

## **Self-Generated Feelings of Control and Adjustment to Physical Illness**

**Shelley E. Taylor**

*University of California, Los Angeles*

**Vicki S. Helgeson**

*Carnegie-Mellon University*

**Geoffrey M. Reed**

*University of Washington, Seattle*

**Laurie A. Skokan**

*Portland State University*

*Patients with chronic or advancing disease often generate perceptions that they or others can control aspects of their illness such as its symptoms, course, and treatment. This article considers self-generated feelings of control, and provides evidence from patients with cardiac disease, cancer, and AIDS concerning the adaptiveness of these feelings. The research suggests that beliefs in personal control generally appear to be adaptive. Perceptions of control do not appear to be explained by the absence of negative affectivity, and instead, appear to reduce anxiety and depression. Cognitions concerning control by others yield more mixed results. Whereas women and patients with good prognoses appear to profit psychologically from feelings of vicarious control, men and patients with*

---

Preparation of this manuscript was supported by two research grants (MH 42152 and MH 42918) and by a Research Scientist Development Award (MH 00311) to the first author from the National Institute of Mental Health. During the conduct of this research, the second author was supported by a National Research Service Award from the National Heart, Lung, and Blood Institute (HL 07900), and the third and fourth authors were supported by a training grant from the National Institute of Mental Health (T32 MH 15750). We are grateful for the helpful suggestions of Lisa Aspinwall and Peter Bentler in the conduct and interpretation of these analyses.

Correspondence regarding this article should be addressed to Shelley E. Taylor, Department of Psychology, 1283 Franz Hall, University of California, Los Angeles, Los Angeles, CA 90024-1563.

*poor prognoses do not. Implications for the literatures on psychological control, the illusion of control, and adjustment to chronic illness are discussed.*

The onset of a chronic illness can produce uncertainty, the experience of loss of control, and feelings of distress and helplessness. People diagnosed with chronic illnesses must deal with uncertainties about their present and future physical capacities, ambiguities about the future course of the illness and accompanying symptoms, and concerns about their abilities to resume their former lifestyle. One way in which these feelings of vulnerability and helplessness can be offset is by generating a sense of personal control over the chronic illness, its accompanying effects, and life more generally (Taylor, 1983).

An increasing literature has suggested that in response to stressful events such as chronic illness, some people spontaneously generate feelings of control, which may also help them adjust to these aversive conditions. Pearlin and Schooler (1978), for example, noted that beliefs in personal control may moderate the stress–distress relationship, reducing distress when strong beliefs in control are present. Similarly, Folkman (1984) suggested that perceptions of control become important during the appraisal process involved in coping. During this process, the individual determines whether a stressful event poses a harm/loss, threat, or challenge, and asks the question, “What can I do in response to this threat?” Perceptions of control may represent spontaneous coping efforts and thus constitute a coping resource. In fact, Folkman suggests that the greater the appraised threat in a situation, the more important perceptions of control will be.

Empirical research confirms that self-generated feelings of control can improve adjustment associated with physical illness. For example, Taylor, Lichtman, and Wood (1984) interviewed 78 breast cancer patients, and found that those who believed they could exert control over the course of their cancer, or over the likelihood of its recurrence, were significantly better adjusted than those who lacked such perceptions of control. Michela (1986) interviewed 40 male patients who had had a myocardial infarction (MI) and recorded their current feelings and behaviors and those they remembered having shortly after the MI. Feelings of helplessness and lack of control were correlated with depression, and the greater the initial feeling of loss of control, the greater current distress they reported. In a questionnaire study with arthritis patients, Nicassio et al. (1985) found that perceptions of helplessness or diminished control were associated with reduced self-esteem, greater anxiety and depression, personal perceptions of poorer clinical status, and greater impairments in daily living.

A study by Affleck and his colleagues on patients with rheumatoid arthritis, however, suggests a qualification to the generalization that feelings of control result in better adjustment (Affleck, Tennen, Pfeiffer, & Fifield, 1987). They assessed beliefs in personal control over daily symptoms, the course of disease, and medical care and treatment. For all patients, the belief in personal control

over medical care and treatment was associated with positive adjustment and good mood. Perceiving personal control over symptoms was unrelated to mood in patients with mild symptoms, but was significantly associated with a positive mood in patients who had moderate or severe symptoms. Perceiving personal control over the course of disease was marginally associated with positive mood in patients with mild disease, but negatively associated with mood in those with moderate and severe disease. We will return to this qualification shortly.

Despite considerable evidence for the adaptive value of self-generated feelings of personal control, some important issues remain unresolved. Perhaps the most important issue concerns causality (Pearlin, Meaghan, Lieberman, & Mullen, 1981). Unlike the large experimental literature that examines the adaptive effects of perceived control, the literature on self-generated feelings of control suffers from self-selection of subjects. The correlational and cross-sectional nature of these studies makes it unclear whether psychological control produces good adjustment, whether good adjustment produces feelings of control, or whether both psychological states are caused by some third variable. Consequently, research designed to address issues of causality is of paramount importance.

A second unresolved issue concerns the nature and adaptiveness of control-related beliefs under conditions in which control may not be possible. Although many chronic diseases, such as heart disease, cancer, and diabetes, are amenable to certain forms of personal control (e.g., adopting proper health habits, taking medication, monitoring symptoms, and actively participating in medical decision making), other chronic diseases or advanced conditions may limit possibilities for control. Patients may come to hold hopeful cognitions about their abilities to control the illness that are at direct odds with the actual facts.

