ($r = .691, p < .001$).

5. *Avoidance behaviors*: This scale consists of the same ten behaviors listed in participatory behaviors. Participants rank each of the behaviors that they currently avoid when they are alone due to fear for their personal safety, on a ten point Likert scale from Don't do many (0) to Do many (10). Ozer and Bandura (1990) did not calculate internal consistency reliability estimates for this scale. Internal consistency as

measured by Cronbach's alpha was adequate for this scale in the current sample. In the present study, internal consistency reliability for this scale was $\alpha = .88$ at the first measurement and $\alpha = .87$ at the second measurement (see Table 5). This scale is drawn from the second page after the demographic sheet on the questionnaire (see Appendix A). Test-retest reliability was calculated using the comparison group. Test-retest reliability was rather low ($r = .597, p < .001$).

6. *Personal vulnerability*: Participants judged their personal vulnerability to sexual assault on a single item using a 10 point Likert scale from Very much at risk (0) to Not at risk (10).

7. *Risk estimate*: Participants judged the risk to women in general on a single item using a 10 point Likert scale from Some situations (0) to Most situations (10).

8. *The State-Trait Anxiety Inventory*: The STAI, form Y, is a well-researched and reliable measure of state anxiety and trait anxiety. It consists of two scales, each with twenty items, that tap into these two constructs. Form Y, and the earlier version form X, have been used in over two thousand research projects as of 1984. The two forms correlate with one another very well ($r = .95$, Chaplin, 1984).

The test has been normed on large national sample of college students, working adults, high school students, and military recruits. Norms have been calculated separately for males and females. The national norms for working adult women and college student women, as well as the means and standard deviations for the current sample, are presented in Table 6. For both working adult women and college student women, the alpha for state anxiety is .93 and the alpha for trait anxiety is .91. Thus, its use in this study seems appropriate.

In the current study, internal consistency reliability for state anxiety at pretest was $\alpha = .93$ and at posttest was $\alpha = .92$. Internal consistency reliability for trait anxiety at pretest was $\alpha = .88$ and at posttest was $\alpha = .91$.

Participants were also asked to answer a brief question about their sexual assault history and any previous successes in preventing or escaping a sexually assaultive situation. They were asked to provide the reason they chose to take the course. They were reminded at this time that the questionnaire was completely confidential, and the instructor of the course had no access to this material.

Table 5
Reliability Analysis

<i>Variable</i>	Cronbach's Alphas		<i>Test-Retest *</i>
	<i>Alpha at Pretest</i>	<i>Alpha at Posttest</i>	
Interpersonal Self Efficacy	.88	.91	$r = .582, p < .01$
Activity Self Efficacy	.85	.94	$r = .770, p < .001$
Self Defense Self Efficacy	.98	.98	$r = .792, p < .001$
Avoidance Behavior	.88	.87	$r = .597, p < .001$
Participatory Behavior	.77	.81	$r = .691, p < .001$
STAI-- State Anxiety	.93	.92	$r = .840, p < .001$
STAI-- Trait Anxiety	.88	.91	$r = .578, p < .01$

* Calculated using Comparison Group only, $N = 31$

Table 6
 Means and Standard Deviations for the State Trait
 Anxiety Inventory National Norming Sample and for Participants in
 the Current Study

	State Anxiety		Trait Anxiety	
	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>
College Students*	38.76	11.95	40.40	10.15
Working Adults**	35.20	10.61	34.79	9.22
RADS Group				
Pretest	35.82	9.27	38.03	7.61
Posttest	30.72	9.31	31.56	7.78
Martial Arts Group				
Pretest	39.70	11.16	40.78	8.16
Posttest	37.04	10.30	35.48	9.46
Comparison Group				
Pretest	35.87	11.84	40.30	16.03
Posttest	35.57	12.79	35.03	9.41
Total Sample				
Pretest	37.00	10.77	39.61	11.20
Posttest	34.23	11.09	33.89	8.94

* Women only, $N = 531$

** Women only, $N = 451$

RESULTS AND CONCLUSIONS

RESULTS

Preliminary Analyses-- Sample Characteristics at Pretest

Analysis of variance revealed some demographic differences among groups. Women in the RADS program tended to be older than women in either the martial arts program or the comparison group. This finding was at a trend level when the entire sample was analyzed $F(2,88) = 2.573, p < .082$. Post hoc analysis, using Tukey's HSD revealed no significant difference between groups. Although the groups were not significantly different, it was considered important to examine age further. A correlation matrix was created to examine the possibility that age covaried with the dependent variables. It was found to do so for avoidance behavior ($r = -.255, p < .05$) and participatory behavior ($r = -.289, p < .01$) at posttest, assessment of risk for women in general at posttest ($r = -.301, p < .01$), state anxiety at pretest ($r = .245, p < .05$) and posttest ($r = -.350, p < .01$), and trait anxiety at posttest ($r = -.265, p < .01$) (See Table 7). Thus, the hypotheses discussing these variables were tested using multivariate analysis of covariance with age as a covariate to control for any effect this age difference may have produced. Both MANOVAS and MANCOVAS were run for all dependent variables. Significance or nonsignificance of results was the same in every case except for risk assessment for women in general. In this case, there was a trend level significance for time $F(2,85) = 2.61, p = .079$ using MANCOVA and a significant difference for time when using MANOVA $F(2,86) = 4.91, p < .05$. There was no change in the significance or nonsignificance of results based on the type of analysis used. No relationship to age was found for any of the self-efficacy scales at either time

Table 7
Correlations Between Dependent Variables and Age

	Age	
	<i>r</i>	<i>p</i>
Self Defense Self Efficacy		
Pretest	-.059	.577
Posttest	-.059	.577
Interpersonal Self Efficacy		
Pretest	.026	.80
Posttest	.055	.60
Activity Self Efficacy		
Pretest	.021	.84
Posttest	-.061	.57
Partipatory Behavior		
Pretest	.058	.58
Posttest	-.289**	.00**
Avoidance Behavior		
Pretest	-.104	.33
Posttest	-.255*	.02*
State Anxiety		
Pretest	-.245*	.02*
Posttest	-.350**	.00**
Trait Anxiety		
Pretest	-.190	.07
Posttest	-.265*	.01*
Personal Risk Assessment		
Pretest	-.108	.31
Posttest	-.151	.15
Risk to Women in General		
Pretest	-.170	.11
Posttest	-.301**	.00**

* $p < .05$ ** $p < .001$

measurement, so these hypotheses were tested with multivariate analysis of variance.

The RADS group, martial arts group, and comparison groups did not differ significantly in regards to ethnicity of participants, income levels of participants, marital status, history of sexual assault, or history of successfully preventing an attempted sexual assault.

The RADS group, martial arts group, and comparison group were equivalent on all dependent variables at pretest except for self defense self-efficacy $F(2,88) = 9.39, p < .001$. The comparison group ($M = 6.63$) was significantly higher on this measure than the RADS group ($M = 4.68$) or the Martial Arts group ($M = 5.22$), as tested by post hoc analysis with Tukey's HSD. This suggests that the comparison group felt considerably more self-efficacious about their ability to defend themselves physically in the event they were sexually assaulted. It is possible that women who are not interested in taking a self defense course have higher physical self defense self-efficacy than women who do choose to take a course, initially.

