

## **Effects of Optimism on Psychological and Physical Well-Being: Theoretical Overview and Empirical Update<sup>1</sup>**

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*The primary purpose of this paper is to review recent research examining the beneficial effects of optimism on psychological and physical well-being. The review focuses on research that is longitudinal or prospective in design. Potential mechanisms are also identified whereby the beneficial effects of optimism are produced, focusing in particular on how optimism may lead a person to cope more adaptively with stress. The paper closes with a brief consideration of the similarities and differences between our own theoretical approach and several related approaches that have been taken by others.*

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The optimist thinks that this may be one of the best days ever. The pessimist fears that the optimist may be right.

Health psychologists are slowly discovering what many lay people seem to have known for years — that positive thinking is helpful (e.g., Cousins,

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1977; Peale, 1952). If the effects of optimism were limited to making people *feel* better, the claim would be less surprising, although still interesting and potentially quite important. The effects of positive thinking go beyond simply making people feel better, however (see also Taylor, 1989; Taylor & Brown, 1988). Optimism also confers benefits on what people do and what people are able to achieve in times of adversity.

Our own interest in optimism derives from a more general interest in the processes that underlie the self-regulation of behavior (e.g., Carver & Scheier, 1981, 1990a; Scheier & Carver, 1988). Most relevant in the present context is the idea that people's actions are greatly influenced by their expectations about the consequences of those actions. This idea, of course, is not new with us. Expectancies have provided the cornerstone over the years for a variety of theories of motivated action (e.g., Bandura, 1977, 1986; Rotter, 1954; Seligman, 1975). In our view, people who see desired outcomes as attainable continue to strive toward those outcomes, even when progress becomes difficult or slow. Alternatively, if outcomes seem sufficiently unattainable (regardless of the reason for the difficulty), people withdraw their effort and disengage themselves from the goals that they have set — even if the consequences of such disengagement are at times severe. Thus, we see people's expectancies as a major determinant of the disjunction between two general classes of behavior: continued striving vs. giving up and turning away.

Paralleling this disjunction in behavior is a disjunction in affect (Carver & Scheier, 1990a, 1990b). When people believe that their goals are attainable, they experience positive affect, ranging from pride to gratitude to simple relief, depending upon the reason underlying the favorable expectancy (Carver & Scheier, 1990a, 1990b; Weiner, 1982). In analogous fashion, unfavorable expectancies give rise to negative affect. Depending again upon the specific attributions that are made, the ultimate quality of this negative affect can also be far-ranging, encompassing feelings such as shame, anger, and resentment. Regardless of whether the affect is positive or negative, its intensity is presumed to vary directly with the importance of the goal that is threatened.

Our research on positive and negative thinking began with studies on the effects of situation-specific expectancies (for a review, see Scheier & Carver, 1988). Over the years, the focus of our research has slowly shifted to a consideration of expectancies that are more general, if not more amorphous, in nature (see, e.g., Scheier & Carver, 1985). We think of these global expectancies as being relatively stable across time and context, and as forming the basis of an important characteristic of personality. We labeled this characteristic dispositional optimism, and formally defined it as

the tendency to believe that one will generally experience good vs. bad outcomes in life (Scheier & Carver, 1985).

Having made the decision to define dispositional optimism in terms of generalized expectancies, we set out to develop a brief measure of this characteristic (Scheier & Carver, 1985). The measure we constructed, called the Life Orientation Test (or LOT), consists of eight coded statements plus four filler items. The items, half phrased optimistically and half phrased pessimistically, are high in face validity and simply inquire about the person's general expectations regarding the favorability of future outcomes (e.g., "I hardly ever expect things to go my way," and "I'm always optimistic about my future"). After appropriate reversals, responses to items are summed, with higher scores indicating greater optimism.

