

(Taylor & Brown, 1988). In the latter case, it is the perception of control that matters, especially because the amount of real control we can have over our health is limited. Whether or not one can actually influence health behaviors and outcomes, the perception that one has control is often sufficient to reap its benefits.

Most of the work concerning control and health has involved control beliefs rather than actual control. *Beliefs* about control in the context of health refer to the thoughts (or cognitions) an individual has regarding the ability to influence health behavior, health status (or other health outcomes), or health care. Control beliefs are one of a number of hypothesized determinants of health behavior and health outcome (Wallston, 2001a, 2001b).

TYPES OF CONTROL BELIEFS

Locus of Control

Rotter (1966) coined the term "locus of control" to refer to an individual's belief as to whether control of valued reinforcements (i.e., outcomes) is *internal*—that is, due to who the individual is or what the individual does—versus *external*—that is, due to the actions of other people, fate, luck, or chance. Locus of control (LOC) is a generalized expectancy construct within Rotter's (1954) social learning theory. Generalized expectancies are traitlike in that they guide behavior across many situations in respect to many reinforcers. Rotter (1966) conceived of LOC as being unidimensional, and the I-E Scale he developed to assess this construct was scored accordingly: high scores on the I-E Scale reflected an external belief orientation, while low scorers were called "internals." Strickland (1978) reviewed the early studies linking the I-E Scale to physical and mental health variables.

Following Rotter's lead, a unidimensional health locus of control (HLC) instrument was developed and published by Wallston, Wallston, Kaplan, and Maides (1976). In their initial studies, Wallston et al. (1976) demonstrated that the HLC Scale did a better job than Rotter's I-E Scale in predicting health-related information-seeking and weight loss, especially for individuals who highly valued good health as a reinforcement. Health researchers began to choose the HLC Scale over the I-E Scale when studying health-related phenomena.

By the mid 1970s, however, researchers began to question the unidimensionality of both the I-E and HLC scales. Internality and externality were seen as

CONTROL AND HEALTH

When individuals are able to determine or influence what is happening to them, or what will happen to them, those individuals are said to be "in control." Control is a central construct in psychology, and being in control is a universally desired state of existence for most persons. In the health care arena, control has typically been linked to positive health outcomes (Walker, 2001). Control can be either real or illusory

orthogonal dimensions rather than opposite ends of a continuum. Levenson (1973) developed the I, P, and C Scales to assess separately internal LOC beliefs from two types of external LOC beliefs: powerful others and chance. Following Levenson's schema, Wallston, Wallston, and DeVellis (1978) published Forms A and B of the Multidimensional Health Locus of Control (MHLC) Scales. These two forms of the MHLC have a similar factor-structure to Levenson's scales and have been widely used by health researchers throughout the world looking for a measure of control over one's health status. Early work with these measures was reported in two chapters (Wallston & Wallston, 1981, 1982). The most consistent findings have been (a) internal HLC is related to carrying out recommended health behaviors, especially by individuals who highly value good health, (b) internal HLC is related to self-reported health status, and (c) chance HLC is related to depressed mood and other indicators of psychological distress.

Form C of the MHLC (Wallston, Stein, & Smith, 1994) is a generic instrument intended for individuals already diagnosed with a medical condition. By changing the word *condition* in each item, Form C is used to assess persons' LOC beliefs over a particular existing health problem (e.g., arthritis, cancer, diabetes). The "powerful others" dimension in Form C is further broken down into two separate dimensions: doctors and other people. In keeping with an increasing interest in religion and health, Wallston and colleagues (Wallston et al., 1999) have developed a God Locus of Health Control subscale as a means of assessing persons' beliefs about God's control of their health. This new subscale can be used independently or in conjunction with any of the other forms of the MHLC.

Regardless of which form of the MHLC is administered, the preponderance of research with these scales has shown that health *locus* of control beliefs, by themselves, only account for a relatively small percentage of the variance in measures of health behavior and/or health status (Wallston, 1992, 2001b). The *place* where control is perceived to reside is less important than whether or not the individual believes that control exists, even if that control is illusory (Wallston, 2001a, 2001b). Other types of control-related beliefs (enumerated below) often explain a greater amount of variance in health-related measures than does LOC. LOC measures, such as the MHLC, may perform better as moderators than as main effect

predictors (Wallston, 1992; Wallston & Smith, 1994). For instance, the interaction of trust of doctors and the belief that doctors are responsible for one's health status may be more predictive of adherence to one's medical regimen than either predictor alone.

