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*All women face the threat of rape, forcing them to (a) decide what to do to reduce their chances of being assaulted (rape prevention) and (b) how to defend themselves if assaulted (self-defense). A principal basis for such decisions should be women's estimates of the effectiveness of possible prevention and self-defense strategies for reducing the risk of rape. This study examined effectiveness judgments, using an explicit quantitative scale for expressing effectiveness. Participants included three diverse groups of women (differing in age, family situation, and socioeconomic status), one group of men, and a group of sexual assault experts. Effectiveness judgments were elicited for 16 prevention strategies and 14 self-defense strategies that were mentioned most frequently in a previous open-ended questionnaire. All five groups judged these prevention strategies to be highly effective, women more so than both men and sexual assault experts. Possible bases for these apparently unrealistically high estimates are discussed. There was much greater variability in judgments for the self-defense strategies, but the respondent groups generally agreed with each other and with available statistical estimates of effectiveness.*

## ***Judged Effectiveness of Common Rape Prevention and Self-Defense Strategies***

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***All women must decide***, consciously or unconsciously, how to respond to the all-too-ubiquitous threat of rape. First, they must decide what, if anything, to do to minimize their chances of being assaulted. If the rape prevention strategies that they choose fail, then women must decide how to defend themselves in case of an assault. A principal basis for such decisions should be women's estimates of how effective various prevention and self-defense strategies are in

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reducing the risk of rape.<sup>1</sup> Previously, we have studied which strategies women consider using for rape prevention and self-defense (Furby, Fischhoff, & Morgan, in press-a, in press-b). The present study examines how women perceive the effectiveness of the most common of those strategies and, where possible, how accurate those judgments are. Erroneous judgments may lead women to misdirect their energies, relying on strategies that are ineffective, passing up ones that could better reduce their risks.

There has been almost no empirical study of women's beliefs about the effectiveness of rape prevention strategies. In the only exception, Riger and Gordon (1979) asked women in three large U.S. cities to evaluate 11 strategies on a scale with three possibilities: "help a great deal," "help somewhat," "help hardly at all." Their data analysis consisted of a factor analysis of these judgments, revealing two factors labeled by the authors as "restrictive measures" and "assertive measures." However, these two factors accounted for only about one-third of the variance in effectiveness judgments. Moreover, the method used allowed only a rough assessment of the accuracy of these judgments: Not only was a relative rather than absolute scale used, but previous research (e.g., Beyth-Marom, 1982; Poulton, 1982) has shown substantial differences in how individuals interpret verbal expressions such as "help a great deal."

The present study builds on this pioneering work by (a) using an explicit quantitative scale for evaluating effectiveness, (b) using a systematically selected set of strategies, drawn to represent the domain of strategies that women actually consider, (c) eliciting judgments separately for strategies designed to prevent rape assaults from occurring and those designed to avoid rape once an assault has commenced, (d) focusing analysis on effectiveness judgments of individual strategies rather than on factor analyses of such judgments, and (e) soliciting judgments from both men and sexual assault experts. Because it is males who perpetrate rape, men (even those who have never raped) may know some things that women do not know about how effective strategies are with men. Thus if men judge a given strategy to be more (or less) effective than do women, that strategy deserves closer scrutiny—it may be more (or less) useful than women realize. Differences between expert and lay perceptions also should identify strategies that bear closer scrutiny, as well as potential sources of miscommunication between the two groups. Given experts' experiences with large numbers of sexual assault cases, they may have particular insights. On the other hand, women may have privileged knowledge that neither of these other two groups enjoys.<sup>2</sup>

## METHOD

### Data Collection

#### *Respondents*

A questionnaire was administered to five groups of volunteer respondents: (a) 41 women recruited through a university newspaper advertisement, (b) 42 men recruited through the same university newspaper advertisement, (c) 40 women belonging to support groups for parents of young children, recruited at their regularly scheduled meetings, (d) 40 middle-aged university alumnae, recruited by mail solicitation and randomly selected from a list of all female graduates from the institution between 1954 through 1959, and (e) 47 sexual assault experts (38 females and 9 males) working primarily in criminal justice, victim assistance, or private consulting, and recruited by mail solicitation from a list we compiled of all sexual assault professionals known to us whose work suggested that they should have extensive knowledge of the circumstances and dynamics of rape assaults. The first four groups resided in or around a medium-sized university and logging city with a small minority population. The sexual assault experts were located throughout the country.

The advertisement recruiting the two university groups requested subjects for "experiments in judgment and decision making." When candidates phoned to reserve a place, the women were assigned, without their knowledge, to a group that was all women, in order to minimize any discomfort they might feel when answering questions about rape in the presence of men. The men were assigned to a group that included both men and women, in order to eliminate any tendency men might have to take this topic less seriously when in an all-male group. The women in this mixed group received questionnaires on topics other than rape. Respondents were unaware of the difference.

