Introduction: studying self-protective behavior

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Recent decades have seen an explosion of information about the hazards we face from natural and human-made sources and from our own lifestyles. Some of these hazards, such as acid rain, toxic shock syndrome, autoimmune deficiency syndrome (AIDS), and nuclear winter, are new discoveries. Other potential dangers, such as pesticides in food, can be detected at lower levels than ever before. Masses of data and vivid media images impress us with the magnitude of the losses caused by hazards. On the individual level, risk factor analyses make us wonder whether we are the ones particularly susceptible to harm. At the same time, new countermeasures are available to reduce these risks, including the installation of smoke detectors and automobile air bags and the use of anti-cholesterol drugs.

The information we receive about the hazards in our environment is certainly a mixed blessing. Some problems, like the small amounts of carcinogens found in drinking water, are so difficult to avoid that warnings may just create feelings of frustration and futility. And individuals acting alone can do little to reduce the risk of nuclear war. Most problems, however, are not so intractable. Hazard information often suggests ways of decreasing our vulnerability. The recognition of a link between asbestos and lung disease, for example, has led people to reduce the amount of asbestos in their environment and has diminished the risk of asbestos-caused illness.

The growing hazard awareness in our society has contributed to an unprecedented interest in prevention. Messages urging us to take precautions in order to protect ourselves from harm have become more and more frequent. Nevertheless, people often fail to take this advice. They suffer illness, injury, financial loss, and emotional trauma that could have been avoided. It seems that well-intentioned suggestions seldom lead to the adoption of preventive behaviors. Even programs that are specifically designed to increase protective action frequently fall short of

their goals. The investment of money, time, and effort is no guarantee that a program will have any effect at all. The apparent explanation – a half-truth – is that people are not nearly so interested in self-protection as we thought.

The topic of this volume is "self-protective behavior," actions people can take to reduce their own vulnerability to harm or the vulnerability of groups to which they belong. "Preventive behavior" is another, equivalent term for the types of actions we shall consider.

Case studies in prevention[1]

The three case studies that follow illustrate some of the surprising outcomes of actual prevention programs.

Case I. Increasing the preparedness of urban flood plain residents (Waterstone, 1978)

Hazard problem. In spite of dams and other engineering works, annual losses to flooding in the United States continue to increase. Particularly in urban areas, where land costs are high, housing developments and other structures are often built in recognized flood plains. Unless a flood has occurred recently, people who live in these areas frequently have no idea that they are at risk and have neither floodproofed their homes nor made any plans for escaping from a serious flood.

Approach. The jurisdiction of the Denver Urban Drainage and Flood Control District includes many communities that have a high potential for flood damage but low flood awareness. Brochures were prepared to alert residents to the fact that they live near a creek subject to flooding. The brochures contained a map depicting the limits of the 100-year flood plain, a definition of the term "100-year flood plain," and the suggestion that residents buy flood insurance and plan an escape route. The brochures were mailed to all households in the flood plain and its fringe.

Evaluation. Residents were interviewed either before or after the brochures were distributed, and the responses of these two groups were compared. People who had received the brochures were more likely to know what the term "100-year flood plain" meant (the error rate was still

75%) and could more accurately describe where they lived in relation to the boundaries of the flood plain. Brochure recipients, however, were somewhat *less* likely to know that the creek near them had flooded in the past and were *less* concerned about the risk of flooding. Although more people who were sent the brochure claimed to have established an escape plan, there was no noticeable impact on the purchase of flood insurance. Most of these between-group differences were not statistically significant. Overall, the program seemed to have made very little difference. One-third of the people who had been sent the brochures could not even remember seeing them.

Case II. Monetary incentives for automobile seat belt use (Robertson, 1984)

Hazard problem. The deaths and serious injuries caused by automobile accidents would be sharply reduced if seat belts were used more often. Nevertheless, educational campaigns to motivate seat belt use have been consistently unsuccessful. The public agrees that seat belts are worthwhile; they just do not use them. Lotteries and prizes can increase the number of seat belt wearers, but the effects of these incentives fade quickly when they are withdrawn.