Perceived Competence, Mastery, and Self-Efficacy

Whereas locus of control is only an imperfect indicator of the perception of control, other constructs such as perceived competence, mastery, and self-efficacy are more directly indicative of the belief that one is in control, particularly of one's behavior. Both mastery (Pearlin & Schooler, 1978) and perceived competence (cf. White, 1959) refer to control over situations and outcomes, as well as to behaviors. Self-efficacy, as originally conceived of by Bandura (1977), was highly situation-specific; it stood for the degree of confidence a person had in his or her ability to successfully carry out a specific behavior in a specific situation. Over the years, Bandura and others have endorsed a generalization of the self-efficacy construct so that it now is more similar to a sense of mastery or perceived competence (see Bandura, 1997). Persons are self-efficacious to the degree that they believe they can do whatever is necessary to obtain valued reinforcements in whatever situation they find themselves. Another close construct to self-efficacy is perceived behavioral control, a key predictor of behavior and behavioral intention in Ajzen's Theory of Planned Behavior (Ajzen, 1991).

As with LOC, attempts have been made to develop health-related measures of self-efficacy and perceived competence. An example of the former is the arthritis self-efficacy scales developed by Kate Lorig and her colleagues (Lorig, Chastain, Ung, Shoor, & Holman, 1989). Clinical researchers have used these measures as indicators of mediators of outcomes of a self-management program for persons with arthritis and other chronic medical conditions (Lorig, Mazonson, & Holman, 1993). The Perceived Health Competence Scale (Smith, Wallston, & Smith, 1995) is an example of the latter approach. Persons scoring high on the PHCS have high scores on self-rated health and psychological well-being (Smith et al., 1995).

Learned Helplessness

Feeling helpless is the opposite of feeling in control. When a person feels helpless, the person believes

there is nothing he or she can do to improve a bad situation (such as being diagnosed with a terminal illness or being told that there are no treatments for a serious medical condition). Like other beliefs, helplessness is learned (Seligman, 1975). Believing oneself to be helpless in the face of adverse health circumstances is associated with motivational, behavioral, and affective deficits (Walker, 2001). As an example of research done with this construct, Stein, Wallston, and Nicassio (1988) showed that believing oneself helpless in the face of rheumatoid arthritis correlates highly with depressive symptomatology, pain, and functional impairment, and also that changes over time in arthritis helplessness predicts change in pain and depressive symptoms.

ALTERING CONTROL

The vast majority of research relating control and health has been correlational in design, and much of that research has been cross-sectional rather than longitudinal. Typically, one or two measures of perceived health control are correlated with one or more measures of health behavior or health status. When a positive association is found using this type of research design, it is difficult to determine whether there is a causal relationship between control and health, and, if so, what the causal direction really is. It is, perhaps, more logical to conclude that perceptions of control over health are determined by knowledge of one's prior health behavior or health status than vice versa. Only by manipulating the degree of control a person has, or *thinks* one has, and measuring subsequent changes in health behavior or health status can researchers hope to pin down the causal path between control and health.

It is not unreasonable to assert that most forms of health education, disease prevention, and patient education are designed to give patients more control, or a greater sense of control, over their health. Many of these programs assess participants' self-efficacy or other control beliefs as one means of evaluating whether or not the program is effective in meeting its goals. Shapiro and Astin (1998) developed "control therapy" as an integrated approach to psychotherapy, health, and healing, and advocate using this type of therapy to increase a person's sense of control. The positive health benefits that typically occur for participants who engage in some form of cognitive-behavioral therapy are often mediated by an increase in control-related beliefs. Providing patients with

greater control over some aspect of their health care delivery—for instance, by giving them increased information about what will happen to them and why, or by giving them choices over some aspect of their care—has been shown to lead to lower distress and faster recovery (Wallston, 1989). Sinclair, Wallston, Dwyer, Blackburn, and Fuchs (1998) showed that women with rheumatoid arthritis who underwent mastery effectiveness training increased their sense of control and psychological well-being.

Desire for Control

Perception of control should not be confused with desire for control, a motivational construct. Most individuals would like to have control over their health status, but this is separate and distinct from whether they feel they have such control (Wallston, 1989). Not everybody wants to have control over their health care, even if they have an internal locus of health control orientation. Without a concomitant sense of self-efficacy or health competence, many individuals prefer to leave control of health care up to physicians and other expert health care providers, such as nurse practitioners.

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See also SELF-EFFICACY

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