Mechanisms Governing Empowerment Effects: A Self-Efficacy Analysis

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This experiment tested the hypotheses that perceived coping and cognitive control self-efficacy govern the effects of personal empowerment over physical threats. Women participated in a mastery modeling program in which they mastered the physical skills to defend themselves successfully against unarmed sexual assailants. Multifaceted measures of theoretically relevant variables were administered within a staggered intragroup control design to test the immediate and long-term effects of the empowerment program and the mechanisms through which it produced its effects. Mastery modeling enhanced perceived coping and cognitive control efficacy, decreased perceived vulnerability to assault, and reduced the incidence of intrusive negative thinking and anxiety arousal. These changes were accompanied by increased freedom of action and decreased avoidant behavior. Path analyses of causal structures revealed a dual path of regulation of behavior by perceived coping self-efficacy, one mediated through perceived vulnerability and risk discernment and the other through perceived cognitive control self-efficacy and intrusive negative thinking.

Converging lines of evidence reveal that personal and social change rely extensively on methods of empowerment (Bandura, 1988a; Rappaport, Swift, & Hess, 1984; Ratchliff, 1984; Silbert, 1984). These approaches achieve their effects by equipping people with the requisite knowledge, skills, and resilient self-beliefs of efficacy to alter aspects of their lives over which they can exercise some control. Studies of various aspects of personal change indicate that methods of empowerment operate through the self-efficacy mechanism (Bandura, 1986). However, the mode of operation and the generality of this mediating mechanism require further verification.

Personal empowerment is an important part of efforts to prevent and control sexual abuse. Sexual assault of women is a prevalent problem in the United States. Because any woman is a potential victim, the lives of many women are distressed and constricted by a sense of inefficacy to cope with the threat of sexual assault. Although this research focuses on empowerment of women with self-protective means, the responsibility for controlling sexual abuse does not lie solely with women. Sexual violence represents a societal problem requiring fundamental changes in sex-role ideologies and social practices conducive to sexual aggression (Sandy, 1981).

Efforts to address this problem at a self-protective personal level are aimed at developing efficacious means of control to reduce the fear and likelihood of sexual victimization. Approximately 80% of reported rapes are committed by unarmed assailants through physical force, coercive power, and intimidation (U.S. Bureau of Justice Statistics, 1988). Quinsey and Uphold (1985) found that women untrained in physical self-defense terminate half of the attempted assaults if they resist verbally and scream for help. Of the few who resisted physically, all escaped being raped without increasing injury. Thus, resistance early in an attempted sexual assault can decrease the likelihood that the assault will be completed and does not increase the risk of escalating injury. In comparing the resistance efforts of raped women with those who had escaped being raped, Bart and O'Brien (1984) reported that screaming combined with physical resistance was the modal strategy for women who escaped the sexual assault. Being empowered with effective self-protective skills increases capability to exercise greater control over assaultive threats. Rape prevention and control provides a serious human problem within which to study the psychosocial effects of such an empowerment program and the self-efficacy mechanism hypothesized to underlie the effects.

Perceived self-efficacy is concerned with people's belief in their capabilities to mobilize the motivation, cognitive resources, and courses of action needed to exercise control over given events. Self-beliefs of efficacy can have diverse effects on psychosocial functioning (Bandura, 1989). Judgments of personal efficacy affect choice of activities and selection of environments. People tend to avoid activities and situations they believe exceed their coping capabilities, but they readily undertake activities and select social environments they judge themselves capable of handling (Bandura, 1989; Betz & Hackett, 1986). The social influences operating in the selected environments can
contribute to personal development by the interests and competencies they cultivate and the social networks they provide.

In social cognitive theory (Bandura, 1988b), perceived self-efficacy to exercise control over potentially threatening events plays a central role in anxiety arousal. Threat is not a fixed property of situational events. Nor does appraisal of risk in social transactions rely solely on reading external signs of danger or safety. Rather, threat is a relational property concerning the match between perceived coping capabilities and potentially harmful aspects of the environment. People who believe they can exercise control over potential threats do not conjure up apprehensive cognitions and, hence, are not perturbed by them. But those who believe they cannot manage threats experience high levels of anxiety arousal. They tend to dwell on their coping deficiencies and view many aspects of their environment as hazardous. Through such inefficacious thought they distress themselves and constrain and impair their level of functioning (Beck, Emery, & Greenberg, 1985; Lazarus & Folkman, 1984; Meichenbaum, 1977; Sarason, 1975).

That perceived coping efficacy operates as a cognitive mediator of anxiety arousal has been tested by creating different levels of perceived coping self-efficacy and relating them at a micro-level to different manifestations of anxiety. Perceived coping efficacy is accompanied by high levels of subjective distress, autonomic arousal, and plasma catecholamine secretion (Bandura, Reese, & Adams, 1982; Bandura, Taylor, Williams, Mefford, & Barchas, 1985). The combined results from the different manifestations of anxiety are consistent in showing that anxiety and stress reactions are low when people cope with tasks in their perceived self-efficacy range. Self-doubts in coping efficacy produce substantial increases in subjective distress and physiological arousal. After perceived coping efficacy is strengthened to the maximal level, coping with the previously intimidating tasks no longer elicits differential physiological arousal.