Members of the other three groups were informed of the questionnaire topic when initially approached to participate. They were asked to complete the questionnaire at their convenience and to return it by mail. Completed questionnaires were received from 59% of the young mothers (recruited in person), 35% of the middle-aged alumnae, and 43% of the experts (both recruited by mail). It is unclear how the nature of the topic affected participation decisions, but returned questionnaires indicated high levels of involvement.

The three female groups were selected to differ in age, income level, and whether they were living with a male partner. The differences among their responses should suggest how those aspects of life experience affect women's thinking about the risk of rape and about the effectiveness of strategies to prevent it. However, these samples should not be construed as statistically representative of their demographic groups, given the solicitation methods and moderate return rates. Indeed, this was not meant to be a survey study, but rather one focusing on cognitive psychology and methodology. If it proves to be sufficiently persuasive, then its methods might be extended to use in large-scale, representative sampling studies.

Although detailed demographic information was not obtained for the student groups, Furby et al. (in press-a) describe previous samples drawn from this university community. The female students were primarily unmarried undergraduates in their 20s; few were employed outside of school; a majority lived in dorms or apartments with friends. The university alumnae might be thought of as the same women 25 years later; most were in their 40s and 50s (mean age = 49.5 years); most (80%) were married and lived with their husband or other male partner; almost all (93%) had children; 78% were working outside the home; all lived in households with incomes of \$20,000 or more. The young mothers were all in their 20s and 30s (mean age = 29.1 years); all had children; most (82%) were married and lived with their husband or other male partner; 28% worked outside the home; only 4% had household incomes over \$20,000 per year (and 25% were below \$10,000). Previous sampling from this university community has shown the male respondents to resemble the female college students in most respects. They are very slightly older on average, slightly more likely to be married, and somewhat more likely to be working. The experts had, on average, 10 years of experience in the field of sexual assault. Female experts described themselves as being primarily private consultants and instructors in rape prevention and self-defense or as involved in victim assistance. Four of the nine male experts were primarily in institutional offender treatment (dealing with sex offenders of all types). Only two males and one female were primarily engaged in research on sexual assault. We consider this group to be "experts" by virtue of their considerable professional experience in the field of sexual assault—we did not attempt an independent assessment of their knowledge or competence.

### Questionnaire

As part of a larger questionnaire on judgments about rape, respondents were asked about the effectiveness of both rape-prevention and self-defense strategies. A previous open-ended questionnaire administered to respondents drawn from the same populations (Fischhoff, Furby, & Morgan, 1987b) had identified 1,140 such strategies. As it was impossible to elicit effectiveness judgments for all 1,140 strategies, we focused on the most commonly mentioned strategies.

*Rape prevention.* For each of 16 strategies, female respondents were asked how much they thought it would do to reduce their overall chances of being assaulted with the intent to rape, using the following scale:

|  |    |    |    |    |   |    |    |    |    |  |
|--|----|----|----|----|---|----|----|----|----|--|
| 0%   | 10 | 20 | 30 | 40 | 50  | 60 | 70 | 80 | 90 | 100%   |
| it would not<br>reduce my<br>chances of<br>being assaulted<br>at all |    |    |    |    | it would reduce<br>my chances<br>by about<br>half |    |    |    |    | it would completely<br>eliminate my<br>chances of<br>being assaulted |

Respondents were instructed to “think about your overall chances of being the victim of a rape assault under any circumstances” and then to indicate “how much each strategy would reduce those chances.” They were given several examples of how to use the scale (i.e., “55% means that you think this strategy would reduce your chances of being assaulted by slightly more than half; 1% means that you think this strategy would reduce your chances by only a very, very tiny amount”). In order to avoid ambiguity, strategies were described as if they were implemented consistently (e.g., “if you always locked the doors at your residence”) and respondents were asked to assess the effectiveness of such consistent strategy use in comparison to never using the strategy at all (e.g., “compared to if you never locked your doors”).

*Self-defense strategies.* For each of 14 strategies, female respondents were asked how it would affect the chances that an assailant would rape her once an assault had begun, using the following scale:

| "harmful"   | 0%  | 10 | 20 | 30 | 40 | 50  | 60 | 70 | 80 | 90  | 100% |
|---|---|----|----|----|----|---|----|----|----|---|------|
| It would<br><i>increase</i><br>the chances<br>he would<br>rape me | It would<br>not affect<br>the chances<br>that he would<br>rape me |    |    |    |    | It would<br>reduce the chances<br>he would rape me<br>by about half |    |    |    | It would be<br>absolutely<br>certain to<br>keep him from<br>raping me |      |

For each strategy, respondents were asked to judge the effectiveness of using it "compared to if you did nothing to try to stop him." The 16 strategies included the ten mentioned most frequently in our previous open-ended questionnaire (Furby et al., in press-b) and four additional strategies that were mentioned by relatively few respondents, but whose effectiveness has been studied empirically (Furby & Fischhoff, in press).