Because of the differences among the three groups, it is important to consider first whether findings about women who choose to take a self defense class can be generalized to women who do not choose to take a self defense class, and second, the possible role of age. The mean age for Ozer and Bandura's study (1990) was much higher ($M = 34$ years) than any of the groups in the current sample. It is possible that women experience the risk of sexual assault, anxiety about it, and feelings of self-efficacy differently at different points in their lives.

In addition, women who had a history of being sexually assaulted ($N = 26$) scored significantly higher on interpersonal self-efficacy ($t = 2.09, p < .05$) at pretest.

This is the opposite of the effect found by Ozer and Bandura (1990). In their sample, women who had previously survived a sexual assault were significantly lower on pretest measures of self-efficacy. There were no differences between women who had successfully prevented a sexual assault and women who had not ever successfully prevented an assault.

Pretest to Posttest Changes in Self-efficacy

Hypotheses 1, 2, and 3 predicted that there would be significant increases in self defense self-efficacy, activity self-efficacy, and interpersonal self-efficacy for the two treatment groups between pretest and posttest, but no change for the comparison group.

A 3 x 2 (Group by Time) MANOVA was conducted with Interpersonal Self-Efficacy, Activity Self-Efficacy, and Self Defense Self-Efficacy as dependent variables. There was a significant main effect for Time, $F(3,86) = 71.356, p < .001, \eta^2 = .713$. There was a significant group x time interaction $F(6,174) = 12.680, p < .001, \eta^2 = .304$. The multivariate main effect for Group was not significant $F(6,174) = 1.364, p = .23, \eta^2 = .045$. Univariate analyses indicated that Time main effect and the Group x Time interaction was significant for all variables.

Paired samples t-tests were performed to further examine the Time by Group interaction. In the RADS group, there were significant changes from pretest to posttest for all efficacy variables. Activity self-efficacy ($t = -4.033, p < .001$), interpersonal self-efficacy ($t = -7.456, p < .001$), and self defense self-efficacy, ($t = -13.294, p < .001$) all increased significantly from pretest to posttest (see Table 8).

In the martial arts group, there were significant changes from pretest to posttest for all efficacy variables. Activity self-efficacy ($t = -4.144, p < .001$), interpersonal self-

efficacy ($t = -6.889, p < .001$), and self defense self-efficacy, ($t = -8.568, p < .001$) all increased significantly from pretest to posttest (see Table 8).

In the comparison group, there was a significant increase in interpersonal self-efficacy ($t = -2.118, p < .05$) from pretest to posttest (see Table 8). There were no significant changes for any other variables.

Pretest to Posttest Changes in Behaviors

Hypothesis 4 predicted that there would be significant increases in participant behavior for the two treatment groups from pretest to posttest, but no change for the comparison group.

A 3 x 2 (Group by Time) MANCOVA, using age as a covariate, was conducted with Participatory Behaviors and Avoidance Behaviors as dependent variables. The main effects for Group $F(4,168) = 1.634, p = .17$, Time $F(2,83) = .325, p = .724$, and the Group by Time interaction $F(4,168) = 1.013, p = .40$ were not significant (see Table 9).

Pretest to Posttest Changes in Anxiety

Hypothesis 5 predicted that there would be significant decreases in anxiety for both treatment groups from pretest to posttest, but no change for the comparison group.

A 3 x 2 (Group by Time) MANCOVA, using age as a covariate, was conducted with State Anxiety and Trait Anxiety as measured by the State Trait Anxiety Inventory as dependent variables. The main effects for Group $F(4,172) = .698, p = .59$, Time $F(2,85) = 1.346, p = .27$, and the Group by Time $F(4,172) = 1.055, p = .38$ interaction were not significant (see Table 10).

Pretest to Posttest Changes in Risk Assessments

Hypothesis 6 predicted that women in the two treatment groups would experience a significant decrease in personal risk assessment from pretest to posttest. No significant change in risk assessment for women in the comparison group between pretest and posttest was expected.

A 3 x 2 (Group by Time) MANCOVA, using age as a covariate, was conducted with Personal Vulnerability and Risk to Women in General as dependent variables. The main effects for Group $F(4,172) = 1.173, p = .32$, Time $F(2,85) = 2.61, p = .079$, and the Group by Time interaction $F(4,172) = .261, p = .90$ were not significant. There was a trend effect of time $F(2,85) = 2.61, p = .079$. Univariate tests revealed that assessment of risk to women in general was significantly lower at posttest (see Table 11).

Pretest to Posttest Differences Between the Martial Arts and RADS Groups for Self Defense Self-Efficacy

Hypothesis 7 predicted that participants in the martial arts program would have significantly higher gains on the measure of self defense self-efficacy than participants in the RADS program at posttest. A 2 x 2 ANOVA was conducted to examine time effects and interaction effects for the martial arts and RADS groups for all self-efficacy variables. The main effect for time was significant $F(3,56) = 77.89, p < .001$. The main effect for Group and the interaction effect for Time by Group were not significant. Both groups significantly increased their scores on all three self-efficacy measures.

Pretest to Posttest Differences Between the Martial Arts and RADS Groups for Participatory Behavior

Hypothesis 8 predicted that participants in the RADS program would have significantly greater increases in the number and type of activities performed than participants in the martial arts program at posttest. Analysis of variance found a significant main effect for time $F(1,58) = 16.059, p < .001$, but no significant interaction effect. Both groups significantly increased their participatory behavior.

Table 8
Means and Standard Deviations for Self Efficacy Variables

	<i>Self Defense SE</i>		<i>Interpersonal SE</i>		<i>Activity SE</i>	
	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>
<i>RADS</i>						
Pretest	4.68	2.07	6.96	1.42	4.09	1.37
Posttest	8.87**	1.05	8.71**	1.18	5.42**	1.97
<i>Martial Arts</i>						
Pretest	5.22	1.95	7.28	1.29	4.73	1.32
Posttest	8.90**	1.29	8.93**	1.05	6.81**	2.69
<i>Compare</i>						
Pretest	6.63	1.46	7.60	.96	4.84	1.45
Posttest	6.51	1.51	7.94*	1.01	5.08	1.66

** = $p < .001$

* = $P < .05$

Table 9
Adjusted Means and Standard Error for Behavior Variables

	<i>Participatory Behavior</i>		<i>Avoidance Behavior</i>	
	<i>M</i>	<i>Std. Error</i>	<i>M</i>	<i>Std. Error</i>
<i>RADS</i>				
Pretest	5.24	.33	5.44	.33
Posttest	4.42	.39	4.44	.38
<i>Martial Arts</i>				
Pretest	5.61	.37	6.28	.42
Posttest	3.50	.44	3.91	.43
<i>Compare</i>				
Pretest	5.02	.34	4.98	.33
Posttest	4.02	.40	4.15	.40

Table 10

Adjusted Means and Standard Error for Anxiety Variables

	<i>State Anxiety</i>		<i>Trait Anxiety</i>	
	<i>M</i>	<i>Std. Error</i>	<i>M</i>	<i>Std. Error</i>
<i>RADS</i>				
Pretest	38.48	1.96	36.36	1.86
Posttest	32.04	1.52	31.53	1.82
<i>Martial Arts</i>				
Pretest	40.11	2.19	38.89	2.07
Posttest	34.75	1.70	35.84	2.03
<i>Compare</i>				
Pretest	40.41	2.04	36.00	1.93
Posttest	35.15	1.58	35.76	1.89

