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Giving Advice

Decision Theory Perspectives on Sexual Assault

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What entitles us to give general advice? This general question is explored here in the specific context of providing responsible advice to women on how to make decisions about possible ways of reducing their risk of sexual assault. An approach is advanced that is a combination of decision analysis, used to provide a formal characterization of decision situations, and behavioral decision theory, used to provide a descriptive characterization of how people perceive those situations. The approach is illustrated with a set of studies using three diverse groups of women; a group of men, paralleling one of the groups of women; and a national sample of sexual assault experts. The approach is evaluated in terms of its feasibility, its strengths and weaknesses relative to alternative approaches, and its implicit position on broader political and philosophical issues.

Psychologists are often called upon to give general advice to people on how they should manage their lives. At times, they provide such advice without being asked. The ostensible basis of this advice is psychologists' access to the relevant research literature, their training in analytical thinking, and their familiarity with individuals who have taken various steps and had to live with the consequences.

One intrinsic motivation for providing general advice is the chance to help many people at once. One extrinsic motivation is being recognized for one's expertise. It is even possible to be paid for the wisdom, either directly (e.g., for books, talks, or individual counseling) or indirectly (e.g., through the greater access to resources that recognition can bring).

Knowing the most about a topic need not, however, mean being in the position to direct other people's actions. General advice cannot be equally applicable to all individuals. Even personalized advice can mislead if undue confidence is placed in it. In some cases, the research base may be so slim that the expert is just one more person guessing.

One systematic approach to advice giving is offered by *decision analysis*, a family of techniques for applying the abstract principles of decision theory to the practicalities of everyday problems (Fischhoff, 1980, 1988; Raiffa, 1968; von Winterfeldt & Edwards, 1986; Watson & Buede, 1987). In these applications, analysts sit with their clients and go through the following steps: Identify

the options for action, identify the consequences that might follow those actions, weight them according to their relative importance, assess the probability that each will be incurred, and combine these considerations in order to reach a decision.

Decision analysts have a sophisticated set of techniques for accomplishing these tasks. This set includes ways to express complex personal value structures, ways to accommodate subjective beliefs and statistical information, and ways to estimate the definitiveness of recommendations (Keeney & Raiffa, 1976; Morgan & Henrion, 1990).

Unfortunately, applying any but the most rudimentary versions of these techniques requires considerable training. Until that training is more widely available (Baron & Brown, 1991), decision analysis will be a labor intensive, and expensive, enterprise. In addition, good analysis is time consuming. It would be impossible to analyze every decision thoroughly, even if every individual were trained in analysis or provided with a personal analyst. How often do we hear (or make) complaints about the burden of having to show street smarts on topics as diverse as choosing a long-distance telephone carrier, picking foods that are safe and healthy, or selecting an

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employee benefits package—not to mention such traditional problems as choosing a career, a partner, or a parenting strategy? That frustration would be reduced somewhat if we could be reassured that we were using the best available data and decision-making methods—but only somewhat—there are just too many decisions of too great complexity to analyze each in detail. Thus, there is a need for general advice. But one needs assurance that it is trustworthy and personally relevant.

The remainder of this article offers an approach to generating such general advice, applied to the specific problem of helping women decide what, if anything, to do to reduce their risk of sexual assault. Simply speaking, the approach is to push decision analysis as far as possible under the circumstances. That requires at least two compromises from the ideal of detailed, personalized analyses. One is analyzing the situations of classes of potential clients, rather than those of individuals. Thus, the product of an analysis is not, "Here is what you should do," but "Here are some ways of thinking about the problem. Each is adapted to the circumstances of a hypothetical individual, whose situation might be quite different than your own. Consider where you might fit in." The second compromise is being satisfied with clarifying components of a decision problem (e.g., what the options are), without producing summary advice at all. These components may aid the thinking of many people, whereas summary recommendations may suit few or none.

Conflicting Advice About Sexual Assaults

Aside from their inherent importance, decisions about sexual assault demonstrate the difficulties and dangers of producing general advice. Women receive a wide variety of advice about what to do if they are assaulted by a man intent on rape. Some experts tell women to fight back. Others say that women should do anything but defend themselves physically. Some experts recommend appealing to the rapist's "human" side by telling him how traumatic rape is for the victim. Others advise against doing anything that shows weakness. Still other experts recommend bizarre behavior, such as throwing up; their critics contend that those strategies are useless. Similar disagreement surrounds advice about how to prevent assaults from ever beginning (Morgan, 1986).

A woman who attempted to rely on this conflicting advice would be sorely confused. If the experts cannot agree among themselves, then how could she know what is right for her? The confident but contradictory pronouncements of these "experts" may make a difficult situation seem even less manageable.

Experts reach different conclusions about which strategies to use, in part, because they disagree about what effects each strategy will have. For example, some think that kicking and biting increase a woman's chances of escaping from an assailant. Others believe that such fighting is likely to make an assailant madder, leading to even greater violence.

There is plenty of room for disagreement about these effects. No one really knows the effectiveness of any strat-

egy. It is very hard to study what happens in rape assaults and relatively few studies have been conducted (Furby & Fischhoff, in press). Even if there were many studies, they would be unlikely to show any simple picture. The consequences of using a given strategy can depend on the particulars of the woman, the man, and the setting. A well-trained woman might fight effectively against an unarmed man who tries to pull her into a car in a public place. She might not do as well if he had a knife or if he grabbed her from behind in an office building after hours.