*Other versions.* The male and expert subjects received identical questions except that references to "you" were replaced with "a woman." In addition, the men were instructed to think about the risk of rape for women students at their university. This focus, as well as the fact that the men are most similar demographically to the college women and most familiar with the college living environment, their results are most appropriately compared with those for the college women. The experts (who live throughout the United States) were instructed to think about the risk of rape for a woman living in a city similar to that where the women in all three female groups reside. The purpose of this instruction was to make their responses as comparable as possible to those of the three female groups combined.

## RESULTS

### Rape Prevention

Results for the three female groups were remarkably similar. None of the one-way ANOVAS on the differences among the three groups for each of the 16 strategies was significant.<sup>3</sup> The results for these three groups were combined in subsequent analyses.

Table 1 presents mean judgments of how much each strategy would reduce the risk of being raped. The most striking feature of these results is how much is expected of these strategies. Every strategy was judged by every group to reduce risk by at least one-third. Across

TABLE 1  
Prevention Strategy Effectiveness<sup>1</sup>

| Strategy <sup>2</sup>  | Respondent Group          |                           |                             |
|--|---------------------------|---------------------------|-----------------------------|
|  | Women                     | Men                       | Experts                     |
| Reduce Accessibility of Woman to Potential Assailant                         |                           |                           |                             |
| If a woman <sup>3</sup> always locked the doors at her residence             | 67.7 <sup>a</sup><br>(2)  | 57.9<br>(15)              | 49.9 <sup>a</sup><br>(5)    |
| If a woman always locked her car doors when she parked                       | 61.3 <sup>a</sup><br>(8)  | 48.3<br>(10)              | 39.5 <sup>a</sup><br>(12.5) |
| If a woman always checked the rear seat and floor of the car before entering | 60.3 <sup>a</sup><br>(10) | 48.1<br>(11)              | 40.7 <sup>a</sup><br>(10)   |
| If a woman always locked the doors when she was in a car                     | 57.9 <sup>a</sup><br>(14) | 50.9<br>(7)               | 39.9 <sup>a</sup><br>(12.5) |
| Increase Woman's Perceived Ability to Cope with Assailant                    |                           |                           |                             |
| If a woman always appeared confident and looked strong                       | 59.8<br>(11)              | 43.7<br>(14)              | 63.3<br>(2)                 |
| If a woman always walked briskly and at a steady pace                        | 56.7<br>(15)              | 36.4 <sup>b</sup><br>(15) | 54.8<br>(4)                 |
| Increase Perceived Chances of Outside Intervention                           |                           |                           |                             |
| If a woman never went out without a friend or two for protection             | 72.8 <sup>a</sup><br>(1)  | 76.2<br>(1)               | 50.8 <sup>a</sup><br>(5)    |
| If a woman always parked at night in well-lit areas close to her destination | 66.3 <sup>a</sup><br>(3)  | 58.4<br>(4)               | 43.8 <sup>a</sup><br>(8)    |
| If a woman <sup>3</sup> never walked alone after dark                        | 65.9 <sup>a</sup><br>(4)  | 66.3<br>(2)               | 37.4 <sup>a</sup><br>(15)   |



| Strategy <sup>2</sup>   | Respondent Group          |                           |                           |
|---|---------------------------|---------------------------|---------------------------|
|   | Women                     | Men                       | Experts                   |
| If escort services were readily available to women  | 64.1 <sup>a</sup><br>(5)  | 64.3<br>(3)               | 36.5 <sup>a</sup><br>(16) |
| If a woman always avoided isolated routes or areas  | 63.5 <sup>a</sup><br>(6)  | 56.3<br>(6)               | 42.8 <sup>a</sup><br>(9)  |
| If more lighting were put in public areas   | 60.7 <sup>a</sup><br>(9)  | 50.8<br>(8)               | 40.5 <sup>a</sup><br>(11) |
| Increase Perceived Chances of Punishment  |                           |                           |                           |
| If there were more certain and severe punishment for rapists                                      | 59.5 <sup>a</sup><br>(12) | 46.9<br>(13)              | 37.5 <sup>a</sup><br>(14) |
| Reduce Men's Propensity to Rape   |                           |                           |                           |
| If pornography and violence against women were eliminated in the media                            | 54.8<br>(16)              | 32.2 <sup>b</sup><br>(16) | 47.4<br>(7)               |
| Increase Woman's Ability to Implement Prevention Measures   |                           |                           |                           |
| If a woman always stayed vigilant and aware of her surroundings                                   | 61.4<br>(7)               | 47.1<br>(12)              | 64.1<br>(1)               |
| If there were frequent public awareness programs regarding the problem of rape and its prevention | 58.6<br>(13)              | 50.6<br>(9)               | 60.0<br>(3)               |