Table 11
Adjusted Means and Standard Error for Risk Assessment Variables

	<i>Personal Risk Assessment</i>		<i>Risk to All Women</i>	
	<i>M</i>	<i>Std. Error</i>	<i>M</i>	<i>Std. Error</i>
<i>RADS</i>				
Pretest	5.83	.35	4.60	.38
Posttest	6.64	.38	4.36	.45
<i>Martial Arts</i>				
Pretest	6.01	.38	4.40	.42
Posttest	6.43	.42	3.40	.50
<i>Compare</i>				
Pretest	5.27	.35	4.56	.38
Posttest	5.58	.38	4.02	.46

Examination of Possible Predictors of Behavior

A path analysis was performed to examine the relationship between self defense self-efficacy, personal risk assessment, activity self-efficacy, avoidance behavior, and participatory behavior for the two treatment groups at pretest (see Figure 3). For these procedures, the martial arts and RADS groups were analyzed together. Predictors of participant behavior are presented in Hypothesis 9. Predictors of avoidant behavior are presented in Hypothesis 10. Both hypotheses predicted a similar path structure. They both predicted a negative relationship between self defense self-efficacy and perceived personal risk. Results showed a significant direct negative correlation between self defense self-efficacy and personal risk assessment ($r = -.281, p < .05$), as expected. Both hypotheses predicted a significant negative relationship between personal risk assessment and activity self-efficacy. This relationship was not found to be significant. Hypothesis 9 predicted a significant positive relationship between activity self-efficacy and participatory behavior. Results showed a significant direct positive correlation between activity self-efficacy and participatory behavior ($r = .476, p < .01$), as expected. Hypothesis 10 predicted a significant negative relationship between activity self-efficacy and avoidance behavior. This relationship was not found to be significant.

A path analysis was performed to examine the relationship between self defense self-efficacy, personal risk assessment, activity self-efficacy, avoidance behavior, and participatory behavior for the two treatment groups at posttest (see Figure 4). For these procedures, the martial arts and RADS groups were analyzed together. Predictors of participatory behavior are presented in hypothesis 11. Predictors of avoidance behavior are presented in hypothesis 12. Both hypotheses predicted that self defense self-

efficacy would be negatively predictive of perceived personal vulnerability. This relationship was not found to be significant at posttest. Multiple regression was used to examine the ability of personal risk assessment to predict activity self efficacy, avoidance behavior, and participatory behavior. Both hypotheses predicted that personal risk assessment would be negatively predictive of activity self efficacy. Results showed a negative correlation between personal risk assessment and activity self efficacy at a trend level of significance ($r = -.242, p < .062$).

Hypothesis 11 predicted that personal risk assessment would have a significant negative effect on participatory behavior. Personal risk assessment was found to have a significantly positive effect on participatory behavior ($beta = .261, p < .05$). This finding was the opposite of the expected effect. Hypothesis 11 also predicted that activity self-efficacy would have a significant positive effect on participatory behavior. Results showed a significant positive effect of activity self-efficacy on participatory behavior ($beta = .422, p < .01$), as expected.

Hypothesis 12 predicted that personal risk assessment would have a significant positive effect on avoidance behavior. No significant relationship was found between these variables. Hypothesis 12 predicted that activity self-efficacy would have a significant negative effect on avoidance behavior. Results showed that activity self-efficacy had a significant negative effect on avoidance behavior ($beta = -.307, p < .05$), as predicted.

Additional Analyses

Stepwise multiple regressions were performed to further examine the relationships among the variables and to attempt to find a more inclusive predictive

model of posttest participatory and avoidance behaviors. These regressions examined the RADS group and martial arts group together. Only activity self-efficacy ($beta = .422, p < .01$) and a history of successfully preventing a sexual assault ($beta = .261, p < .05$) were predictive of participatory behavior (see Figure 5). Activity self-efficacy ($beta = -.276, p < .05$) and a history of successfully preventing a sexual assault ($beta = -.244, p = .05$) were negatively predictive of avoidance behavior (see Figure 6). State anxiety was positively predictive of avoidance behavior ($beta = .249, p < .05$).

