THE CONSTRUCT OF CONTROL IN MIND-BODY MEDICINE: IMPLICATIONS FOR HEALTHCARE

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Research suggests that one of the principal reasons patients are attracted to alternative medicine is that they find many of these therapies more congruent with their philosophical orientation toward health. Many mind-body approaches, which are some of the most frequently used classifications of complementary and alternative therapies, grow out of research demonstrating the important role of psychological factors in treating and preventing illness. This article reviews research on one such factor—control—and its importance in health. Studies demonstrating the following are highlighted: (1) illness frequently results in feelings of loss of control; (2) gaining a sense of control can help patients to cope with illness; (3) whereas control may influence physiological function and health outcomes, the amount of active control we can exercise over physical functioning and health is limited; and (4) it is important to match control strategies to patient control styles and preferences. The implications of mind-body studies are also discussed. (Altern Ther Health Med. 1999;5(2):42-47)

In a recent article by the primary author, it was found that a significant predictor of alternative healthcare use was the user's perception that these therapies are more congruent with his or her philosophical orientation toward health and life. This study suggests that people are attracted to these approaches in part because they see in them a greater acknowledgment of the importance of body, mind, and spirit in treating health-related problems. Specifically, users of alternative medicine are significantly more likely to subscribe to a "holistic" philosophy of health; that is, one that recognizes the influence of mental or emotional factors on physical health processes.

So-called mind-body approaches constitute one of the classifications used by the NIH's Office of Alternative Medicine (now the National Center for Complementary and Alternative Medicine) to describe the wide variety of therapies considered "alternative" or unconventional. Although summarizing the scientific evidence on the important role of mental-emotional factors in health and illness is beyond the scope of this article, we provide a brief review of research linking one psychological (or mind) construct—control—to physical health. Several hundred studies suggest that having a sense of personal control could have profound health effects including increased longevity and improved quality of life. Therefore, the authors believe that the construct of control can provide a very useful heuristic for understanding mind-body relationships and thereby point us in the direction of more effective medical care (be it "conventional" or "alternative").

In this article we review research suggesting that (1) illness frequently results in feelings of loss of control; (2) gaining a sense of control can help patients to cope with illness; (3) whereas control may influence physiological function and health outcomes, the amount of active control we can exercise over physiological functioning and health is limited; and (4) it is important to match control strategies to patient control styles and preferences.

MIND-BODY TECHNIQUES:
SELF-CONTROL STRATEGIES

In many respects, one can view the disparate interventions that fall under the alternative rubric of "mind-body approaches" as self-control strategies of one type or another. Modalities such as meditation, relaxation techniques, guided imagery, biofeedback, and hypnosis share the common characteristic and goal of assisting the patient in developing greater self-control. All such strategies involve developing greater control over one's attentional faculties and increasing self-awareness of the relationship between mental-emotional processes and bodily sensations and experiences. These modalities also frequently have as their goal the lessening of cognitive, affective, behavioral, and physiological reactivity to life circumstances and stressors, thus cultivating greater internal (self) control in the form of more proactive, imaginative, creative, and flexible responses to such events.
CONTROL AND HEALTH OUTCOMES

Numerous studies suggest that when individuals do not feel a sense of control (defined as being able to or perceiving that one can cause an influence in the intended direction), there can be negative mental as well as physical health consequences. Research in general suggests that a control profile characterized by feelings of helplessness and loss of control may have negative effects on behavior, mood, and physiology. In cancer patients in particular, lack of control is related to increased anxiety and depression. Having a helpless attitude toward the disease is also related to poor prognosis. In addition, research suggests that responding psychologically to breast cancer with feelings of lack of control is a significant predictor of first recurrence and death from the disease. Research on control and heart disease similarly suggests a link between feelings of low perceived control and increased cardiovascular risk and reactivity.

Through the use of viral challenge studies in which subjects are purposely exposed to different viral agents, Cohen and colleagues found that patients who report being under stress—a state in which they feel their lives are "somewhat unpredictable, uncontrollable, and overwhelming"—are more likely to develop a clinical cold when exposed to rhinovirus than are those under low stress.