While some have argued that such illusions of control can be useful even under conditions of advancing or terminal disease (Taylor, 1983, 1989), virtually no research has directly addressed whether such cognitions do develop and are associated with good or poor adjustment. This issue takes on importance in the context of Affleck et al.'s (1987) results concerning the association of control and well-being in patients with severe arthritis. While personal control over medical care and treatment was associated with positive adjustment, the finding that patients with more severe disease displayed a negative relation between beliefs in control over the course of the disease and their adjustment and mood may represent a limitation to the generally positive effects of personal control. Affleck et al. suggested that it may be adaptive for some people to relinquish beliefs that they can control aspects of their disease in the face of evidence to the contrary. Similarly, Burish et al. (1984) have argued that maintaining beliefs in personal control over a chronic illness may be maladaptive because of the helplessness created by personal failure to influence the course of the disease (see also Jamieson, Wellisch, & Pasnau, 1978).

These concerns lead into a third issue, namely whether or not a person can profit psychologically from feelings that others can exert control over his or her illness. Several researchers have suggested that people need not feel they personally have direct control over adverse events in order to derive benefit from feelings of control (Folkman, 1984; Miller, 1980; Reid, 1984; Rothbaum, Weisz, & Snyder, 1982). Under certain circumstances, the belief that there are powerful others in one's environment who can control the noxious events on one's behalf may produce responses similar to feelings of direct control (e.g., better adjustment to the events on physiological, emotional, and psychological measures). These perceptions have been termed *vicarious control*—the belief that others have some response that can reduce, modify, or terminate an aversive situation that affects the self.

The health care setting is a useful place in which to examine feelings of vicarious control. In contrast to the context surrounding many stressful or threatening events, there are, in fact, powerful external agents that may be able to exert at least some control over one's symptoms, the presence of disease, or its long-term course—namely, physicians and other health care agents. Thus, one might expect that in the health care setting, patients with chronic illnesses would have the opportunity to experience high degrees of vicarious control and that, as is commonly the case for personal control, feelings of vicarious control would be positively associated with adjustment.

This article addresses the adaptiveness of self-generated feelings of control, their causal role in promoting adjustment, and the role of vicarious control in promoting adjustment to illness. It begins with the question of causal inference and self-generated feelings of control.

### **The Causal Relation Between Control and Adjustment**

As just noted, the causal ordering of feelings of control and good psychological adjustment is unknown. People who are well-adjusted to stressful events may come to feel they have control over them, or people who are able to develop feelings of control under conditions of stress may come to be more psychologically well-adjusted as a result. A third possibility is that some other variable—for example, the person's level of negative affectivity—may determine both adjustment and feelings of control. Research has suggested that a pervasive personality predisposition marked by hostility, anxiety, and depression may be associated with a wide range of adverse reactions to stressful events (Rhodewalt & Zone, 1989; Smith, Pope, Rhodewalt, & Poulton, 1989; Watson & Pennebaker, 1989). Researchers have found this general trait, termed *negative affectivity*, to be associated with health complaints, physical symptoms, and less effective coping (Costa & McCrae, 1985, 1987; Smith et al., 1989; Watson & Pennebaker, 1989).

There has been some suspicion that negative affectivity may account for certain relations between coping strategies and positive outcomes that were previously ascribed to other factors. For example, the hardiness concept (Kobasa, 1979; Kobasa & Puccetti, 1983), which is composed of commitment, challenge, and a sense of personal control, has come under scrutiny as a potentially confounded variable. Rhodewalt and Zone (1989) discovered that women low in hardiness were more likely to appraise recent life events as negative and to perceive them as requiring more adjustment than women high in hardiness. When depression was statistically controlled, however, there was no relation between hardiness and adjustment, suggesting that low hardiness may merely reflect negative affectivity. Conceivably, then, feelings of psychological control over a stressful event may also not be a set of specific cognitions generated in response to that stressor, but instead an outgrowth of a more general personality predisposition to view events in a positive rather than a negative way.

### *An Empirical Investigation*

To address these issues, we conducted a longitudinal study of control and adjustment among a group of patients with severe coronary heart disease (CHD). Coronary heart disease is an illness that poses substantial threat, and an illness in which controllable lifestyle factors play a role. Consequently, issues of psychological control can be important in this situation. The longitudinal nature of this study permitted an examination of the causal direction of the relationship between control and adjustment.

The participants were 60 English-speaking men and women who had one or more risk factors for sudden cardiac death (i.e., history of MI, previous potential sudden death episode, angina, coronary artery bypass grafting, recurrent ventricular arrhythmias, cardiomyopathy, or valvular heart disease). All had experienced a cardiac event within the previous 12 months. Of these 60 people, 47 participated in all three waves of data collection and thus, comprised the final sample. The 13 patients who failed to complete the study were on average four years older and more psychologically distressed, showing greater anxiety and depression, poorer adjustment, and lower perceptions of control than those who participated.

In the final sample, ages ranged from 37 to 77, with a mean of 64 and a median of 65. Most of the participants were male (83%), and almost all were married (92%) and Caucasian (90%). Both mean and median income levels were between \$40,000 and \$59,999. Of the sample, 40% were working, 52% had retired, and the remaining 8% were unemployed, on sick leave, or homemakers. The mean and median times since the last cardiac event were four months and three months, respectively.

The participants were asked to complete booklets at two weeks, three

months, and six months after being enrolled in the study. Perceptions of control over the illness were assessed with two questions rated on 7-point scales: (a) Regarding your heart problem, how much in control do you feel? (b) Regarding your heart problem, how helpless do you feel? Because these two questions were highly correlated at all three times of measurement, the scale scores were summed to form an index of perceived control for each time of assessment. The Multiple Affect Adjective Checklist (MAACL—Zuckerman & Lubin, 1965) was used to assess anxiety, hostility, and depression, while the Psychosocial Adjustment to Illness Scale (PAIS—Derogatis, 1975) was used to assess adjustment to illness.

