CHAPTER 13

LOCUS OF CONTROL AND HEALTH

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The locus of control construct has occupied a prominent position in the personality literature for more than two decades. Since the publication of the first article describing the construct (Rotter, Seeman, & Liverant, 1962) the number of research reports concerned with locus of control had become so voluminous by 1975 that Current Digest, the abstracting journal, concluded that the locus of control construct had come to be the central preoccupation in personality research. At least four articles pertaining to locus of control have become citation classics (Lefcourt, 1966; Nowicki & Strickland, 1973; Rotter, 1966; Strickland, 1965). Despite the passage of time, interest in the construct persists.

Although some of the recent research studies concerning control expectancies retain the same personality focus that characterized the earlier social learning–derived investigations, there is also much research examining control-related phenomena that departs from that perspective. For example, there are a number of studies in which the impact of situations varying in controllability have been examined. In addition, other studies have employed measures of efficacy, mastery, helplessness, and perceived control. What all of these constructs and phenomena have in common is a concern for the manner in which individuals regard their personal experiences, and whether they perceive themselves to be capable of dealing with their circumstances or not. When persons are said to have an internal locus of control, a heightened sense of mastery or competence, and feelings of efficacy, it is assumed that they will respond more actively and effectively in a range of tasks and situations than would people characterized as external, helpless, or incompetent.

Within the last two decades there has been an increasing interest in understanding the processes involved in becoming ill, and in coping with ill-

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nesses once they have occurred. Through the growth of the disciplines of behavioral medicine and health psychology, as well as the practice of holistic medicine, there has been increasingly greater interest in the effects of different life-styles upon health and the development of both mental and physical illness. It seems inevitable now that control-related beliefs would have eventually become regarded as relevant to health and illness, given the presumed relationship of control beliefs to life-styles. If internals are regarded as better information-seekers and more effective learners than externals, then one might easily presume that if there were reason to become concerned about health, internals would make themselves better informed about preventive measures and consequently retain their health longer than externals.

Among the early investigations conducted with the locus of control construct, there was only one that directly pertained to health-related issues. This study (Seeman & Evans, 1962) indicated that tuberculosis patients who were classified as internals, from a 12-item measure of powerlessness, knew more about tuberculosis than did those classified as externals, with knowledge having been assessed by hospital staff ratings and from inquiries made of the patients themselves. Given that a patient’s knowledge about his or her medical disorder may influence the ways in which an illness is responded to, this finding was very promising for the possible connections between control beliefs and health-related issues.

In the years subsequent to this early report there has been much research conducted that bears on the relationship between locus of control and health-related attitudes and behaviors. There are locus of control scales specifically pertaining to health (Wallston & Wallston, 1981) as well as to specific illnesses (Saltzer, 1981), and there have been monographs (Wallston & Wallston, 1978) and review articles (Strickland, 1978, 1979) describing the fairly extensive literature linking control beliefs with health-related phenomena.

In her review of the control and health literature, Strickland (1978) contended that “the I-E variable is only one of a number of complex factors that may converge to predict health attitudes and behaviors. The amount of variance for which I-E accounts is probably quite small in many, if not most, situations. For example, whether persons present themselves to a physician’s office for relief of symptoms may be much more a function of severity of symptoms, the individual’s financial condition, and/or the availability of health care than the person’s beliefs about control of reinforcement” (p. 1204).

Despite these qualms, Strickland concluded that “the bulk of research is consistent in implying that when faced with health problems, internal individuals do appear to engage in more generally adaptive responses than do externals. These range from engagement in preventive and precautionary health measures through appropriate remedial strategies when disease or disorder occurs” (p. 1205).

In this review of the control-health literature, Strickland expressed both the cautions necessary in the consideration of this linkage as well as the reasons for optimism in assuming a meaningful connection between health and control-related beliefs. In a very recent review of the literature concerned with stress, personality moderators of stress, and disorder, Cohen and Edwards (1988) contended that locus of control was one of the few variables that has been found to operate as a stress buffer with any reliability, thus playing some role in mitigating the development of stress-related illnesses. This assertion also was made with reservations. Most notably, Cohen and Edwards (1988) argued that most investigators exploring the efficacy of personality moderators of stress have assumed that persons exemplifying particular characteristics such as internality would succeed in their encounters with stressful events because they are more likely to cope appropriately with their personal crises. However, as these authors noted, this assumption has rarely been put to empirical test. Consequently, they advocate the study of the relationships among stress appraisal, coping activity, style, or effort with the various stress-modering personality variables that they reviewed in their chapter.

In this chapter, we will attempt to review the three literatures that focus on the relationship between control beliefs and coping styles that may help to account for resilience in the face of stress: (a) the evidence concerning locus of control as a stress-moderator, (b) the specific ways in which locus of control has been used to predict the onset of illnesses, and (c) the way in which people cope with illnesses once they have occurred.

**LOCUS OF CONTROL AND STRESS-RELATED ILLNESSES**

Cohen and Edwards (1988) have suggested that there are two points in the pathway from stress to
illness at which personality characteristics may operate as buffers, deterring the sequence of events that could result in health disorders. These are during the initial phase of stress appraisal and at the subsequent appraisal period occurring after events have been construed as stressful. These appraisal processes are the same as those that Lazarus and Folkman (1984) have called primary and secondary appraisal. Primary appraisal concerns whether a person interprets events as potentially stressful in the first place. For some people, for example, being closely evaluated for some skill or talent may be regarded as terribly stressful, while for others, this kind of situation may be interpreted as challenging rather than threatening.

Personality characteristics such as locus of control could be expected to be related to this initial appraisal process, with externals, or those who characteristically regard themselves as unable to effect important events, being more likely to perceive challenging situations as threatening to their well-being. Subsequent to the appraisal of stress, a self-assessment or secondary appraisal is said to occur when individuals estimate their resources and capacities for coping with the particular stressful events that they are about to experience. At this point too, one might anticipate that locus of control could be a useful variable for predicting the responses to events acknowledged as being stressful. It could be anticipated that externality or helplessness would be associated with the belief that one did not have adequate resources for coping with the stressful events being experienced. Given these facts, potentially stressful experiences would seem to have greater portents for externals than they might for internals, and one might expect to find more signs of distress from the former than the latter.