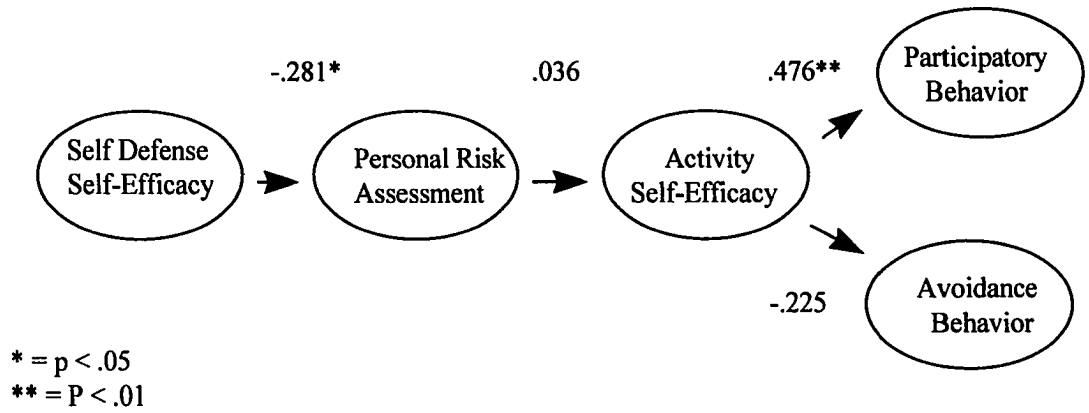


Figure 3. Path Analysis for Participatory and Avoidance Behavior at Pretest

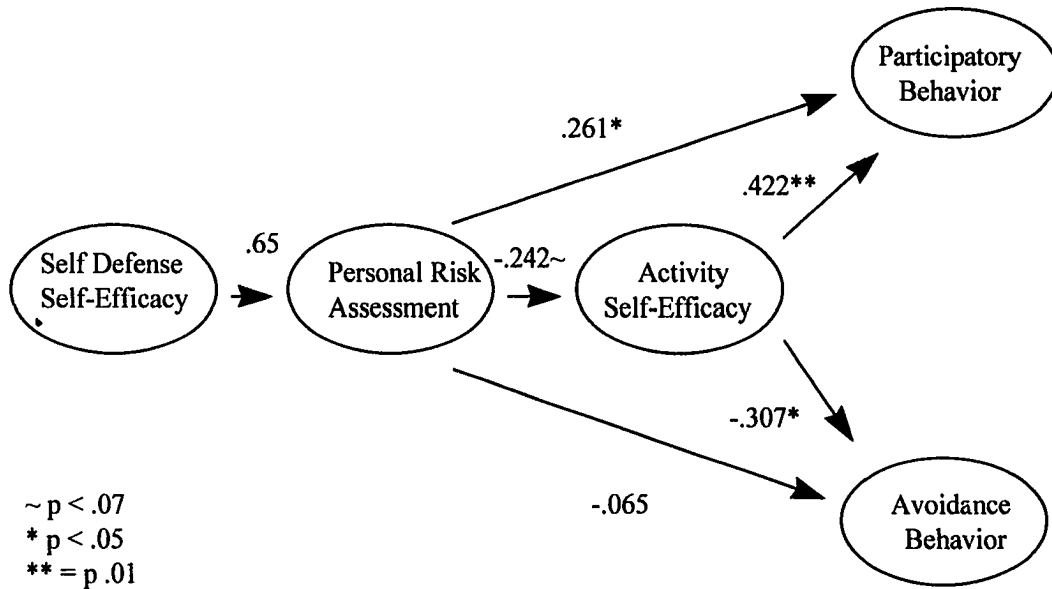


Figure 4. Path Analysis of Relationships Among Posttest Variables

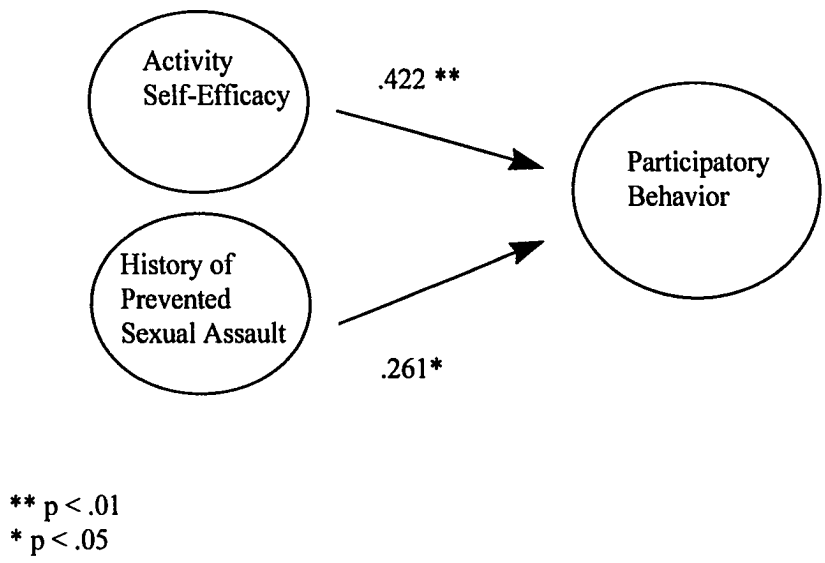


Figure 5. Stepwise Multiple Regressions Examining Participatory Behavior at Posttest

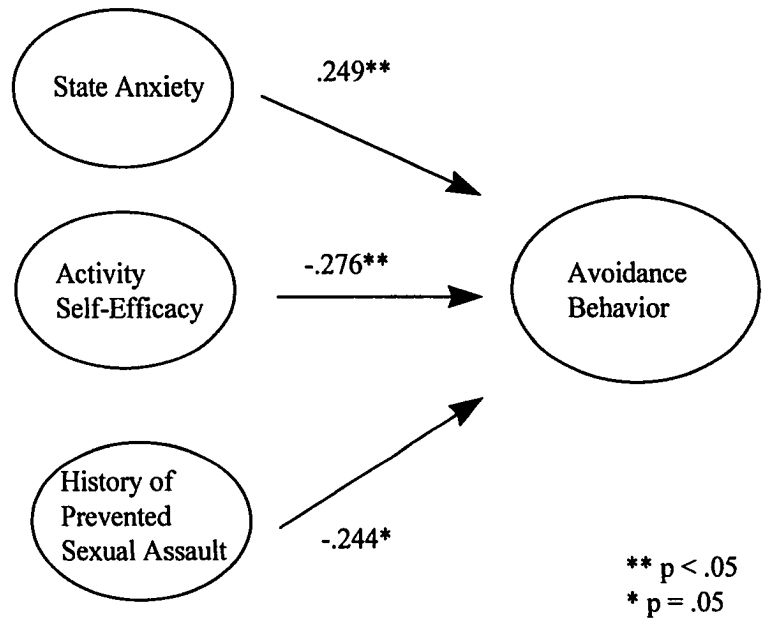


Figure 6. Stepwise Multiple Regressions Examining Avoidance Behavior at Posttest

INTERPRETATION AND CONCLUSIONS

Both the martial arts based program and the RADS program significantly increased women's feelings of self-efficacy in the measured areas of interpersonal self-efficacy, activity self efficacy, and self defense self-efficacy. These findings replicate some of the findings from the previous research of Ozer and Bandura (1990) on their women's self defense class and the work of T. Michener (1997) and S. Michener (1996) on the RADS program. S. Michener (1996) examined women's sense of confidence and feelings of helplessness as well as the self-efficacy variables and found significantly increased feelings of confidence and significantly reduced feelings of helplessness in women at a four week posttest after they completed a RADS class. Neither of these studies on the RADS program focused on the other variables of interest in this study.

There were no significant differences on the dependent variables between the martial arts based group and the RADS class at pretest or posttest. This is an important finding because it suggests that despite the fewer opportunities to practice physical self defense skills offered in the RADS class, participants gained as much self-efficacy as participants in the more physically challenging martial arts based group. This suggests that both martial arts training and a women's self defense program that provides some opportunity to practice directly physical skills, as well as to learn vicariously, will be effective at increasing women's sense of self-efficacy, at least immediately following the class. No differences in posttest efficacy levels were found between the martial arts and RADS programs. This study did not have sufficient power to find small differences between the martial arts and RADS groups, should they exist. Group sizes of at least a

hundred subjects would be required to find small effects, and recruiting that many participants was beyond the scope of this study.

Interestingly, the comparison group was initially significantly higher on measures of self defense self-efficacy. However, the comparison group did not significantly change their self defense self-efficacy over time. The women in the comparison group experienced a slight numerical decline (pretest $M = 6.63$, posttest $M = 6.5$) from pretest to posttest. At posttest, both treatment groups were significantly more self-efficacious in this area than the comparison group. It appears that women who are not interested in taking a self defense class have higher self-efficacy about their ability to defend themselves physically from sexual assault than women who are interested in taking a class, with women who have taken a class experiencing the highest self-efficacy. The women in the comparison group did differ significantly from the women in the treatment groups by being more likely to have children (although this last finding may be spurious as it is due to outliers). The current sample does not offer clues as to other variables that may lead to the increased sense of self defense self-efficacy for these women.

It is possible that women who choose to take a self defense class do so because they feel significantly less efficacious about their ability to defend themselves physically, should they be assaulted. There were no significant or trend level differences between groups on the variables relating to past sexual assault-- the groups were well matched on these variables. Thus, it does not appear that the experience of having been sexually assaulted or having successfully prevented a sexual led to decreased feelings of self defense self-efficacy for this sample.

In the current study, there were no significant changes from pretest to posttest for state anxiety, trait anxiety, feelings of personal vulnerability, or participatory behavior or avoidant behavior across all three groups. There was a significant time effect for the martial arts and RADS groups for participatory behavior. The treatment groups increased the behaviors in which they participated, but not significantly when the comparison group was also included in the analysis. Ozer and Bandura (1990) found significant differences across time on all of these variables. Because Ozer and Bandura (1990) used a waiting list control group, they did not include any women who were not interested in taking a self defense class in their study. The women in the comparison group did demonstrate a significant increase in their interpersonal self-efficacy over time. While the test-retest reliability for this scale was somewhat low, suggesting this finding may be due to instability in the scale, it is also possible that these women did significantly increase their interpersonal self efficacy. This finding, combined with the finding that women in the comparison group initially scored significantly higher on measures of self defense self-efficacy than women in the treatment groups, strongly suggests that there are important differences between women who are interested in taking a self defense class and women who are not. The inclusion of a comparison group is a strength of the current study. The current findings about behavior are more conservative than those of Ozer and Bandura (1990) and may be more able to generalize to other groups of women.