Faced with this uncertainty about what works, women are forced to gamble, trying to choose the strategies that give them the best chance in particular situations. Faced with this uncertainty, experts should be forced to mumble, giving no more definitive advice than the data can support. If they say more, then they risk compounding women's problems by creating the illusion that women should be able to pick strategies that will protect them. That could both reduce the pressure on society to reduce the overall threat of assaults and increase women's exposure to criticism (and guilt) after assaults in which they have been unable to defend themselves. Whatever such women have done, some "experts" have advised against it.

Experts also reach different conclusions, in part, because they make different assumptions about what is important to women. For one woman, putting up a fight may be so important to her feeling of self-worth that she would be willing to risk an increased chance of being killed in the process (if that trade-off were necessary). Another woman may care solely about getting out of the assault alive. As a result, different gambles may be right for different women. Experts who fail to make their assumptions explicit when they give advice may be projecting their personal values onto any women who listen to them.

Generalized Decision Analysis

Effective advice-giving must begin with communication from clients. Experts need to know what their clients believe already, so they can focus on the most critical missing facts or misconceptions. Experts also need to know what their clients want, so they can devise ways to achieve those goals, rather than impose their own. In both cases, experts must be prepared for surprises. Their clients may know and value things that they do not know or value.

The training of good decision analysts, like that of good clinical psychologists, emphasizes the ability both to listen to clients' unique problems and to look up generally applicable facts. Where the clients are a population, the way to listen is to interview individuals like those targeted for the advice. The place to look for facts is in the relevant scientific literature.

In the research described here, we applied these tools to each stage of the decision-making process. For example, in studying *options* for reducing the chances of being raped, we collected potential strategies from the research and advice literatures, then asked people which they had adopted or considered. In studying the *importance* of

consequences, we asked people what concerned them and how willing they were to make various trade-offs, as well consulting the same literature. In studying the *probabilities* of consequences, we performed a secondary analysis of all the empirical studies that examined the effectiveness of different strategies for reducing the chances of completed rape, then asked people what they believed those probabilities to be. The following sections review portions of this research effort, selected to illustrate the overall approach. Readers, particularly those interested in sexual assault, are strongly urged to refer to the technical articles whose methods, results, and qualifications are necessarily cited very briefly here. Two concluding sections consider what general advice, if any, might be synthesized from such research and what legitimacy that advice would have.

The "people" in our studies included women drawn from three populations: students at the University of Oregon; alumnae of the university (all over 40 years of age); and mothers belonging to a parenting program, largely from low-income homes. We also had samples of male students, paralleling the female ones, and samples of sexual assault experts, drawn nationally from private consultants, criminal justice personnel, counselors, and researchers. Further details about the samples can be found in Furby, Fischhoff, and Morgan (1990).

The studies consider both self-defense decisions, concerning how to deal with assaults once they have begun, and prevention decisions, concerning how to prevent assaults from ever beginning. In some cases, we distinguished between self-defense strategies undertaken during an assault and those undertaken in preparing for an imminent assault. Like many other decisions for dealing with acute situations, these self-defense decisions might be contemplated both at moments of crisis and in anticipation of such moments. That anticipation could involve both organizing one's thoughts for situations in which there will be little time to think and improving one's repertoire of possible responses (e.g., buying Mace and taking self-defense classes). Both prevention and self-defense decisions might be thought of as examples of portfolio selection, attempting to identify a set of strategies that provide the greatest protection at the least cost in whatever one values (e.g., time, money, or personal freedom).

Prevention decisions can be taken by society as a whole, as well as by individual women. Women must be occupied with these decisions only because their society has failed to provide its citizens with adequate protection. The focus on individual decisions in the present research was intended to improve the advice given to women faced with this unacceptable situation. Were there a societal commitment to addressing these problems, then the techniques of decision theory, and even some of the present results, might make a contribution to making that commitment as effective as possible.

Identify Options

When faced with the threat of sexual assault (either long-term or immediate), a woman must choose a strategy (or set of strategies). Even "doing nothing" is a strategy, and

sometimes might be the most appropriate one (e.g., for escaping an assailant who is primarily after the "satisfaction" of subduing a woman who has actively resisted him). Doing nothing about personal protection might be the appropriate strategy for an individual woman who felt that her personal energies were best invested in working for societal action.

If a woman does not consider a strategy, then she cannot choose it. As a group, women have thought of a very large number of possibilities. Unfortunately, only a few of those strategies may be available to individual women at the time that they are needed. We posed a series of open-ended questions asking what a woman could do to prevent a sexual assault from ever occurring or to respond to an actual assault (Furby et al., 1990). Groups drawn from our three populations of women ($N = 43-45$) each produced at least 300 different strategies (in which strategies were held to be different if we could see plausible reasons why women would view them as differing in their probability of producing any significant consequence). On average, respondents produced about 26 different strategies (13.6 ways to prevent an assault from ever occurring, 4.0 ways to prepare for reacting to an assault, and 8.8 ways to defend oneself during an assault). Although this is a large number of strategies for an individual to write on an open-ended questionnaire, it is still less than one tenth of the options produced by each group as a whole.¹

We supplemented the list of strategies produced by our respondents with others culled from a sample of 50 books, articles, and pamphlets on sexual assault written for lay or professional audiences, producing a total of more than 1,100 strategies. This is a bewildering number of possibilities for women, or even researchers, to consider in any detail. To bring some order to this welter of possibilities, we created a "strategy grammar." In it, each strategy was described in the form, "Doing *action X* in order to achieve *intended effect Y* [which is believed to reduce the risk of rape]." The typology distinguishes further between the *stage* of an assault at which a strategy is directed (preventing an assault from occurring, preparing to react to an assault, or defending oneself during an assault) and the *level of action* involved (individual or societal). Appendix A shows the typology, with examples produced by our respondents (Fischhoff, Furby, & Morgan, 1987).