Self-efficacy beliefs affect the self-regulation of cognitive processes (Bandura, 1989a). In dealing with recurrent aversive ideation, people who believe they can exercise some control over their thoughts will try hard to do so and are perseverant in their efforts. Moreover, those who judge themselves highly efficacious should find it easier to dismiss intrusive negative thoughts than those who are preoccupied with a sense of personal inefficacy. Therefore, anxiety arousal in situations involving certain risks can be affected not only by perceived coping efficacy, but also by perceived self-efficacy in controlling negative cognitions. The influential role played by cognitive control self-efficacy in anxiety arousal is corroborated in research examining the different properties of negative cognitions and their correlates. The results show that it is not the sheer frequency of negative cognitions but rather the strength of perceived self-inefficacy to control their escalation or perseveration that is a major source of anxiety arousal (Kent, 1987; Kent & Gibbons, 1987). Thus, the incidence of negative cognitions is unrelated to anxiety level when variations in perceived thought control efficacy are controlled, whereas perceived thought control efficacy is strongly related to anxiety arousal when the incidence of negative cognitions is controlled. Perceived coping and cognitive control efficacy have been studied separately, but previous research has never examined how they operate in concert in regulating affect and action.

Perceived coping self-efficacy can also affect anxiety arousal and action through its influence on perceived personal vulnerability and judgments of risk. Much of the research on risk perception has been concerned with estimation of the likelihood of future environmental events unrelated to the exercise of personal competencies. Studies aimed at elucidating the determinants of risk perception have focused mainly on mood states and accessibility of salient examples (Bower, 1983; Kahneman, Slovic, & Tversky, 1982). In transactions involving the exercise of personal competencies, estimations of risk require a relational judgment of the match between coping capabilities and environmental challenges. Perceived self-efficacy, therefore, operates as a key factor in judgments of the riskiness of environmental situations. A potentially hazardous environment will be judged as relatively safe by people who believe themselves to be highly skilled in coping but as dangerous by those who distrust their coping capabilities. Persons who judge themselves as lacking coping capabilities will perceive themselves as highly vulnerable to threats and construe many situations as fraught with danger.

These postulated causal linkages in the management of risk were tested in an experiment in which women were taught powerful self-protective skills to prevent and control sexual assault. People often fail to perform optimally even though they know what to do and possess the requisite skills. This is because self-referent thought mediates the translation of knowledge and abilities into proficient performance. Therefore, effective coping requires not only skills but self-beliefs of efficacy that ensure their effective use. Variations in self-beliefs of efficacy produce variations in the use of skills (Bandura, 1986, in press).

People's beliefs in their efficacy can be enhanced in four principal ways (Bandura, 1986). The most effective vehicle for developing a resilient sense of efficacy is through mastery experiences. Performance successes build a sense of personal efficacy; failures undermine it. Self-beliefs of efficacy can also be instilled and strengthened by modeling coping strategies and providing exemplifications of attainments for comparative self-appraisal. Social persuasion is a further means of strengthening people's beliefs that they possess certain capabilities. Positive social appraisals have their greatest impact when challenges are structured in graduated steps that are likely to bring success. Finally, self-beliefs of efficacy can be altered by changing physiological states that are read as signs of strength and personal vulnerability.

Mastery modeling served as the principal vehicle for instilling dependable self-protective skills and a strong sense of personal efficacy to execute them well. It combines the power of performance mastery experiences, modeling of effective coping strategies for variable circumstances, physiological indicators of capacity, and repeated verification of personal coping capability (Bandura, 1988a). During the course of the mastery program, subjects gained information regarding risks, precautionary measures, and psychological ways of controlling coercive encounters that might escalate to rape. However, the intervention centered mainly on mastery of physical skills to defend oneself against unarmed assailants. Subjects learned through modeling how to disable an assailant quickly by delivering powerful
strikes to vital areas of the body. They mastered the self-defense skills in repeated simulated attacks by an assailant wearing heavily padded gear. They practiced how to disable their assailant when ambushed frontally, from the back, when pinned down, and in the dark. Thus, the subjects were provided with the predictive knowledge, skills, and self-beliefs of efficacy to prevent and control violent assaults.

An intragroup variation design was used to test the impact of this empowerment program and the postulated mechanisms through which it achieves its effects. Subjects first completed a control phase in which changes in the relevant factors were measured without the intervention to provide a baseline control for naturally occurring influences and any possible reactive effects of repeated measurement. The assessment procedures were readministered after the intervention and at a follow-up period.

It was predicted that the empowerment program would enhance both perceived self-efficacy to cope with problematic social situations and perceived self-efficacy to control negative cognitions. In one of the paths of influence in the hypothesized causal structure, perceived coping self-efficacy affects behavior through its influence on perceived vulnerability and risk perception and discernment. The stronger the perceived coping self-efficacy, the less vulnerable people perceive themselves to be and the more discriminative they are in judging the riskiness of different situations. Low perceived personal vulnerability will foster participant behavior and decrease avoidant behavior through its effects on risk discernment and level of perceived risk. The second major path of influence operates through perceived cognitive control efficacy. In efforts to cope with potential risks, people construct cognitive scenarios of probable events. Depending on their nature, such anticipatory cognitive scenarios can foster or impede effectual courses of action (Bandura & Adams, 1977; Kazdin, 1978; Markus, Cross, & Wurf, in press). Therefore, the exercise of cognitive control over thought processes will decrease negative cognitions, which, in turn, facilitates participant behavior and reduces avoidant behavior.

Both perceived coping and cognitive control efficacy will influence level of anxiety arousal. However, anxiety arousal was not expected to make an independent contribution to behavior, the reason being that people often avoid potentially threatening situations and activities not because they are beset with anxiety, but because they believe they will be unable to cope with situations they regard as risky (Bandura, 1988b; Williams, 1987). They take self-protective action regardless of whether or not they happen to be anxious at the moment. The causal model also includes a path of influence from perceived coping self-efficacy to perceived cognitive control efficacy. People who are secure in their efficacy that they can control problematic situations are unlikely to generate negative cognitive scenarios and can readily turn them off should they arise.