- a. Strategies for which means for women and experts are significantly different ( $p < .05$ , two-tailed t-tests, Bonferroni technique).
- b. Strategies for which means for male and female college groups are significantly different (female college means are not shown, but significantly different means are presented in text).
1. Judged reduction in a woman's overall risk of rape assault, see text (rank order is in parentheses).
  2. Strategies are categorized according to their intended effect, that is, how they work—see Fischhoff, Furby, and Morgan (1986).
  3. For female respondents, item wording used the second person (e.g., "If you never walked alone after dark").

all strategies, the mean judged reduction in a woman's chances of being assaulted was 62.0% for women, 52.2% for men, and 46.8% for experts. The difference between women and experts is highly significant ( $p < .001$ , two-tailed t-test). The difference between the men and their female college counterparts (60.0%) was significant as well ( $p < .05$ , two-tailed t-test).<sup>4</sup> Thus the women were most convinced and the experts least convinced of these strategies' usefulness, with the men falling somewhere in between. However, even the experts' mean judgment indicated reducing risk by almost half. If the effects of these strategies were independent, any combination of several strategies should push rape risks to the vanishing point. For example, pursuing the three strategies judged by the experts to be *least* effective should reduce the risk of assault by 73% (i.e.,  $1 - [(1 - .326)(1 - .365)(1 - .374)]$ ). For females and males, the corresponding reductions would be 91% and 76%. There were, however, large individual differences within each group: The ranges of individuals' mean judgments of risk reduction were 18%-90% for women, 9%-78% for men, and 15%-83% for experts. Thus respondents disagreed considerably about the average effectiveness of these strategies for reducing rape risk.

The female respondents not only provided higher risk reduction estimates than the experts, but, as a group, discriminated considerably less among the strategies. The range of their mean judgments of the 16 strategies was only 18.0%, compared with 31.5% for experts; the range for males was 44.0%, compared with 19.8% for their female college counterparts. The standard deviations of the mean judgments for individual strategies were generally no larger for women than for the other two groups (mean standard deviation = 24.2, 24.8, and 26.2 for women, men, and experts, respectively). Thus the restricted range of strategy means cannot be attributed simply to greater disagreement among women (which would produce more similar mean judgments). Instead, women seem to see these 16 strategies as relatively more similar in effectiveness than do the other two groups. Even so, women did discriminate significantly among the strategies ( $p < .001$ , one-way ANOVA).

In addition to disagreeing about the absolute effectiveness of the strategies, the groups also disagreed about relative effectiveness. The rank correlation between the means for women and experts was  $-0.10$  (n.s.). There was more agreement between the males and their female college counterparts, with a significant ( $p < .01$ ) rank correlation of  $.66$ . The men disagreed with the experts even more strongly than did

the women ( $r = -.51, p < .05$ ). Thus lay people in this study judged the relative effectiveness of these 16 strategies quite differently than did the experts.

This result is strengthened by comparing mean effectiveness ratings for individual strategies. The most striking group differences were those among the experts and the other two groups. In total, 11 of the 16 strategies were judged to be significantly more effective by women than by experts ( $p < .05$ , two-tailed *t*-tests, familywise  $\alpha = .05/16$ ). Compared with the lay groups, experts saw considerably less value to the strategies of parking in well-lit areas, not walking or going out alone after dark, taking along a friend for protection, and making escort services available. All four of these are strategies designed to increase the perceived chances of outside intervention (Fischhoff et al. [1987b] provide a detailed categorization of strategies by their intended effects). Experts may be more aware than lay people of how many rapes take place when other people are actually, or potentially, present. If so, these lay misperceptions in this respect may be due in part to a bias in media-reported rapes. In a study of newspaper coverage of rape cases in the same county in which the male and female data were collected, Schwengels (1984) found that newspaper reports underrepresented rape cases where others were present: Others were present in 30% of cases reported to the police, compared with only 8.6% of those reported in news accounts.

