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II
PERSONAL DETERMINANTS

COGNITIVE DETERMINANTS

The personal, social, and cultural constructions of beliefs about health and illness discussed in Chapters 1 and 2 are further elaborated in cognitive research on personal determinants of health behavior. By far the largest share of research on personal determinants has been cognitively driven. The term *cognition* denotes "those personal thought processes that serve as frames of reference for organizing and evaluating experiences. Beliefs, expectations, perceptions, values, motives, and attitudes all provide the person with ways of filtering, interpreting, understanding, and predicting events" (Gochman, 1988, p. 21). The term *health cognitions* refers to beliefs, expectations, perceptions, values, motives, and attitudes that provide frames of reference for organizing and evaluating health, illness, disease, and sickness regardless of whether those cognitions have demonstrable empirical linkages with health status and regardless of whether they are objectively valid.

Cognitive approaches to human behavior emphasize phenomenology: events as they are psychologically experienced, the world as it is perceived by the person in contrast to the world of physical "reality." Important cognitive approaches in health behavior research include those that deal with how health and illness are represented or organized within the individual's cognitive structure, the health belief model, locus of control models, protection motivation theory, behavioral intention theory, and stage of adoption models. Health as a motive or value, and those motives that are relevant to health behavior, represent another important cognitive determinant. For convenience, cognitive determinants can be considered under three broad categories: representations, predictive models, and motivation.

Representations

Cognitive representations refer to mental images or personal schemata related to health, illness, or disease. To use Tolman's term, they are *cognitive maps* of the health domain (Tolman, 1948/1961). Bishop and Converse (1986) use the term *prototype model* to describe the way in which personal beliefs form a schema with which to interpret physical symptoms. Commonsense or laypersons' views of epidemiology have been shown to be related to personal illness histories (e.g., Jemmott, Croyle, & Ditto, 1988) and to critical and meaningful events in the person's life (e.g., Hunt, Jordon, & Irwin, 1989). Personal schemata have also been found relevant to the area of exercise (Kendzierski, 1990), treatments (Furnham, 1989), patients' perceptions of epilepsy (Kirchgässler, 1990), symptom perceptions in chronic respiratory patients (Lacroix, Martin, Avenado, & Goldstein, 1991), beliefs about contagion and germs (Nemeroff, 1995), and care-seeking behavior (Cameron, Leventhal, & Leventhal, 1993).

In Chapter 3, Lau reviews the research literature on cognitive representations of health and illness and provides a detailed account of some relevant investigations and data.

Predictive Models

In the 1950s and 1960s, the health belief model and models derived from the concept of locus of control were the major predictive models in health behavior research. The 1970s through the mid-1990s and 1980s witnessed the emergence of research driven by protection motivation theory, behavioral intention theory (eventually termed the "theory of reasoned action" or the "theory of planned behavior"), and stage theories (sometimes referred to as "transtheoretical models"). A comparison of major cognitive theories showing their similarities, differences, strengths, and weaknesses is provided by Weinstein (1993).

Health Belief Model. The health belief model, long considered to be the major frame of reference in health behavior research, and at one time referred to "in virtually every dissertation related to health behavior" (Green, 1974, p. 324), has been generating health behavior research since the middle 1950s. It was originally developed to explain why persons engage in and predict when they will engage in specific preventive behaviors such as accepting a vaccine or participating in a tuberculosis screening procedure (e.g., Rosenstock, Derryberry, & Carriger, 1959), but has been expanded to predict illness and sick role behaviors. Basic components of the model are perceived susceptibility to an illness, perceived severity or seriousness of that illness, perceived benefits of taking a specified action, and perceived barriers to taking that action.

Reviews of research generated by the model, together with critical analyses, have been provided by Becker (1974), Janz and Becker (1984), and Kirscht (1988). Janz and Becker (1984), for example, have used a "significance ratio" (p. 36) to compare the predictive value of the several variables encompassed by the model and to show historical changes in the way the variables were conceptualized and measured and in their relative effectiveness. For studies published prior to 1974, "perceived susceptibility" was the best overall predictor. For studies published during the 10-year period 1974–1984, "perceived barriers" was the best predictor, followed by "perceived benefits" and "perceived susceptibility." "Perceived seriousness" was far less valuable as a predictor. Yet, in a prospective study, Eckert and Goldstein (1983) observed that perceived severity played a role as a trigger to seeking medical care, as well as a role in the choice of source of care. The magnitude of its importance, however, was influenced by income level. Janz and Becker's observations are congruent with the increased attention paid to conceptualizing and measuring perceived benefits and perceived barriers since 1980, particularly in studies that attempted to develop measures of benefits and barriers that were congruent with the phenomenological world of respondents (e.g., Eisen, Zellman, & McAlister, 1985), in contrast to the presumptive reality of medical technology.