Approach. The Nationwide Insurance Company offers an unusual financial incentive. Since 1963, this company has provided a 50% increase in compensation to policyholders injured in car crashes who were wearing seat belts at the time of their accident. Early in 1983, this extra payment was increased to 100% of the standard compensation, and an extra $10,000 was offered to heirs of anyone insured by the company who was killed while wearing a seat belt. The opportunity to receive these extra payments was automatic; it was not an extra-charge option. During 1983, Nationwide mailed notices announcing this new policy to every policyholder and placed advertisements in local media.

Evaluation. In early 1984, the seat belt use of 1,049 drivers was observed unobtrusively at sites in New Haven and Hartford, Connecticut. The insurers of the cars observed were determined from license plate numbers and state records. Just 9% of the Nationwide drivers were found to be using their seat belts, a figure no greater than that of drivers whose insurance companies did not offer monetary incentives.

Case III. Smoking prevention in junior high school (McAlister, Perry, Killen, Slinkard, & Maccoby, 1980)

Hazard problem. A major change in smoking behavior occurs between the seventh and ninth grades. In those years, many youngsters change from occasional, experimental smoking to habitual use. Because smoking is often so difficult to stop, it has become accepted that antismoking information must reach children early, before they have a chance to start.

Approach. One antismoking approach, the School Health Curriculum Project, is an intensive health education program that begins in the third grade and continues through the seventh grade. It uses sophisticated, active learning exercises to teach students about health risks and about the physiological effects of smoking. An apparatus with glass bottle lungs and sponges to collect and display the tar in cigarette smoke is an example of the materials used in this widely praised curriculum. Students enrolled in this program show a dramatic improvement on tests covering the effects of smoking, physiological mechanisms, and health statistics. The curriculum includes at least 30 hours related to smoking.

A second program flaunts conventional wisdom by waiting until the seventh grade to start. Furthermore, it teaches nothing about the effects of cigarette smoking on health. Its goals are to strengthen norms against smoking and to help students develop social skills for resisting pressures to start smoking. All sessions are led by a socially attractive high school student. Told "You're likely to become a smoker whether you want to or not," students learn to anticipate situations in which they might be encouraged to smoke, and they practice responses that allow them to decline without losing face. The program totals seven class hours over a two-year period.

Evaluation. The social skills program was introduced into the seventh grade of a school that, according to its administrators, had significant smoking and alcohol problems. In earlier grades, the students had received only a limited, traditional curriculum of health textbooks and occasional teacher lectures. The seventh-grade class of the comparison school had gone through the full School Health Curriculum Project. The two seventh-grade cohorts started at the same, very low level of smoking, but thereafter the percentages of students who smoked steadily diverged. By the end of the ninth grade, 20% of students in the health-information-oriented program were smokers; the proportion of smokers in the social-skills-oriented program was half as great, only 10%.

The multihazard approach to self-protective behavior

The case studies just described contain some unexpected results. In the flood plain and seat belt programs, for example, information and incentives that sponsors expected to be quite persuasive had little impact on their intended audiences. Yet such results are not unusual. To those who have broad experience with hazards, these outcomes are entirely predictable. The trouble is that such breadth of experience is rare, particularly among those who plan and carry out prevention programs. Experts who concentrate on only one aspect of a hazard – for example, its medical, geophysical, or engineering dimensions – are much more common. Furthermore, although all the fields included in this volume – health promotion and disease prevention, consumer safety, natural hazards preparedness, community crime prevention, and occupational safety and health – are quite active, each has developed on its own. Neither theoretical knowledge about what motivates and sustains protective behavior nor practical knowledge about the kinds of programs that are most effective is exchanged. Disciplinary boundaries and a focus on the hazard rather than on hazard behavior have kept the fields apart.

Current hazard categories – illness, crime, safety, and so on – reflect similarities in the physical or institutional characteristics of the problems: Health issues concern the human body; all crimes involve the violation of law; all natural hazards arise in the geophysical environment. This set of categories is reinforced by the organization of our governments. Responsibility for different hazards is assigned to different government agencies, and these are the primary source of funds for research and intervention programs. Nevertheless, the hazard categories are not homogeneous with respect to the behavioral issues they pose. The problem of encouraging people to protect themselves against burglary, for example, has more in common with the issue of reducing workshop injuries than it does with rape prevention.