While we have relied exclusively on the LOT in our own research, at least two other scales have been designed to measure roughly the same quality. One of these scales is the Hopelessness Scale (Beck, Weissman, Lester, & Trexler, 1974). This scale is similar in format to the LOT, but farther-ranging, assessing the person's affective experience and giving-up tendencies (in addition to expectancies). Another potentially relevant measure is the Generalized Expectancy for Success Scale (Fibell & Hale, 1978), which measures optimism by asking respondents to indicate their concrete expectancies across a number of specific life domains.

### PSYCHOLOGICAL WELL-BEING

At least a half dozen prospective studies have examined the effect of dispositional optimism on subjective well-being. One of the first examined the development of postpartum depression in a group of women (Carver & Gaines, 1987). Women in this study completed the LOT and the Beck Depression Inventory (BDI; Beck, 1967) in the third trimester of pregnancy. They completed the BDI again 3 weeks postpartum. An inverse prospective association was found between optimism at intake and depression measured 3 weeks postpartum — a relationship that remained significant even when level of depression at intake was statistically controlled.

A second study investigated the subjective reactions of a group of men over time to coronary artery bypass surgery (CABS; Scheier et al., 1989). Each subject was interviewed at three points in time: on the day prior to surgery, 6 to 8 days postsurgery, and again 6 months later. A variety of data were obtained from subjects, including information about coping tactics, mood, rate of both pre- and postdischarge recovery, and quality of life. Optimism was assessed presurgery using the LOT. In addition to psychosocial variables, medical data were gathered at baseline and at several points during recovery.

This study yielded several findings relevant to subjective well-being.<sup>3</sup> Presurgically, optimists reported lower levels of hostility and depression than did pessimists. In the week following the operation, optimists reported feeling greater relief and happiness. At the same time, they reported greater satisfaction with the level of medical care they had been receiving, and with the amount of emotional support and backing they had been receiving from friends. Finally, optimists reported a much more favorable quality of life at the time of the 6-month follow-up than did pessimists.

An additional wave of information has recently been collected from these same patients 5 years postsurgery (Scheier, Matthews, Owens, Magovern, & Carver, 1990). Optimism continues to be an important prospective predictor of the subjective well-being of these patients. Compared to pessimists, optimists are more likely to report feeling rested following sleep and less likely to report early morning awakenings. Optimists are also more likely than pessimists to report that their lives are interesting and diverse, and free from pressures and annoyances. Compared to pessimists, optimists also report getting greater satisfaction out of their relationships with friends, as well as greater satisfaction from their jobs. Finally, their general quality of life remains higher than that of pessimists.

It is also worth adding here that the effects we have described (and will describe) for this study are all independent of several major medical factors that could have also affected the results — most notably, the extensiveness of the patient's surgery, the severity of the patient's underlying coronary heart disease, and the patient's standing on the major risk factors for coronary heart disease. Thus, it is difficult to argue that optimists had a more favorable psychological response because they were healthier.

The third prospective study also comes from the arena of health psychology (Pozo et al., 1990). It concerns the psychological adaptation made by a group of women to surgery for early-stage breast cancer. Since the study is still in progress, the associations described here are those that emerged from a preliminary analysis of a nearly complete sample. Subjects were women that have Stage I or Stage II breast cancer. A diagnosis of Stage I or Stage II implies a relatively good prognosis, though the cancer clearly poses a threat to future health and survival. Patients are first interviewed at the time of diagnosis, again on the day prior to surgery, and again 7 to 10 days postsurgery. Followup interviews are conducted 3, 6, and 12 months later. Optimism was assessed (using the LOT) at the time

<sup>3</sup>As is true of several studies discussed here, this project provides data from several different domains. We have chosen to describe the results from these studies in three separate sections centering around psychological well-being, physical well-being, and coping. The findings of this study bearing on the latter two domains are described later in the article. Discussion of the other multifaceted studies is similarly organized.

of diagnosis. Negative mood or distress was assessed at all subsequent interviews beyond the initial one.