Anxiety, hostility, depression, and psychological adjustment were analyzed separately, inasmuch as correlational analyses showed them to be poorly correlated. Moreover, since anxiety, hostility, and depression are thought to be central to the negative affectivity construct, it was important to analyze them separately from more global measures of psychological adjustment. The reliabilities for anxiety, depression, hostility, the PAIS, and control were comparable across the three time points, and thus differential reliability was not a potential confound that might obscure the causal relations between control and these indicators of distress and adjustment. In the following pages, a number after a variable name refers to the wave of measurement.

### *Results*

To gain insight into the nature of the relations between control and distress, a structural equation model was developed using EQS (Bentler, 1989). Maximum likelihood procedures were used to estimate model parameters. In the first model, the relationship between control and anxiety was examined among the three time points. Paths were included from Control 1 to Anxiety 2 and from Control 2 to Anxiety 3. Paths also connected the three control measures (Control 1 to Control 2, Control 2 to Control 3) and the three anxiety measures (Anxiety 1 to Anxiety 2, Anxiety 2 to Anxiety 3). Anxiety 1 and Control 1 were allowed to correlate. The overall fit of this model was good, as indicated by the nonsignificant chi-square [ $\chi^2(8) = 12.49, p = .13$ ]. However, the LaGrange multiplier results indicated that an additional path between anxiety measures would increase the model's goodness of fit, specifically a path between Anxiety 1 and Anxiety 3. A large residual also was found between Anxiety 3 and Control 3. Consequently, the errors between these two variables were allowed to correlate. The revised model is shown in Fig. 1. The addition of the path and correlated errors improved the model's fit [ $\chi^2(6) = 2.99, p = .81$ ]. The normalized estimate for Mardia's coefficient was .29, suggesting that the data were indeed multivariate normal. The normed and comparative fit indices (NFI and CFI, respectively) were high (NFI = .98, CFI = 1.00), offering further evidence that

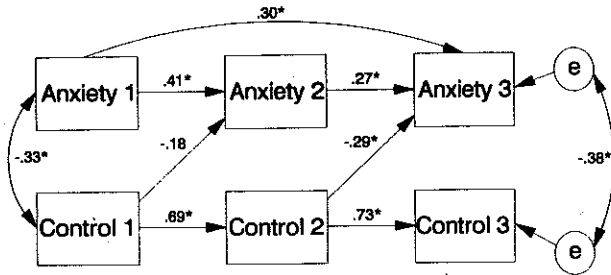


Fig. 1. EQS model of relations between anxiety and control at three time points. Figure entries represent standardized path coefficients (\*  $p < .05$ ). The  $\chi^2(6)$  for the model is 2.99,  $p = .81$ .

the model provided an adequate fit to the data (Bentler, 1990). All of the paths in the model shown in Fig. 1 are statistically significant except for the path between Control 1 and Anxiety 2 (which, although nonsignificant, was in the predicted direction).

With small sample sizes, it is also important to check the independence model chi-square, which compares the hypothesized model to a null model (i.e., no relations among variables). This was highly significant [ $\chi^2(15) = 118.60$ ,  $p < .001$ ], indicating a poor fit to the data. To further increase confidence in the ability of the hypothesized model to describe the data, the alternative causal model (i.e., anxiety causing control) was also tested. The fit of this model was poor [ $\chi^2(8) = 20.20$ ,  $p < .001$ ], and the Wald test for dropping parameters revealed that the two causal pathways (i.e., Anxiety 1 to Control 2 and Anxiety 2 to Control 3) should be removed from the model. In addition, large residuals remained for the alternative direction of causality (i.e., control causing anxiety).

A model was also developed to relate perceptions of control to depression. Again, paths were included relating successive measures of control and successive measures of depression. Causal pathways connected Control 1 to Depression 2 and Control 2 to Depression 3. Depression 1 and Control 1 were allowed to correlate. The results of this model revealed a fairly large residual between Control 3 and Depression 3. Thus, the errors between the two variables were allowed to correlate. A nonsignificant chi-square was obtained, indicating that the overall fit of the model was satisfactory; [ $\chi^2(7) = 9.58$ ,  $p = .21$ ]. The normalized estimate for Mardia's coefficient was  $-.21$ , indicating that the data were multivariate normal. The fit indices were large (NFI = .93, CFI = .98), indicating a good fit to the data. All of the paths in the model shown in Fig. 2 are statistically significant except the path from Control 2 to Depression 3, which was in the predicted direction, although nonsignificant.

As with the data for anxiety, we evaluated the two alternative models proposing independence among the variables and assessing the reverse direction

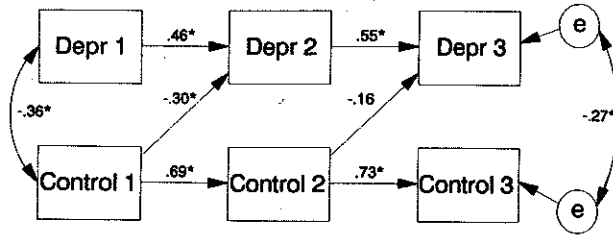


Fig. 2. EQS model of relations between depression and control at three time points. Figure entries represent standardized path coefficients ( $* p < .05$ ). The  $\chi^2(7)$  for the model is 9.58,  $p = .21$ .

of causality. The independent model chi-square was highly significant [ $\chi^2(15) = 129.70$ ,  $p < .001$ ], indicating a poor fit to the data. A test of the reverse causal model (i.e., depression causes control) also revealed a poor fit [ $\chi^2(8) = 19.65$ ,  $p = .01$ ]. The causal pathways were nonsignificant as revealed by the Wald test for dropping parameters. In addition, the LaGrange multiplier test suggested that adding causal pathways consistent with the initially hypothesized direction of causality (i.e., control causes depression) would significantly improve the model's fit.