Within the models linking stress with illness, the appraisal of events as being stressful, followed by the self-appraisal that one is not capable of dealing with those stressors, is thought to result in dysphoric mood states that are in turn viewed as prodromal to the development of illness. The assumption that dysphoria could result in illness has received support in recent research, implicating immunological processes that ordinarily protect organisms from debilitating illnesses. Jemmott and his colleagues (Jemmott, 1985; Jemmott, Hellman, McClelland, Locke, Kraus, Williams, & Valeri, 1988; Jemmott & Magloire, 1988) have found that when people are stressed in need areas that are of importance to them, certain changes in immune system functioning become evident; for example, declines in the concentrations of secretory immunoglobin A (S-IgA) and natural killer cell activity. Such declines are associated with increased vulnerability to upper respiratory infection and unchecked growth of neoplasms, respectively. Kiecolt-Glaser and her colleagues (Kiecolt-Glaser & Glaser, 1988a, 1988b; Kiecolt-Glaser, Fisher, Ogrocki, Stout, Speicher, & Glaser, 1987; Kiecolt-Glaser, Glaser, Dyer, Shuttleworth, Ogrocki, & Speicher, 1987; Kiecolt-Glaser, Kennedy, Malkoff, Fisher, Speicher, & Glaser, 1988) likewise have found deficient immune system functioning on a host of indexes to be associated with depression, loneliness, and with the distress that accompanies separation and divorce. Similar immune system malfunctioning is found during the stressful periods of examination in medical school. Stone, Cox, Valdimarsdottir, Jandorf, and Neale (1987) have similarly found concentrations of S-IgA to vary with moods recorded in daily diaries. Antibody responses have been found to be lower on days when subjects have reported high negative mood states. Finally, Dillon, Minchhoff, and Baker (1985), Martin and Dobbin (1988), and Lefcourt, Davidson-Katz, and Kueneman (in press) have reasoned that if immune system suppression accompanies dysphoric affects, then positive feelings associated with the expression of humor should result in increased immune system activity. As had been predicted, laughter and prepredictions toward humor were associated with increased concentrations of S-IgA in these investigations. From these studies it is possible to surmise that the linkage between affect states and illnesses that had been assumed in the stress literature is becoming substantiated in the more molecular immunology research. This link between affect and immunological functioning then accounts for vulnerability to illness.

At this point, we will turn our attention to the question of whether there is any empirical evidence indicating that locus of control is associated with the manner in which individuals cope with stressful events.

**LOCUS OF CONTROL, COPING PROCESSES, AND APPRAISAL OF THREAT**

Among the earliest findings that were reported with the locus of control construct were those indicating that persons with more internal control
expectancies seemed to be more alert and attentive to information that had relevance for their well-being. Seeman and Evans (1962), as noted earlier, were able to predict the amount of knowledge that tuberculosis patients had about their own threatening disease. Externally oriented tuberculosis patients were found to know less about tuberculosis than internals on both a direct and an indirect (staff rating) measure of same. The results of this study indicated that internals avail themselves of information even if it has negative connotations for themselves. Externals, on the other hand, seemed to have been less concerned with the gathering of information that would have allowed them to more accurately appraise the level of potential threat that was inherent in their circumstances. If there were some actions that could, in fact, affect the course of that disease, externals, as a consequence of their failure to attend to relevant information, presumably would have been less likely to discover the corrective or beneficial behaviors than would internals.

For example, early research with locus of control also had indicated that externals were more likely to smoke and less likely to give up the smoking habit than were internals (James, Woodruff, & Werner, 1965; Straits & Sechrest, 1963). Later investigations replicated these findings (Coan, 1973; Mott & Mott, 1975; Steffy, Meichenbaum, & Best, 1970; Williams, 1973), though a few studies failed to confirm this linkage between smoking and externality (Danaher, 1977; Lichtenstein & Keutzer, 1967).

On balance, it would seem that externals were less likely than internals to respond adaptively to threatening evidence. This difference could be said to reflect a failure in the primary appraisal process, that externals were less likely to assimilate information attesting to the fact that smoking is injurious to health (threatening). Consequently, they failed to engage in problem-solving behavior that would involve an alteration of life habits.

It also is arguable, however, that the failure of people to quit smoking despite information about its negative effects may be more reflective of secondary appraisals. When individuals assess their capabilities for dealing with stressful events it is assumed that they will engage in problem-focused coping if they feel equal to the challenges inherent in those stressful situations. However, if the demands of that stressful situation are perceived as being beyond their ability to deal with them, it is assumed that people will engage in emotion-focussed coping, whereby affective arousal is muted by various defensive maneuvers. Emotion-focused coping devices such as denial, which one would expect from more fatalistic people who are prone to belittle their coping capacities, may account for the failure to quit smoking more readily than the failure to perceive the dangers involved in smoking.

Seeman found corroboration for his previous findings with tuberculosis patients in a second study that was conducted with reformatory inmates (Seeman, 1963). In this study the focus was on the gathering of information pertaining to parole. Seeman found that people who denied that they were powerless (internals) were more accurate in their recollection of information concerning the attainment of parole, but not in their recall of information related to reformatory life that was of less personal relevance. His results led him to conclude that an individual's sense of powerlessness governs his or her attention and information-acquisition processes. This connection between beliefs about control and information assimilation that would be prodromal to the appraisal of threat has been supported by the findings of several other research investigators.

In our own laboratory, we have explored the attention processes of people varying in their beliefs about control as they underwent mildly stressful experiences. In each of several tasks we "double crossed" our subjects by misleading them as to the purpose and meaning of what they were doing. For example, in one study (Lefcourt, Gronnerud, & McDonald, 1973) our subjects had undergone a series of very boring verbal tasks and believed that we were interested primarily in developing some arcane measures of verbal facility. The last task, however, proved to be revelatory insofar as our ostensible purposes were concerned. The task was a word association test that began innocently enough but became progressively more focused on sexual content. The provocative words (rubber, bust, snatch, etc.) were all double entendres so that the underlying substance and meaning of the task and the consequent suspicion about our intentions could justifiably be allayed for a while until so many double entendres had been presented that it would have required massive denial to remain unaware of the sexual content and to our possible duplicity. From an observation room adjacent to the room in which the subject was seated we had recorded their facial expressions on videotape as they performed on the test.
In that study we found a range of evidence attesting to the fact that internals were the quickest to "catch on"; that is, to note that "something was amiss," and then they were the quickest to act on that observation. Their response times to the double entendres increased earlier in the sequence of words administered than they did for externals indicating that internals had become "aware" sooner than had externals. In addition, their eye movements, laughter, and subsequent joking indicated that they surely knew "something was up" and that they were not intimidated by their discovery. Externals, by contrast, were slow to "catch on" and less given to expressions of mirth in the process (Lefcourt, Sordoni, & Sordoni, 1974).

We have found confirmation of these data in other "double cross" research studies. Internals have generally been quicker than externals to note the circumstances and contextual cues that help to reveal the secret meanings of the experiments in which they have been engaged. Consequently, they have been found to be less embarrassed or surprised by these experimental situations when the purposes of the experiments have become more explicit. In one such study where subjects were presented with their own photograph at the end of a series of photographs of rather disreputable looking persons whose crimes they were attempting to deduce from appearances (the photographs were described as police mug shots), internals often rebounded with humorous retorts whereas externals appeared to be offended, and in some cases, angry (Lefcourt & Martin, 1986). For example, one internal subject leered at the female experimenter and, after a long pause, exclaimed loudly, "He's a rapist," and subsequently dissolved in laughter.