In this view, a strategy may be ineffective either because it fails to produce the intended effect or because

¹ There were relatively few differences in the judgments of the three groups of women, despite their differences in age, income, and education. Thus, in this sense, the threat of sexual assault posed a common reality for these women. The male students often responded similarly to their female counterparts, suggesting some understanding of the situation that women face. By contrast, the sexual assault experts often responded rather differently. On the one hand, that means that they may have something to teach women. On the other hand, that suggests the existence of barriers to making themselves understood, as well as the possibility that they may have something to learn about what women see and want. Unfortunately, there is no opportunity to go into these issues here.

that effect does not deter sexual assaults. For example, threatening to report an assailant might not work either because it does not make punishment seem more likely or because fear of punishment does not reduce his intent to rape. The grammar recognizes that the same action (e.g., shouting "Jim, come quick") might be done for different reasons (getting help from an actual Jim or creating the illusion that help is around). Conversely, two very different strategies (e.g., screaming and turning up the radio) might have the same intended effect (getting help).

For researchers, such a grouping allows them to study the effectiveness of different intended effects on preventing rape or the effectiveness of different actions for achieving an intended effect. In a review of empirical studies of the effectiveness of self-defense strategies (described later), we (Furby & Fischhoff, in press) found that there were seldom enough data to make strong statements about individual actions. However, at the level of intended effects, some moderately strong patterns emerged.

For women, thinking about intended effects may help focus the consideration of rape prevention measures. Goal-directed prompts ("How can I achieve [intended effect X]?" may be a good way to stimulate option production; Pitz, Sachs, & Heerboth, 1980). Knowing that other women have produced many possible ways to achieve every intended effect might be a good stimulus to "keep thinking," even when all seems hopeless and some strategies have failed already.

For would-be advisors, realizing that there are so many strategies in each category should increase the need for precision. Kicking, throwing things, and using karate are all ways to impede a rapist physically. However, they might have quite different effects on the chances of escaping. So, when experts advocate "fighting back," it is essential for them to say just what they mean.

Identify and Weigh Consequences

In an open-ended questionnaire, we (Furby, Fischhoff, & Morgan, 1991) asked people to list the positive and negative consequences (other than reducing the risk of rape) that were possible for the rape-prevention and self-defense strategies that they had listed as being ones that they, or other women, used. We identified 162 different consequences in their responses. They included consequences for the woman using the strategy (71% of all those mentioned), for specific others (e.g., her children), for the assailant, for women in general, and for society as a whole. The consequences were remarkably varied, including changes in housing options, sense of security, relations with other men, sleep, personal appearance, and public commitment to the issue.

For strategies designed to prevent assaults from ever occurring, members of the lay groups produced between 6 and 8 consequences on average; the experts produced about 11. The two consequences mentioned most frequently by both women and experts were the positive consequence of promoting good mental health and self-esteem and the negative consequence of restricting a woman's freedom and mobility. All but 1 of the 19 con-

sequences mentioned by at least 20% of one respondent group dealt with an effect on the woman undertaking the strategy.² Across these 19 consequences, there was a rank correlation of .53 between frequency of mention by women and by experts. Experts were significantly ($p < .05$) more likely to mention six consequences: promoting good mental health and self-esteem, limiting a woman's entertainment and recreation activities, costing money, causing a woman to be less social, limiting a woman's job options, and improving assertiveness, honesty, and clarity in communications.

The experts also mentioned roughly twice as many self-defense strategies as did the female respondents (5.7 vs. 3.3). The three consequences mentioned most frequently (by women, men, and experts) were increasing the woman's chance of illness or injury, making the assailant madder or more violent, and promoting mental health and self-esteem. The last was mentioned significantly more frequently by the experts ($p < .05$). They were also somewhat (although not significantly) more likely to mention such aftermath consequences as psychological problems, feeling fearful or stressed, and legal repercussions. These differences may have reflected some mixture of experts knowing things that women do not, experts failing to recognize the concerns that actually occupy women, experts working harder on this pencil-and-paper task, and experts having provided more options in the preceding task (giving them more prompts for thinking about possible consequences).

A second study (Furby et al., 1991) asked respondents to judge the importance of the 22 most frequently produced consequences (14 for preventing assaults from occurring, 8 for self-defense) in terms of "how much it might influence you in deciding whether to use a strategy which has that consequence." The 5-point rating scale ranged from *would not affect my willingness to use a strategy at all* (0) to *would greatly affect my willingness to use a strategy* (4). The words *It would somewhat affect my willingness to use a strategy* appeared under (2). There were no significant correlations between mean ratings here and frequency of mention in the study just cited, for either the rape-prevention or the self-defense strategies. Thus, it may be that important consequences need not come to mind spontaneously. For the female respondents, three of the four most important consequences of strategies to prevent assaults from occurring (in addition to reducing the chances of being raped) were positive ones: reducing the woman's chances of being a victim of other crimes, reducing her chances of other injury or illness, and promoting her self-esteem. The three least important ones were the costs in money, in inconvenience, and in time, energy, and attention. Possibly, these consequences pale before threats to one's person; possibly, these consequences have become so routine in our society that they

² The one exception was increasing the chance of injury or illness to others with or near the woman, mentioned by 22% of women, 16% of men, and 9% of experts.

are taken for granted (Hindelang, Gottfredson, & Garofalo, 1978; Riger & Gordon, 1981), like a silent tax.

There was a strong rank correlation between the importance ratings of women and experts ($r = .71$). However, there were some significant differences in the ratings of individual consequences. Women attached greater importance to changes in their social relations, in the chances of injury or illness to other people with or near the woman, in the chances of catching the assailant, and in the costs in their personal time, energy, and attention.