Kirscht (1988) demonstrated the model's value as a predictor of a variety of health actions and provided insights into its complexity and status. He also showed how the model has become less involved in the prediction of "medically" determined or medically specified behaviors and more involved in the prediction of a broad spectrum of health-relevant but non-medically specified behaviors. Moreover, his discussion of ways of dimensionalizing behaviors (e.g., habitual or nonhabitual; repetitive or one-time; initiating or stopping) and how differences along these dimensions have important implications for the predictive value of the model was a critically important conceptual contribution.

In Chapter 4, Strecher, Champion, and Rosenstock provide a mid-1990s assessment of the health belief model.

Locus of Control Models. A second major cognitive predictive model stems from Rotter's (1966) conception of locus of control. The degree to which persons perceive themselves as being in control over events in their lives (internal locus

of control), in contrast to perceiving that events or outcomes in their lives are capricious or subject to control by others (external locus of control), has been found to be related to the likelihood that they will engage in selected health behaviors, although the evidence is not uniformly conclusive. Wallston and Wallston (1978) provided one of the earliest systematic reviews of this literature, and Seeman and Seeman's (1983) longitudinal analysis showed that persons who believe that they are more "in control" in relation to health and illness are more likely to engage in health-promoting behaviors than persons who believe that they are less "in control."

Lau (1988) identified a diverse group of health behaviors that were successfully predicted by locus of control and in addition provided a critical assessment of the model. Lau also identified a number of issues related to the measurement of locus of control, which is one of the few cognitive dimensions related to health that have been widely studied from a psychometric or instrument-construction perspective. Lau showed that such beliefs were multidimensional. In addition to the scales discussed by Lau, a children's health locus of control scale has been developed by Parcel and Meyer (1978) for use with young populations.

At the mid-1990s, locus of control by itself has less of a presence in the research literature, but its content appears in important ways in the concept of "self-efficacy," the belief that one has the skills to perform a behavior or to accomplish something.

In Chapter 5, on beliefs about control, Reich, Erdal, and Zautra review the more recent literature and provides empirical data showing the complex interplay between beliefs about control, social interactions, and perceptions about health status.

Protection Motivation Theory. The initial formulation of protection motivation theory appeared in the late 1970s, and the theory emerged as a major conceptual framework by the mid-1980s (e.g., Wurtele & Maddux, 1987). This third cognitive predictive model integrates elements of the health belief model such as perceived susceptibility and perceived severity with concepts related to cognitive responses to fear arousal, such as appraisals of threat and of ability to cope with the threat (e.g., Wurtele & Maddux, 1987). Findings emphasize the need for caution in using fear arousal and in estimating perceptions of threat. Millar and Millar (1995) observed that thinking about disease detection, which is presumed to be threatening, resulted in negative affective responses and negative mood change, with potentially negative implications for coping and problem solving. Kulik and Mahler (1987) and Kreuter and Strecher (1995) observed that risk perceptions are often inaccurate and that patients are likely to show optimistic biases in their expectations of negative events. Questions about the role of threat are raised by Blalock, DeVellis, Afifi, and Sandler (1990) in the context of their study of risk perception and participation in colorectal screening for cancer.

In Chapter 6, Rogers and Prentice-Dunn review the history of the theory, providing evidence that supports the theory and comparisons with other related models.

Behavioral Intention Theory. The theory of behavioral intentions (e.g., Fishbein & Ajzen, 1975), a fourth cognitive predictive model with implications for health behavior, also emerged in the late 1970s. According to behavioral intention theory, a person's attitude toward some act, moral beliefs related to the act, and perceptions of social norms relevant to the act determine the person's intention to engage in the act. The concept of "specificity of intention" is critical to this theory. General attitudes toward an object appear less powerful as predictors of behavior in relation to that object than does an intention to engage in a specific behavior. Moreover, unlike the health belief, locus of control, or protection motivation models, behavioral intention theory routinely includes normative pressures and factors that facilitate or deter the specified behavior.

In Chapter 7, on theories of planned behavior (TPB) and reasoned action (TRA), Maddux and DuCharme deal with the evolution of be-

havioral intention theory, its mid-1990s status, and how it integrates critical elements of all of the other cognitive models.

Stage Models and Transtheoretical Models. Stage models recognize that behavior change often involves a temporal sequence of different processes, with implications that successful intervention strategies must acknowledge these processes and be stage-specific. The precaution adoption process suggested by Weinstein (e.g., Weinstein & Sandman, 1992) identifies five distinct stages between ignorance and the completion of a preventive or precautionary behavior: (1) unawareness, (2) awareness but no personal engagement, (3) engaged but deciding on a course of action, (4) planning to act but not yet doing so, and (5) acting. Two additional stages are (6) not acting (if the result of the decision process is that action is not needed) and (7) maintenance.

The transtheoretical model (e.g., Prochaska, 1994; Prochaska & DiClemente, 1992; Prochaska et al., 1994) identifies five stages of change as (1) precontemplation, a period when change is not even being considered; (2) contemplation, a period of time in which serious thought about change in the near future is begun; (3) preparation, a period of time in which serious thought is given to changing in the immediate future; (4) action, a period of time in which overt change is made; and (5) maintenance, a period of time during which action has started and has been continued. The transtheoretical model also incorporates critical components of decisional balance theory and has been shown to have value for a range of health behaviors, such as smoking cessation, fat intake, and mammography (Prochaska et al., 1994).