A third pair of models was developed relating control to psychosocial adjustment. Neither causal model (i.e., control causing adjustment nor adjustment causing control) provided an adequate fit to the data. In both cases, the chi-square was statistically significant ( $p < .001$ ) and the LaGrange multiplier statistic did not offer additional paths to improve the model fit. No effort was made to model the relations between control and the hostility component of the MAACL, because the correlations were consistently small and nonsignificant.

### Conclusions

Although the sample for the study was small and the relations among variables were somewhat weak, taken as a whole, the results indicate several important points about self-generated (i.e., nonmanipulated) feelings of control. First, these feelings do not appear to be merely an outgrowth of negative affectivity. Perceived control and hostility were virtually uncorrelated, and so the hostility component of negative affectivity does not seem to be involved in these relationships at all. More important, the preponderance of evidence suggests that feelings of control reduce anxiety and depression, as opposed to anxiety and depression leading to low perceptions of control. Thus, these results also suggest that self-generated feelings of control have some of the same beneficial effects as



manipulated feelings of control; that is, they can lead people to suffer less psychological distress in the context of stressful events.

Given these clarifications concerning the conceptual status and causal impact of the psychological control variable, it becomes important to understand the conditions under which self-generated perceptions of control are most likely to be adaptive, and circumstances under which relinquishing control to others may be equally or more adaptive. We turn next to these issues.

### Vicarious Control and Adjustment

The need to experience a sense of control may be manifested not only as a perception of personal control over the illness, but also as a perception that others, such as medical care givers, can exert control. Although a number of researchers have alluded to the possibility that vicarious control may have the same adaptive effects as personal control (e.g., Folkman, 1984; Reid, 1984; Rothbaum et al., 1982), few researchers have tested this hypothesis (Glass, Reim, & Singer, 1971; Taylor et al., 1984). The issue as to whether or not vicarious control is adaptive takes on special significance in the context of advancing or terminal chronic illness, for in such situations personal control may no longer be possible, but some semblance of vicarious control may be available through the actions of medical care givers.

A few studies have explored the role of vicarious control. Taylor et al. (1984) interviewed a sample of 78 breast cancer patients, and asked them to indicate whether or not they believed there was anyone in their environment besides themselves who could exert control over their cancer. The majority (68%) of these cancer patients reported that others could exert at least some control over their cancer. When asked to specify who had such control, most mentioned physicians or other health care agents. As was true for perceptions of personal control, Taylor et al. (1984) found that vicarious control was positively associated with adjustment to the cancer. It is important to note, however, that many of these patients were asymptomatic at the time of the study and many also had favorable prognoses. In contrast to these findings, Affleck et al. (1987) assessed beliefs in provider control over symptoms and the course of the disease among patients with rheumatoid arthritis. They found that perceptions of the health-care provider's control over symptoms were related to patients' *negative* mood. The authors suggested that seeing others as responsible for something that the patients themselves were not able to control might represent a maladjusted perception. However, there was no relation between another type of vicarious control (perceived provider control over the course of the disease) and patients' mood.

### *A Study of Vicarious Control*

To further explore vicarious control and its relation to personal control and psychological adjustment, we conducted a study of gay men with AIDS concerning their perceptions of personal and vicarious control over AIDS (Reed, 1989; Reed, Taylor, & Kemeny, 1990). Participants were recruited from the Los Angeles site of the Multicenter AIDS Cohort Study (MACS). This study, which began in April 1984, enrolled 1637 gay and bisexual men to participate in a research project designed to chart the natural history of HIV infection and AIDS. All men who had a diagnosis of AIDS confirmed by medical records as of June 1, 1989, were considered eligible for the present study. Of the 96 men who met these criteria, 16 had refused further contact with the MACS study and thus could not be approached. The remaining 80 were sent a letter soliciting their participation. Eighteen declined and 12 never responded. Thus 50 men participated in the initial data collection, representing 63% of those who were sent recruitment letters. However, this participation rate may be an underestimate, since death is likely to have been a reason that some did not respond.

Half of the 50 respondents were randomly selected to participate further in a more intensive interview from which the present data are drawn. The mean age of these 25 respondents was 37.9 and all were Caucasian. The mean educational level of this sample was a college degree. At the time of their interview, the participants had been diagnosed with AIDS for an average of 19.2 months. They exhibited a range of AIDS-related diagnoses and most had had more than one opportunistic infection or AIDS-related diagnosis. There were no differences in medical or demographic characteristics between those who participated in the interview vs. those who did not. There was only one difference between the final sample and the entire MACS cohort that had been diagnosed with AIDS, including those already deceased; participants in the study had been diagnosed with AIDS more recently than the comparison sample, which would be expected, inasmuch as many in the comparison sample had already died.

The interviews lasted approximately 90 minutes, and generally were held in the interviewee's home. Ratings of personal control and vicarious control were obtained through three questions each—concerning how much control the patient felt he (or others) had over fatigue, pain, or other symptoms; over maintaining or improving health; and over medical care and treatment. Responses were made on 5-point scales. Psychological adjustment was assessed using a composite index formed by combining scores on the Satisfaction with Life Domains Scale (Reed, 1989; 7-point ratings of current satisfaction with employment, finances, physical health, medical care, and relationships with others), the Index of Well-Being (Campbell, Converse, & Rodgers, 1976; an 11-item scale assessing quality of life), the Affects Balance Scale (Derogatis, 1975; a 40-item scale of positive and negative emotions), the Hopelessness Scale (Beck, Weissman,

Lester, & Trexler, 1974; 20 true-false items measuring negative expectations about the future), and the Rosenberg Self-Esteem Scale (Rosenberg, 1965; a 10-item standardized self-esteem scale).