Studies also suggest that increasing one's sense of control may actually influence longevity. For example, nursing home patients given control over such things as the time and nature of their meals and which movies they could watch lived considerably longer than did a matched comparison group. In another study of nursing home residents, Alexander et al taught self-control strategies including meditation, mindfulness, and relaxation. Those who learned these strategies lived significantly longer than did those in a comparison group.

LACK OF CONTROL AND PHYSIOLOGICAL FUNCTION

At present the precise mechanisms by which a lack of control (either perceived or actual) can negatively affect health outcomes is unclear. Research does suggest, however, that psychological control may influence health outcomes directly through its effects on the immune and/or cardiovascular system. For example, research with animals and humans has shown that exposure to both acute and chronic stress tends to suppress immune function. Furthermore, numerous studies have demonstrated that when animals are able to exert some measure of control over these stressors, they tend to show significantly less immune suppression.

Several studies with humans have similarly shown that greater perceived control/efficacy over stressful situations lessens their immunosuppressive effects. Similarly, experiments on stress and control suggest that, overall, individuals feel less stress if they can predict when a negative situation is going to happen, if they can administer the negative condition to themselves, and if they know they have the ability to stop (ie, control) the stressor.

LACK OF CONTROL AND HEALTH BEHAVIORS

In its report on the FY90 budget for the Department of Health and Human Services, the Senate Appropriations committee stated that "the Institute of Medicine, the Surgeon General, the NIH, and others have reported at length on the relationship between health and behavior... These reports continue to document that ... 7 of the 10 leading causes of death in this Nation are in large part behaviorally determined and can be significantly reduced through changes in behavior."

Over the past 100 years, chronic illnesses such as cancer and heart disease have come to replace infectious diseases such as tuberculosis and polio as the predominant public health concern in the United States. The recognition that many of these chronic conditions are at least partly caused by lifestyle or behavioral choices has led to growing involvement by psychologists in the healthcare field.

The difficulty individuals have in exercising behavioral self-control with respect to health practices is an issue with enormous public health ramifications. (For example, Taylor points out that approximately 350,000 premature deaths from heart disease and 25,000 cancer-related deaths could be prevented annually by altering 1 health behavior: smoking.) Research has shown that the ability to exercise self-control over dietary and exercise habits can reduce the risk of developing heart disease, diabetes, colon cancer, osteoporosis, and hypertension.

CONTROL AND COPING WITH ILLNESS

Illness and its associated components can often result in feelings of loss of control (eg, loss of physical capacities, hospitalization, inability to work, effects on sexual function, feelings of vulnerability). People frequently experience illnesses as happening to them and hence outside their active control. With a great many diseases and illnesses, from the common cold to cancer, neither doctors nor patients always know precisely what has caused the diseases or how to cure them. The unknown and unpredictable can often give rise to feelings of low perceived control, particularly in situations in which there is a significant loss of functional ability and the threat of being unable to recover one's health. In the case of serious illnesses (ie, those requiring hospitalization), patients are often placed in situations such as surgery and anesthesia that can provoke feelings of helplessness, powerlessness, and dependence.

It is important to help patients become active participants in their own medical care, facilitating their sense of autonomy and personal control whenever possible. This facilitation of control can take many forms, from having patients control when they receive medications to having them decide how and what types of anesthesia they are administered to teaching them various self-control coping strategies (eg, progressive relaxation, imagery).

Research shows that providing patients with preparatory information as a way of enhancing their sense of control has positive effects on a number of objective outcome measures, including shorter hospital stays, reduced morbidity, and less need for analgesics. Helping those with physical illnesses reestablish some sense of control may also be important given research
suggesting that perceptions of control may be a critical psychological mediator between stress and immune function.

Positive psychological adaptation to physical illness is greatly affected by a person's perceptions of control and sense of self-efficacy. For example, Lewis found that among late-stage cancer patients, the experience of personal control was positively correlated with scores on self-esteem and purpose in life, and negatively correlated with anxiety. In a more recent study of psychological adaptation among survivors of cancer, multivariate analyses indicated that personal sense of control was the only psychosocial factor significantly related to adaptation at a 6-month follow-up.