There were seven additional strategies that the experts judged to be significantly less effective than did the women (and also than the men, but not significantly so). Like the four strategies just discussed, six of these seven consisted of methods for protecting oneself physically, using either other people (avoid isolated areas; get better lighting in public areas, so others can see you) or physical barriers (lock residence; lock car doors, when inside car and when parked; check rear seat of car before entering). The one other strategy judged less effective by experts was more punishment for rapists. In contrast, none of the five strategies for which women and experts agreed on effectiveness involved physical protection. Two were designed to increase a woman's perceived ability to cope with an assailant (appear confident, walk briskly), two to increase her ability to implement prevention measures (both generally and in specific situations), and one to reduce men's propensity to rape. Thus experts put less faith, both relatively and absolutely, in physical protective measures and more faith (relatively, but not absolutely) in several other kinds of measures.

Comparing men with their female college counterparts, the only significant ( $p < .05$ , two-tailed  $t$ -tests, familywise  $\alpha = .05/16$ ) differences for individual strategies were men's lower effectiveness ratings for eliminating media pornography and violence against women, and for walking briskly.

There was only a weak correlation (rank  $r = .23$ , *n.s.*) between the women's mean judgments of strategy effectiveness here and the percentage of women in a previous study (Furby et al., in press-a) who mentioned each of these 16 strategies in response to open-ended questions about what they, other women, and society in general can do to prevent rape assaults. Thus the ease with which strategies came to mind bore little relation to their perceived effectiveness. This was true for men as well (rank  $r = .20$ , *n.s.*). In contrast, the rank-order correlation for experts between the likelihood of mentioning a strategy in the previous study and its judged effectiveness here was  $.52$  ( $p < .05$ ). Perhaps experts so frequently give advice about the most effective strategies that these are more likely to come to mind.

In response to an open-ended question asking respondents if they had any difficulty with this task, 11% of lay respondents and 15% of experts reported being very uncertain about their answers. However, there was a marked contrast in the reported sources of their uncertainty. The lay groups typically expressed a general feeling of ignorance about what the answers should be (e.g., "I'm just guessing"), whereas the experts' uncertainty was almost always due to feeling that the answer "depends on a lot of variables." Perhaps the former feel they simply lack information on strategy effectiveness, whereas the latter are less willing to make general statements about strategy effectiveness, believing instead that it depends upon a number of significant factors about the particular situation.

### Self-Defense

Table 2 presents results for the 14 self-defense strategies. The first column for each group shows the percentage of respondents judging each strategy to be harmful, in the sense of *reducing* the chances of avoiding rape. The second column for each group shows the mean judged risk reduction among respondents holding a strategy to be useful. Results for the three female groups were quite similar to each other and hence are pooled in Table 2. There were no significant differences between the female groups in the percentages of "harmful" ratings for any of the 14 strategies (one-way ANOVAS, familywise

TABLE 2  
Self-Defense Strategy Effectiveness

| Strategy <sup>1</sup>                                  | Respondent Group                              |                                  |                           |                     |                           |                     |         |  |  |
|--|---|----------------------------------|---------------------------|---------------------|---------------------------|---------------------|---------|--|--|
|  | Women   |                                  |                           | Men                 |                           |                     | Experts |  |  |
|  | Percentage Harmful Rating <sup>2</sup>        | Mean Risk Reduction <sup>3</sup> | Percentage Harmful Rating | Mean Risk Reduction | Percentage Harmful Rating | Mean Risk Reduction |         |  |  |
| <b>REDUCE/MINIMIZE ASSAILANT'S PROPENSITY TO RAPE</b>  |   |                                  |                           |                     |                           |                     |         |  |  |
|  | <u>Create Bizarre/Unattractive Impression</u> |                                  |                           |                     |                           |                     |         |  |  |
| If a woman <sup>4</sup> did crude or unfeminine things | 10.8  | 37.4<br>(10)                     | 4.8                       | 38.1<br>(8)         | 6.7                       | 28.4<br>(10)        |         |  |  |
| If a woman stated that she had VD                      | 1.7   | 36.9*<br>(11)                    | 2.4                       | 37.3<br>(9)         | 2.1                       | 23.1*<br>(11)       |         |  |  |
|  | <u>Appeal to Assailant's Sympathy/Morals</u>  |                                  |                           |                     |                           |                     |         |  |  |
| If a woman tried to make him see it was wrong          | 8.3   | 15.1<br>(12)                     | 2.4                       | 16.2<br>(12)        | 2.1                       | 17.9<br>(12)        |         |  |  |
| If a woman pleaded with the assailant                  | 20.0  | 14.2<br>(13)                     | 16.7                      | 15.2<br>(13)        | 17.4                      | 13.5<br>(13)        |         |  |  |
| If a woman cried                                       | 17.6  | 9.4<br>(14)                      | 16.7                      | 12.6<br>(14)        | 10.9                      | 11.7<br>(14)        |         |  |  |

(continued)