### Results

Mean ratings for personal control were quite high, corresponding to "some control" over day-to-day symptoms ( $M = 2.92$ ) and maintaining health ( $M = 3.13$ ), and "very much control" over medical care and treatment ( $M = 3.96$ ). Mean ratings for vicarious control were also fairly high, corresponding to "a little control" by others over day-to-day symptoms ( $M = 2.17$ ), and "some control" by others over maintaining health ( $M = 3.17$ ) and over medical care and treatment ( $M = 2.88$ ). Subjects saw themselves as having more control than others over their day-to-day symptoms ( $p < .01$ ), and over their medical care and treatment ( $p < .01$ ), whereas ratings of personal and vicarious control did not differ in the area of maintaining health.

Next, correlations between control beliefs and psychological adjustment were examined. As Table 1 reveals, perceptions of personal control were strongly and consistently positively associated with adjustment, whereas perceptions of vicarious control were consistently negatively associated with adjustment. That is, men who saw themselves as having a high degree of personal control over any area of their disease exhibited better adjustment than those who saw themselves as having less control; however, those who rated others as having high control

**Table 1.** Correlations Between Control Ratings and Global Adjustment of AIDS Patients by Subjective Health Status

Variable	Total sample ( $N = 24$ )	Subjective health	
		Low ( $N = 12$ )	High ( $N = 12$ )
Personal control			
Day-to-day symptoms	0.56**	0.67*	0.36
Maintaining health	0.59**	0.68*	0.25
Medical care and treatment	0.55**	0.71*	0.28
Total personal	0.69***	0.68***	0.36
Vicarious control			
Day-to-day symptoms	-0.09	-0.31	-0.10
Maintaining health	-0.46*	-0.73*	-0.10
Medical care and treatment	-0.47*	-0.68*	-0.22
Total vicarious	-0.53**	-0.82**	-0.22

Note. A positive number means that high perceptions of control were correlated with good health.

\* $p < .05$ .

\*\* $p < .01$ .

\*\*\* $p < .001$ .

over maintaining their health and their medical care exhibited poorer adjustment than those who rated others as having less control in these areas.

Because of Affleck et al.'s (1987) results suggesting that the adaptiveness of personal control may be moderated by the severity of one's symptoms or disease, the correlations between control and adjustment were also calculated separately for groups differing in health status. Health status was assessed by an overall health rating (a 7-point self-rating), the AIDS-related symptom list (Reed, 1989; a list of 29 physical symptoms commonly associated with AIDS, such as fever, difficulty breathing, and diarrhea), and an assessment of health-related impairment (three items assessing impairment in the activities of daily living, mobility, and physical activity, based on Bush, 1983). Scores on these indicators were standardized and combined into a composite index of health status. The distribution was split at the median to assess correlations between perceptions of control and adjustment as a function of subjective health status (see Table 1). The table reveals that for those in poor health, the positive relationships between personal control and adjustment and the negative relationships between vicarious control and adjustment were substantially stronger than was the case for those in better health.<sup>1</sup>

### *Conclusions*

The results of this study are consistent with Affleck et al.'s (1987) hypothesis that the relation between control and adjustment is moderated in an important way by health status. However, the specific form of that moderation is somewhat different than what they hypothesized and found. The results are also inconsistent with Taylor et al.'s (1984) findings that vicarious control was strongly positively associated with adjustment among breast cancer patients.

The differences among these studies can potentially be explained with reference to any of several factors. First, type of disease may importantly moderate the relation between control and adjustment. Taylor et al.'s (1984) breast cancer sample was skewed in the direction of a favorable prognosis, and under such circumstances, belief in vicarious control may well be adaptive. Breast cancer is potentially curable through contact with medical professionals and through compliance with medical procedures that others perform, such as chemotherapy,

---

<sup>1</sup>It should be noted that the amount of time that had passed since diagnosis was a potential confound in subjective health status, inasmuch as those who had been diagnosed with AIDS for a longer period of time might see themselves as in poorer health. Consequently, the analyses were recalculated, comparing those recently diagnosed with AIDS with those who had been diagnosed earlier. The patterns of correlations between control and adjustment by "time since diagnosis" were much less consistent and much weaker than was true for the correlations by subjective health status reported in Table 1. This suggests that subjective health status and not "time since diagnosis" is the important variable.

radiation, and surgery. Thus, trusting one's physician, and assuming that he or she knows what is best and has control may be adaptive. Similarly, for the rheumatoid arthritis patients studied by Affleck et al. (1987), trusting the physician and believing he or she knows best may be adaptive as long as the symptoms are not severe. Among those with more serious conditions, including life-threatening ones such as AIDS, belief in vicarious control may become less adaptive. Thus, health status or prognosis may moderate the relation between vicarious control and adjustment.

However, other possible explanations may also have some validity. For example, the breast cancer patients were all women, the rheumatoid arthritis patients were a mixed gender sample, and the AIDS patients were all men. It is possible that men and women respond to personal and vicarious control differently. It may be that vicarious control is adaptive for women and not for men. Due to traditional sex role expectations, women may be more accustomed to relying upon others to maximize their outcomes, and thus may experience positive emotions in response to the perception that others have control over an aversive event that affects them. The distress of men, in contrast, may be reduced only by feelings of personal control and not by the perception that others can exert control, which may be threatening to the typical masculine sex role. Consistent with this sex role explanation, Dracup, Guzy, Taylor, and Barry (1986) found that men with advanced heart disease whose wives had been trained in CPR (i.e., a vicarious control manipulation with potentially life-saving consequences) were nonetheless significantly more distressed than those whose wives did not have the training.