There are many possible reasons why the present study failed to replicate fully Ozer and Bandura's (1990) findings. The participants in their study were older ($x = 34$) than the women in the current study ($x = 24$). More of their sample was married or had

been married. It is possible that greater age and the greater life experience that comes with it may play an important part in how women experience anxiety, the behaviors in which they choose to participate or to avoid, and how they assess risk.

In addition, Ozer and Bandura's (1990) study only used a single item to measure anxiety. It is possible that no effects for anxiety were found in this sample because the State Trait Anxiety Inventory, a complete scale offering a measure of both state and trait anxiety, was used. The women in all three groups in the current study scored well within the normal range of the STAI. There was a non-significant decline in state anxiety means for the women in both treatment groups. It is possible that any effects relating to anxiety are too small for power in this study to detect.

Interestingly, the women in the treatment groups in the current study experienced a significant increase in their activity self-efficacy, but their participation in activities and avoidance of activities did not change significantly when all three groups were analyzed. It is possible that this finding is related to the finding that all participants did not change their individual ratings of risk over the course of the study, but that they rated the overall risk to women as significantly lower at posttest, across all groups. This suggests that the women who took the class still feel that they are personally at risk. This is an accurate perception-- as women, they are at risk.

In addition to the age and relationship experience differences between the current sample and Ozer and Bandura's (1990) sample, it is possible that there were cultural factors which impacted the results. Ozer and Bandura (1990) studied women in the San Francisco Bay Area, an environment with a reputation for feminist values. Women are expected to be active outside their homes and to participate in outdoor

activities often. The current study was conducted in a region of the country that may embrace different cultural values about expected and appropriate behavior of women. Ozer and Bandura (1990) did not report the ethnicity or socio-economic status of their subjects. In the current sample, participants were ethnically diverse and from a wide variety of socio-economic backgrounds, as measured by family income. T. Michener (1997) and S. Michener (1996) in their studies of the RADS program used samples that were predominantly Caucasian. It is likely that these factors also contribute to the differences in results between past research and current findings. Women from different cultural backgrounds are likely to have been socialized differently about the risk of sexual assault and appropriate coping strategies.

The examinations of possible predictors of behavior for the treatment groups also produced interesting results. The path analysis model was based on the model created by Ozer and Bandura (1990). The current study did not find that their model applied well to the participants in the two treatment groups. Further research should examine the potential predictors of behavior in greater detail.

Participants' assessment of their personal risk was significantly related to their self defense self-efficacy at pretest, but not at posttest in the path analysis. This seems counterintuitive, as it would seem that women who are more able to physically defend themselves would feel less likely to be sexually assaulted, especially at posttest. It is possible that the sample responded to the question about risk as if it read "attempted sexual assault." This may be a realistic appraisal of risk-- women who have taken a self defense class may be just as likely to be chosen as a potential victim by an assailant. However, these women may be able to stop the assault early, so it is not completed.

Another interpretation is that risk assessment may decrease with time, and the effect was not found in this study because the final measurements were gathered at posttest, rather than at a later period. It is also interesting to note martial arts and RADS groups' assessment that the risk assessment for women in general decreased significantly, especially in light of the stability of personal risk assessment. It seems that the women in these groups see the risk overall as lower as the result of some of the information presented in the class, but that they remain personally very vigilant. From the perspective of the class instructors, this could be viewed as positive, since awareness of one's environment and a sense of wariness are assumed to reduce one's risk of being a victim of violence.

Personal risk assessment was not found to significantly predict activity self-efficacy at either pretest or posttest. There was a trend suggesting this relationship at posttest, but it does not appear that one's feelings of personal vulnerability to sexual assault are predictive of one's feelings of self-efficacy about engaging in activities. However, at posttest, personal risk assessment was positively predictive of participatory behavior. This was opposite of the expected finding, which predicted that low personal risk assessment would lead to increased participatory behavior. It is possible that women who choose to participate in a lot of different kinds of activities may consider themselves to be at greater risk as a result of this choice. However, for whatever reason, they may feel that the benefits of participating in these activities outweigh the risks. The participatory and avoidance behavior scales measure activities that may increase a woman's risk of sexual assault by a stranger (jogging, hiking, traveling, working late). Thus, participatory behavior and personal risk assessment could be positively correlated

on the basis of an accurate reflection of the added risk these behaviors might bring. However, it is also possible that this risk is overstated. Women have been socialized to believe that the true danger from sexual assault lies with unknown men found “out in the world.” In fact, women are more likely to be assaulted by someone they know, often someone they know well.

In the pretest condition, activity self-efficacy was positively predictive of participatory behavior. In the posttest condition, activity self-efficacy was positively predictive of participatory behavior and negatively predictive of avoidance behavior. These were the expected findings. Feeling that one will be able to do certain behaviors is expected to produce an increase in these behaviors. However, activity self-efficacy increased significantly from pretest to posttest while behavior did not change. This suggests that women are not choosing to make behavioral changes, although they feel they would be able to do so. It is possible that women will decide to make these changes with time. Because this experiment only measured behavior at posttest, it is unknown whether women would increase participatory behaviors or decrease avoidance behaviors over time. The benefits to doing so would include having a richer, less restrictive lifestyle and possibly being less dependent on men. It is also possible that women will decide to maintain their current levels of behavior, in spite of feeling more able to cope with the risk of sexual assault. The benefits of doing so would include an increased wariness and restrictiveness which may reduce the risk of assault by a stranger, but not necessarily the risk of assault by an intimate.

In the stepwise multiple regressions performed to further examine predictors of behavior, activity self-efficacy was the strongest predictor of both greater participatory

behavior and less avoidance behavior. This matches the findings from the path analysis, and offers further support for the idea that self-efficacy does correlate with behavior. In addition, state anxiety was predictive of increased avoidance behavior. This finding suggests that feeling more anxious at any given time will lead to the choice to avoid behaviors. While there were no significant group effects for anxiety, this suggests that even women who are self efficacious will choose to be more restrictive about their behavior when they feel anxious. This seems adaptive-- for example, if a woman is in a situation that "seems weird" and triggers anxiety, she is wise to restrict her behavior and leave that situation.

A history of having successfully prevented a sexual assault was predictive of increased participatory behavior and decreased avoidance behavior. This finding makes intuitive sense. The experience of having already prevented an assault would be likely to make one efficacious about the ability to prevent further assaults. No data were available on the types of assaults and assailants that these women had prevented. It would be very interesting to examine these variables. For example, there may be differences between women who have prevented an assault by a stranger and women who have prevented an assault by an acquaintance and an intimate. Women who prevented assaults by acquaintances might be more likely to participate more and avoid fewer behaviors because they consider outdoor, stranger oriented situations safer than those with men they know. In addition, the number of times a woman has successfully prevented an assault is likely to be predictive of self-efficacy and behavior. Women who have prevented assault more than once could be significantly more self efficacious than women who have only prevented assault once. Or, correspondingly, they could be

less efficacious as a result of the repeated trauma. These considerations will be important for future research.