**LIMITS OF CONTROL OVER HEALTH**

Although the above research suggests that having perceived or actual control over stressors lessens a person's negative effects on immune functioning and cardiovascular reactivity, the relationship between control and health may not be entirely linear. For example, in one study it was found that those given greater control actually evidenced poorer immune function in response to a laboratory stressor. This finding is consistent with our observations as well as those of other researchers that there can be negative as well as positive consequences to having greater perceived control. Research examining the relationship between control and cardiovascular reactivity to stress also bears out this point, with some studies actually showing a relationship between greater perceived control and heightened rather than diminished stress reactivity.

Our clinical research suggests that efforts to realize greater assertive control in life can become misguided and excessive, attempting to control that which may be uncontrollable. Significant limits exist in our ability to control physical health outcomes or specific risk factors such as obesity. For example, research suggests that there may be a genetic/biologic "set point" that ultimately determines our weight (or at least the degree to which it can be altered), regardless of any behavioral efforts we make to change it. Whereas the emphasis on personal control over health behaviors (eg, exercising more, eating less fat) has had a positive impact on reducing the incidence of certain diseases, significant risks are associated with overestimating the extent to which we have personal control over our health and bodies. These risks include blaming the victim, creating hypersensitivity to risk (the so-called worried well), and underemphasizing social and environmental factors.

In response to physical illness, individuals may take on an excessive level of personal responsibility. This can lead to unrealistic beliefs in the ability to control or alter our physical body. The belief that one has some type of ultimate self-control over the functioning and health of the body can lead to inappropriate self-criticism and self-blame for illnesses such as cancer. For example, Spiegel has noted that self-help cancer treatments may have gone overboard in suggesting that individuals can be victorious over cancer through exhibiting the right attitude and right behavior and by accessing the "healer within." Furthermore, Gray and Doan have noted some of the potential dangers of "heroic self-healing" in which individuals "beat" cancer through "psychological transformation." They express concern for patients who may feel shame when they are not "keeping up the fight," are "giving in," or are unconsciously admitting that cancer has defeated them. Shapiro and Shapiro make the following remarks:

We see in all this a peculiarly Western characteristic which involves an overweening desire to be in control—of our jobs, our lives, our diseases, our deaths, our universe. Somewhere in all this push for self-responsibility we see a basic contradiction. No matter how purely we eat and drink, no matter how carefully we guard the air we breathe, no matter how much we become involved with our doctors and they with us, the mortality rate will still be 100%.

**OVERCONTROL AND HEALTH OUTCOMES**

Issues of overcontrol have also been implicated in cardiovascular disease. Some research shows that those with too much belief in their own ability to control are at greater risk for heart disease, as are those who exert social control and dominate others. Along these lines, Houston et al found that "controlling, socially dominant behavior" was independently predictive of coronary heart disease.

The motivational variable of desire for control, including the need for power, has also been examined. In some studies, those with high scores on "power motivation," particularly when stressed or behaviorally inhibited, evidence significantly lower levels of salivary immunoglobulins as well as higher levels of illness. Dembroski et al found a significant association between excessive desire for control and the type A behavior pattern. Glass has suggested that too high a need for control is, in fact, what underlies the hypervigilant, overly competitive, aggressive behavior evidenced by type A personalities. Two of the identified components of the type A behavior pattern—sense of time urgency and easily aroused hostility—may similarly be understood as reactions to being thwarted in one's efforts to gain control. This in turn leads to continued efforts to exert control, even in situations in which it is inappropriate or when circumstances are not within one's control. These individuals also tend to be distrustful of others and the world (so-called cynical hostility), which is reflected in their intense desire to be in control and their corresponding fear of letting go of active control.

Although there is now disagreement over the extent to which the type A behavior pattern is a significant risk factor for heart disease, there is general agreement that those who hold a cynically hostile attitude toward life are at greater risk not simply for cardiovascular disease but for all-cause morbidity or mortality. As Glass suggests, the research linking the type A behavior pattern and hostility to various disease states may ultimately point to the health-damaging effects of excessive desire for control and overcontrol.
IMPORTANCE OF MATCHING CONTROL STRATEGY TO THE INDIVIDUAL

As noted above, people frequently experience illness as a loss of control, and gaining control can have positive effects on health. However, giving someone control when it is not desired or situationally appropriate can be counterproductive, a form of mismatch between intervention and the individual.