In laboratory situations, then, evidence has indicated that internals are more apt to be aware of changing circumstances, a necessary precondition of stress appraisal. However, this is not to say that they necessarily come to regard those circumstances as threatening. As has been noted in several studies, externals more often regard their experiences as stressful than do internals. Given that internals seem to be more aware of changes in their circumstances yet may be less threatened, it is possible that we are observing the effects of secondary appraisals, the judgments individuals make as to whether they can do something that will alter the threatening circumstances that they are encountering. At this point we may ask whether internals are better equipped to deal with potentially stressful experiences than are externals, such that they are less potentially disarmed by them.

In a suggestive field study, Anderson (1977) examined the responses of businessmen to a flood that occurred in 1972 that all but wiped out the commercial enterprises in a small Pennsylvania community following Hurricane Agnes. Anderson studied the business performance of 90 men over a 3½-year period following that flood. The businessmen were assessed for locus of control beliefs, perceived stress, coping behaviors, and organizational performance. With coping behavior classified as problem-solving versus emotion-focused, externals were found to have used fewer problem-solving coping methods and more emotion-directed coping devices (withdrawal, hostility, etc.) than internals. In addition, externals were more likely to have perceived their circumstances as being highly stressful than were internals. Organizational performance was assessed by credit ratings of their businesses after the 3½-year period had ended. The author concluded that "the task-oriented coping behaviors of internals are apparently associated with a more successful solution of the problems created by the stressful event, since the performance of the internals' organizations is higher" (p. 450).

In three other field studies concerned with natural disasters that were conducted by social geographers, further evidence has been obtained to suggest that internals are both more aware of potential dangers and more planful in their response to them. Sims and Baumann (1972) in a study that examined responses to tornadoes found that in communities where beliefs about control were more modally internal (rural Illinois), people were more apt to behave appropriately to that threat—listening to the radio and staying in their basements—than were those who lived in an area where externality was more common (rural Alabama). People in Alabama were more likely to have gone outside to see if and when the suspected tornado was coming their way. Consequently, there were more serious accidents in Alabama than there were in Illinois. A few years later, two studies, one conducted in Canada and the other in New Zealand, offered some corroborative evidence linking locus of control to the responses made to natural disasters. In the former, Simpson-Housley, Lipinski, and Trithardt (1978) reported that internals were more knowledgeable about the potential dangers of flooding river plains around Lumsden, Saskatchewan, than were externals.
Also, there was a tendency for internals to live in residences that were farther away from the floodplain than were those of externals. In the New Zealand study, Simpson-Housley and Bradshaw (1978) reported analogous data concerning earthquake hazards in a suburb of Wellington where there are two active geological faults in the substructure of that city. Residents were queried about their perceptions of earthquake hazards. Internals were more frequently found to have taken preventive measures to help withstand the threat of earthquakes, thereby indicating a heightened awareness of the potential danger. Externals, on the other hand, were found more ready to take reparative measures after the occurrence of earthquakes. In other words, either externals were failing to consider the danger of earthquakes before they actually occurred or were engaging in emotion-focused coping, denying the threat until after the crisis. In essence, externals could be said to have been operating in an “out of sight, out of mind” style. Internals were also found to expect more disruption from an experience with earthquakes than were externals. These more accurate primary appraisals may, in turn, help to account for their greater preparedness.

Though the methods used in these three studies of natural disasters were overly simple in comparison with those routinely used by psychological investigators (use of single-item scales, simple t tests, etc.), the consistency of the findings encourages us to believe that internals are more ready to perceive potential threats and are more prepared to take some kind of action to help ward off the effects of those stressors whether they be tornadoes, floods, or earthquakes. It is reasonable to predict that fatalistic people would be found living in hazardous areas more often than would people who readily assume responsibility for themselves, and that externals would engage in more emotion-focused than problem-solving coping in order to continue living in such perilous circumstances.

A number of investigations, in addition to these field studies, have found evidence to the effect that internals are more apt to engage in problem-solving coping processes than are externals, and that externals are more likely to engage in emotion-focused coping than are internals (Silver & Auerbach, 1986; Silver, Auerbach, Vishniavsky, & Kaplowitz, 1986; Strickland, 1978). In a dramatic 4-day simulation of a hostage-taking incident, Strentz and Auerbach (1988) found that external airline employees were most distressed in the condition where they had been taught problem-solving coping methods as opposed to either a control condition or one in which they had been taught emotion-focused coping strategies. On the other hand, externals did not differ from internals when they had been taught emotion-focused coping procedures or when they were in the control condition. Thus, while internals benefited as much as externals from emotion-focused coping, the latter were not as able to benefit from their exposure to problem-focused coping. A problem-solving coping style seems to be more comfortably adopted by internals.

Recently, Solomon, Mikulincer, and Avitzur (1988) have found some corroborative evidence linking the stress of war, locus of control, coping styles, and posttraumatic-stress disorders. With a sample of 262 Israeli soldiers who had fought in the 1982 Lebanon war, locus of control (scored in a positive direction) was found to be negatively correlated with the intensity of posttraumatic stress disorders at both 2 and 3 years after the war (rs = −.38 and −.29, respectively). Veterans of that war who were external with regard to locus of control, then, were more apt than internals to suffer from stress disorders. Coping style was related to locus of control as well, with externals employing more emotion-focused coping than internals. In turn, emotion-focused coping was positively related to the intensity of posttraumatic stress disorders and, in a regression analysis proved to be the most potent variable for predicting that disorder. These findings bear similarity to those of Anderson (1977), implicating both beliefs about control and coping style in the responses made to traumatic events.

In another study assessing the stressful impact of participation in the Lebanese war, Hobfoll, London, and Orr (1988) found that Pearl and Schooner’s (1978) Mastery Scale, which bears similarity to measures of locus of control, was negatively related to anger and anxiety in samples of Israeli male and female university students. Those whose scores indicated that they believed that they could be effective or “masterful” in dealing with their life problems were less apt to be angry or anxious. However, there was no interaction found between the war-related stressful event measure and the mastery scale, which led the authors to question the stress moderator role of feelings of mastery. It is interesting to note in this study, though, that war-related stressful events did not produce a main effect on anxiety or anger in and
of itself. This scale, which queried subjects' closeness to the war, did not actually assess experienced stresses of war. Rather, questions focused on whether or not subjects had to serve in the war at all or were close to those who did serve and whether anyone to whom they were close had been injured or died in that war. But the actual experiences of the subjects themselves were not assessed by this scale as they are in the more conventional measures of stress. This may help to account for its failure to produce main effects or interactions in the prediction of anxiety or anger.

From these studies and others concerned with stress experienced in medical education (Kilpatrick, Dubin, & Marcotte, 1974), in commuting to work (Novaco, Stokols, Campbell, & Stokols, 1979), in adapting to Marine Corps training (Cook, Novaco, & Sarason, 1980), and in caring for sick children (Hobfoll & Lerman, 1988), beliefs about control and mastery have been found to play a significant role in predicting the kinds of responses that people make to those stressors, although the results have not always been strong, clear, and free of enigma.