FUTURE DIRECTIONS

As mentioned, the role of previously preventing a sexual assault and previous assault history in general should be examined further. Ozer and Bandura (1990) found that the women in their sample who had previously been assaulted scored significantly lower on measures of self-efficacy at pretest. The women in this sample who had been sexually assaulted scored significantly higher on measures of interpersonal self-efficacy. It is possible that the experience of having been assaulted leads women to develop very firm interpersonal boundaries. Further research should address the effectiveness of self defense programs for women who have been assaulted by different types of assailants: strangers, acquaintances, or intimates. In addition, the role of having successfully prevented assaults in the past should be examined further.

The women in the comparison group initially scored significantly higher on measures of self defense self-efficacy. It would be important to assess how these women developed that sense of efficacy and whether or not it accurately reflects their ability to defend themselves. While self-efficacy is a good predictor of behavior, defending oneself successfully from an attacker requires certain physical skills as well as the willingness to fight back. It is possible that the women in the comparison group are overconfident about their actual ability to protect themselves physically. The women in the treatment groups appeared quite able to defend themselves in their simulations. If women who have not considered taking a self defense class are in fact

over-confident, it might be important to conduct outreach about the actual skills necessary to successfully defend oneself physically.

For the two treatment groups, long-term follow-up studies are highly recommended. While the changes in self-efficacy were robust at posttest, it will be important to see if they are maintained over time. In Ozer and Bandura's (1990) study, changes were maintained and for some variables, additional gains were made. Michener, T. (1997) and Michener, S. (1996) found that gains in self defense self-efficacy were maintained by participants in the RADS program for four weeks after the final class. It would be especially interesting to examine the differences in future sexual assaults between women who take a self defense class and women who have not taken a class. This would be a very difficult study to undertake, for a variety of reasons. As Quinsey and Upfold (1985) note, when women successfully interrupt a sexual assault early in the attack, it may never be reported, because the attacker's motive remains unknown. Further, the number of women who would need to be tracked to find an appropriate sample size is quite large. Anecdotal reports by RADS instructors, who encourage graduates of the program to return as needed to practice skills, and encourage graduates to call their instructors if they ever are attacked and use their skills suggest that the women who take these classes are quite capable of defending themselves successfully from assaults by both strangers and intimates. Anecdotal reports include a case where a graduate was attacked by an old boyfriend and her countermeasures were sufficient to require his hospitalization for three days. Another anecdotal report includes a graduate who took the class to cope with a violent ex-boyfriend who was stalking her. She was attacked by him three times after taking the course and

successfully defended herself and escaped each time. After he was imprisoned, she was mugged on the street by a stranger and her countermeasures led to the mugger's hospitalization while she remained uninjured. Studies attempting to verify these anecdotal reports empirically would be very useful.

The role of cultural factors will also be very important to examine in future research. Different cultures have different expectations about women's behavior and different tolerance of violence toward women. As this is the first study with a significant number of participants who are not Caucasian, it is difficult to begin to hypothesize how culture impacts women's sense of self-efficacy and their behaviors. While violence against women occurs in every culture, rates of violence against women and violence in general vary widely by culture. The United States is a particularly violent country, especially in comparison to other developed nations. Violence against women is found to be roughly equivalent for women of all ethnicities in the United States (Violence Against Women Homepage, 1998). However, women from families with incomes lower than \$10,000 a year are much more likely to be victims of violence. Thus, a strength of the current sample is the representative sampling of family income levels. Future studies should work to be more specific about how cultural and economic factors impact women's self-efficacy and their behavioral choices. It is possible that the lack of behavioral changes in the current study could be influenced by cultural or regional expectations about what behaviors are acceptable for women. Age and life experience could also be involved. It is possible that Ozer and Bandura's sample (1990) (age $M = 34$) reacted differently as a result of increased life experience, or different expectations for women as a function of region, culture, and age. College age women,

like those in the current sample, are the age group most at risk for sexual assault. Thus, they may be responding appropriately by restricting behavior due to the increased risk for their age group. These variables should be further examined in further research.

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APPENDIX A

QUESTIONNAIRE

BACKGROUND INFORMATION

Please check or write in answer where appropriate.

1. Age _____

2. Ethnic Group

1. _____ White/Caucasian
2. _____ Black/African-American
3. _____ Hispanic
4. _____ Asian
5. _____ Native American
6. _____ Other

3. Yearly Family Income

1. _____ Under \$15,000
2. _____ \$15,000 to \$25,000
3. _____ \$25,000 to \$40,000
4. _____ \$40,000 to \$70,000
5. _____ Over \$70,000

4. City/Town of residence _____

5. Marital status

1. _____ Single
2. _____ Married
3. _____ Divorced
4. _____ Widowed

6. Number of children _____

7. Work/Student status

1. _____ Full-time paid employment
2. _____ Part-time paid employment
3. _____ No paid work outside home
4. _____ Full-time student
5. _____ Part-time student
6. _____ Unemployed and looking for job

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0	1	2	3	4	5	6	7	8	9	10
Cannot do at all					Moderately certain	can do				Certain can do

1. You are walking through a deserted neighborhood looking for a friend's apartment. You get the feeling that a man about half a block back may be following you.

How confident are you that you can, as of now:

CONFIDENCE

(0 - 10)

_____ Walk faster

_____ Cross the street

_____ Run

_____ Walk like you know where you are going

_____ Walk up to another house or apartment and ask for help

_____ Attract a crowd by yelling

2. You are alone in the elevator going down to the basement to buy a drink from the machine. A man gets on the elevator. He looks at you in a way that makes you feel a little uncomfortable.

How confident are you that you can, as of now:

CONFIDENCE

(0 - 10)

_____ Press another button and get off the elevator

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0	1	2	3	4	5	6	7	8	9	10
Cannot					Moderately					Certain
do at all					certain can do					can do

3. How confident are you that you can, as of now:

_____ Tell a man who said he came to read your gas meter that you do not want him to come into your house if you feel uncomfortable about him. (Even if he showed ID).

4. You arrive home after work and, before going in, sense that something is not right.

How confident are you that you can, as of now:

_____ Go over to a neighbor's house

_____ Call the police

5. You are waiting for the bus at a bus stop. There is no one standing next to you but there are other people fairly close by. A man walks up to the stop and starts verbally hassling you. He comes up close but has not yet touched you.

How confident are you that you can, as of now:

CONFIDENCE

(0 - 10)

_____ Stay silent and act as if you are ignoring him

_____ Maintain your spot

_____ State firmly that you do not want to talk to him

_____ Stay put AND tell him that you do not want to talk to him

_____ Tell him off

_____ Walk over to other people and ask for help

_____ Call for help

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0	1	2	3	4	5	6	7	8	9	10
Cannot					Moderately					Certain
do at all					certain can do					can do

6. You are standing on a crowded bus when the man standing next to you puts his hand on your buttocks and leans his body into yours

How confident are you that you can, as of now:

CONFIDENCE

(0 - 10)

- _____ Complain to the driver
- _____ Ask him to remove his hand
- _____ Speak loudly to let other passengers know what is going on
- _____ Make a loud scene so that most everybody on the bus knows what this man has done to you

7. You have stayed late at work for an office party and are now ready to go home. Your car is parked in a lot about a block away. Since it is dark and the streets are not as busy as they are when you usually leave the office, you are feeling uneasy about walking to your car.