The critical question is whether optimism predicts distress over time when relevant medical variables and appropriate baseline measures of earlier distress are statistically controlled. The answer here seems to be "yes." The inverse relationship between optimism and postsurgical distress attains only marginal significance when the association is adjusted for presurgical level of distress (which correlated very highly with postsurgical distress), but the inverse relationship between optimism and distress at 3 months, 6 months, and 12 months does remain significant when each is adjusted for the previous level of distress. Thus, optimism appears to be a significant prospective predictor of distress for these patients from the period surrounding surgery all the way to the 12-month point in their recovery.

The idea that optimism is related to lesser amounts of distress during times of difficulty is reinforced further by another recent study conducted by Aspinwall and Taylor (1990), which examined the adjustment made by a group of undergraduates to their first semester of college. A host of personality factors were assessed in this study when the students first arrived on campus, including optimism (via the LOT), self-esteem, locus of control, and desire for control. A baseline measure of mood was also obtained, as was an assessment of the students' preferred ways of coping. Several measures of psychological and physical well-being were obtained 3 months later at the close of the winter quarter.

Results showed that optimism had a significant direct effect on later psychological distress. That is, higher levels of optimism upon entering college were associated with lower levels of psychological distress 3 months later. Perhaps more importantly, this significant association was obtained even though the model being tested included all of the other personality factors that were measured. Thus, the association between optimism and well-being was independent of any effects due to self-esteem, locus of control, and desire for control. The association was also shown to be (simultaneously) independent of baseline levels of mood as well.

We have recently conducted our own study of adaptation to college life (Scheier & Carver, 1991), following a protocol that is highly similar to the one used by Aspinwall and Taylor (1990). The one notable exception is that we had subjects complete the outcome measures twice, once at the start of the study and again at the end of the study. This permitted us to evaluate the extent to which optimism was associated with *changes* in the outcome measures over time. Consistent with the findings of Aspinwall and Taylor (1990), optimism was a significant prospective predictor of changes

in perceived stress, depression, loneliness, and social support over time. Across their first semester at college, optimists became significantly less stressed, less depressed, less lonely, and more socially supported than did their pessimistic counterparts.

The final study that we would like to mention examined the relationship between dispositional optimism and distress among a group of gay and bisexual men who were at risk for developing acquired immunodeficiency syndrome (AIDS; Taylor, Kemeny, Aspinwall, Schneider, Rodriguez, & Herbert, 1991). All subjects had been tested for human immunodeficiency virus (HIV) antibody status, and all subjects were aware of the results of their antibody tests. Subjects were divided into two groups on the basis of whether they were HIV seropositive (+) or HIV seronegative (-). None of the subjects currently exhibited any sign or symptom of AIDS.

Optimism was assessed in this study via the LOT. Distress was measured in a couple of different ways. First, a composite score was created based on subjects' responses to the Hopelessness Scale (Beck et al., 1974) and their responses to the tension-anxiety, depression-dejection, and anger-hostility subscales of the Profile of Mood States (McNair, Lorr, & Droppleman, 1971). A second measure of distress was created by asking subjects to indicate the extent to which they were bothered by AIDS-related worries and concerns. The results for these two variables were quite clear and quite consistent. Optimists reported significantly less distress than did pessimists on both variables, and this was true for both HIV+ and the HIV- men. Thus, once again optimism was associated with lower feelings of distress among a group of people undergoing difficult times.<sup>4</sup>

### PHYSICAL WELL-BEING

A number of studies have also considered the possibility that optimism may be beneficial to physical well-being. Our own first effort in this direction focused on college students over the final weeks of their academic semester (Scheier & Carver, 1985, Study 3), a particularly stressful time for most students. Four weeks before the semester ended and again at the close of classes, subjects completed the LOT and a brief physical symptom checklist. Optimists in our study reported developing significantly fewer

<sup>4</sup>Interpretation of the findings from this study is complicated by the fact that the Hopelessness Scale contributed to the first distress index. As noted earlier, the Hopelessness Scale and the LOT are in many ways similar to each other. Thus, the criticism might be raised that the result in question serves only to show that optimism predicts optimism. This problem does not arise with respect to the second distress index. As a result, the conclusion drawn regarding the relationship between optimism and distress would still seem to hold, even if the focus were restricted to the single distress measure.

physical symptoms than did pessimists across time. Moreover, this relationship remained significant even when baseline level of symptoms was statistically controlled. We have recently replicated these results conceptually in our study of adaptation to college (Scheier & Carver, 1991), as have Aspinwall and Taylor (1990).