TABLE 2 Continued

| Strategy <sup>1</sup>   | Respondent Group   |                                  |                           |                     |                           |                     |
|---|--|----------------------------------|---------------------------|---------------------|---------------------------|---------------------|
|   | Women  |                                  | Men                       |                     | Experts                   |                     |
|   | Percentage Harmful Rating <sup>2</sup>                   | Mean Risk Reduction <sup>3</sup> | Percentage Harmful Rating | Mean Risk Reduction | Percentage Harmful Rating | Mean Risk Reduction |
|   | <u>Reason with the Assailant</u>                         |                                  |                           |                     |                           |                     |
| If a woman tried to talk her way out of the situation           | 2.5  | 39.0 (9)                         | —                         | 32.7 (10)           | —                         | 31.5 (9)            |
|   | INCREASE PERCEIVED ABILITY TO COPE WITH ASSAILANT        |                                  |                           |                     |                           |                     |
| If a woman verbally resisted his demands in an assertive manner | 3.3  | 39.3 (8)                         | 4.8                       | 29.6 (11)           | —                         | 47.8 (6)            |
|   | INCREASE ACTUAL CHANCES OF OUTSIDE INTERVENTION          |                                  |                           |                     |                           |                     |
| If a woman screamed   | 4.2  | 54.5 (5)                         | 2.4                       | 47.2 (6)            | —                         | 50.9 (5)            |
|   | ESTABLISH DISTANCE OR BARRIER BETWEEN SELF AND ASSAILANT |                                  |                           |                     |                           |                     |
| If a woman tried to run away                                    | 4.2  | 43.2* (7)                        | 9.5                       | 42.1 (7)            | —                         | 54.0* (4)           |

PHYSICALLY IMPEDE OR INCAPACITATE ASSAILANT

|  |      |              |      |             |      |              |
|--|------|--------------|------|-------------|------|--------------|
| If a woman threatened him with a gun         | 15.3 | 67.9<br>(1)  | 7.1  | 79.0<br>(1) | 4.3  | 64.5<br>(2)  |
| If a woman used a chemical spray like Mace   | 1.7  | 65.0*<br>(2) | 2.4  | 67.4<br>(3) | 4.3  | 41.9*<br>(8) |
| If a woman poked the assailant's eyes        | 3.3  | 64.3<br>(3)  | 4.8  | 70.7<br>(2) | 2.2  | 67.1<br>(1)  |
| If a woman kicked the assailant in the groin | 5.8  | 62.3<br>(4)  | 4.9  | 61.5<br>(4) | 13.0 | 62.9<br>(3)  |
| If a woman bit the assailant                 | 19.8 | 47.7<br>(6)  | 19.0 | 48.5<br>(5) | 10.9 | 42.6<br>(7)  |

\*Significant ( $p < .05$ ) difference between women and experts (t-tests, Bonferroni technique).

1. Strategies are grouped according to their intended effect, that is, how they work—see Fischhoff et al. (1987).
2. Percentage of respondents who felt strategy increased the chances of rape.
3. Judged reduction in risk of rape once an assault has begun, rank order in parentheses.
4. For female respondents, item wording was in the second person (e.g., "if you tried to run away").

alpha = .05/14), and only one significant difference in risk reduction ratings ( $p < .05$ , two-tailed *t*-test): College women judged screaming to be less effective than did the higher-income middle-aged women (61.8% and 46.6% mean risk reduction, respectively).

The overall percentages of "harmful" judgments were 9.2% for females, 7.0% for males, and only 5.3% for experts. These judgments of harm were concentrated on a few strategies. Over 10% of the respondents in each group saw increased harm with biting the assailant, crying, and pleading with the assailant. Even for those strategies, however, at least 80% of the respondents in each group judged them to be effective. There were no significant differences among the groups in judgments of "harmful" for any of the 14 individual strategies.

There seems to be no consistent relationship between the mean risk reduction judgments and the percentage of respondents judging a strategy to be harmful. In some cases, most respondents believe either that a strategy actually makes matters worse or that if it helps, then it is not by much. Crying and pleading fall into this category for all three groups. In other cases, respondents are divided between a small minority believing that the strategy increases the chances of being raped and a majority believing that the strategy markedly reduces those chances. Kicking the assailant in the groin seems to be one such strategy for experts; threatening the assailant with a gun is one for women. These strategies are most likely to be controversial. The ideal strategy, of course, holds no possibility of increasing the chances of being raped, while promising a substantial increase in the chances of avoiding it. There seems to be group consensus that poking the assailant in the eyes, using a chemical spray, screaming, and trying to run away approach this ideal. Finally, strategies judged unlikely to change the chances of rape by very much include trying to make the man see that rape is wrong, trying to talk one's way out of a situation, and claiming to have VD.