The aim of this book is to bring together knowledge about a range of hazards so that we can better understand why people adopt or fail to adopt precautions. In a sense, this volume is an attempt to create a new field, the study of protective behavior. The chapters present major theories of protective behavior and critical analyses of the programs that attempt to increase protective actions. A basic assumption behind this book is that there is much to gain by a multihazard approach to the study of protective behavior because there are many similarities in the ways people respond to risk situations. Health researchers unaware of work on consumer safety and occupational health have been missing data and

theoretical insights that could enlighten their own efforts. Those who develop programs to increase readiness for natural hazards could learn a great deal from community crime prevention activities.

It is unrealistic, however, to expect everyone involved in prevention activities or research to become an expert in all hazard areas. The task is too great. Most of the natural hazards and crime prevention reports, for example, are government documents or working papers and are very difficult to locate. Reviews, when they exist, are usually addressed to readers who are already experts in the field. The chapters in this volume have a different intent. Their primary goal is not to present new theories or describe new intervention programs but to make information about a wide range of hazards available to everyone interested in prevention.

In addition to facilitating the exchange of information across hazards, this book aims to stimulate a more sophisticated view of protective behavior than presently prevails. Even if we pool our knowledge about reactions to illness, crime, natural hazards, and safety issues, major gaps in our understanding remain. Consider, for example, the following questions:

- Can information about low-probability, high-cost risks be presented in a way that leads people to act?
- Are appeals to motives like status, well-being, and financial savings more effective than appeals to self-protection?
- How important are social pressure and imitation in the adoption of new precautions?
- Should more emphasis be placed on group and community approaches to hazard response and less effort be directed toward the delivery of risk information to individuals?
- Is there a consistent tendency to deny or underestimate risk?
- Under what conditions are educational approaches that are unlinked to fear arousal or to positive incentives worthwhile?
- Are people such prisoners of their past experience that they will not act until they themselves have become victims?
- Is individual behavior so difficult to change that we should stop trying to get people to protect themselves and instead attempt to reduce the riskiness of the environment in which they live and work?

These questions are fundamental for all hazard reduction efforts. Yet most prevention programs are not even aware that they ought to be considered. Even though the answers to these questions are not settled, the knowledge we do have is often sufficient to improve the prevention effort significantly.

As we continue to study these questions, we are likely to find that some answers remain the same for all kinds of hazard settings. The answers to other questions, however, may be quite situation specific. If we can reach this point, we will have achieved a more sophisticated view of protective behavior than we had in the past. The range of topics in this volume provides an opportunity to search for empirical findings and theoretical principles that apply to a wide range of hazards. This breadth may also reveal that a conclusion presented as if it were a general principle of risk behavior actually has a very limited domain. The fact that a "principle" rests on specific hazard features will remain hidden until the principle is tested in a variety of situations.

Another aspect of our attempt to encourage a more sophisticated view of hazard response is the inclusion of chapters presenting five different theoretical perspectives on risk behavior. Although each point of view offers new and valuable insights, most hazard programs take no more than one or two of these perspectives into account.

Assigning responsibility for prevention

In asking Why do people take precautions? or How can we encourage people to act? we are limiting ourselves implicitly to hazard situations in which risk-reducing actions by individuals or groups of individuals are possible. This is not to say, however, that society should always expect individuals to take every possible precaution. A worker should not be expected to wear burdensome protective clothing when a better factory ventilation system would achieve the same result. Nor should a rape victim be blamed merely because she failed to stay indoors after dark. Deciding how much responsibility individuals bear for reducing their own risks and how much responsibility government or employers should take for maintaining a safe environment is a difficult and important task, but a task beyond the scope of this book.

Nevertheless, it is important to point out potential biases in the perspectives of professionals and officials that may create unrealistic expectations about the ease of change and shift too much responsibility for prevention onto individuals. If protective actions seem easy, inaction will tend to be viewed as laziness, denial, lack of interest in self-protection, or purposeful risk taking, and those who suffer harm will be blamed for their inaction.

A first source of bias concerns the types of preventive behaviors that become the subject of organized programs. These programs necessarily focus on actions people have *not* taken. Precautions that were adopted

quickly and easily are no longer problems. Thus, without realizing it, we tend to center our attention on behaviors that have proved resistant to change. If hazard experts believe that certain precautions make good sense but the public has not accepted their recommendations, there may be unrecognized difficulties in adopting these measures. A focus on such a biased set of problems can result in excessively pessimistic conclusions about the public's willingness to change its behavior.