Across female respondents, mean importance ratings for the different consequences ranged from 2.0 to 3.7, on the 0–4 scale. Although there were no significant differences between the groups of women, there were substantial differences within groups. On this four-point scale, the mean standard deviation across the 22 rated consequences was about 1.0. These disagreements highlight the disservice that might be done by providing universal advice, intended to fit all women.

To clarify the trade-offs implied by these levels of concerns, subjects were asked to evaluate the nine most frequently mentioned negative consequences of prevention strategies on a second scale. It asked, for example, "How much would a strategy have to reduce your risk of being assaulted before you would use it if it also *restricts your job options*?" The options were 1% (it would only have to reduce my chances by 1/100th), 10%, 20%, . . . , 100% (it would have to eliminate completely the chance that I would be assaulted). Responses to the two scales were highly correlated (e.g., for women, $r = .74$). For women, the mean reduction in the probability of an assault needed to tolerate each negative consequence ranged from 47% to 85%, with a mean of 65%. For men and experts, the means were lower (about 50%) and the ranges greater (about 30% to 80%). If these numbers are to be taken literally, then women care a great deal about the price exacted by efforts to prevent assaults from ever occurring, and even more than men and experts imagine. As before, there were substantial within-group differences (for women, the mean of the 9 standard deviations was 22).

Probability of Consequences

When considering a strategy, women need to know not just if it "works," but how well it works. For women concerned about consequences other than just their chances of not being raped, detailed information is needed about the other effects of adopting a strategy. It is not enough to hear qualitative statements, such as "fighting decreases your chances of being raped, but increases your chances of being otherwise injured." A woman might be willing to risk a 5% greater chance of other injury in return for a 25% greater chance of avoiding rape, but not for a 10% chance. A woman might accept the threat to her career due to refusing to work late at the office if it reduced her chances of being assaulted by 25%, but not for a 10% reduction.

If experts fail to say what they know in quantitative terms, then they leave women to guess what they mean.

If women guess wrong, then they have been misinformed, even if inadvertently. For example, imagine a magazine article saying that "physically resisting makes rape less likely." Unfortunately, verbal quantifiers, such as "likely," can be interpreted in different ways by different people, or by the same person in different circumstances (e.g., Budescu & Wallsten, 1985; Merz, Druzdzel, & Mazur, 1991; Poulton, 1989). A reader might assume that physical resistance makes a substantial difference; otherwise, why would it be newsworthy? She may assume that it must mean at least a doubling of her chances of escape without being raped. The writer of the article might have had a much smaller increase in mind—thinking that any increase, however small, is worth publicizing. The article might be based on research reporting a statistically significant effect, without mention of its practical significance (i.e., the magnitude of the difference).

Experts need to be precise, not only about what they believe but also about why they believe it. An estimated 25% increase in the chances of escaping without being raped is most impressive if based on a meta-analysis of many relevant studies. It is less interesting, but still useful, if taken from one detailed study of hundreds of women who have been assaulted. It is of questionable value, possibly even dangerous, if it is based on casual discussion with but a few women.

In addition to revealing the precision of its estimates, responsible advice must describe any systematic biases in those estimates. For example, a study of strategy effectiveness might, reasonably, be based on sexual assault victims seen by the police. However, relatively few victims go to the police. Those who do may include a disproportionately large number of women who were unable to escape (hence, have a more serious crime to report) and, among them, a disproportionately large number of women who have physically defended themselves (hence, can testify more effectively that they did not give consent). That combination might lead to underestimating the chances of escape in general and the effectiveness of physical self-defense in particular.

Other sources of information on strategy effectiveness are workers in rape crisis centers, self-defense instructors, hospital emergency room personnel, crime reporters, sex offender therapists, and national victimization surveys. Each samples different cases and hears different things about them (e.g., women might be more open with sympathetic counselors than with impersonal interviewers; victims might tell different stories than [their] assailants). Each source may also define *rape* and *consent* differently. It is difficult for experts to identify the biases in their information. However, unless they provide appropriate cues, they may mislead those who rely on their advice. At the time of our survey, there were no studies of the effectiveness of strategies either for preventing an assault from ever occurring or for preparing to react to an assault.

Not finding a thorough summary, we examined every available study of the effectiveness of strategies for defense during an assault, some two dozen in all (Furby

& Fischhoff, in press). Wherever possible, we calculated the difference in the probability of avoiding a so-called *completed* rape for women who did and did not use each strategy.³ Then, we grouped strategies according to their intended effects and looked for patterns of results that were repeated in multiple studies. We also grouped studies by data source, in order to assess systematic biases.

It is a tribute to the diligence and idealism of the individuals who conducted these difficult studies that some identifiable patterns did emerge. It is particularly difficult to summarize the findings from such an involved review in the limited space available here. Interested readers are strongly urged to consult the review itself. It provides quantitative estimates of effect size as well as essential details of method and interpretation.

One general result was that women who used strategies intended to reduce an assailant's propensity to rape (do crude, unfeminine things; make him see you as a human) were no less likely to be raped than were women who used other strategies. Indeed, what evidence there is suggests that they are somewhat more likely to be raped. Women who attempted to physically impede or incapacitate their assailants had a smaller chance of being raped than did women who used other strategies. Generally speaking, there seemed to be a smaller chance of being raped as strategies became more forceful and physical (Furby & Fischhoff, in press).

There are at least two possible interpretations of these results, depending on the inferred direction of causation. Strategies that try to change an assailant's propensity to rape may have no effect (or even a slightly negative one), or it may be that women try those strategies when there is nothing else that they can do. Physically impeding an assailant may decrease the chances of being raped, or it may be that women are most likely to resist physically in those situations where that strategy is most likely to work.