For example, in examining patient preferences regarding medical decision making and information seeking, Ende et al. found that whereas most patients want to be kept informed, they tend to prefer that decisions be made principally by their physicians. These findings also highlight the importance of contextual and developmental factors: (1) desire for control over decision making declined as illness became more severe in the study, and (2) older patients for the most part had less desire than did younger patients either for control over decision making or the desire to be informed. This research also showed no correlation between decision-making and information-seeking preferences. In other words, those who wished to be kept well informed regarding their medical condition and treatment did not necessarily desire control over the decisions regarding their care.

It is also important to match the type of self-control strategies taught as well as the manner in which such instruction is given to the "control profile" of the patient. For example, those who evidence a high desire for control and internal locus of control may find a process such as being guided into hypnosis aversive, and may instead prefer to use self-hypnosis techniques in which they can maintain some measure of control over the therapeutic process.

Research also suggests that a patient's sense of control can come from an "other" (e.g., the doctor, belief in God, belief in a benevolent universe). Some research with cancer patients suggests that women who believe that the doctor is in control maintain as much psychological health, adaptation, and well-being as those who believe they themselves are in control.

Other research suggests that gaining a sense of control from a spiritual Benevolent Other may have a positive effect on health outcomes. Kass and colleagues found that individuals who had some personal experiences of God or a Higher Power and experienced God as trusting and benevolent had significantly fewer health-related problems and complaints than did those who did not have such experiences. The researchers hypothesized that those individuals with a personal experience of a powerful, benevolent God or Spiritual Presence may be less likely to feel ontological stress (i.e., stress about the nature of the cosmos). Those who have not had such an experience—even if they believe in God—may be less likely to feel that the universe and cosmos are trustworthy places where things are "in control."

At the very least, the above findings suggest that physicians and other healthcare workers should be sensitive to patients' views regarding the nature of the cosmos and the sense of coherence, control, and well-being they receive from such beliefs.

FARTHER REACHES OF CONTROL AND THE BODY

Research has shown that humans can control aspects of their bodies previously thought impossible to control. The classical medical literature of neurology claimed that voluntary control over the autonomic nervous system (e.g., heart rate, blood pressure) was not possible. It was felt that the autonomic nervous system was just that—autonomic—and could not be voluntarily controlled by humans. However, both animal and human research have demonstrated that some involuntary responses can be voluntarily controlled through selective reinforcement, biofeedback techniques, and/or meditation and yoga.

Since the early 1960s, researchers have examined individuals who appear to evidence extraordinary control over their physical bodies. For example, the work of Pelletier and Peper suggests that humans can develop extraordinary control over how they experience and respond to pain. In a series of studies with spiritual adepts (e.g., yoga masters), Pelletier and Peper discovered subjects who were able to do such things as chew glass, put needles in their cheeks, and insert needles that were attached to string holding up buckets of cement into the fleshy part below their elbows.

These researchers identified 3 cognitive strategies used to control physical stressors and pain: (1) concentrative attention in which one focuses on a certain object or sensation to the exclusion of all other sensations, (2) mindful awareness in which one does not focus exclusively on any one object but stays open to whatever sensations or thoughts arise in the field of awareness, and (3) focusing on the actual sensations themselves without being drawn into evaluations and interpretations of those sensations (e.g., whether they are hurt or feel pain). Although one might question the relevance (or desirability) of being able to chew glass or put needles in one's cheek, the attentional strategies mentioned above have in fact been shown to have significant clinical utility. For example, research by Kabat-Zinn and colleagues suggests that the latter 2 strategies can be used to help those suffering from chronic pain and disability cope more effectively with their conditions.

In a series of studies on Tibetan monks, Benson documented a number of unusual feats of human control. For example, he found that by mentally raising their body temperatures as much as 14 degrees, nearly naked monks could comfortably meditate for hours when they were wrapped in soaking wet sheets in air temperature of approximately 4°C. Benson recorded another instance in which the lightly clad monks meditated outdoors for 8 hours at 19000 feet amid snow and near-zero temperatures. They could do so, the monks said, by controlling an inner heat or life force they called "prana."