Returning to our earlier discussion of awareness and/or cognitive alertness as components of primary appraisal, we have conducted several experiments in our labs that bear on people's awareness or sensitivity to each other during social interactions. We have examined the ways in which people attend to each other during protracted conversations that could have become stressful if the social interchanges were not handled competently. In one such study (Lefcourt, Martin, Fick, & Saleh, 1985), we observed same-sex strangers discussing how they had dealt with their feelings while watching "Subincision," a film that Lazarus (1966) had used as a stressor for his laboratory studies of stress. In this anthropological film, Australian aborigines were observed during a rite of passage in which young boys suffered ritualized genital mutilation. The film is generally regarded as gruesome to watch and quite easily elicits emotion-focused coping. Consequently, we believed that subjects would share their feelings with another easily. In talking to a stranger about one's personal responses to an aversive presentation that contains elements of sex, blood, repulsion, and violence, however, a person needs to carefully gauge his or her partner's responses to his or her own disclosures during a discussion to avoid embarrassing the other person or becoming embarrassed oneself; otherwise the conversation could degenerate into unpleasantness or a sullen silence. Therefore, close attention and sensitivity to one's partner should facilitate better communication. The listening behavior or attentiveness of subjects in one sample were rated globally; in a second sample, subjects were rated on several components of social competence that reflected on attention. The latter consisted of time spent talking, length of utterances, eye contact when listening and talking, nonverbal affirmations and encouragements, silences, and so forth.

In both studies, those who had scored as internals with regard to affiliation were found to have displayed more active listening and responsiveness than had externals for affiliation. This measure, the locus of control for affiliation scale, derives from the Multidimensional-Multiattributional Causality Scale (Lefcourt, von Baeyer, Ware, & Cox, 1979), which also contains a locus of control scale for achievement. As a point of interest, the achievement locus of control scale was much less related to the social criteria than was the affiliation locus of control scale. Thus, attentiveness and sensitivity to one's partner's responses, which should alert one to potential sources of discomfort in the interaction, has been found to be associated with an internal locus of control.

In a subsequent study conducted with married couples that concerned locus of control and coping processes (Miller, Lefcourt, Holmes, Ware, & Saleh, 1986), 88 married couples were videotaped as they attempted to deal with conflicts that are fairly common sources of marital discord. The research was originally undertaken in the hope that we might be able to uncover some of the reasons for the high rate of divorce that characterizes contemporary North American life. We had hypothesized that individuals who believed that their spouse's behaviors were mysterious (unpredictable) and uncontrollable would be less attentive to their partners and therefore less aware of potential problems that could surface between them than would people who believed that their actions played a significant role in shaping their spouse's behaviors. In turn, we anticipated that those who believed that they could affect their partners would be more able to cope with quandaries as they arose, given their earlier and greater awareness of emerging difficulties. To assess these beliefs we had developed a Marital Locus of Control Scale (Miller, Lefcourt, & Ware, 1983) for which we had found reliability and some preliminary evidence of validity.
Couples were asked to improvise responses to three conflict situations that had been previously constructed by Gottman (1979). Whereas the conflict situations were like a set of standardized tasks with explicit role descriptions, participants were asked to add their own personal information to the role enactment that would individualize the situations, thus increasing their potential involvement in them. The three situations consisted of (a) an "in-law problem" wherein the husband believed that plans had been made to spend Christmas with his family, but his wife had not regarded the plans as finalized and had reservations about the visit; (b) a "money problem" wherein the wife had spent money on clothing that had been considered as part of their long-range savings program; and (c) a "communication problem" wherein a tired wife wanted some time to herself while her husband desired conversation and closeness after returning home from work.

Throughout the enactments of each role, the interactions were videotaped and were later rated for "engagement" and "problem-solving effectiveness," the latter being composed of "solution quality" and "solution satisfaction." Engagement consisted of ratings of an individual's tendency to become involved in conflict in an open, direct, and persistent way. Solution quality was rated by observers whereas solution satisfaction was derived from spouses' ratings. Solutions were judged as more successful when the points of view of both spouses were understood and taken into account in devising some resolution of the problem. If feelings were still ruffled and not addressed by the solution, the quality of the solution would have been adjudged as being less than adequate. Engagement was regarded as a sine qua non of solution quality and satisfaction. Independent raters were used to rate each set of variables so as to preclude rating generalizations.

The rated behaviors and solutions of the couples were correlated with one another as we had hypothesized. Engagement did seem to be a pre-condition of solution quality and satisfaction, and the latter two were strongly related to one another. Most importantly, locus of control for marital satisfaction was related to all three in the expected directions and, in turn, all of these variables were related to an independent measure of marital satisfaction that husbands and wives had completed separately.

In this study we were able to observe the actual coping behavior of spouses faced with conflicts within their marriages. The veridicality of the role enactments was obvious in the involvement that was evident and in the commentary of the couples at the end of the experiment. These are very real situations for married couples as Gottman (1979) has argued. Our subjects' coping behaviors, then, were quite meaningful, especially because they were related to their self-ratings of marital satisfaction. In this situation, we were able to observe couples appraising each other's feelings to ascertain how serious a problem they were encountering. Our findings attest to the fact that internals are more apt to be observant than are externals, and are better able to resolve difficulties when they are unearthed. Internals proved to be more ready than externals to perceive and encounter potential conflicts with problem-focused coping, working to understand and alter conditions that were sources of grievance for their spouses.

One other study reported by Parkes (1984) helped to reveal the relationship between control beliefs and coping behaviors. Parkes had nursing students recall some specific stressful experiences that had occurred during their training. Internals were found to have coped more actively when they had encountered stressors that were perceived as controllable than had externals. On the other hand, suppression, an example of emotion-focused coping, was most prevalent among externals and least evident among internals in controllable situations. Internals exhibited suppression primarily in response to stresses adjudged as simply necessary to accept.

What was revealed in Parkes' study is that internals respond more appropriately to their stressful experiences, coping in accord with the perceived controllability of events. Externals, by contrast, seemed prepared to behave inappropriately, manifesting avoidance behavior and less active coping when action to change the situation seemed most called for.

From most of the research concerned with coping processes it would seem that internality is associated with greater attentiveness to potential threats and more active problem-solving behavior. Failure to take heed of impending threats and emotion-focused coping, on the other hand, seem to be more common among people classified as external with regard to locus of control. Therefore, if stressors are potentially controllable, internals would seem to be in a better position than externals to modify their impacts, perceiving imminent threats earlier than externals, and coping
more actively in the attempt to alter the threatening circumstances.