A third possibility stems from the political climate for treating these disorders. AIDS patients have sometimes been the victims of prejudice, discrimination, ignorance, and lack of attention from the medical community. Belief in vicarious control may be negatively associated with adjustment in this sample because faith in a system that has often blatantly ignored their needs may represent a maladjusted set of perceptions. However, it should be noted that a similar, although not nearly as extreme, political climate has dominated the treatment of breast cancer, and there the relation between vicarious control and adjustment was reversed. Consequently, the political nature of the disorder may not be a viable explanation for these differences.

### **Prognosis, Gender, and Vicarious Control**

Two variables, then, appear to be chief candidates moderating the association between vicarious control and adjustment. One is prognosis or severity of the disease, and the other is gender. To examine these moderators, we conducted a study with 55 male and female cancer patients with prognoses of varying severity. The sample was recruited from a pool of 668 cancer patients who had

previously participated in a survey of social support needs. Fifty-nine people selected at random from respondents in the Los Angeles area were asked to participate in the interview study, and 55 agreed, representing a 93% response rate. The sample included 30 women and 25 men, ranging in age from 30 to 66, with a median age of 54. Of the sample, 83% were married and 84% had children; 56% were employed, and the median yearly family income was between \$40,000 and \$49,000; 93% had completed high school and 29% were college graduates. Participants had been diagnosed with or sustained a recurrence of cancer an average of 3.2 years prior to the interview; 20% were receiving treatment for their cancer at the time of the interview. An oncologist rated their prognosis using medical chart materials, and determined that 36 patients were cured or in remission, while the remaining 19 had active and advancing cancers in various sites.

All interviews took place in private, usually in the respondent's home, and lasted between 1½ and 2 hours. As in previous studies, participants were asked the extent to which they felt they and others had control over their symptoms, over the course of the disease (i.e., whether or not they could keep the cancer from coming back), and over their medical care and treatment. Respondents indicated their answers on 5-point scales, with end points of *very much* and *not at all*. Adjustment was measured as a factor score comprised of the Profile of Mood States (McNair & Lorr, 1964), the Rosenberg Self-Esteem Scale (Rosenberg, 1965), and the Global Adjustment to Illness Scale (Derogatis, 1975) as assessed independently by the interviewer and by the physician.

### Results

Perceptions of personal control were associated with good adjustment among men ( $r$ s for the three areas of control ranged from .31 to .51). Among women, surprisingly, the correlations hovered around zero and were nonsignificant. Relations between vicarious control over symptoms and adjustment, and between vicarious control over treatment and adjustment, were also small and nonsignificant. There were, however, significant effects concerning the relation between vicarious control over the disease itself and adjustment. There was little evidence that the relationship between vicarious control and adjustment differed for men ( $r = -.06$ , ns) and women ( $r = .07$ , ns). When these results were examined in terms of prognosis, however, the relationships were considerably stronger (see Table 2). As implied by Affleck et al. (1987) and Burish et al. (1984), and consistent with the results of Reed (1989) and Taylor et al. (1984), patients whose prognosis was good showed a positive relation between perceptions of vicarious control and adjustment, whereas patients whose prognosis was poor showed a strong negative relation. That is, among patients with good prospects for recovery, a belief that others had control over their health was

**Table 2.** Correlations Between Vicarious Control Over the Course of Disease and Adjustment of Cancer Patients by Prognosis and Gender

Prognosis	Males and females combined		Males	Females
Poor	-.42 (19)	} **	-.38 (9)	-.45 (10)
Good	.41* (36)		.07 (16)	.49* (20)

*Note.* Braces indicate correlations compared in significance tests. The numbers in parentheses indicate the *n* for each group.

\**p* < .05.

\*\**p* < .01.

associated with good adjustment; however, among patients with a poor chance for recovery, the perception that others had control over their illness was associated with poor adjustment.

Examining the relations separately as a function of both gender and prognosis suggests that both prognosis and gender may be implicated in these relations. Specifically, the only group to show a significant positive relation between vicarious control and adjustment was the good-prognosis female sample—results similar to those of Taylor et al.'s (1984) breast cancer study. Consistent with arguments by Burish et al. (1984) and Reed (1989), poor-prognosis patients, both men and women, showed a negative relation between vicarious control and adjustment.

### Summary and Implications

People with chronic illnesses often generate feelings of control in response to those illnesses. Such feelings of personal control over the symptoms, the disease, their medical care, or even over life more generally, appear to help them deal with the exigencies of the illness. With few exceptions, the literature identifies self-generated feelings of personal control as adaptive. Even in the case of advanced AIDS patients, feelings of personal control enabled them to cope with the disease with less psychological distress and a relatively higher quality of life.

The results presented above provide some information regarding the conceptual and causal status of the psychological control variable with respect to psychological adjustment. Evidence from our study with cardiac patients indicates that psychological control is not merely the flip side of negative affectivity. In view of recent literature attempting to determine whether negative affectivity can explain the adverse effects of low hardiness (Rhodewalt & Zone, 1989) or lack of optimism (Smith et al., 1989), it is reassuring to have some evidence that psychological control may not be similarly confounded. In this study control was

consistently negatively correlated with depression and anxiety, but not to the degree that would suggest substantial conceptual overlap. Moreover, the evidence consistently supported the idea that control predicts negative affect, rather than the reverse. Although the evidence was based on a small sample, these results suggest that feelings of psychological control have a causal role in reducing psychological distress that may accompany chronic or advancing illness. In this sense, then, self-generated feelings of control may operate in a manner similar to manipulated control, which appears consistently to reduce distress.