Only further research will either clarify this question or allow more precise effectiveness estimates.⁴ At the moment, what one can say might be,

Women who try to work on an assailant's psychology should not expect too much of it. Those strategies might best be used to buy time to try more effective things. Physical resistance has increased some women's chances of escaping assaults. It might, therefore, pay for women to prepare themselves for exercising strategies from that category.

These are awfully broad statements, referring to effectiveness in all assaults. Unfortunately, there is too little research to refine them very much. In our review, this overall pattern was stronger when the assailant was a stranger. Perhaps women are more able to resist strangers physically; perhaps they are more able to work an acquaintance's psychology.

Other than the chances of avoiding rape, the only other consequence of self-defense strategies that had been studied extensively was the chance of physical injury other than rape. Our (Furby & Fischhoff, in press) review of those 13 studies suggested that women who use more

forceful strategies are more likely to suffer other injury. Here, too, the direction of causation must be questioned. Several studies examining the temporal order of events in assaults suggest that greater violence by the man tends to produce more physical resistance by the woman, rather than vice versa (e.g., Griffin & Griffin, 1981; Quinsey & Upford, 1985). That is, women fight more when they are being hurt, rather than being hurt more when they fight.⁵

Applied research is, of course, most valuable when it tells people things that they do not already know (although confirming beliefs can also be useful). In order to understand people's beliefs about strategy effectiveness, we (Furby, Fischhoff, & Morgan, 1989) asked subjects drawn from our five groups to evaluate the 14 self-defense strategies mentioned most commonly in Furby, Fischhoff, and Morgan (in press). They were asked how each strategy would affect the chance that an assailant would rape them (once an assault had begun) compared with "if you did nothing to stop him." The response scale was anchored at 0% ("It would not affect the chances that he would rape me") and 100% ("It would be absolutely certain to keep him from raping me"); 50% was labeled "It would reduce the chances he would rape me by about half." They were also offered the option of "harmful—It would *increase* the chances he would rape me." They were also asked to evaluate the effectiveness of the 16 strategies for preventing sexual assault from ever occurring, mentioned most commonly in Furby et al. (1990).⁶

For the self-defense strategies, mean effectiveness judgments for the three groups of women were very similar to one another, as well as to the groups of men and experts. Moreover, their judgments of *relative* effectiveness roughly corresponded to those revealed in our review. Their judgments of *absolute* effectiveness seemed, how-

³ In some discussions, we (Furby & Fischhoff, in press) found a confusion between these conditional probabilities and the "inverse" probabilities, namely, the proportion of women using a strategy among those who escaped. For example, it would not be an endorsement of "verbal resistance" relative to "physical resistance" if it were found that 50% of women who escaped had used verbal resistance, whereas only 20% had used physical resistance. It may be true that all of the, relatively few, women who resisted physically succeeded in escaping, making this a very effective strategy. Conversely, women who used verbal resistance may still have been less likely to escape than those who did not. This form of confusion is known as the *base-rate fallacy* (Bar Hillel, 1990; Eddy, 1982; Tversky & Kahneman, 1974).

⁴ We (Furby & Fischhoff, in press) closed the books on our review in 1986. A computer search yielded two subsequent studies of strategy effectiveness (a remarkably small number considering the importance of the problem). Both found that more forceful resistance increased the chances of rape completion, consistent with the studies that we had surveyed (Kleck & Sayles, 1990; Levine-MacCombie & Koss, 1986).

⁵ Two studies subsequent to our (Furby & Fischhoff, in press) review reported related results. In a correlational analysis, Ruback and Ivie (1988) found a positive relationship between physical resistance and injury, which was stronger when the assailant was a stranger rather than an acquaintance. Kleck and Sayles (1990) found little evidence that resistance increased injury.

⁶ For the male student and expert samples, "you" was replaced by "a woman." The students were asked to think about the risks faced by women at their university. The experts were asked to think about a woman in an area like as Eugene-Springfield.

ever, much too high. Over all strategies, the mean expected increase in the chances of escape was about 40%. No strategy emerged from our review (Furby & Fischhoff, in press) as having anywhere near that impact on the probability of avoiding rape. Assuming that these estimates do not reflect some measurement artifact, advice givers should focus on communicating how much the strategies can do. Women who know which strategies are best can still make poor decisions if they expect too much of them.

For strategies intended to prevent assaults from ever occurring, the picture was somewhat different. The three groups of women largely agreed with one another and with the men, but not with the experts, regarding the relative effectiveness of different strategies. Again, absolute estimates of effectiveness seemed much too high (averaging, over all 19 strategies, 62% for women, 52% for men, and 47% for experts).⁷ The biggest group differences lay with strategies for increasing the chances of outside intervention (e.g., parking in well-lit places), for which the experts had much lower expectations. In order to be useful here, experts face three tasks. The first is to understand the reasons why these lay beliefs seem out of line. The second is to figure out what the experts can justifiably say—in the absence of empirical studies of the effectiveness of such strategies. The third is to communicate their best guesses, in a comprehensible way that is candid about the limits of their knowledge.

Synthesis

Decision theory offers explicit and elaborate ways of putting all of these considerations together in order to identify the best possible strategy for a particular individual in a particular situation. Basically, they involve weighting the possible consequences of a strategy by how important and likely they are. It is, however, hard to imagine women performing such calculations on their own or having the services of a professional consultant.⁸

If experts believe that laypeople are ill informed about the components of a decision, then the treatment is conceptually straightforward. The experts can disseminate information about neglected options, misestimated risks, or consequences that are afforded too much or too little attention. Accomplishing this task is, however, quite complicated. One must identify just what these gaps are, establish that the experts' knowledge really is superior, and then convey the missing information in a comprehensible fashion that will be accepted and incorporated into people's belief systems.