It could be hypothesized as well, however, that externals would adapt more readily in uncontrollable circumstances than would internals, given externals’ greater penchant to engage in emotion-focused coping. Reid (1984) in fact, has, discussed this likelihood, arguing that the acceptance of one’s helplessness in uncontrollable circumstances, without undue and unsuccessful problem-solving coping, may be the best first step for coming to terms with uncontrollable disorders. Nevertheless, Reid also speaks of “participatory control,” a sharing of control with professionals, as a necessary later stage of coping with the uncontrollable. Additionally, though several studies have indicated that internals are more apt to engage in problem-solving coping than externals, and that the latter more commonly engage in emotion-focused coping, internals have not been found to be unable to engage in emotion-focused coping. As Strentz and Auerbach (1988) have noted, externals seem uncomfortable and have difficulty adopting problem-solving methods for dealing with stress. Thus, it is possible that internals have greater versatility in their coping behavior than externals, and that the latter have a more singular style of dealing with problems that is characteristically emotion focused.

In the following section we will review the literature explicitly concerned with the moderator role of locus of control. Here, we will examine the findings concerned with the affective states that victims of stress experience. If an internal locus of control does bode well for the way in which stressors are handled, then the mood states of people undergoing stress should differ in accord with control orientations.

**LOCUS OF CONTROL AS A STRESS MODERATOR**

Much research concerning stress has made use of survey devices such as the Social Readjustment Scale (Holmes and Rahe, 1967) or more recent scales such as the Life Experiences Survey (Sarason, Johnson, & Siegel, 1978); and in studying the role of control beliefs some investigators have used published forms of locus of control scales while others have simply queried their subjects as to the controllability of the life experiences that they have acknowledged on surveys of stressful events. For example, researchers such as Hu-
disturbances. In each study internals who had a high degree of social support proved to be more resilient in the face of stress than internals with less social support or externals with or without social support. In both of these investigations there was little direct support for control as a singular moderator of stress, a finding that has also been reported by Nelson and Cohen (1983). It was only in interaction with social support that control was found to ameliorate the effects of stress in these studies. Similar findings have more recently been reported by Hobfoll and Lerman (1988), who found that mothers of seriously ill children who were high in their sense of mastery and enjoyed general social support or good intimacy with a friend were the least emotionally distressed during their travail. However, in this study the sense of mastery also produced a significant main effect. A high sense of mastery was associated with less emotional distress in general.

In an investigation from our own labs (Lefcourt, Miller, Ware, & Sherk, 1981), further clarifications, as well as complications, were uncovered. In this study we had used two different life event measures, the Coddington Life Events Scale (Coddington, 1972), which assesses the occurrence of stressful experiences in each of four stages of development, from early childhood through the high school years, and Sarason's Life Experiences Survey (Sarason et al., 1978), which assesses stressful experiences within the preceding year. In addition, we used four different locus of control scales in an attempt to predict mood scores that were to be obtained over a period of several weeks. Repeated testing of moods allowed us to closely monitor the main and interactive or stress-buffering effects of control. What we found in three successive studies was that externals tended to be dysphoric generally, whereas internals only showed indications of mood disturbance when undergoing current or recent stress, as was measured by Sarason's Life Experiences Survey. However, when the stressful events measured by the Coddington scale did not immediately precede the period during which moods were being assessed, the results looked more supportive of the moderator effect model.

When the stressful life events (assessed by the Coddington scale) had occurred some 3 to 5 years before the mood assessment period, we found that the current mood states of internals were less likely to be correlated with them, whereas among externals those same relationships were highly significant. These data led us to conjecture that while everyone may show immediate affective responses to stressful experiences, internals are more apt to recover given the passage of time. In turn, we guessed that the greater propensity of internals to become involved in their pursuit of current goals and satisfactions—to be problem-solving focused—would serve to hasten the decay of effects deriving from those earlier events. The more passive, emotion-focused coping that characterizes externals, on the other hand, should lead to less coping with and less acceptance of prior stressful experiences so that these aversive events have a more enduring impact on externals than on internals.

Caldwell, Pearson, and Chin (1987) have also found evidence to the effect that locus of control operates as a stress moderator, but only in interaction with other variables such as gender and social support. They found no support for a straightforward and simple interaction between locus of control and stress in predicting depression or maladjustment. Only among males did locus of control have an impact on symptom formation such that internal males were more apt to develop psychosomatic health symptoms under stress whereas external males were more likely to become depressed under such circumstances. Females showed no such effects as a function of locus of control, though they did vary in their responses in accord with social support. These findings are similar to those reported by Hunsley (1981), as described in Lefcourt (1982). In that study, locus of control did not affect either the level or reactivity of moods following stress among females. Males, on the other hand, showed strong locus of control effects, with externals reporting deflated mood levels following stress in contrast to internals who seemed to be less marked by their stressful experiences.

Most recently, Lakey (1988) found evidence to the effect that locus of control strongly moderated the effect of life stresses in a prospective study with both male and female university students. With dysphoria measured by the Beck Depression Inventory (Beck, Ward, Mendelson, Mock, & Erbaugh, 1961) and the Zung Depression Scale (Zung, 1965) at two initial points in time, and the Beck inventory used as the dependent measure some 2 months later, locus of control measured by the Mirels personal control factor (Mirels, 1970) of Rotter's Internal-External Control Scale (Rotter, 1966) was found to interact with a measure of
life stress in predicting dysphoria after prior measures of dysphoria and all other main effects and interactions had been partialled out. Using a tripartite division, internals were found to show no change in depression with the experience of stressful events, whereas externals and those scoring intermediate on the locus of control scale exhibited marked increases in depression following stressful events.

The ultimate conclusion to be drawn from these data is that while locus of control does obviously play some role in determining responses to stressful experiences, it does not always do so in a simple, reliable, and straightforward way. This may derive from certain inadequacies in research employing self-report measures that complicate the study of moderator effects. There is little doubt that externality is associated with negative affects such as depression. A recent meta-analysis of the locus of control-depression linkage (Benassi, Sweeney, & Dufour, 1988) affirms that locus of control orientation and degree of depression are significantly related, that the relationship is moderately strong, and that it has been consistent across studies even when control expectancies concern failures and successes separately. Thus, we can be assured that externality is associated with depressive affect. What is uncertain is whether an internal locus of control and its associated coping characteristics reliably minimize the depressive effects that can result from specific stressful experiences.

The uncertainty concerning the linkage between stress, locus of control, and the dysphoric affects derives largely from those studies wherein stress has been assessed by aggregate life event measures. When life event scales have been used in stress research, sex of subjects, access to social supports, and beliefs about control often seem to interact in complex and not always consistent ways that determine whether or not these variables will have a stress-moderating effect. In addition, we have found evidence that the temporal proximity of experienced life events to the time period during which assessment of moods is obtained can make a considerable difference with regard to whether locus of control is found to have stress-moderating properties.