In health-related settings, the issue of vicarious control becomes important, not only because patients may be limited in the degree to which they can exert personal control over their health, but also because there are, in fact, powerful external agents who may strongly affect symptoms, the course of the illness, and medical treatment—namely medical practitioners. The above results from two studies, with AIDS patients and cancer patients, suggest some qualifications to the idea that putting one's trust in others may be beneficial. Specifically, the benefits of vicarious control may be confined primarily or exclusively to women, and only to women with relatively good prognoses. That is, the only clear evidence of a positive association between feelings of vicarious control and good psychological adjustment has been found on female samples with good prognoses (see also Taylor et al., 1984). In contrast, the all-male sample of AIDS patients showed a clear negative relation between vicarious control and adjustment, and in the cancer sample, the male patients also appeared to derive no psychological benefits from feelings of vicarious control.

More important than gender, however, is the variable of prognosis. For those with poor prognoses or advanced disease, a belief that there are others in one's environment who can control the disease was associated with poor adjustment. These findings are consistent with the suggestions of several previous researchers, such as Affleck et al. (1987), Reid (1984), and Burish et al. (1984), that perceptions of control may be adaptive only when there is, in fact, something that can be controlled. When the situation gets beyond a point where control is likely to have any impact on the course or consequences of the aversive events, believing such control exists may be maladaptive.

These conclusions suggest some qualifications to the idea that an illusion of control may be adaptive (Langer, 1975; Taylor, 1983). Previously, the experimental evidence suggested that, even when people falsely believe there is a controlling step that they can undertake to influence or terminate an aversive event, those perceptions of control reduce distress (see Fiske & Taylor, 1984, for a review). Similarly, Taylor (1983) had suggested, in the context of adjustment to chronic and terminal illness, that perceptions of control appear to be adaptive even when they are in clear contradiction to the facts. She reported instances of cancer patients who believed they had control over their disease, even though



diagnostic information suggested that their prognoses were poor. Moreover, among the AIDS patients studied by us, perceptions of personal control even in the case of advancing illness were associated with positive adjustment. However, this may have been because, in fact, these patients were exerting some modest forms of control, such as maintaining a healthy diet and ensuring that they obtained enough rest. Thus, even minimal amounts of control may continue to be adaptive when one is faced with a terminal illness. It may, then, be the case that perceptions of control are maladaptive only when they are in blatant contradiction to existing facts and not when those perceptions have at least a kernel of truth to them.

Clinically, there are several implications of the present research. Concerning personal control, the results generally suggest that such perceptions are adaptive. Some clinicians may view the perception of personal control as a state of "denial" and urge a patient to achieve a state of realistic acceptance (e.g., Kubler-Ross, 1969). The present results suggest that such interventions may be misplaced and possibly even destructive, and that it is important for professionals to support a patient's sense of control and autonomy while at the same time encouraging necessary planning and problem solving. For example, in the case of the gay men with AIDS, it was very important for them to be well informed about their treatment and options, to participate fully in the decision-making process, and to feel the ultimate authority rested with them rather than with medical care givers.

Concerning vicarious control, previous work has suggested that it is important for those with grave prognoses to turn control of important health-related outcomes over to those more competent to handle them (e.g., Reid, 1984). The present results suggest that these ideas too may be misguided. On a clinical level, these results provide an argument against the paternalistic stance that can characterize medical institutions. Generally speaking, vicarious control is not associated with good adjustment except among good-prognosis, female patients. Consequently, it will be important for future research to explore the boundaries of both personal and vicarious control, and for future work to illuminate more fully the circumstances under which each form of control may contribute to or detract from psychological adjustment.

## References

- Affleck, G., Tennen, H., Pfeiffer, C., & Fifield, C. (1987). Appraisals of control and predictability in adapting to a chronic disease. *Journal of Personality and Social Psychology*, *53*, 273-279.
- Beck, A., Weissman, A., Lester, D., & Trexler, L. (1974). The measurement of pessimism: The Hopelessness Scale. *Journal of Consulting and Clinical Psychology*, *42*, 861-865.
- Bentler, P. M. (1989) *EQS: Structural equations program manual*. Los Angeles: BMDP Statistical Software.
- Bentler, P. M. (1990). Comparative fit indexes in structural models. *Psychological Bulletin*, *107*, 238-246.