It is quite a different enterprise to provide summary advice to people who have different circumstances, capabilities, and values. One compromise approach to this problem is to provide "clients" with simple rules, capturing some of the wisdom of decision theory, which they might apply to their personal situations. A second compromise approach is to apply the full apparatus of decision theory to archetypal women, then show how the advice computed for them might be adapted to someone with differing values, threats, capabilities, and so on.⁹

Simple decision rules might include the following:

(a) Eliminate from consideration any option that does not have any feature that you consider essential (e.g., preserving your self-esteem), (b) eliminate any option that has any totally unacceptable consequence (e.g., increasing your chance of death), and (c) eliminate any option where another option is at least as good in all respects.¹⁰ If such rules do not point to a single strategy (or set of strategies) as being clearly best, then one faces trade-offs such as just how much of a decreased chance of being raped would it take to offset a 10% increase in the chances of alienating other men?

Providing full decision analyses of the situations of several women in archetypal situations would demonstrate the principles of both individual differences and individual sovereignty; people face different situations and have the right to choose what seems best to them. Such detailed analyses might also be an effective way to introduce the logic of decision theory and pertinent results from the scientific literature, through a sort of tutorial by concrete example. Extracting personal lessons from the analysis of the circumstance of others should be fairly natural for people; it underlies such diverse enterprises as reading advice columns, listening to talk shows, comparing notes with friends, and following moral tales.

Yet, one should no more expose people to untested advice than to untested medicine (Fischhoff, 1987). People could read too much or too little into such indirect advice. They may make too much of analogies, failing to

⁷ If a strategy was 100% effective in preventing assaults when it was used, in order to effect a 62% reduction in the overall chance of an assault occurring, it would have to apply in 62% of assault situations. Although, as mentioned, there were no studies of the effectiveness of these strategies, it seems very unlikely that any would be so effective and usable in so large a set of circumstances. The article discusses these issues in some detail. One clue to the meaning of these estimates may be found in the similarity between them and those elicited in a study (Fischhoff, Furby, & Morgan, 1988) asking about the relative riskiness of situations differing in whether a protective strategy had been taken. For example, on average, respondents there estimated that a woman at home was 2.1 times safer if her doors and windows were locked; that is equivalent to a 52% reduction in her risk. In Furby, Fischhoff, and Morgan (1989), always locking was judged to reduce risk by 68%. This similarity (68% vs. 52%) suggests that respondents in Furby et al. (1989) judged the effect of strategies on risk levels in the specific situations in which they were used, rather than on overall risk levels (as they were asked). Although this interpretation provides an excuse for the apparently exaggerated effectiveness judgments, it may create a problem for communication, namely ensuring that respondents have understood the risk levels that were intended (Fischhoff & Quadrel, in press).

⁸ However much we might anguish over our profession's success in following through on its commitment to "give psychology away," the thought of giving consulting services away hardly arises.

⁹ A high-tech third option would be to develop interactive computer programs for decision analysis. They could, in principle, provide people with the needed decision analytic perspective, latest scientific evidence, and computational capacity. Some fascinating examples are under development (e.g., BARN for helping adolescents make decisions about their sexual behavior; Gustafson, Bosworth, & Hawkins, 1988). However, it will be some time before they can be developed, tested, and disseminated.

¹⁰ For example, if you think that all the negative consequences of biting are as bad or worse than those of kicking, and all the positive consequences of kicking are as good or better than those of biting, forget about biting.

see critical differences from their own circumstances. Or, they could dismiss lessons too quickly, perhaps hastening to distinguish between themselves and others so as to avoid facing threatening situations. We know too little about what people extract from the advice that others receive.

Conclusions

This sort of calm, deliberate, calculating analysis is far removed from the emotional intensity of an actual assault. No one could envision women getting out their calculators and clipboards when they hear a suspicious noise outside or find themselves alone in an elevator with a strange man. Doing so would represent a parody of the decision-making perspective and extreme insensitivity to women's predicament.

A more legitimate role for this perspective is to aid women who are worrying about such contingencies before they arise. The hope is that it will help them to consider more options, to concentrate on the options that are most relevant to them, to recognize the full set of possible consequences, to know which consequences are more likely to occur, and to read the advice of experts with a more critical eye.

Just being able to organize one's thinking on a stressful topic might aid in coping with it. Anything that reduced women's general level of anxiety, without compromising their safety, would have something to say for it. If a woman was actually confronted by an assault situation like one she had imagined, then her theoretical analysis might help her decide what to do and improve her resolve to carry it out. Even if the assault situation were quite different, then all that prior thinking might help her to think more effectively on the spot. Just being able to keep calm might have a salutary effect.

Decisions regarding strategies to prevent assaults from ever happening are made under less stressed circumstances. Yet, with more than 900 possible strategies, 150 possible consequences, and large uncertainties, comprehensive analysis is infeasible. A full-blown decision-theoretic perspective might at best be useful in evaluating a few select choices. More general uses of the perspective may be in organizing one's thinking, having a framework to accommodate new evidence, and scrutinizing the recommendations provided by experts.

Indeed, the greatest help to women from the decision-theoretic perspective might be from imposing it on would-be advisors. It should force them to recognize individual women's sovereignty over their decisions and the uniqueness of their situations. It should compel empirical studies to determine what women believe and desire, the results of which might help prevent experts from projecting their own values on others—not only acting as though "one size fits all" when it comes to advice but making that size fit the expert's predispositions. Identifying the information most critical to women's decisions should focus research efforts—showing, for example, the glaring absence of studies concerning the effectiveness of

strategies for preventing assaults from ever occurring. It should also encourage experts to report results in a relevant format (e.g., changes in the probability of preventing rape, rather than just the statistical significance of effects).