How confident are you that you can, as of now:

CONFIDENCE

(0 - 10)

- _____ Walk to your car alone with your car key ready and looking out for people who look suspicious
- _____ Ask someone who is also leaving the party to walk with you to your car
- _____ Ask someone at the party to walk you to your car

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0	1	2	3	4	5	6	7	8	9	10
Cannot					Moderately					Certain
do at all					certain can do					can do

11. How confident are you that you can, as of now:

CONFIDENCE

(0 - 10)

- _____ Drive alone to an evening lecture or performance in an unfamiliar area
- _____ Drive alone to an evening lecture where you will have trouble finding a parking place
- _____ Go to an evening lecture by bus
- _____ Bike alone to a day lecture in an unfamiliar area
- _____ Ride your bike alone to an evening lecture

12. How confident are you that you can, as of now:

CONFIDENCE

(0 - 10)

- _____ Go to the beach by yourself
- _____ Go hiking by yourself
- _____ Go camping with a female friend
- _____ Go camping by yourself
- _____ Go to a restaurant by yourself at night
- _____ Go to an unfamiliar party by yourself at night
- _____ Go to a movie by yourself at night
- _____ Go to a bar by yourself
- _____ Go to a night club (e.g. jazz) by yourself
- _____ Go to a night rock concert by yourself

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0	1	2	3	4	5	6	7	8	9	10
Cannot do at all					Moderately certain	can do				Certain can do

13. You are walking on a public street when a man grabs you from behind. At the moment that this happens you do not see any other people close by.

How confident are you that you can, as of now:

CONFIDENCE

(0 - 10)

- _____ Scream loudly more than once
- _____ Struggle physically in any way
- _____ Stomp to the instep of the foot to cause pain
- _____ Use your elbow to forcefully strike him
- _____ Pull his finger back and release his arms
- _____ Come back quickly with another strike if one was not effective
- _____ Get out of his hold in some way
- _____ Get out of his hold and run away
- _____ Disable the assailant so that he can not run after you
- _____ Get away if he had blind-folded you as he grabbed you

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0	1	2	3	4	5	6	7	8	9	10
Cannot do at all					Moderately certain can do					Certain can do

14. You are grabbed from the front or somehow end up facing your assailant

How confident are you that you can, as of now:

CONFIDENCE

(0 - 10)

- _____ Scream loudly more than once
- _____ Struggle physically in some way
- _____ Stomp to the instep of the foot to cause pain
- _____ Forcefully hit him using the heel of your palm
- _____ Knee him forcefully in the groin
- _____ Kick low to the unstable parts of his body (e.g. knee) and throw him off balance
- _____ Forcefully strike him in the throat
- _____ Forcefully strike him in the eyes
- _____ Come back quickly from one strike and use another
- _____ Cover yourself from being hit
- _____ Get out of his hold and run away
- _____ Continue striking your assailant until he is disabled

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0	1	2	3	4	5	6	7	8	9	10
Cannot					Moderately					Certain
do at all					certain	can do				can do

15. You are grabbed from behind and the assailant pulls you down on the ground.

How confident are you that you can, as of now:

CONFIDENCE

(0 - 10)

- _____ Scream or yell loudly more than once
- _____ Struggle physically in some way
- _____ Stay in a ball for safety when you are knocked down
- _____ While in a ball, roll and forcefully bite his arm or hand
- _____ Use your advantage or opening from the bite to strike the throat or some other area with your elbow
- _____ After striking with your elbow, turn your body and strike to his eyes
- _____ Turn body and forcefully use a side-thrust kick
- _____ Repeat the side-thrust kick more than once
- _____ Jump up and out of reach of your assailant
- _____ Run away
- _____ Disable your assailant

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0	1	2	3	4	5	6	7	8	9	10
Cannot					Moderately					Certain
do at all					certain can do					can do

16. The assailant has you lying on your back with him on top of you

How confident are you that you can, as of now:

CONFIDENCE

(0 - 10)

- _____ Scream or yell loudly more than once
- _____ Struggle physically in some way
- _____ Use your hip to his groin area if he is not completely down and then do a quick shift of your weight to unseat him
- _____ If your legs are not completely pinned, push the man off with your legs
- _____ If your arms are not completely pinned, use fingers to forcefully strike eyes
- _____ Hook your legs over his shoulders if he is lying up near your chest. Then make a quick move with your legs and get on your side
- _____ Use your heel to kick down forcefully on your assailant
- _____ Through whatever means, get unpinned
- _____ Run away
- _____ Disable your assailant

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All material on these questionnaires will be completely confidential. Your instructor will not see your responses to these questions.

Yes

No

1. Have you ever been sexually assaulted before?

2. Have you ever successfully prevented an attempted sexual assault?

3. Why did you decide to take this course? (please explain briefly)

APPENDIX B**CONSENT FORM, TREATMENT GROUPS**

Subject Consent Form

Investigators: Darcy Cox, Psy.D. Student
Barbara Winstead, Ph.D. Old Dominion University

Description:

I understand that I am being asked to participate in a research study to provide information about myself, my beliefs about my ability to defend myself from sexual assault and sexual harassment, and my feelings about sexual assault and harassment as they affect me. I will be filling out paper and pencil questionnaires asking about my feelings and beliefs. I will fill out this questionnaire once at the beginning of the class and again at the end of the class. The test will take approximately 45 minutes of my time each time. I also have the option to agree to fill out the questionnaire a third time, six months after the class. Information learned from this research will be used to better understand how self defense programs can benefit women.

Exclusionary Criteria:

I am unable to participate in this study if I have taken self-defense classes or martial arts classes before this one.

Risks and Benefits:

This survey discusses threatening circumstances in which sexual assault or harassment occurs. There are no known risks of participating in this research. However, there may be risks not yet identified. The major benefit of participating is that I may help psychologists and other professionals learn more about ways women think about sexual assault and I may help psychologists and other professionals develop new strategies to improve the lives of women.

Costs and Payments:

There are no costs for participating in the study. I understand I will be gaining no class credit or price discount in my self-defense class as a result of participating. I also understand that I will not be penalized in anyway in my self-defense class if I choose not to participate.

New Information:

Any new information obtained during the course of this research that may affect my willingness to continue participating will be provided to me.

Confidentiality:

I understand that any information obtained about me from the research, including my answers to questionnaires, will be kept strictly confidential and that my records will be protected within the limits of the law.

I also understand that the data derived from this study could be used in reports, presentations, and publications, but that I will not be individually identified. None of my information will be available for the instructor of my class in any way where I could be individually identified.

Withdrawal Privilege:

I understand that I am free to refuse to participate in this study or to withdraw at any time and that my decision will not result in any penalty or loss of benefits to which I am otherwise entitled. In addition to my right to withdraw, I may also refuse to answer any individual question without prejudice. If I choose to withdraw from the study at any time, there will be no penalty imposed in my self-defense class. I also understand that there may be circumstances which would allow Ms. Cox or Dr. Winstead to withdraw me from the study.