All groups saw substantial differences among the strategies. The ranges of mean risk reduction ratings were 58.5%, 66.4%, and 55.4% for women, men, and experts, respectively. Not only were these ranges larger and more similar (across groups) than with the comparable ranges for rape prevention strategies, but they were also centered on more similar overall group mean ratings: 42.6% (women), 42.7% (men), and 39.8% (experts). Although still substantial, within-group differences were somewhat smaller than before. The mean standard



deviations for the 14 strategies were 21.3, 22.9, and 21.4 for women, men, and experts, respectively.

For all three groups, the three strategies seen to effect the least risk reduction were crying, pleading, and trying to make the assailant see that it was wrong, in that order. These are all strategies intended to reduce the assailant's propensity to rape.<sup>5</sup> Consensually effective strategies included threatening the man with a gun, poking the assailant's eyes, kicking him in the groin, and screaming, in roughly that order. The first three are all intended to impede him physically, the fourth to get outside help.

The rank correlation between the mean ratings of women and experts was .88 ( $p < .01$ ). Individual *t*-tests for each strategy (familywise  $\alpha = .05/14$ ) showed that experts judged only one strategy to be significantly ( $p < .05$ ) more effective than did women: trying to run away. They judged two strategies to be significantly less effective ( $p < .05$ ) than did women: stating that you have VD, and using a spray chemical. The rank correlation was .96 ( $p < .001$ ) between the males and their female college counterparts, and there were no significant gender differences for any of the 14 strategies (two-tailed *t*-tests, familywise  $\alpha = .05/14$ ).

Women, men, and experts all attributed greater effectiveness to physically assertive strategies than to less assertive ones. In a review of all two dozen studies of the effects of using self-defense strategies (Furby & Fischhoff, *in press*), we found support for this belief. That review found that more assertive strategies are associated with an increase in a woman's chances of avoiding rape, whereas less assertive strategies are associated with a decrease in the chances of avoiding it.

## DISCUSSION

When asked to judge the 16 rape prevention strategies mentioned most frequently in a previous study, three groups of women, one group of men, and a group of (predominantly female) sexual assault experts reported them to be highly effective. The average judgment indicated an expectation that each strategy, if used consistently, would halve the risk of being assaulted. If these judgments are taken literally, they indicate very—and perhaps unduly—great confidence in women's ability to protect themselves, sometimes with rather simple measures. Unfortunately, there are no readily available

statistics on the actual effectiveness of the 16 measures, against which these judgments could be evaluated. However, the high rate of sexual assault in our society (Russell, 1982), despite the reported use of many prevention strategies (Gordon, Riger, LeBailly, & Heath, 1980), suggests that these judgments may be overestimates of strategy effectiveness.

One possible reason why these estimates might not be interpreted literally can be found in Murphy, Lichtenstein, Fischhoff, and Winkler's (1980) finding that confusion in probability estimates (e.g., of precipitation forecasts) sometimes stems from confusion over the event ("rain"). People were unsure, for example, whether the probability referred to the chance of rain somewhere in the forecast area, the proportion of the area to get rain, or the chance of rain at the local weather station (the correct answer). In the present case, the probability that we intended (and described) was "a woman's overall chances of being assaulted." One possible misconstrual, at least for some questions, reinterpreted the "event" from "all settings in which assault is possible" (which is probably all of life) to "all settings in which the strategy could be used." If so, then they would have estimated risk reduction not overall, but for some narrower specific situation. For example, the one-half to two-thirds reduction of risk associated with "a woman always locking the doors at her residence" may have referred only to the risks of being assaulted *at her residence* (despite the fact that we explicitly asked for the reduction in "a woman's overall chances of being assaulted"). Getting the reduction in *overall* risk of a rape assault would, then, require multiplying these judgments by the fraction of assaults occurring at residences.

Such restricted (or conditional) interpretations might have occurred for many of the strategies here. There are only five strategies for which this interpretation seems impossible since they are unconditional. These strategies, respondents apparently believe, will effect large reductions in overall risk. Three involve societal actions: more certain and severe punishment for rapists, frequent public awareness programs, and eliminating pornography and violence against women in the media. The other two concern how a woman handles herself: always appearing confident and looking strong; always staying vigilant and aware of her surroundings.

Possibly the experts provided lower effectiveness ratings because they were less likely to conditionalize their judgments on a reduced set of circumstances. A reduced tendency to conditionalize could also

account for the experts' greater discrimination among strategies—by making them more aware of how a strategy's overall impact depends upon its range of applicability.

The experts' lower effectiveness ratings may also reflect the fact that a large percentage of women who have been sexually assaulted by a partner or acquaintance do not label it as "rape" (Koss, in press), whereas experts do so label it. Thus strategies that may be relatively effective against strangers (e.g., locking one's doors) may seem less effective overall to experts than to lay women because the former know that a large percentage of rapes involve an assailant whom the victim knows.