Method

Subjects

The participants were 43 women from three locales in the San Francisco Bay area who had enrolled in an ongoing self-defense program offered in the community. They ranged in age from 18 to 55 years, with a mean age of 34. Forty-nine percent were single, 26% were married, 19% were divorced, and 2% were widowed. Fifty-six percent were employed full time and the remainder were either employed part time or not gainfully employed.

Thirty-eight percent had been physically assaulted at one time or another by strangers, acquaintances, relatives, or their husbands or boyfriends. None had been raped by a stranger, but 27% had sexual intercourse forced on them in one or more relationships. The forced intercourse involved personal acquaintances (14%), relatives (8%), or their husbands or boyfriends (2%).

The study was presented to subjects as a systematic assessment of the self-defense program to determine what effects it has and to identify ways in which it might be improved. To minimize evaluative concerns, they were told that the study was being conducted independently of the program staff and that their enrollment in the self-defense program did not depend on whether or not they chose to participate in the formal assessment. They were further assured that their data would be identified only by code numbers to preserve full confidentiality and would not be available to the staff.

The subjects participated in the mastery modeling in three groups of 15 subjects each. Every enrollee agreed to take part in the study and remained fully cooperative at each phase of the assessment. One subject missed the final session of the program and another provided incomplete responses to some of the measures, so their data were not included in the analysis.

Staggered Intragroup Control Design

Because of the ethical problems of withholding training in self-defense over the duration of the treatment and a 6-month follow-up, an intragroup control design was used to provide a baseline against which to evaluate the effects of the mastery modeling.

Control Phase

In an initial pretest, approximately half the subjects (23) were administered the measurement procedures prior to the mastery modeling program (Pretest 1) and readministered the procedures 5 weeks later (Pretest 2) without any intervening treatment. This control phase, which spanned the same duration as the treatment phase, provided a baseline control for possible naturally occurring influences and any reactive effects of the measurement procedures themselves. The other half of the sample was first pretested at the Pretest 2 point in time to provide a further test of whether the control subsample had undergone any significant changes over the control period. Thus, the test for changes over the control phase and differences between subsamples at the end of the control period provided a dual test for any nontreatment effects.

Treatment Phase

The treatment phase consisted of 5 sessions, each 4 1/2 hr long, distributed over a period of 5 weeks. The sessions were conducted by one of two women assisted by two men, who served as the assailants for the simulated assaults. To control for any possible bias, the implementors of the program had no knowledge of the causal model being tested. The details of the mastery modeling will be discussed later. The measurement procedures were readministered at the end of the treatment phase (posttest). The changes displayed by the subjects did not differ on any measure for the two female instructors.

Follow-Up Phase

Subjects were retested at a 6-month follow-up period. The data for two of the subjects were not included in the follow-up analysis because they had reenrolled for the advanced self-defense program in the in-
Subjects were taught how to disable an assailant quickly when attacked from various positions—frontally, from behind, while lying down, thrown to the ground, and pinned down. An assault sequence ended when the subject either escaped the hold and then deliver the strike. They performed the power blows and received corrective feedback until they had mastered them.

The component skills were then integrated into self-defense sequences tailored for different circumstances of assault. These self-protective skills were developed in simulated attacks by male assistants wearing a heavily padded headpiece and specially designed protective gear. The assailants gradually increased the constraint and force of their attacks as subjects gained power and ability to defend themselves. Subjects were taught how to disable an assailant quickly when attacked from different positions—frontally, from behind, while lying down, thrown to the ground, and pinned down. An assault sequence ended when the assailant signaled that the subject had delivered a knockout blow. Later in the series, the simulations required three knockout blows to provide experience on how to fight off a psychotic or drugged assailant with an impaired sense of reality. Figure 1 presents some action photographs illustrating the simulated assaults and ways of breaking a hold.

While a given subject was fighting off her assailant, the rest of the subjects were active vicarious participants on the sidelines. They shouted the names of the most effective defensive blows for different patterns of assaultive actions. During each class session, subjects were direct participants in 5 simulated assaults and active vicarious participants in 70 other simulations. Following each enactment, subjects received corrective feedback and, if needed, additional instructive modeling of troublesome segments of self-defense.

In addition to mastering physical defensive skills, the subjects were taught attitudinal and verbal techniques for halting coercive and potentially assaultive encounters in their incipient stages. Through modeling and simulated enactments, they learned how to convey a confident demeanor, how to deal assertively with inappropriate personal encroachments, how to issue firm verbal warnings if they continued to harass, and how to yell to frighten off an attacker. Should these efforts fail, they were equipped to protect themselves physically. The sessions also included discussions of their experiences, risks, precautionary measures, and the self-impeding effects of viewing themselves as defenseless.

Measurement Instruments

Perceived Self-Efficacy

Self-efficacy scales were devised to measure perceived coping capabilities in three major domains, each represented by multiple scales describing different levels of coping capability. For each item in each efficacy scale, subjects rated the strength of their perceived efficacy that they could execute a given coping performance using a scale ranging from complete uncertainty (0) to complete certitude (10). Strength of perceived self-efficacy was computed by summing the magnitude scores and dividing by the total number of items.

Interpersonal self-efficacy was measured by eight scales 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 areas in public buildings.

Activities self-efficacy, which was assessed by 17 items encompassing a broad range of activities, included outdoor recreational activities such as walking, jogging and bicycling, attending evening cultural and educational events, and going by oneself hiking and to movies, restaurants, and concerts.

Self-defense efficacy was measured by 12 efficacy scales. The items described capabilities to execute different types of disabling strikes under varied types of assaultive attacks. Some of the items distinguished between assaults by strangers and those by acquaintances.