Finally, a decision-analytic perspective provides a constant reminder that dealing with sexual assault is a gamble. No one knows what will happen. Nor does anyone know what would have happened had, say, an individual woman pleaded, rather than fought, or vice versa. Even choosing the best strategy for a particular situation provides no guarantee of having the best possible outcome. Most men may back off from a physically assertive woman, but not every man will, and it may be impossible for a woman to tell what kind of man she is facing. Grappling with this unpredictability is a miserable business. However, it is essential if women are to choose wisely and to be judged fairly in hindsight, by others and themselves, after the outcome of an assault is known. It is all too easy to ignore all the uncertainty present at the time of a decision and to judge the quality of a decision by its outcome (Baron & Hershey, 1988; Fischhoff, 1975; Hawkins & Hastie, 1990).

Unfortunately, this promise of helping women is just a promise. The empirical studies reported here were the first of their kind and will, we hope, be superseded by future research, using better methods and more diverse subject populations. Some of our best guesses may eventually be shown to have pointed in inappropriate directions. There are also clear omissions from the research done to date, such as exploring the role of emotion or social interaction in how women manage these risks. Nor have we resolved the sources of the differences between the perceptions of women and experts regarding the magnitude of risks, the effectiveness of measures, and the importance of consequences. We never produced, much less tested, the sort of conditional summary advice described in the previous section. There is always the chance that our attempts to clarify the structure and components of the problem will confuse or mislead. That risk may be particularly great with a summary description such as the present one, which necessarily omits details of methods, results, and interpretation.

Some of these lacunae are the sort of "technical" problems that affect any new area of research and will gradually be reduced over time. What could not be overcome is any fundamental flaw in the philosophy underlying this approach. In its defense, one can point to the fact that the approach recognizes people's right to make their own decisions, with experts relegated to the role of aiding in those decisions, entrusted with a deep obligation to be frank about the limits to their own knowledge and about the values underlying their advice. The approach also recognizes the possibility that laypeople may be reservoirs of knowledge about their situations; thus, every time the public and the experts disagree need not mean that the experts are right (Fischhoff, 1989, 1990). The approach emphasizes—and might help to justify—the research needed to serve women's decisions. The parallel structure for individual and societal strategies, in the ty-

pology of Appendix A, may help maintain awareness of the need for action on both levels.

There seem, however, to be several risks. The greatest of these is that, despite our protestations and cautions, the approach may be seen as effectively holding women responsible for their own safety. As a result, the approach may do nothing to move society toward protecting women from this intolerable threat. A second risk is that the hyper-rationality of the decision-analytic approach may anesthetize feeling about this topic (Tribe, 1973). It might not only reduce the urgency of the problem, but muffle the emotions of those who must deal with the threat and pay the price of coping. A third risk is the introduction of yet another group of experts, decision theorists, into women's lives. Although those theorists might claim to be playing no more than a coordinating and structuring role, they provide a kind of expertise that is hard to scrutinize, hence, that cannot be empowering women.

Variants of these risks and promises face any attempt to provide general advice. Whether an approach merits support requires a detailed analysis of how it rates in these regards. Finally, it requires the metadecision of how good it is, relative to the alternatives.

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(Appendix follows on next page)

APPENDIX A

Rape Prevention Strategy Typology (With Verbatim Examples From Respondents)

Prevent Assault From Ever Occurring

Societal Action

1. Reduce visibility of women to potential assailant (measures intended to prevent him from ever seeing a woman or knowing of her existence)
2. Reduce accessibility of women to potential assailant (measures intended to maintain a physical barrier or distance between woman and assailant, given that he knows of her existence)
 - Provide safe houses
 - Law forbidding hitchhiking
3. Increase women's perceived ability to cope with potential assailant if assault were to take place
 - Set up dog escort services
 - Publicize that there are rape resistance study groups and self-defense courses for women (so rapists will know)
4. Increase perceived chances of outside intervention if assault were to take place
 - Put emergency sounding devices on every block
 - Set up neighborhood watch programs
5. Increase perceived chances of punishment if assault were to take place
 - Make laws against marital rape
 - Encourage your community to set up a rape crisis center
6. Reduce men's propensity to rape
 - Have complete psychological rehabilitation for rapists
 - Therapy for men who are lacking in self-confidence
7. Increase women's ability to implement prevention measures successfully
 - Public school education programs for females on rape prevention
 - Post notices on bulletin boards and in newspapers of rape prevention clinics
8. Alter societal beliefs and attitudes that promote rape
 - Portray rape as a violent crime, not as a crime of passion
 - Change attitude that sex is a commodity
9. Alter structural characteristics of society that promote rape
 - Eliminate poverty
 - Full employment in the country

Individual Action

1. Reduce visibility of women to potential assailant
 - Avoid dangerous neighborhoods
 - Do not hang around bus terminals
2. Reduce accessibility of women to potential assailant
 - Do not hitchhike
 - Move to a place with a doorman
3. Increase perceived ability to cope with assailant if assault were to take place

When approached by a stranger, make direct eye contact

4. Increase perceived chances of outside intervention if assault were to take place
 - Do not drive alone
 - Fake presence of others
5. Increase perceived chances of punishment if assault were to take place
 - Wear identifying armband to designate membership in rape prevention group
 - Report known rapists/press charges
6. Reduce potential assailant's propensity to rape
 - Don't wear tight or revealing clothes
 - Women should be available for proper relationships and willing to go on dates
7. Manage yourself in ways that increase ability to implement prevention measures successfully
 - Get educated about high risk situations
 - Notice other people's behavior
8. Contribute to societal action
 - Be involved in political action
 - Encourage setting up or participate in rape crisis center