Given the fact that negative affects are associated with illnesses and with the immune system functioning that would make an individual more susceptible to illness, the reliable relationship between locus of control and mood states would indicate that locus of control is meaningfully related to health and illness. If, in addition, locus of control was eventually found to be a more reliable moderator of the relationship between stress and mood disturbance, then it would be fair to say that locus of control is a major determinant of the illness effects of stress. At the present time, however, we can assert with confidence only that people who do not believe that they can influence the events that are important to them are likely to suffer with dysphoric affect; and, in turn, that such negative affects are often associated with the development of illness.

In the subsequent section we will turn our attention to the literature concerned with beliefs about control and the experience of illness.

**CONTROL BELIEFS AND ILLNESS**

Following their earlier work linking locus of control beliefs to information-gathering pertinent to illness, Seeman and Seeman (1983) conducted an extensive survey with close to a thousand adults in the Los Angeles area concerning health-related behavior. Subjects were assessed at two points of time a year apart. Among the predictor variables were abbreviated versions of the Health Locus of Control Scales (Wallston & Wallston, 1981) and a measure of the motivation for or degree of concern about health. The criteria concerning health comprised preventive health measures (diet, exercise, alcohol moderation), avoidance of smoking, health knowledge, as well as incidents of acute and chronic illnesses. The sense of internal control was found to be positively associated with the practice of preventive health measures, the attempt to avoid the harm involved in smoking, knowledge about medical treatment for cancer, self-ratings of health status, less reports of chronic and acute illness, a more vigorous management style with respect to illness, and less dependence on physicians.

Though some of the results in this study were only noteworthy if the subjects were very concerned about health, the overall findings clearly implicate control beliefs in the maintenance of health. Internals behave in ways that would seem more beneficial for maintaining their health and were in fact healthier in the year of the survey than were externals. These findings compliment previous evidence concerning preventive health behavior. As noted earlier, the larger number of studies indicate that internals avoid smoking
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(Strickland, 1978). In addition, internals who value their health have been found to be more informed about disease and health maintenance than externals (Wallston, Maides, & Wallston, 1976; Wallston, Wallston, Kaplan, & Maides, 1976); to use seat belts while riding in cars more often than externals (Williams, 1972); and to be more positive about physical exercise and cardiovascular fitness, and more likely to engage in voluntary exercise than externals (Sonstoem & Walker, 1973).

It would seem then, that an internal locus of control augurs well for health in that people who perceive themselves as determiners of their own experiences are more apt to know what the ramifications of their health behaviors are likely to be. Armed with such knowledge, they are also more likely than externals to take preventative actions to maintain their health status. Another set of investigations in the literature concerning health and control beliefs concerns the ways in which people come to terms with illnesses once they have occurred.

Among such studies there is one exemplary investigation that has explored the ways in which patients undergoing myocardial infarctions have dealt with their life-threatening experiences. Cromwell, Butterfield, Grayfield, and Curry (1977) were able to examine the behavioral and physiological correlates of locus of control as patients came to terms with myocardial infarctions within an intensive care unit. Patients who were classified as internal from Rotter's Internal-External Locus of Control Scale (Rotter, 1966) were rated by the professional staff as being more cooperative and less depressed than were externals throughout their stay in the intensive care unit. On three highly intercorrelated physiological measures (sedimentation rates, serum glutamic oxaloacetic transaminase levels, and lactate dehydrogenase levels), externals were found to have worse prognoses than internals. Additionally, externals had higher peak temperatures during intensive care and remained longer in the unit, and in the hospital, than did internals.

Though these data may be interpreted in different ways, one tempting hypothesis is that internals simply behave in a manner that does not aggravate their fragile conditions. Rather than becoming distressed, with all of the personal and physiological consequences of distress, in this study internals evinced greater cooperation and less depression than externals, possibly reflecting their more active participation and greater hope in the struggle for survival. It is plausible that responses to life-endangering threats such as myocardial infarctions may be at least partially determined by personality characteristics such as locus of control.

Similar findings attesting to the positive effects of internality during treatment for life-threatening conditions have been reported by Poll and Kaplan De-Nour (1980). Among 40 patients on chronic hemodialysis, locus of control was found to be related to compliance with prescribed diets, acceptance of the disability, and involvement in vocational rehabilitation. In each case, it was the more internal subjects who displayed the more favorable responses to their chronic conditions and treatment. Since failure to comply with procedures prescribed for renal failure may result in death, these findings led the authors to assert that externality “is not adaptive in terms of adjustment to chronic disease.”

In another study concerned with renal failure (Devins, Binik, Gorman, Dattel, McCloskey, Oscar, & Briggs, 1982), patients who were undergoing dialysis or had had a kidney transplant were found to be more depressed and to have lower self-esteem and greater feelings of helplessness if they were more external on locus of control measures, and felt less efficacious about their lives in general. Given the negative implications of depression for health, such an adaptation to renal disorder may have compounded the difficulties experienced with it.

Among the diseases that humans are heir to, cancer is probably the one that can most easily arouse anxiety and depression among potential victims of the disease. Marks, Richardson, Graham, and Levine (1986) have found evidence in support of support of earlier findings by Taylor, Lichtman, and Wood (1984) attesting to the role of control beliefs in the adjustment to cancer diagnosis and treatment. Taylor et al. (1984) had found that breast cancer patients who believed that their illness could be controlled through some efforts of their own or their physicians adjusted better than fatalistic patients both in the short and long term. Their measure of adjustment was quite elaborate, consisting of physicians’ and interviewers’ scores on the Global Adjustment to Illness Scale (GAIS; Derogatis, 1975), the patients’ self-ratings of adjustment, the patients’ summed reports of current psychological distress, the Campbell, Converse, and Rogers (1976) Index of
Well-Being, and the total mood disturbance scores from the Profile of Mood States (POMS; McNair, Lorr, & Droppleman, 1971). These scores were combined with weightings derived from factor loadings and standardized for each subject. With this elaborate and reliable index of adjustment, Taylor et al. (1984) found that patients who believed that they and/or others such as the physician could exert some control over the course of the cancer proved to be better adjusted to their travails than were those who disbelieved in such control. These findings were unchanged when prognosis or severity of cancer and socioeconomic status were controlled for.

Whereas Taylor et al. (1984) had used an entirely female sample, most members of which had undergone some surgery for breast cancer, Marks et al. (1986) examined the adjustment of both men and women who had just been found to have hematologic malignancies that ranged in severity from relatively indolent diseases (chronic leukemias, Hodgkin’s disease, and small cleaved lymphoma) to highly aggressive tumors (acute leukemias, convoluted T lymphoma, small noncleaved lymphoma). Since Taylor’s subjects had, for the most part, already undergone surgery, their views of treatment efficacy and beliefs about recovery could have been shaped to a degree by their immediate experience. The subjects in the study by Marks et al., on the other hand, were novices with regard to cancer and, thus, less likely to have experience-derived feelings and beliefs about treatment.