To evaluate the efficacy scales as conceptualized in terms of three facets, a principal-components analysis was performed on the efficacy coping data from the pretest and posttest phases. Inspection of the eigenvalues confirmed the a priori decision to extract three factors. An orthogonal varimax rotation was performed. Oblique rotation was also inspected but differed little from the orthogonal solution. Each item was identified with the factor for which it had the highest loading. At the pretest phase of the experiment, 17 items were identified with Factor 1, Activity Efficacy, with loadings on this factor ranging from .64 to .87; the 12 items identified with Factor 2, Self-Defense Efficacy, had factor loadings ranging from .55 to .95; and the 8 items identified with Factor 3, Interpersonal Efficacy, had factor loadings ranging from .52 to .79. The first three unrotated components accounted for 48%, 16%, and 8% of the variance, respectively. Similar results were obtained at the posttest phase of the experiment. The perceived efficacy factor for self-defense correlated .45 with the interpersonal factor and .41 with the activities factor; the latter two factors correlated .59. These findings indicate that the self-efficacy scales tap similar but only partially overlapping domains.

Internal consistency reliabilities were computed using Cronbach's alpha for each of the three domains of perceived coping self-efficacy. The reliability coefficients were .96 for Activity Efficacy, .97 for Self-Defense Efficacy, and .88 for Interpersonal Efficacy.

Cognitive control self-efficacy. Perceived self-efficacy to control negative thoughts was measured by having subjects rate, on a scale ranging from 0 to 10, their self-judged capability to turn off thoughts of sexual assault. The scale was anchored with descriptors of complete inability to dismiss thoughts of assault to ability to get rid of them easily.

Thinking Patterns

Negative thoughts. Subjects rated the frequency with which they found themselves thinking of sexual assault using a 6-point scale that ranged from rarely to persistently.

Personal vulnerability. Subjects judged their personal vulnerability to sexual assault on a 10-interval scale anchored at one end by not at all vulnerable and at the other end by highly vulnerable.

Risk estimate and discernment. Two 10-interval scales were used to measure perceived general risk. Subjects rated how widespread they felt the risk of sexual assault to be in the society at large and how difficult they found it to distinguish between safe and risky situations.
Figure 1. Action photographs of some of the types of disabling blows perfected in the simulated assaults.
Means and Standard Deviations for Each of the Dependent Variables at Each of the Phases of the Experiment

<table>
<thead>
<tr>
<th>Variable</th>
<th>Pretest 1</th>
<th>Pretest 2</th>
<th>Posttest</th>
<th>Follow-up</th>
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<td></td>
<td>M</td>
<td>SD</td>
<td>M</td>
<td>SD</td>
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<tr>
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<tr>
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<td>Interpersonal</td>
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<td>6.93</td>
<td>1.87</td>
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<td>2.51</td>
<td>5.39</td>
<td>2.80</td>
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<td>2.52</td>
<td>7.17</td>
<td>2.54</td>
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<td>Avoidant</td>
<td>22.52</td>
<td>16.93</td>
<td>29.67</td>
<td>21.23</td>
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</table>

Anxiety Arousal

Level of anxiety over the possibility of sexual assault was rated on a 10-interval scale that ranged from a high level of anxiety to no anxiety at all.

Participant and Avoidant Behavior

To measure the extent to which subjects enjoyed freedom of action or restricted their range of activities, they were provided with a long list of activities one might pursue outside the home. These included outdoor exercise such as jogging, walking, and bicycling; outdoor recreational activities; travel to different neighborhoods in the city, neighboring towns or cities, or distant cities; use of public transportation; going to evening events such as movies, lectures, plays, or concerts; going to parties and other social functions; working late hours or on weekends at a job; and dating.

Subjects recorded on scales ranging from 0 to 10 the frequency with which they engaged in each of 10 different classes of activities on their own. The scores were summed to provide a measure of the level of participant behavior. Failure to pursue certain activities does not necessarily indicate restriction of freedom. It may reflect disinterest, lack of resources, or lack of opportunity. Therefore, to measure avoidant behavior subjects recorded the frequency with which they actively avoided activities in these various categories because of concern over their personal safety.

Behavioral Test of Self-Protective Skill

In the final session, the subjects were administered three standardized behavioral tests of self-protective skill. In these simulated assaults, they were attacked from behind, pinned to the ground by an assailant who required several knockout blows, and had to fight off a surprise attack. These simulated assaults were videotaped and later coded for proficiency. One rater coded all of the simulated assaults, and a second rater independently coded the performance of eight subjects to provide a reliability check.

The subjects' self-protective actions were coded on scales ranging from poor to excellent in terms of seven different components of self-defense: timing, focus, power, aggressiveness, explosiveness, flexibility, and persistence. The scores were averaged across the three simulated assaults and components and averaged to provide an overall measure of strike proficiency. In addition, raters coded the overall effectiveness of each of the three self-defenses on an 11-point scale ranging from ineffective to knockout performance. The scores were averaged for the three simulation tests. The interrater reliability was r = .73 for strike proficiency and r = .81 for overall defensive effectiveness.

Subjects were not administered the simulated assaults in the pretest phase of the experiment because the high intensity assaults used in the standardized test could be traumatizing in the absence of self-protective skills and would, at most, have shown them to be defenseless against attacks with full force.

Past Experience with Physical and Sexual Assault

In order to test whether past abusive treatment affected responsivity to the mastery modeling program, subjects provided detailed information on whether they had been physically but nonsexually assaulted and whether they had been subjected to forced sexual intercourse. For each of these forms of assault they recorded whether their assailants were strangers, acquaintances or friends, family members, or husbands or boyfriends.