Prepare for Reacting to an Assault

Societal Action

1. Increase women's ability to cope with assailant in the event of an assault
 - Inform women about common elements in rape assaults
 - Whistles, batons, and other defensive weapons provided by police departments
2. Increase chances of outside intervention in the event of an assault
 - Set up escort services
 - Public transportation buses should run later in the evening

Individual Action

1. Increase ability to cope with assailant in the event of an assault
 - Own a dog
 - Learn self-defense
2. Increase chances of outside intervention in the event of an assault
 - Install burglar alarm system
 - Carry noisemaker

Defend Yourself During an Assault

Societal Action (not applicable)

Individual Action

1. Manage yourself in ways that maximize your ability to implement self-defense measures successfully

- Do not faint or pass out
- Assess attacker's personality
- 2. Reduce/minimize assailant's propensity to rape
 - Do crude, unfeminine things
 - Make him see you as a human
- 3. Increase perceived ability to cope with assailant
 - Make it known you have a weapon
 - Clear verbal resistance
- 4. Increase perceived chances of outside intervention
 - Fake arrival of others
- 5. Increase actual chances of outside intervention
 - Yell "fire"
 - Summon nearest male

- 6. Increase perceived chances of punishment
 - State you will press charges against attacker
- 7. Establish distance or barrier between self and assailant
 - Get out of house
 - Run away
- 8. Physically impede or incapacitate assailant
 - Incapacitate him with drugs or alcohol

Note. From "Rape Prevention: A Typology of Strategies" by B. Fischhoff, L. Furby, and M. Morgan, 1987, *Journal of Interpersonal Violence*, 2, pp. 303-305. Copyright 1987 by Sage Publications, Inc. Adapted by permission.

APPENDIX B

Possible Bottom Lines

Premise

The clearest message of the research literature is that these are very complex decisions. There are many possible options, with difficult tradeoffs, and great uncertainty about the outcomes. Although complexity is an inherent part of these situations, decision theory would be a limited tool if it could do no more than describe what is there. It might even have negative value, if it promoted paralysis (rather than just caution).

What follows is an attempt to derive responsible advice, consistent with a decision-theory perspective. It is organized into "Living With the Situation," suggesting ways to think about this ugly reality, and "Dealing With the Situation," suggesting ways to narrow the set of possible options.

WARNING. One should no more expose people to untested advice than to untested medicine. People may take it too seriously or too casually. These suggestions are but points of departure, to be used and disseminated with caution.

Living With the Situation

Do not judge the quality of a decision by how it turns out. These decisions are inevitably gambles. No one can think of all contingencies or predict consequences with certainty. Good decisions may be followed by bad outcomes. As a result, all one can hope to do is think as clearly and comprehensively as possible.

Question confident recommendations. The relative effectiveness of different strategies is only partially understood. "Experts" who speak too confidently misrepresent the degree of control that women can exert over these situations, perhaps exaggerating it, perhaps understating it.

Question universal recommendations. At times, achieving one goal comes at the price of a reduced ability to achieve other goals. In that case, trade-offs must be made. It is an individual's right to decide what those should be. "Experts" who provide the same advice for

everyone violate this principle, and risk imposing their own values on others.

Recognize lay expertise. Ordinary citizens may have unique information about the risks and resources in their own community (e.g., which places to avoid, which public services to trust). They may also have a uniquely relevant understanding of what it means to experience different actions and consequences (e.g., how it feels to have taken a self-defense course, to have been stalked).

Remember that sexual assault is the community's problem. Although these problems must be faced at the individual level, they cannot be solved there. Decisions about individual actions should be viewed as a stopgap, until an acceptable environment can be created (as should research and advice intended to aid those decisions).

Dealing With the Situation

Keep thinking. One cannot choose the best option unless one has at least thought of it. People who think hard can generate many possible options. When trying to produce options, it may help to consult with others and think about how to achieve specific goals.

Evaluate options by category. Although there are a great many possible options, most express one of a fairly small set of theories (e.g., assailants have a human side, assailants fear punishment). One should focus on options that embody the most credible theories. Once a category seems promising, one may be able to increase the set of ways to implement that theory by preparatory actions (e.g., installing locks, taking self-defense classes, traveling with others).

Consider base rates (the overall frequency of events). Focus on strategies to be used in those situations in which assaults are most likely. Unless you have good evidence to the contrary, assume that your risk is as large as that faced by others in your general circumstances, assume that your date is as likely as the average man to assault you, assume that your assailant will be deterred by the same things as other assailants, and so on.

Follow the scientific literature. Good studies can collect large samples of data with relatively clear interpretation. They provide the best hope for sorting out the conflicting claims that arise from anecdotal evidence. Existing studies have found more assertive self-defense strategies to be more effective. That should shift the burden of proof onto those doubting the efficacy of such resistance.

Analyze the sources of experts' claims. What experts believe depends on what they have seen, in their studies, in their personal experience, and in their reading. Identifying the sources of bias in that evidence may make it possible to use experts' claims more critically (e.g., have they disproportionately seen cases of successful escapes, or of fatalities?).

Analyze the assumptions underlying experts' recommendations. Do they share your values? Are they talking about people in your situation? If they are, then you can treat their recommendations as their best guess as to what you should do. If they are not, then knowing the experts' assumptions is the starting point for adjusting their advice to your own circumstances.

Try simple decision rules to reduce the set of possibilities. For example: (a) reject any options lacking features you consider essential (e.g., preserving your self-esteem); (b) reject any option with any totally unacceptable consequence (e.g., increasing the chance of death); (c) eliminate any option where another option is at least as good in all respects.