Marks et al. used measures of control beliefs similar to those that Taylor et al. had used, combining items from the Wallstons’ Multidimensional Health Locus of Control (Wallston & Wallston, 1981) and Rotter’s I-E scale (Rotter, 1966) to construct measures of personal control, physician control, and chance control of the disease. With actual and perceived severity of the cancer as the first variables entered into regression equations predicting depression (as measured by the Zung Depression Scale [Zung, 1965]), highly significant interactions were found both for personal control and expectancies of treatment efficacy. As the authors had predicted, it was those who disavowed personal control and who had low expectancies regarding treatment efficacy who exhibited the strongest relationships between perceived severity and depression. The results with actual or diagnosis-derived severity ratings were not even related to depression.

From these two studies, it would seem that perceived control plays a significant role in predicting the affective responses accompanying diagnosis and treatment of cancer. Because dysphoria has negative implications for immune system functioning, it is possible that cancers, which are often said to derive from malfunctioning immune system operations in the first place, may prove to be more resistant to treatment when patients become depressed. Thus, feelings of helplessness or a lack of personal control may have decided negative consequences in the treatment of this disease.

There have been a number of other studies dealing with the responses to a host of physical disorders and diseases in which beliefs about control have been found to have prognostic consequences. For example, Shadish, Hickman, and Arrick (1981) found that although all of the patients in their sample exhibited emotional distress in the year immediately following incapacitating spinal injuries, those who were more internal on each of the three factors (internality, powerful others, and chance) in Levenson’s (1981) measure of locus of control were eventually better able to recover their emotional equilibrium. Though adjustment was associated with internality within the year following injury, there was an interaction as well suggesting that after the first year following the injury, externals continued to report high levels of distress while internals decreased in their reported dysphoria. Thus, recovery seemed to have occurred more readily among persons who customarily assumed responsibility for their own experiences.

In a study concerning adaptation to recurring genital herpes infections by men and women, Silver et al. (1986) found that their subjects were emotionally distraught, compared with the general population, as measured by an index of “general emotional dysfunction” derived from the Symptom Check List 90 (SCL-90; Derogatis, 1977). Despite their generally elevated distress, subjects who scored in an external direction on Rotter’s I-E scale (Rotter, 1966) and engaged in more emotion-focused coping were found to report greater emotional dysfunction than internals and those less prone to emotion-focused coping strategies. In addition, when all predictor variables were entered into stepwise regression analyses predicting each of four characteristics of herpes symptomatology (recurrences, duration, pain, and bother), an external locus of control and wishful thinking (emotion-focused coping) were both found to be strong predictors of recurrences and
the bother of recurrences. On the other hand, neither were related to the duration or pain of the recurring episodes and there were no relationships between a life stress measure and any of the dependent measures among these subjects.

Auerbach and his colleagues (Auerbach, Kendall, Cuttler, & Levitt, 1976; Auerbach, Martelli, & Mercuri, 1983) examined the role of control beliefs in the adjustment of patients to dental surgery in two studies. In each study, patients were exposed to information that was either immediately relevant to the kind of surgery that they were to undergo, or to information about the dental clinic that was at best a palliative, assuring patients that the clinic was a reputable institution. Since internals are more prone to engage in problem-solving types of coping and less in emotion-focused coping, it was assumed that they would react more positively to information that would inform them about what they were about to experience than they would to the more soporific presentation, which contained little useful information. In contrast, externals were expected to prefer the distracting to the informative presentation. Patients completed the State Anxiety Inventory (Spielberger, Gorsuch, & Lushene, 1970) four times, thrice prior to surgery and once postextraction. Additionally, the oral surgeons rated each patient's adjustment on four items, the response to anesthesia, anxiety displayed during surgery, cooperation, and verbal admissions of pain.

In the first study reported (Auerbach et al., 1976), locus of control produced significant interactions with the type of information provided in the prediction of state anxiety scores and with surgeons' ratings of adjustment. Though the authors were not able to unravel the source of interaction in the state anxiety analysis, internals who had received the information relevant to surgery seemed to differ from each of the other three groups (internals with distracting information and externals in both conditions). In the two periods immediately before surgery, internals with relevant preparatory information reported more anxiety than other subjects. However, immediately after surgery, these same subjects showed the greatest decline in anxiety, scoring even lower than the other three groups.

Even more significant were the surgeons' adjustment ratings. Internals who had viewed the surgery-relevant presentation exhibited much better adjustment to surgery than internals who had received the distracting presentation, and the exact reverse was the case for externals. These findings bear similarity to those obtained with regard to coping strategies. As Strentz and Auerbach (1988) have noted, internals more readily learn problem-solving coping strategies whereas externals seem to have difficulty accepting such training and seem to be more facile at adopting emotion-focused coping strategies. This preference among internals for information that can allow for greater problem-solving coping has been noted elsewhere as well (Anderson, 1977; Seeman, 1963; Seeman & Evans, 1962).

Following this successful demonstration of the role that locus of control can occupy in confrontation with medical stressors, Auerbach et al. (1983) failed to replicate their earlier findings in a subsequent study. Certain differences between these investigations, however, may have limited the likelihood of replication. For one, the sample in the second study consisted of only 40 subjects, compared with 63 in the first. In addition to the smaller number of subjects there were also more conditions in the second study. The relevant versus irrelevant conditions were further subdivided by the affective tone with which the information was provided (warm vs. cold) such that the number of subjects per cell was reduced, the cell sizes varied, and the original relevant versus irrelevant conditions were diluted. Nevertheless, a measure of receptiveness for information in treatment situations (Krantz, Baum, & Wideman, 1980) did interact with information conditions in the same manner as locus of control had in the earlier study in predicting adjustment to surgery.

Finally, in the well-known research studies reported by Langer and Rodin (1976) and Rodin and Langer (1977), the elderly residents of a nursing home who had been encouraged to take a more responsible stance toward their own well-being were found to have become more socially and physically active, reported feeling happier, and were more alert than those who had received the impression that the staff was there to take care of them and that they were to be passive recipients of attention and care. Most important for this article is that in the follow-up investigation (Rodin & Langer, 1977) 18 months later, not only did the behavioral differences persist, but mortality rates were higher among the passive group (30%) than among those for whom self-responsibility was emphasized (15%). These findings suggested that both psychological and physical well-being are associated with feelings of control or responsibility.
These studies by Rodin and Langer, though fascinating, would not be as encouraging for the hypothesized linkage between control and health if there were not other substantial investigations that replicated some of their results. Reid and his colleagues (Reid & Ziegler, 1981a, 1981b; Ziegler & Reid, 1979) devised a scale entitled Locus of Desired Control, which focuses on everyday events that had been described as contributing to happiness in an extensive survey of elderly adults. These survey findings had been content analyzed until a number of valued satisfactions had been identified. The resulting questionnaire consisted of 35 items that measured the desire for certain occurrences or circumstances such as privacy, and a parallel set of 35 items that pertained to expectancies for being personally capable of obtaining those satisfactions. The scores on the desire and expectancy sets of items were then multiplied to create a composite measure wherein the highest scores reflected both strong desires and high expectancies of control for the set of satisfactions, and the lowest scores reflected little desire and low expectancies of control. In research with this measure, the expectancy for control part of the scale accounted for most of the results that have been obtained.