Other Predictive Models. Other cognitive predictive models include decisional balance theory and subjective expected utility theory. Decisional balance theory refers to the way the positive and negative aspects of taking action are evaluated in the process of behavioral change (e.g., Marcus, Rakowski, & Rossi, 1992; Rakowski, Fulton, & Feldman, 1993). The transtheoretical model subsumes the components of decisional balance theory (e.g., Prochaska et al., 1994).

Subjective expected utility theory makes use of a simple mathematical model to account for the way people evaluate the probabilities and desirabilities of alternative behaviors and choose the one with the highest product of the two (e.g., Ronis, 1992). Subjective expected utility theory has been integrated with the health belief model to predict dental flossing behavior (Ronis, 1992).

Health as a Value or Motive

The importance of another type of cognition, health as a motive or value, has received little systematic research attention, although it relates to these cognitive models. Although the original health belief model assumed that high levels of perceived susceptibility and perceived severity were themselves motivational, subsequent research showed that health as a motive is independent of perceived susceptibility (Gochman, 1977) and that health motivation is a factor in organizing health-related beliefs and intentions (Gochman, 1972). Lau, Hartman, and Ware (1986) provided a careful analysis of health as a value, devised a way of measuring it, and successfully incorporated that measure in predictions derived from the locus of control model.

The question of the role of health as a value in the prediction of health behaviors can be transformed into asking what values are relevant to health behavior. Research (Gochman, 1975) has shown that health may be less salient in the population than is presumed, and less salient than other values, such as concern for appearance. Kristiansen (1984) observed that health as a value contributed to the prediction of preventive health behaviors, but that other values contributed as well. On the other hand, Smith, Wallston, Wallston, Forsberg, and King (1984) observed that value of control in relation to health care processes was not a significant predictor of health-related behaviors among those facing terminal illness.

The relative strength of health and appearance motivation in West German and American samples was demonstrated by Cockerham, Kunz, and Lueschen (1988). West German eating behaviors were less driven by appearance than were the eating behaviors of Americans, but in neither population was health itself a significant factor in eating behaviors.

Appearance motivation was also found to be negatively linked to safe-sun practices (Jones & Leary, 1994). Furthermore, it is related to impression management, or people's concerns about how they present themselves socially. Such concerns may increase a range of health risks from skin cancer to HIV, since concern about the presentation of self may be a barrier to skin protection and to the purchase and use of condoms (Leary, Tchividjian, & Kraxberger, 1994).

The very name of the Health Motivation Assessment Inventory (McEwen, 1993), derived from the health belief model, gives promise of a relevant instrument to measure such motivation. Examination of its content reveals, however, that it measures a number of perceptual and belief variables that are presumed to be motivating, but does not measure health motivation—or motivation germane to health—at all.

Other Cognitive Approaches

Other approaches not identified with any of the major cognitive models are reflected in the following studies: Minkler's (1978) examination of health-relevant beliefs and attitudes in the elderly and the incongruity between their cognitions and behaviors and that between their cognitions and "reality"; McKee's (1975) observation of large attitudinal differences between users and nonusers of nonprescription or "recreational" drugs; Kahn, Anderson, and Perkoff's (1973) analysis of the perceptions of need for care held by users of emergency rooms; Mburu, Smith, and Sharpe's (1978) report of how attitudes toward modern medicine determine use of health services among the Matungulu people of Kenya; Crandall and Duncan's (1981) comparison of attitudinal and situational factors as predictors of physician use, as well as their observations that attitudes and beliefs about physicians, personal health, and health care were better predictors of physician use among low-income persons than were financial resources; Stacy, Bentler, and Flay's (1994) observations that attitudes were inconsistent in predicting risk behaviors; Selstad, Evans, and Welcher's (1975) observations that females who had undergone an abortion and who a year later were not regular users of contraception were more likely than regular users to believe that premarital sex activity was wrong; and Wagenfeld, Vissing, Markle, and Petersen's (1979) observations of attitudinal and ideological differences between participants in the laetrile movement and the general population. Those in the laetrile movement, for example, were less likely to be convinced of the importance of regular physical examinations and more likely to use chiropractors and other alternatives to "orthodox" medical care.

NONCOGNITIVE PERSONALITY DETERMINANTS

Although a number of personal variables have also been linked conceptually and empirically to health behavior, no personality models, factors, theories, or concepts have had as great and as pervasive an impact on health behavior research as have the models derived from cognitive theories. Helsing and Comstock's (1977) observation that "psycho-social characteristics have not been studied as thoroughly as demographic factors" (p. 1044) remains as true of the larger area of health-related behaviors in the mid-1990s as it was 20 years before in relation to seat belt use.

Discussion of research on personal characteristics can be considered under three headings, depending on the *primary* focus: discrete personal characteristics, trigger factors, and integrations of these two.