We comment on the preceding papers by Gerrard and Vernon concerning persuasion, perceived risk, and cancer-relevant behavior. Our purpose is to highlight several challenges for future investigators. First, relations between health cognition and health behavior (such as the link between perceived vulnerability and protective behaviors) are likely to be moderated by other variables, including individual differences and situational contexts. Second, we encourage health communication researchers to consider how persuasion is contextualized in social relationships and to employ mechanisms from the literature on social influence when promoting cancer prevention and early detection behaviors. Finally, we emphasize the importance of current feelings and anticipated emotions as motivators of salubrious actions. [Monogr Natl Cancer Inst 1999;25:119–22]

The effectiveness of interventions designed to promote cancer prevention and early detection behaviors often depends on the persuasiveness of a public service announcement, brochure, print advertisement, government letter, educational program, or communication from a health professional or cancer information specialist. From a psychological vantage point, these communications represent persuasion opportunities in which to apply a technology derived from nearly a half century of research on attitude change. The papers in the preceding section of this monograph suggest that applying this technology, however, might not always be a straightforward exercise. Sometimes the same communication strategies can produce opposite effects, depending on other contextual variables. Nowhere is this more clear than when trying to determine whether increasing a person’s perceived vulnerability will motivate behavior change in a desirable way or will create unreasonable anxiety, defensiveness, and paralysis.

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MODERATED RELATIONSHIPS

Our colleague, William J. McGuire, the dean of American attitude change researchers, is fond of saying, "The opposite of a great truth is also true" (1). What does he mean by this mysterious and metaphysical Zen paradox? McGuire (1) urges us to recognize that important human behavior is not characterized best by "main effects." Rather, he asserts that the goal of science is the identification of specific moderators that help us to delineate the conditions under which a hypothesis is true and the conditions under which precisely the opposite hypothesis is true. It is unlikely, for example, that increasing perceived vulnerability always motivates desired health behaviors or that highly credible communicators are always more persuasive than those lacking in credibility. The search for these kinds of interactions—what neuroscientists like to call "double dissociations"—reveals the scope conditions under which various laws of human behavior hold or are violated.

The preceding papers were written in the spirit of McGuire’s aphorism. Meg Gerrard and Sally Vernon admirably discuss studies in which the associations between psychological antecedents and desired health behaviors are moderated, making these relationships appear and disappear. Gerrard, for instance, reviews her work on self-esteem. Although it is usually assumed that individuals with high self-regard are less likely to engage in health-damaging behavior than those individuals who do not think highly of themselves, such is not always the case. In her work, young people with low self-esteem have a fairly realistic sense of how their sexual behavior places them at risk for sexually transmitted diseases (STDs), and they respond to new information about their vulnerability to STDs with appropriate concern; those individuals with high self-esteem respond to STD risk information more defensively. So self-esteem moderates the effect of risk communications in this domain. Gerrard also discusses the findings by Weinstein et al. (2), showing that one’s stage in the behavior change process moderates the effect of risk information on initiating salubrious actions. For example, information about the risk of lung cancer from household radon seems to motivate the purchase of test kits only among individuals who have not already decided on the value of buying them. Similarly, Vernon discusses the finding by Aiken et al. (3) that increasing perceptions of risk promotes screening mammography use among individuals with relatively few barriers preventing them from accessing this technology but not among those with many perceived barriers. These investigations, and numerous others, suggest that the relationship between vulnerability and cancer-relevant behavior is moderated by personal and situational variables that must be taken into account when considering the antecedents of relevant behavior change.

PERSUASION: PAST, PRESENT, AND FUTURE

The importance of interactions in accounting for cancer prevention and early detection behaviors implies that the traditional approach to persuasion and attitude change, although valuable in delineating important "main effects," may be too restricted a perspective. Traditional psychological research on attitude change has focused primarily on one of three aspects of persuasive communication. These aspects have included (a) the source of the persuasive message (e.g., the communicator’s expertise, credibility, trustworthiness, attractiveness, and similarity to the recipient), (b) the recipient of the message (e.g., the target’s knowledge about the attitude domain, experience with the attitude object, and demographic and dispositional characteristics expected to be associated with influenceability), and (c) aspects of the message itself.

Of these three areas of research activity, message variables have been studied the least systematically, although interesting findings have emerged. For example, anecdotes about particular people are more persuasive than the presentation of cold statistics. Fear-arousing appeals are usually effective only when instructions about how to reduce the fear are included in the message. Forcefully delivered messages are more persuasive than quieter ones, and messages delivered quickly are surprisingly more effective than leisurely delivered messages [reviewed in (4)].

The two aspects of messages that have been studied most systematically in the context of cancer prevention and control are message framing and message tailoring. Message framing is a procedure derived from research on decision making motivated by prospect theory (5–7). Message framing refers specifically to the emphasis in a message on the positive or negative consequences of adopting or failing to adopt a particular cancer-relevant behavior (8). Appeals aimed at persuading individuals to perform cancer-relevant behaviors can be framed in different ways. In particular, information can be framed to emphasize relevant gains or losses. Gain-framed messages usually present the benefits that are accrued through adopting the behavior (e.g., "Obtaining a mammogram allows tumors to be detected early; this maximizes your treatment options"). Loss-framed messages generally convey the costs of not adopting the requested behavior (e.g., "If you do not obtain a mammogram, tumors cannot be detected early; this minimizes your treatment options"). Although these two messages convey essentially the same information, for certain behaviors one of these messages may be more persuasive than the other. In previous research (9,10), we have found that messages concerning the value of using sunscreen to prevent skin cancer motivate appropriate sunscreen use when they are framed in terms of gains or benefits rather than losses or costs. However, we have also discovered that messages framed in terms of losses (costs) motivate more behavior change when the target behavior is screening mammography (11). Thus, the message frame that is more effective depends on the type of health behavior being promoted—prevention or early detection.