In a set of nine studies, Reid and Ziegler (1981b) found substantial evidence to the effect that people who feel in control of desired events are rated and claim to have a greater sense of well-being or better psychological adjustment. As well, functional health (physical ability to accomplish everyday tasks) was positively related and decreasing physical health was negatively related to the Desired Control Scale among an aggregate of 122 elderly persons. Of most interest, however, are the cross-lagged correlations that were obtained in four studies with 6-, 12-, or 18-month intervals and in one set of longitudinal data from a 5-year period for a sample of 122 subjects. In each of the shorter-time interval correlation sets where there was a sufficient number of subjects in the sample, lower desired control scores were associated with declining physical health. In every case, the more external or helpless people felt about attaining valued satisfactions at time one, the poorer was their physical health at a point 6, 12, or 18 months later. The cross-lagged correlations between desired control at point one and adjustment and physical health 5 years later were marked. Life satisfaction (.43), negative physical health (−.35), and functional health (.32) were each significantly related to desired control at the .001 probability level. Those who believed that they could influence the occurrences of desired satisfactions were happier and healthier than persons who had expressed helplessness about being able to secure desired pleasures 5 years earlier.

Finally, Reid and Ziegler found evidence to the effect that when they compared those 61 persons who had died during the 5-year period with those who were still alive (the 122 subjects in the longitudinal study), their mean desired control scores differed significantly at the .002 probability level. Survivors had had significantly higher initial desired control scores than had those who had died. Thus, both illness and incidents of death seemed to be more prevalent among those who have felt incapable of effecting the occurrence of desired experiences.

The relationship between control beliefs and mortality is initially bound to elicit skepticism. However, there are other studies that corroborate these data. For example, Botwinick, West, and Storanit (1978) found that a simple one-item measure of self-rated control allowed for a prediction of mortality among the elderly. Similarly, Ferrara (1963) reported that people who believed that it was their own choice to enter a home for the aged, and therefore an event reflecting the exercise of personal control, lived significantly longer than those who felt that they had been coerced into entering the home.

These findings linking control beliefs and/or circumstances promoting control beliefs with illness and mortality help to underline similar assertions that have been made by authors concerned with locus of control as a personality characteristic (Lefcourt, 1982) and helplessness as a psychological state (Seligman, 1975). Feeling able to determine the kinds of experiences one is likely to have seems to be life enhancing, whereas the belief that one is no longer or never has been able to influence the directions in one's life seems to be debilitating, leading to a loss of vitality, and perhaps life itself.

CONCLUSIONS

This review has not been exhaustive. However, though there are more studies than those discussed in this chapter that bear on the relationship between feelings of control and health, the investigations included were those that seemed to have presented the clearest results; and the findings
that were discussed in these are quite encouraging. Though behavioral medicine or health psychology are young interests, there does seem to be enough in the way of substantial information for us to pursue further research and to draw tentative conclusions.

As should be evident, many of the studies discussed in this chapter define beliefs about control in different ways: some through situational manipulations, others through a variety of measuring devices, and yet others with a variety of names and theoretical underpinnings. With regard to the latter, diversity of construct names and descriptions, it is the impression of these writers that more is to be gained by ignoring the seeming differences and concentrating on the convergent results that have been reported with cognate variables. Although not wishing to dwell on the subject, it would seem commonsensical to expect that someone who believes that he or she is highly efficacious with regard to a number of tasks (efficacy) will be more likely to believe that outcomes and actions are generally related to one another (locus of control or perceived contingency). If they were not related, why should one engage in effort from which efficacy feelings would derive? Likewise, beliefs about contingency and perceived control would have to be related to one another. One cannot perceive that he or she is able to accomplish something unless outcomes are perceived to be contingent on efforts; and finally, there is evidence to the effect that causal attributions (post-hoc causal explanations) are related to customary ways of perceiving causality (locus of control) if subjects are given enough time to draw conclusions about their performance outcomes (Lefcourt, Hogg, Struthers, & Holmes, 1975). Therefore, it is our presumption that the studies we have discussed concern similar constructs, ones that deal with our beliefs that we can exert some influence on our experiences or, in contrast, with our beliefs that there is nothing that we can do to alter the circumstances of our existence.

Given these assertions, what may we conclude from the literature reviewed in this chapter? First of all, life stressors that occur to us all do have an impact on our health. Illness is often found among those who have endured stressful experiences. However, there are some people who seem to be more resilient in the face of certain stressors that leave others dysphoric and ailing. When trying to account for these differences, attention is turned to characteristics of the person undergoing stress that have implications for the ways in which that person copes with his or her difficulties. We have focused on beliefs or perceptions of control as one such characteristic that has ramifications for stress management. In our literature review we have found evidence to suggest that people who are characterized as internals are more attentive to events occurring around them and therefore more ready to perceive potential threats or challenges than are those characterized as externals. Secondly, there is some evidence to suggest that internals are more apt to construe threatening events as challenges rather than as reasons for despair, as would be more common among fatalistic persons.

Subsequent to the appraisal of stress, evidence has accrued suggesting that internals are more likely to cope with stress by trying to solve the problems inherent in the threatening situation. By contrast, fatalistic individuals seem more ready to direct their attention to their own emotional responses rather than to the threats themselves. Thus, defensive maneuvering, which mutes the thoughts and affects associated with threatening experiences, is more readily apparent among externals. On the other hand, internals seem able to resort to emotion-focused coping when circumstances seem to offer little opportunity for remediation. Externals, however, do not seem to be quite as flexible, in that they do not shift as easily to problem-solving coping when the situations would seem to call for such an approach. Therefore, it would seem as if internals, or those who feel effective and competent in managing their affairs, are better able to flexibly respond to stressful experiences.

In turn, the coping styles associated with internality seem to result in less dysphoria following the advent of stressful events than the coping styles characteristic of externals. Externality is reliably related to depression and anxiety, and internality to vigor, humor, and life satisfaction. These affective states have recently been found to have implications for illness, with dysphoria being associated with the onset of maladies; and most recently, evidence has been accruing that suggests that dysphoric affects lead to the suppression of immunological functioning which, in turn, leaves the person more vulnerable to various internal and external sources of illness and disease. In contrast, the more positive affects associated with internality seem to facilitate the functioning of the immune system, so that internals would possibly
be better protected against the onslaught of sicknesses.

Though evidence in support of these linkages between stress-control-dysphoria-immune system functioning-illness are to be found in the literature, as with most such literature, there is much room for clarification and substantiation. However, there is much reason to be encouraged and to continue investigation at each point of the linkages that we have presented.

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