Voluntary Consent

I certify that I have read the preceding or it has been read to me and that I understand its contents. If I have any questions pertaining to the research or my rights as a research subject I may contact Ms. Cox whose number is (757) 588 1503. A copy of this consent form will be given to me. For questions about my rights as a human subject, I should call Dr. V. Derlega at (757) 683-3118. My signature below means that I have freely agreed to participate in this experimental study.

Date

Signature of Participant

Date

Signature of Witness

Investigator's Statement

I certify that I have explained to the above individual the nature and purpose of the potential benefits, and possible risks associated with participation in this study. I have answered any questions that have been raised and have witnessed the above signature. I have explained the above to the participant on the date stated on this consent form.

Date

Signature of Investigator

APPENDIX C

CONSENT FORM, COMPARISON GROUP

Subject Consent Form

Investigators: Darcy Cox, Psy.D. Student
Barbara Winstead, Ph.D. Old Dominion University

Description:

I understand that I am being asked to participate in a research study to provide information about myself, my beliefs about my ability to defend myself from sexual assault and sexual harassment, and my feelings about sexual assault and harassment as they affect me. I will be filling out paper and pencil questionnaires asking about my feelings and beliefs. I understand that I will fill out the questionnaire once initially, and then again eight weeks later. The test will take approximately 45 minutes of my time each time. Information learned from this research will be used to better understand how self defense programs can benefit women.

Exclusionary Criteria:

I am unable to participate if I am currently taking a self-defense class or if I have taken a self-defense class or martial arts class in the past.

Risks and Benefits:

This survey discusses threatening circumstances in which sexual assault or harassment occurs. There are no known risks of participating in this research. However, there may be risks not yet identified. The major benefit of participating is that I may help psychologists and other professionals learn more about ways women think about sexual assault and I may help psychologists and other professionals develop new strategies to improve the lives of women.

Costs and Payments:

I will receive 2 credits for filling out the questionnaire twice, once initially and once 8 weeks later. If I choose, I can give my telephone number to the experimenter who will call me and remind me to return and fill out the second questionnaire. If I do not fill out the second questionnaire, I will receive no credit.

New Information:

Any new information obtained during the course of this research that may affect my willingness to continue participating will be provided to me.

Confidentiality:

I understand that any information obtained about me from the research, including my answers to questionnaires, will be kept strictly confidential and that my records will be protected within the limits of the law.

I also understand that the data derived from this study could be used in reports, presentations, and publications, but that I will not be individually identified.

Withdrawal Privilege:

I understand that I am free to refuse to participate in this study or to withdraw at any time and that my decision will not result in any penalty or loss of benefits to which I am otherwise entitled. In addition, I can refuse to answer any single question or questions without prejudice. I also understand that there may be circumstances which would allow Ms. Cox or Dr. Winstead to withdraw me from the study.

Voluntary Consent

I certify that I have read the preceding or it has been read to me and that I understand its contents. If I have any questions pertaining to the research or my rights as a research subject I may contact Ms. Cox whose number is (757) 588 1503. A copy of this consent form will be given to me. If I have any questions about my rights as a human subject, I can call Dr. V. Derlega at (757) 683-3118. My signature below means that I have freely agreed to participate in this experimental study.

Date

Signature of Participant

Date

Signature of Witness

Investigator's Statement

I certify that I have explained to the above individual the nature and purpose of the potential benefits, and possible risks associated with participation in this study. I have answered any questions that have been raised and have witnessed the above signature. I have explained the above to the participant on the date stated on this consent form.

Date

Signature of Investigator

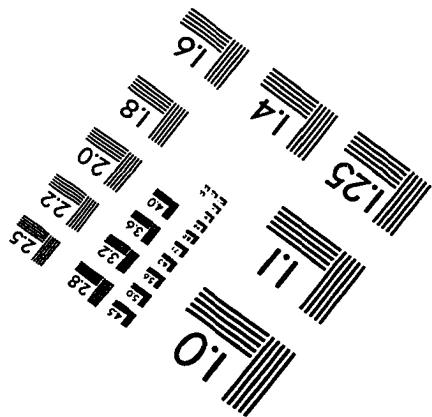
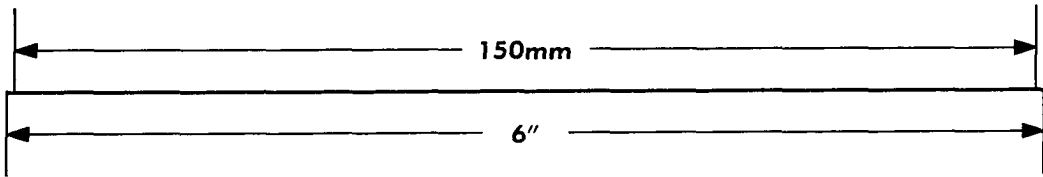
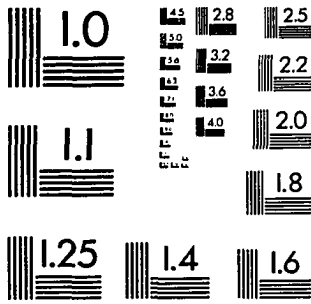
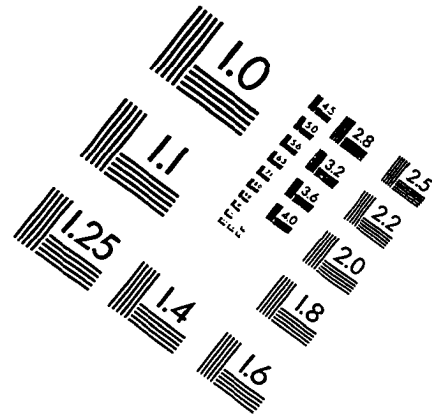
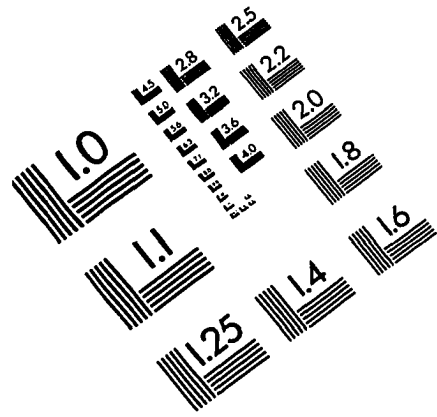
VITA

Darcy Cox was born in Berkeley, California on October 1, 1969. She received her Bachelor of Arts in Psychology with Honors from Boston University in May, 1991. After graduation, she was employed in a variety of settings, including group homes for autistic adults, group homes for severely mentally retarded adults, public school special education programs, and a residential treatment setting for seriously emotionally disturbed teenage girls. She began her doctoral training at the Virginia Consortium Program in Clinical Psychology in 1995. Over the course of her training at the Consortium, she has completed practicum training in a variety of clinical settings, including Eastern Virginia Medical School, the Virginia Beach Public Schools, the Child Abuse Center of Hampton Roads, and the Counseling Center at the College of William and Mary.

She will complete her predoctoral internship training at the Veteran's Affairs Medical Center in San Francisco, California. She expects to earn the degree of Doctor in Psychology from the Virginia Consortium Program in Clinical Psychology upon completion of her internship in August of 1999.

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