Results

The means and standard deviations for each of the dependent variables at each of the phases of the experiment are presented in Table 1. The significance of the changes in each of the three phases of the experiment was evaluated by pairwise t tests for repeated measures. The mean scores in the second pretest for...
Perceived Self-Efficacy

The changes achieved in perceived self-efficacy are summarized in Figure 2.

The subjects displayed no change in their sense of efficacy to control potential interpersonal threats and only minor changes in the other two facets of perceived self-efficacy over the two assessments in the control phase. However, the mastery modeling produced a marked increase in subjects' perceived self-efficacy to defend themselves against assailants (Table 2). The subjects also displayed substantial increases in perceived self-efficacy to control potential interpersonal threats and to engage in recreational, social, and community activities. The enhanced self-efficacy was well maintained over the follow-up interval, although there was a small but significant decline in perceived self-defense efficacy.

Perceived self-efficacy to control negative thoughts did not change during the control period. However, compared to their pretreatment baseline level, subjects were better able to exercise control over intrusive negative thinking at the end of treatment. Their perceived cognitive control efficacy was even stronger in the follow-up period than in the pretreatment phase, $t(33) = 2.19, p < .025$.

Perceived coping and cognitive control efficacy were temporally dissociated in the posttreatment phase ($r = -11$) but were positively related in the Pretreatment 1, $r(21) = .48, p < .02$; Pretreatment 2, $r(43) = .47, p < .001$; and Follow-up phases, $r(33) = .37, p < .02$. The stronger the subjects' sense of coping efficacy, the more readily they could exercise control over intrusive negative thinking.

<table>
<thead>
<tr>
<th>Variable</th>
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<th>Control</th>
<th>Treatment</th>
<th>Follow-up</th>
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<td>Risk and vulnerability</td>
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<td>Perceived risk</td>
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Table 2 shows the significance levels of the treatment effects in the various domains of functioning.

Cognitive and Affective Changes

Figure 3 presents the changes in the incidence of intrusive negative thinking, the perception and discernment of risk of sexual assault, perceived personal vulnerability to sexual victimization, and the level of anxiety.

Subjects exhibited a moderately high level of perceived threat and personal vulnerability and did not change in this regard during the control phase (Table 2). The mastery modeling concentrated heavily on how to ward off sexual assaults under a variety of circumstances, and, in the posttreatment behavioral test, subjects had to fend off high intensity assaults. Not surprisingly, the incidence of assaultive thoughts did not change over the treatment phase, but subjects reported significantly less intrusive negative thinking about sexual assault in the follow-up assessment. Although subjects did not alter their estimates of the prevalence of risk in the society at large, they judged themselves better able to distinguish between safe and risky situations.

The mastery modeling treatment markedly reduced their sense of vulnerability to assault and their anxiety over sexual victimization (Table 2). These changes were enduringly maintained.

Participation in Activities

Figure 4 shows the extent to which subjects engaged in or avoided such activities as outdoor exercise and recreation, travel to different community settings, and evening cultural and social events.

During the control period, subjects became somewhat more avoidant in their behavior (Table 2). However, after the mastery modeling they were significantly more active in social, recreational, and community activities and sustained the increased level of activity. They were also less inclined to shy away from...
activities following treatment and were even less avoidant in the follow-up period.

Relation of Perceived Self-Efficacy to Thinking Patterns and Anxiety Arousal

Each of the three facets of coping self-efficacy was correlated with thinking patterns and level of anxiety arousal. Because the analyses yielded highly similar patterns of correlates, scores from the three efficacy scales were combined to yield a composite index of perceived coping self-efficacy. Table 3 shows the correlations, separately for each phase of the experiment.

Perceived coping self-efficacy was generally related to intrusive negative thinking. The stronger the subjects' perceived self-efficacy, the stronger was their perceived self-efficacy to exercise control over such negative trains of thought and the less they were plagued with negative thoughts of sexual assault (Table 3). Perceived coping self-efficacy was similarly highly related to personal vulnerability and anxiety arousal. Strong perceived self-efficacy was accompanied by a low sense of personal vulnerability and low anxiety arousal. Subjects who had a strong sense of efficacy also judged themselves better able to distinguish between risky and safe situations and perceived the social environment as less risky than did subjects who distrusted their coping efficacy.

The findings lend consistent support for the influential role of perceived cognitive control efficacy in intrusive negative thinking and anxiety arousal (Table 3). Subjects who had a strong sense of efficacy to control their own thinking were less burdened by negative thoughts and experienced a low level of anxiety. Perceived coping self-efficacy was related to perceived personal vulnerability and risk discernment and to risk perception in the posttreatment and follow-up phases. However, perceived self-efficacy to control one's thoughts bore no consistent relationship to the vulnerability and perceived risk factors, which depend more on behavioral coping capabilities.

Relation of Perceived Self-Efficacy to Engagement in Activities

The extent to which subjects engaged in or avoided recreational, social, and community activities as a function of perceived self-efficacy is shown in Table 3. A strong sense of coping efficacy was associated with active involvement in activities and low avoidant behavior. Similarly, the stronger the subjects' cognitive control efficacy, the higher their participant behavior and the less avoidant they were of recreational and community activities.

Interrelations of Thinking Patterns, Anxiety Arousal, and Engagement in Activities

Perceived personal vulnerability was related to indicants of distress and avoidant behavioral tendencies (Table 3). The more vulnerable subjects judged themselves to be to sexual assault, the more difficulty they had in distinguishing between safe and risky situations, the more they found themselves thinking about sexual attack, the higher was their anxiety and the more they avoided outside activities. At the outset and the follow-up periods, the subjects judged their own vulnerability as separate from how widespread they believed the risk of sexual assault to be within society as a whole. These factors were unrelated. However, in the pretest and posttest phases, perceived general risk was positively related to perceived personal vulnerability.