Given the substantial disagreements within and between the groups, individual respondents must often be in error. Research on the actual effectiveness of these measures is urgently needed, so as to provide a basis for identifying and correcting misconceptions. Women need better data to make more efficient decisions about rape prevention. Men need better data to help women with protection and to work for effective societal changes. Experts need better data in their roles as advice givers to both individual women and society as a whole. Even where individuals' estimates are accurate, better data would allow people to be more confident in their beliefs—and in the decisions following from them. Better data would allow people to reflect on the information sources and thought processes responsible for both appropriate and inappropriate beliefs.<sup>6</sup> Providing such data in the form of summary statistics might be of some help. More useful still would be instruction in how to think about strategy effectiveness. That effectiveness depends on at least three factors: the resources of the victim, the resources of the assailant, and the situational circumstances. One implication is that summary statistics of effectiveness should not be the only basis of a woman's choice of strategies. In response to our open-ended question, experts expressed greater awareness than did lay people that a strategy's effectiveness depends upon a number of factors, suggesting that lay people may be prone to making inappropriately generalized effectiveness judgments. If so, such categorical judgments could not only misguide women in their own choices, but may also lead them (and also men) to second guess inappropriately women whose chosen strategies have proved ineffective.

One indirect check of consistency arises in the comparison among these responses and those in a companion study (Fischhoff, Furby, & Morgan, 1987a) asking respondents drawn from the same populations

to judge the relative riskiness (*vis-à-vis* rape assaults) of 17 paired situations. In four cases, these situations differed in whether one of the rape prevention strategies evaluated here had been exercised. These were whether a woman had locked her door at home, whether she was vigilant when walking, whether she was alone, and whether the place where she was had good lighting. Women in that study thought that being at home with the doors (and windows) locked was 2.1 times safer than being at home without them locked, meaning that it effected a 52% reduction in risk. Women here saw always locking one's doors as reducing risk by 68%. Over the four such comparisons for the three groups, there was a mean absolute difference of 12.8% in estimated risk reduction with the two methods. Overall, respondents in the present study predicted a 7.7% greater reduction. Considering the difference in methods, these seem like reasonably consistent results.

For the self-defense strategies for which some statistical estimates of effectiveness are available, the three respondent groups generally agreed with one another and with the statistics—at least for relative effectiveness. Both the statistics and the judgments showed more assertive strategies to be more effective. This pattern resembles that observed in studies of lay risk perceptions. The absolute value of people's judgments may vary greatly depending on how the estimation question is asked, but judgments of relative riskiness are highly correlated with one another and with statistical estimates, across response modes (Fischhoff & MacGregor, 1983; Lichtenstein, Slovic, Fischhoff, Layman, & Combs, 1978). If women do have such a qualitative understanding of relative effectiveness, then informational efforts should (and can) concentrate on conveying a more accurate feeling for the absolute magnitude of the effects. Women who know which strategies are best and worst can still make quite inappropriate decisions if they expect too much or too little out of them.

As with rape prevention strategies, respondents saw considerable possibilities for effective self-defense. Their mean estimate of risk reduction was about 40% over all 14 strategies. However, here respondents differentiated much more across strategies, in terms of both their chances of helping and their chances of harming. Better data seem particularly urgent when people disagree about the direction of a strategy's effect. Not only are women left without clear advice, but they are particularly vulnerable to second guessing should they be assaulted and their chosen strategy prove ineffective.

## NOTES

1. Other important inputs to strategy-use decisions include the feasibility of strategy implementation, the likelihood of consequences other than rape prevention that might follow from strategy use, and the relative aversiveness (or attractiveness) of those consequences (see Fischhoff & Furby, 1987; Furby, Fischhoff, & Morgan, 1987b).

2. Of course, agreement among groups does not guarantee accuracy of judgments. But disagreement is a sure signal that at least one of the groups is misjudging effectiveness.

3. The Bonferroni technique for multiple tests (Harris, 1975) was used for these and all other multiple comparisons. The significance level reported is the effective p-value for a single comparison *after* applying Bonferroni. Each set of comparisons among subject groups was considered to be a family of tests, and the familywise error rate was adjusted accordingly. In this case, the familywise alpha = .05/16.

4. Familywise alpha = .05/2 for these two comparisons.

5. See Fischhoff et al., 1987, for a comprehensive categorization of rape self-defense strategies by their intended effects.

6. For example, the experience of being a rape victim appears to affect one's preventive attitudes and behaviors (Burt & Katz, 1985), and without other data sources on strategy effectiveness it is probably hard not to be overly influenced by the conclusions one draws from that single assault experience.

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