A second source of bias concerns the amount of risk that is acceptable. A public health official naturally wants to reduce illness as much as possible. Any illness morbidity is unacceptable if the amount could be reduced. Yet the risk at an individual level may already be very low. Given this low level of risk, an individual may consider it absurd to spend time or money to decrease the risk still further. Cost–benefit analyses are often performed when society must pay for risk reduction. The value of government flood insurance, for instance, has been subjected to intense scrutiny. Similarly, manufacturers do not hesitate to protest when they believe that the costs of government-mandated safety features outweigh the expected benefits. But when the action must be carried out by individual citizens, the costs in time, energy, and money are often overlooked. Although individuals rarely engage in a formal cost–benefit analysis, they often compare the costs and benefits in a more informal manner. From the individual's point of view, following a recommendation may not be worth the trouble.

A final factor that may lead to unrealistic expectations is the tendency of experts to focus on a single hazard. The American Heart Association, naturally, thinks mainly about heart disease; a flood control specialist is preoccupied with floods; fire safety officials are responsible for reducing fire losses. The public, however, must try to respond to all these hazards and to other life demands as well. An action that seems desirable when viewed in isolation may reflect an inappropriate use of resources when all hazards and potential precautions are considered together. Furthermore, a narrow focus can obscure the fact that risk-relevant behaviors often serve many functions. For example, maintaining good health is only one of a multitude of factors governing eating behavior. Behaviors that satisfy many different needs are likely to be resistant to change.

The preceding argument suggests that people sometimes have good reasons for not following the advice of experts. If hazard professionals are aware of the potential biases in their perspectives, they will be able to set behavioral goals that are more realistic, and individuals will not have to shoulder as much of the blame for failing to act.

Organization of the volume

This volume is divided into two main parts. The five chapters in the first section present theoretical perspectives that are particularly useful for analyzing hazard behavior. The second section contains reviews of hazard research and evaluations of programs designed to increase preventive behavior. Each of the fields of health promotion, crime prevention, and natural hazards is represented by several chapters, one attempting to answer the question Why do people take precautions against this hazard? and another (two more in the case of health promotion) examining the types of programs that have increased or failed to increase protective behavior. The topics of consumer safety and occupational safety and health are each represented by a single chapter. A concluding chapter returns to the eight questions posed earlier in this introduction and discusses recurring themes in the study of protective behavior.

Note

1 I am indebted to Fred Heinzelmann, Alfred McAlister, Leon Robertson, and John Sorensen for suggesting the case studies included in this chapter.

References

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Part I

Theoretical perspectives

There is no single starting point in prevention, for any significant hazard involves an impressive number of actors and issues. To reduce flood losses, for example, we must consider the meteorologist's accuracy in predicting storms, the engineer's ability to construct flood works, the city council's success in discouraging construction on the flood plain, the civil defense warning and rescue system, and the government's willingness to pay for all of these. We must not overlook the mass media's depiction of the flood threat, not just during an emergency but at all other times. Finally, we cannot ignore the flood plain occupants, those who could lose their lives and property, and must ask whether they have purchased insurance, floodproofed their homes, and devised evacuation plans or whether they even realize that the flood warnings apply to them.

Because the focus of this book is on protective behavior – actions individuals can take to reduce their vulnerability to harm – our focus here would be on the responses of the flood plain dwellers. Yet even with this restriction, there are many perspectives to consider. Each behavioral scientist tends to emphasize a different aspect of human nature: cognitive processes, emotions, social interaction, history, and others. No one of these perspectives is sufficient to explain how people react to hazards. The greater our awareness of these different facets of human nature, the better will be our understanding of the adaptive and sometimes maladaptive behaviors we see.

In the past, most research on prevention has been tied to specific hazards, and researchers have seldom been well-informed about the many different theoretical perspectives that could assist their own work. Links between specific hazards and specific social science disciplines narrow the range of ideas considered still further. For example, people involved in health promotion tend to come from public health, health education, or, more recently, psychology. Reactions to the threat of crime tend to be studied by individuals with backgrounds in criminal justice or sociology.