Perceived risk and risk discernment were primarily related to the incidence of intrusive negative thinking. Negative thoughts of sexual assaults were, in turn, associated with level of anxiety arousal. Anxiety correlated with avoidant behavior but bore a variable relationship to participant behavior. Finally, high intrusive thinking about sexual assault was accompanied by low participant behavior and high avoidant behavior.
Subjects' defensive performances in the standardized simulated assaults revealed a relatively high level of proficiency in the use of the self-protective skills they had learned through mastery modeling. In skill to execute specific disabling blows, only one subject’s mean score fell just below the medium level of proficiency, 19% were at the medium level, and the remaining 79% were rated in the highly effective range. In their overall skill to defend themselves, two subjects had difficulty overpowering their assailants, 26% could break free and disable their attacker, and the remaining 70% defended themselves even more forcefully in the direction of knockout blows.

Because the uniformly high level of skill development produced a highly restricted range of scores, neither skillfulness in executing specific disabling blows nor overall skillfulness in self-defense was correlated with any of the measures of perceived self-efficacy. This evidence that perceived self-efficacy is not simply reflective of level of actual skill underscores the influential role of self-efficacy beliefs in the regulation of thought, affect, and action in situations involving interpersonal threats. Nor was the small variation in actual skill related to negative
thoughts, anxiety arousal, or the extent to which subjects engaged in participant or avoidant behavior. Only one relationship was obtained: The higher the skill in disabling tactics, the lower the perceived personal vulnerability, $r(43) = -0.33$, $p < .02$.

Path Analysis of the Causal Structure

The causal ordering of the various personal factors in the regulation of anxiety arousal and behavior was tested by path analysis. The structure of the causal model is described in the introductory section of this article. Hypothesized causal relations were analyzed separately for the different phases of the experiment. However, the analysis of the causal structure at the pretest phase was conducted only on the second set of pretest data because they were based on the full sample size. Because of the small sample size, the path analysis was used as a structured method to visualize the causal relations among variables in regard to the specified model.

Figure 5 shows the significant standardized path coefficients in the postulated model with the nonsignificant paths deleted. Both perceived coping self-efficacy and cognitive control self-efficacy show distinctive subpatterns of linkages to the cognitive and affective factors and are similar at the three periods of assessment. Perceived coping self-efficacy affects perceived personal vulnerability, which mediates risk discernment and general risk perception. Perceived cognitive control self-efficacy has a strong impact on negative thoughts, which, in turn, arouse anxiety. The effects of perceived coping self-efficacy on anxiety are mediated through cognitive control efficacy. However, in accord with prediction, anxiety arousal did not mediate the effects of perceived self-efficacy on behavior, nor did anxiety have any independent effect on behavior.

Although there is substantial correspondence of the dual paths of influence to the specified models across the three periods of the experiment, the causal structure changes interestingly in a few details. At pretest, the path of influence from perceived coping self-efficacy to participant and avoidant behavior is mediated through cognitive control efficacy and negative thoughts. Following the mastery modeling, perceived coping self-efficacy exerts its effects on behavior through its impact on perceived personal vulnerability and risk discernment. Perceived cognitive control self-efficacy contributes independently to avoidant behavior but has no effect on participant behavior. In the follow-up period, perceived coping self-efficacy regulates both participant and avoidant behavior through mediation by perceived personal vulnerability and risk perception, but it also affects avoidant behavior through the cognitive control path of influence.

Assault History and Responsiveness to Mastery Modeling

Perceived self-efficacy and personal vulnerability were adversely affected by past forced intercourse. The pattern of relationships at the pretest phase revealed that women who had experienced forced intercourse expressed a lower sense of efficacy to cope with interpersonal threats, $t = 1.51$, $p < .07$, and to engage in activities that may contain some elements of risk, $t = 1.57$, $p < .06$; they also felt more vulnerable to assault, $t = 1.39$, $p < .09$, and they exhibited more avoidant behavior, $t = 1.97$, $p < .03$. However, the mastery modeling overrode the preexisting adverse effects of sexual abuse on perceived self-efficacy and personal vulnerability. In the posttreatment and follow-up periods, those who had experienced forced intercourse no longer differed on any measure from those who had not.

Women who had experienced past physical assaults perceived themselves as vulnerable in a social environment they viewed as fraught with danger. Compared to women who had not suffered physical assaults, in the pretest phase, they perceived a higher risk of sexual assault, $t = 2.18$, $p < .02$; they judged themselves more vulnerable to sexual assault, $t = 1.92$, $p < .03$, and were less efficacious in turning off such intrusive thinking, $t = 1.40$, $p < .09$; and they had greater difficulty distinguishing between safe and risky situations, $t = 2.27$, $p < .04$.

Mastery modeling not only removed all of these preexisting sensitivities but actually instilled a greater sense of cognitive control. Thus, in the posttreatment phase, women who had a history of physical assault surpassed those who did not in perceived self-efficacy to control ruminative thinking, $t = 1.99$, $p < .06$, in reduction in negative thoughts, $t = 2.09$, $p < .05$, and in diminished anxiety over sexual assault, $t = 2.33$, $p < .03$.

The preexisting adverse effects of sexual and physical assaults were enduringly eliminated by the mastery modeling. This is shown in the fact that there were no differences in the follow-up assessment on any of the measures as a function of assault history.
Table 3
Patterns of Relations Between Perceived Self-Efficacy, Perceived Personal Vulnerability, Negative Thoughts, Perceived Risk, Anxiety Arousal, and Action at Each of the Four Phases of the Experiment

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<th>Negative thoughts</th>
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Note: Pre₁ = Pretest 1; Pre₂ = Pretest 2; Post = Posttest; FU = Follow-up.
† p < .10. * p < .05. ** p < .01. *** p < .001. **** p < .0001.