Message tailoring is a procedure selected from the social-marketing arsenal. It refers to the adaptation of information and interventions that best fit the relevant needs and characteristics of specified target populations (12). In this tradition, cancer-relevant messages have been tailored to the demographic characteristics of recipients, especially sex, ethnicity, occupation, and educational background, as well as to the stage in the behavior change process (reflecting prior contemplation of or experience with the targeted behavior). Some tailoring interventions create enormous libraries of text messages and accompanying graphics that are matched to complex and nearly unique combinations of previously identified recipient characteristics [e.g., (13,14)]. Recently, there has been increased interest in tailoring messages to recipients’ psychological needs and personality characteristics [for a review, see (15)].

Although persuasion research using framing and tailoring strategies has certainly looked at scope conditions that moderate the relationship between the receipt of such messages and behavior change, future work in this arena will likely contextualize
framed and tailored messages in social relationships. That is, rather than focusing on the traditional source, message, and recipient of persuasive communications in isolation, the relationship between source and recipient will receive greater attention. This approach to persuasion is better characterized as social influence and is well captured in a framework developed by Robert Cialdini. Cialdini (16) describes six ways in which relationships between sources and targets play out in a persuasive context. These rules include

- **The power of authority**: We defer to authorities and even more so to mere symbols of authority.
- **Liking leads to influence**: We prefer to say yes to the requests of people we know and like.
- **Commitment, consistency, and cognitive dissonance**: Once we take a stand, we will encounter personal and interpersonal pressures to behave consistently with that commitment.
- **Reciprocation**: We try to repay, in kind, what another person has provided us.
- **Social proof**: We view a behavior as correct in a given situation to the degree that we see others performing it.
- **Scarcity**: Opportunities seem more valuable to us when they are perceived to be less available.

As health communication specialists, we need to consider the kinds of social environments that have facilitated persuasion and behavior change in other domains. Tupperware® storage containers have traditionally been sold by homeowners (rather than salespeople) to their neighbors in the context of household parties. Is it crazy to imagine “mammography parties”? After individuals donate blood, the Red Cross provides lapel buttons stating, “I gave blood today.” Would it be too odd for clinics to provide buttons saying, “I received a mammogram today”? The men’s clothing store in town has little trouble convincing customers to buy a new tie or two after they have picked out an expensive new suit. Could a similar principle be employed to encourage sunscreen use among people who have made commitments to low-fat diets or smoking cessation? The idea here is to capitalize on social influence techniques that have worked in other domains and use them to promote health.

In considering persuasion campaigns for the purpose of cancer-risk reduction, capitalizing on these social psychological principles may increase the persuasive power of our brochures, educational programs, web sites, and the like. Organizing health communication around these kinds of ideas, however, strikes some people as, at best, manipulative and, at worst, unethical. The concern is that we are somehow tricking people into engaging in behaviors not based on their own rational calculation of the costs and benefits of adopting them. However, it is becoming increasingly clear that the rational consideration of impartially presented information and that the weighing of costs and benefits are not an especially accurate representation of what goes on in the minds of most decision makers when contemplating whether to use sunscreen, obtain a mammogram, or quit smoking.

In our own work, other mental processes seem to motivate health behavior, such as the emotional reactions that people anticipate feeling if they engage in the target behavior (or are blocked from engaging in that behavior). A friend recently installed a radon-mitigating fan in the basement of his house. This expenditure of about one thousand dollars came after testing his home’s radon level several times and finding it a little above the recommended action level. His decision to pursue radon mitigation was not made because of a dramatically increased sense of lung cancer vulnerability. Rather, his concern was focused, primarily, on the regret and shame he would feel decades from now if he were to be diagnosed with lung cancer—regret and shame about his unwillingness to have spent a mere thousand dollars in his younger years. Mitigating household radon was a health behavior for this individual that served as an insurance policy against regret and shame in his twilight years. His actions were motivated only by a vague sense of perceived vulnerability but, more significantly, by anticipating future emotional reactions.

**CONCLUSION**

The communication of cancer-risk information and information about prevention and early detection behaviors represents an opportunity to change hearts, minds, and behaviors. In this paper, we have tried to emphasize several issues. First, relations between health cognition and health behavior (such as the link between perceived vulnerability and protective behaviors) are likely to be moderated by other variables, including individual differences and situational contexts. Second, we have indicated that the traditional focus in communication on source, message, and recipient variables has served us well but is rather limited. Instead, we encourage health communication researchers to consider how persuasion is contextualized in social relationships and to employ mechanisms from the literature on social influence when promoting health behavior. Finally, we emphasize the importance of affect—current feelings and anticipated emotions—as a motivator of health-relevant behavior. In a desire to preserve a view of the individual as a rational balancer of costs and benefits, we have created a false dichotomy between passion and reason [cf. (17)] and have underemphasized an important motivator for why individuals choose to protect their health.

**REFERENCES**