- Burish, T., Carey, M., Wallston, K., Stein, M., Jamison, P., & Lyles, J. (1984). Health locus of control and chronic disease: An external orientation may be advantageous. *Journal of Social and Clinical Psychology, 2*, 326-332.
- Bush, J. W. (1983). *Quality of well-being scale: Function Status Profile and Symptom/Problem Complex Questionnaire*. San Diego: Health Policy Project, University of California.
- Campbell, A., Converse, P. E., & Rodgers, W. L. (1976). *The quality of American life: Perceptions, evaluations, and satisfactions*. New York: Russell Sage Foundation.
- Costa, P. T., Jr., & McCrae, R. R. (1985). Hypochondriasis, neuroticism, and aging: When are somatic complaints unfounded? *American Psychologist, 40*, 19-28.
- Costa, P. T., Jr., & McCrae, R. R. (1987). Neuroticism, somatic complaints, and disease: Is the bark worse than the bite? *Journal of Personality, 55*, 299-316.
- Derogatis, L. R. (1975). *The Global Adjustment to Illness Scale (GAIS)*. Baltimore: Clinical Psychometric Research.
- Dracup, K., Guzy, P. M., Taylor, S. E., & Barry, J. (1986). Cardiopulmonary resuscitation (CPR) training: Consequences for family members of high-risk cardiac patients. *Archives of Internal Medicine, 146*, 1757-1761.
- Fiske, S. T., & Taylor, S. E. (1984). *Social cognition*. New York: Random House.
- Folkman, S. (1984). Personal control and stress and coping processes: A theoretical analysis. *Journal of Personality and Social Psychology, 40*, 839-852.
- Glass, D. C., Reim, B., & Singer, J. E. (1971). Behavioral consequences of adaptation to controllable and uncontrollable noise. *Journal of Experimental Social Psychology, 7*, 244-257.
- Jamieson, K. R., Wellisch, D. K., & Pasnau, R. O. (1978). Psychosocial aspects of mastectomy: I. The woman's perspective. *American Journal of Psychiatry, 135*, 432-436.
- Kobasa, S. C. (1979). Stressful life events and health: An inquiry into hardiness. *Journal of Personality and Social Psychology, 37*, 1-11.
- Kobasa, S. C., & Puccetti, M. C. (1983). Personality and social resources in stress resistance. *Journal of Personality and Social Psychology, 45*, 839-850.
- Kubler-Ross, E. (1969). *On death and dying*. New York: Macmillan.
- Langer, E. J. (1975). The illusion of control. *Journal of Personality and Social Psychology, 32*, 311-328.
- McNair, D. M., & Lorr, M. (1964). An analysis of mood in neurotics. *Journal of Abnormal Psychology, 69*, 620-627.
- Michela, J. (1986). Interpersonal and individual impacts of a husband's heart attack. In A. Baum & J. E. Singer (Eds.), *Handbook of psychology and health: Vol 5. Stress and coping* (pp. 255-301). Hillsdale, NJ: Erlbaum.
- Miller, S. (1980). Why having control reduces stress: If I can stop the roller coaster, I don't want to get off. In J. Garber & M. Seligman (Eds.), *Human helplessness: Theory and applications* (pp. 71-95). New York: Academic Press.
- Nicassio, P. M., Wallston, K. A., Callahan, L. F., Herbert, M., & Pincus, T. (1985). The measurement of helplessness in rheumatoid arthritis: The development of the Arthritis Helplessness Index. *Journal of Rheumatology, 12*, 462-467.
- Pearlin, L. I., Meaghan, E. G., Lieberman, M. A., & Mullen, J. T. (1981). The stress process. *Journal of Health and Social Behavior, 22*, 337-356.
- Pearlin, L. I., & Schooler, C. (1978). The structure of coping. *Journal of Health and Social Behavior, 19*, 2-21.
- Reed, G. M. (1989). *Stress, coping, and psychological adaptation in a sample of gay and bisexual men with AIDS*. Unpublished doctoral dissertation, University of California, Los Angeles.
- Reed, G. M., Taylor, S. E., & Kemeny, M. E. (1990). *Perceived control and psychological adjustment in gay men with AIDS*. Manuscript submitted for publication.
- Reid, D. (1984). Participatory control and the chronic illness adjustment process. In H. Lefcourt (Ed.), *Research with the locus of control construct: Vol. 3, Extensions and limitations* (pp. 361-389). New York: Academic Press.
- Rhodewalt, F., & Zone, J. B. (1989). Appraisal of life change, depression, and illness in hardy and nonhardy women. *Journal of Personality and Social Psychology, 56*, 81-88.
- Rosenberg, M. (1965). *Society and the adolescent self image*. Princeton, NJ: Princeton University Press.

- Rothbaum, F., Weisz, J. R., & Snyder, S. S. (1982). Changing the world and changing the self: A two-process model of perceived control. *Journal of Personality and Social Psychology*, 42, 5-37.
- Smith, T. W., Pope, M. K., Rhodewalt, F., & Poulton, J. L. (1989). Optimism, neuroticism, coping, and symptom reports: An alternative interpretation of the Life Orientation Test. *Journal of Personality and Social Psychology*, 56, 640-648.
- Taylor, S. E. (1983). Adjustment to threatening events: A theory of cognitive adaptation. *American Psychologist*, 38, 1161-1173.
- Taylor, S. E. (1989). *Positive illusions: Creative self-deception and the healthy mind*. New York: Basic Books.
- Taylor, S. E., Lichtman, R. R., & Wood, J. V. (1984). Attributions, beliefs about control, and adjustment to breast cancer. *Journal of Personality and Social Psychology*, 46, 489-502.
- Watson, D., & Pennebaker, J. W. (1989). Health complaints, stress, and distress: Exploring the central role of negative affectivity. *Psychological Review*, 96, 234-254.
- Zuckerman, M., & Lubin, B. (1965). *Manual for the Multiple Affect Adjective Checklist*. San Diego, CA: Educational and Industrial Testing Service.

SHELLEY E. TAYLOR is Professor of Social Psychology and Co-Director of the Health Psychology Program at the University of California, Los Angeles. Her major interests include social cognition and health psychology. For the last several years, her research has focused primarily on the processes involved in adjusting cognitively and emotionally to threatening events.

VICKI S. HELGESON received her Ph.D. in social psychology in 1987 from the University of Denver, where her dissertation focused on the role of masculinity in coronary heart disease. She was a postdoctoral fellow in health psychology at the University of California, Los Angeles, from 1988 to 1990, and is now Assistant Professor of Social Psychology at Carnegie-Mellon University. Her research examines roles, social support, and lifestyle changes following a first coronary event.

GEOFFREY M. REED received his Ph.D. in clinical psychology from the University of California, Los Angeles, in 1989. He was a postdoctoral scholar from 1989 to 1990 at the Multidisciplinary Pain Center at the University of Washington Medical Center in Seattle, and is currently a research associate at the Department of Psychiatry and Bio-behavioral Sciences at UCLA. His research interests include psychological adjustment to severe and life-threatening disease, and factors associated with quality of life in these illnesses, with the immediate goal of developing more effective clinical interventions.

LAURIE A. SKOKAN received her Ph.D. in social psychology in 1990 from the University of California, Los Angeles, where her dissertation focused on the motivational determinants of social support provision. She is currently Assistant Professor of Social Psychology at Portland State University. Her work examines the impact of perceptions of control on adjustment, and models of belief change in response to victimization.