Discussion
The findings of this study contribute to the understanding of the diverse effects of empowerment through mastery modeling and the mechanisms through which it produces its effects. Subjects exhibited little or no change during the control phase. Nor did they differ in any respect at the end of the control period from the pretest characteristics of new samples. However, mastery modeling on how to exercise control over sexually coercive and assaultive situations substantially enhanced their perceived coping self-efficacy.

Mastery modeling also instilled a progressively increasing sense of efficacy to control intrusive negative thoughts. The increased capability to exercise control over one’s own consciousness is an especially important benefit. Thoughts about the threat of sexual victimization can continuously intrude on one’s daily life. It is noteworthy that perceived coping self-efficacy developed more rapidly than did cognitive control self-efficacy. The fact that the mastery modeling focused primarily on self-protective skills rather than on cognitive control may partially account for the difference. An alternative explanation is that negative cognitions about threats that have a clear basis in reality are not that easily dismissable. Nor would it be functional to do so in high-risk situations. The aim is to control perturbing cognitions under conditions of little or no risk that create needless distress and constrain freedom of activity.

The degree of perceived cognitive control self-efficacy was related to the level of perceived coping self-efficacy. This obtained relation corroborates earlier findings that a strong sense of efficacy rooted in performance capabilities can have a substan-
Figure 5. Path analyses of causal structures at each of the three phases of the experiment. (The numbers on the paths of influence are the significant standardized path coefficients; the numbers in parentheses are the significance levels. The solid line to behavior represents avoidant behavior; the hatch line represents participant behavior. Path coefficients in the model that fell below the .10 level of significance were deleted from the figure.)

Evidence that the dual paths of influence in the causal structure are essentially replicated at three disparate points in time speaks to the tenability and reliability of the model. The one notable divergence is the temporary dissociation of perceived cognitive control efficacy from perceived coping efficacy in the posttreatment phase. This finding may reflect the salience and high cognitive availability of powerful assaultive experiences in...
this terminal period. As participants gained power and ability to defend themselves, the simulated assaults increased in intensity toward the end of treatment. Moreover, in the posttreatment behavior test of self-protective capabilities, participants had to fend off high intensity assaults. Such forcible experiences are initially likely to prompt intrusive cognitions regardless of one's perceived coping capabilities. But as their salience declines with the passage of time, a strong sense of coping efficacy makes it easier to dismiss negative cognitions should they recur.

Extension of self-efficacy theory to the regulation of one's own consciousness through the exercise of thought control efficacy helps to broaden understanding of the processes of cognitive self-arousal. Perceived self-efficacy also has a bearing on contemporary cognitive theories of emotion. For example, in their dimensional approach to emotion, Smith and Ellsworth (1985) included perceived capability to exercise control as a cognitive appraisal factor that affects emotional experience. The findings of the present study reveal that perceived self-efficacy to turn off intrusive negative cognitions is an important determinant of anxiety arousal. Perceived cognitive control efficacy influences other affective states as well. Much human depression is cognitively generated by dejecting thought patterns (Nolen-Hoeksema, 1987). Perceived self-efficacy to exercise control over ruminative thought has been shown to predict the occurrence, duration, and recurrence of depressive episodes (Kavanagh & Wilson, 1989).

Following the mastery program, subjects judged themselves much less vulnerable to sexual victimization and better able to distinguish safe from risky conditions. However, they did not alter their estimation of the risk of sexual assault in the society at large. Thus, they showed no minimization of the level of general risk but perceived a lower personal risk as a function of mastering reliable self-protective skills. They were also less often plagued by intrusive negative thoughts and experienced less anxiety arousal. One of the participants described her welcome relief from apprehensiveness:

My fear and anxiety about men diminished markedly after taking the course, which gave me a great sense of relief and freedom. Confidence in my ability improved and I no longer feel hopelessly helpless. I now have some new tools for defense if needed and more appropriate attitudes and awareness.

Enhanced self-efficacy was reflected in expanded freedom of action. Subjects participated more actively in outdoor recreational activities, they used public transportation more readily, and they felt freer to attend evening cultural and educational events and social activities:

I feel freer and more capable now than ever. I now make choices about what I will or won't do based on whether or not I want to, not whether or not it is frightening to me.

Their avoidant behavior was markedly reduced. The participants described personal changes that extended beyond activity level. The efficacy-enhancing program altered their self-conceptions and general demeanor:

Their avoidant behavior was markedly reduced. The participants described personal changes that extended beyond activity level. The efficacy-enhancing program altered their self-conceptions and general demeanor:

This class was very helpful in building my self-confidence and how I look upon myself. Though I was never timid and never walked looking at the ground, I am more confident walking down the street knowing that I could defend myself now if I had to. ... It really helped me to give up the victim role in many aspects of my life.

These types of changes illustrate the important preventive function served by a strong sense of self-protective efficacy. The greater the control exercised early in a potentially threatening situation, the less likely the situation is to develop into an assaultive one. A self-assured demeanor and firm response can thus reduce the likelihood of coercive or assaultive treatment.

In their previous experiences, some of the women had difficulty coping with coercive behavior for fear that protests would elicit escalating aggression, which they would be ineffectual to control. Their enhanced sense of self-protective efficacy enabled them to set firm limits and halt potentially dangerous situations before they went too far:

I am much more comfortable with defining my limits and saying "no" in dating and other situations. ... It helps me to draw the line with a boyfriend. If I feel physically threatened I am much more prepared to defend myself than previously. ... Knowing that I can knock someone out, I am not worried about what will happen if a casual intrusion "escalates" into violence. I can object while it is still casual. I can name it as an intrusion rather than denying it out of fear of making someone madder.