Rider and Achterberg found that ordinary subjects using music-assisted guided imagery could differentially alter functioning of neutrophils and lymphocytes (components of the immune system). When the participants' imagery was focused on neutrophils, these cells but not others were altered. When participants focused on lymphocytes, only the functioning of these cell types was significantly changed.

TOWARD BALANCE: THE FARTHER REACHES AND LIMITS OF CONTROL

The findings summarized above suggest that humans have
the capacity for considerably more control over their bodies and health than was once imagined. This research certainly raises questions concerning how much physical control is ultimately possible. How much, for example, can we influence our physiology, the functioning of our immune systems, or the course that illnesses take? How much can we control our experience of pain and physical suffering?

However, when one considers both the research on exceptional feats of control as well as our earlier discussion on the limits of our capacity to exercise control over the material world (ie, no matter how great our control efforts, we will all ultimately die), it appears that control is in many respects paradoxical. On the one hand, humans have substantial capacities to alter their life experiences, to change health behaviors, and to concentrate and visualize in order to alter physiological functioning. Yet in many respects human beings have very little actual control over their health—they get sick despite their best efforts to eat well, exercise, and practice stress reduction, or they suddenly find in middle age that they have a congenital heart problem caused by some genetic defect in their cardiovascular system.

This paradox points to the importance of balancing 2 modes or ways of gaining a sense of control: assertive control efforts (in which one attempts to alter or master himself or herself or the environment in some way) and yielding or accepting strategies (in which one gains a sense of control by letting go of active efforts to change those things that either cannot or should not be changed, controlled, or altered).2 In this way, patients as well as those who work in the healthcare field can strive to actively control or influence the course of health and well-being, all the while remembering that health—like life—is mysterious, often quite unpredictable and uncontrollable at a deep and fundamental level.

SUGGESTIONS FOR FURTHER RESEARCH

Below we highlight a number of control-related areas with relevance to physical health on which practitioners of all persuasions—conventional, alternative, or complementary—may wish to focus future clinical and research efforts.

Control of Health Behaviors

This would involve teaching patients strategies for changing or altering behaviors that increase their risk of illness (eg, smoking, lack of exercise, overeating).

Control of Stress Reactivity

Here the emphasis would be on teaching self-control strategies (eg, mindfulness meditation, cognitive reappraisal) that can lessen the tendency to reflexively react to (be controlled by) stressful circumstances.

Control Over Healthcare Decisions

This area would provide patients with information, referrals, and education regarding various medical treatment options as a way of enhancing feelings of control and efficacy with respect to their physical health and well-being.

Control and Its Potential Health Consequences

More effort should be made to educate the public about the possible health effects (both positive and negative) of having or regaining a sense of control. This could include an assessment of the degree to which patients rely on negative control strategies (either too controlling, too passive, or yielding) and the potential health consequences of such efforts (eg, the possibility that an excessive desire for control can lead to heightened stress reactivity and potentially contribute to hypertension and cardiovascular disease).

Control in Response to Illness

It is important to be sensitive to the ways physical illness and disability can contribute to patients feeling a loss of control. This also includes teaching coping strategies for regaining a sense of control in the face of health-related stressors (eg, identifying those aspects of patients' lives over which they can still exert some degree of control despite the illness, pain, and/or disability) and helping patients to understand circumstances in which letting go of control (in response to certain illnesses) may be both appropriate and adaptive.

Control and the Doctor-Patient Relationship

Research suggests there has been a growing cultural shift away from seeing the doctor as the ultimate source of authority, power, and control toward a model of equal partnership—one in which control and decision making are shared.3 Issues of control bear on healthcare workers' openness and willingness to listen to, trust, and value the input of patients and equally bear on patients' ability to feel they can, when appropriate, let go and surrender control to whomever cares for them. It may be useful for doctors and healthcare workers to examine how they respond to the inevitable loss of control and feelings of powerlessness they often encounter in working with patients who do not get better despite their best efforts.

References