Forced intercourse by acquaintances occurs with some frequency (Shatland, 1985). Because the self-protective capability can be used effectively, if needed, in different social relationships in diverse settings, it provides generalized interpersonal benefits.

Concerns have sometimes been raised that an empowerment program may be detrimental to women because their newfound confidence may lead them to behave recklessly. Such concerns are rarely, if ever, voiced by the women who have gained capability to protect themselves. Enhanced self-efficacy does not dispose them to wander heedlessly into dangerous situations. Rather, indiscriminate avoidance is supplanted by flexibly adaptive behavior that is cognitively controlled by judgments of the probable consequences of actions. If anything, the increased ability to judge the riskiness of situations fostered a realistically based caution:

Although if assaulted, I feel much more confident of disabling my assailant. I am also less likely now to allow myself to get into situations where I might be assaulted. I think it's a positive result of the course. I am now more realistic, less in denial about the possibility of assault. Before I was so afraid I acted like there was no possibility of assault. So, I both feel more confident and am more cautious. ... Before I took the course, I was terrified of the possibility of physical and sexual assault and felt helpless to protect myself. Now, I still have a healthy fear or concern, but I do not feel as restricted as I did.

None of the subjects in the present study had experienced an attempted sexual assault during the period covered by the assessments. At the completion of the empowerment program, all participants are instructed to report any incidents of sexual assault, and interviews regarding reported incidents are conducted whenever possible. Of the hundreds of women who have completed the mastery model program, 40 have reported experiencing attempted sexual assaults. In these assaults, 38 of the women escaped rape—30 of the women stunned and disabled their assailants and 8 frightened them off with counterstrikes. Two women who did not fight back because their assailants were
armed were raped. Because selective factors may operate in willingness to report sexual assaults, these data should be interpreted with caution.

Results of the path analysis corroborate the influential role played by self-beliefs of efficacy in the beneficial cognitive, affective, and behavioral outcomes of personal empowerment. A strong sense of coping efficacy created a pattern of cognitive and affective, and behavioral outcomes of personal empowerment. The path analyses of causal structures revealed dual paths of regulation of behavior by perceived coping self-efficacy, one mediated through perceived personal vulnerability and risk discernment and the other through perceived cognitive control self-efficacy and intrusive negative thinking. However, the relative contribution of these two paths of influence varied somewhat at different temporal periods. Initially, perceived coping self-efficacy exerted its effects on behavior through perceived cognitive control self-efficacy. But after subjects had acquired self-protective capabilities, they regulated their participant and avoidant behavior on the basis of their perceived coping self-efficacy independently of how much control they could exercise over negative thoughts. The strong physical empowerment temporarily dissociated perceived cognitive control efficacy from perceived coping self-efficacy. Perceived cognitive control self-efficacy continued to exert influence over avoidant behavior but not over participant behavior. In the long-term assessment, perceived coping self-efficacy and cognitive control self-efficacy were again operating in concert in the regulation of participant and avoidant behavior.

The differential linkage of action and thought efficacy to perceived personal vulnerability is in keeping with the distinction drawn by Lazarus and Folkman (1984) between coping strategies that regulate affect and those used to promote adaptive behavior. Being able to turn off scary thoughts does not make one more skilled at fending off assailants. However, mastering self-protective capabilities does reduce one's sense of personal vulnerability.

Both perceived coping self-efficacy and cognitive control self-efficacy were related to level of anxiety over possible victimization. The more ineffectual subjects perceived themselves to be in their coping capabilities and in their ability to turn off perturbing trains of thought, the more they were plagued by negative thoughts and the stronger the anxiety they experienced. However, anxiety arousal did not account for variation in participant or avoidant behavior. This finding is in accord with a growing body of evidence that behavior involving risks is regulated by self-beliefs of coping capability rather than by anxiety arousal (Bandura, 1988b; McAuley, 1985; Williams, Dooseman, & Kleifeld, 1984; Williams, Kinney, & Falbo, 1989; Williams & Watson, 1985). In these studies, perceived self-efficacy predicts avoidant behavior when anticipatory anxiety is statistically controlled, whereas the relationship between anticipatory anxiety and avoidant behavior essentially disappears when perceived self-efficacy is partialed out. Anticipatory anxiety and avoidant behavior are thus effects of perceived self-infficacy.

Estimates of society-wide risk of victimization were linked to perceived personal vulnerability, but perceived general risks did not affect behavior and had little or no impact on anxiety. These findings underscore the importance of distinguishing between personal and general risk. As long as people avoid high-risk situations that would threaten their personal safety, they have much less to fear. Heath (1984) found that the amount of fear instilled by sensational crime reports depends on the social and geographic distance between the readers and the victims. Media reports of victimization in one's own locale that appear unpredictable and uncontrollable arouse the greatest fear in the local population. Media reports of general incidence risk are more apt to heighten perceptions of societal dangers than of personal risks in one's own environmental setting (Tyler & Cook, 1984).

Whether or not women need or choose to use the physical self-protective capabilities they have mastered, their enhanced sense of self-assurance and risk discernment can, in itself, be self-protective by deterring coercive and aggressive conduct or halting it in its incipient stages. Also personal well-being is improved by the alleviation of aversive cognitive and affective states. Thus, the results of this study indicate that empowering people with the means to exercise control over social threats to their personal safety serves to both protect and liberate them.

References


Received January 17, 1989
Revision received June 13, 1989
Accepted August 9, 1989