The findings just reviewed are suggestive, but only that. The problem is that they are all restricted to self-reports of symptoms and/or overall health. It thus remains unclear whether optimists truly have a more favorable health status, or are simply reporting that they are healthier. Relevant to this issue is the study described earlier examining the effect of optimism on recovery from CABS (Scheier et al., 1989). Some of the information gathered in that study pertains to the patient's physical health status and rate of recovery. While portions of this information involved the patient's self-report of health status, other measures were more behavioral and physiological in nature.

The first finding to note is that optimism was related to several perioperative physiologic reactions. Compared to pessimists, optimists were significantly less likely to have developed new Q-waves on their EKGs as a result of the surgery. They were also less likely to have shown a clinically significant release of an enzyme labeled AST. Both of these measures are widely taken as markers for myocardial infarction (MI). The data thus suggest that optimists were significantly less likely than pessimists to infarct during surgery.

Optimism was also a significant predictor of the rate of the patient's recovery during the immediate postsurgical period, as assessed by two different types of measures. First, optimists were generally faster to achieve selected behavioral milestones of recovery (e.g., sitting in bed, walking around the room) than were pessimists. Second, optimists were rated by the rehabilitation staff members as showing a more favorable physical recovery vis-à-vis the patient's specific medical profile.

Optimists also had a recovery advantage at the time of the 6-month followup. Patients were asked at this time to indicate the extent to which their lives had returned to normal across several discrete domains. Optimists were significantly more likely than pessimists to have resumed vigorous physical exercise, and marginally more likely to have returned to work on a full-time basis. A significant association also emerged between dispositional optimism and a composite index, indicating that optimists had normalized their lives in general across a greater number of domains.

Patients were also asked to indicate *how long* it took them to normalize their lives in the areas surveyed. Optimists tended to resume vigorous physical exercise and return to their prior recreational activities more quickly than did pessimists. Moreover, when rate of recovery within

domains was aggregated by forming a composite across domains, optimism was a significant correlate of this composite. Optimists thus normalized their lives in general more quickly than did pessimists.

In addition to answering questions about returning to activities, patients also completed a questionnaire assessing angina and the possibility of MI. Although optimism was not a significant predictor of angina, the data did suggest that optimists were less likely than pessimists to have suffered an MI during the previous 6 months.

As previously noted, an additional panel of data has recently been collected from these patients 5 years postoperatively (Scheier et al., 1990). Two findings from this panel merit brief mention here. First, optimists were still more likely to be working full time than were pessimists. Second, among patients who were experiencing some angina, the amount of pain being experienced by optimists was less severe than that being experienced by pessimists. These findings suggest that optimists were still enjoying a benefit in physical health status at the time of the 5-year followup.

The last study that we would like to describe in this section of the paper examined women who were undergoing testing following an abnormal PAP smear (Antoni & Goodkin, 1988). This test showed the degree of atypical neoplastic growth in the cervix, though subjects did not know their physical diagnosis at the time of psychological assessment. Among the psychological variables assessed were a set of psychogenic attitudes (Millon, Green, & Meagher, 1982), two of which are of particular interest. One is termed premorbid pessimism (a dispositional attitude of helplessness-hopelessness); the other is termed future despair (a more focused attitude of hopelessness about the future). Many of the items in these scales are face-valid indicators of optimism-pessimism (e.g., "Even when things seem to be going well, I expect that they'll soon get worse," and "I look forward to the future with lots of hope"). Antoni and Goodkin (1988) found that these attitudes were significantly related to disease promotion. Women whose abnormality was diagnosed as more severe had scores indicating greater pessimism than did women whose abnormality was diagnosed as less severe.

The foregoing studies coalesce around the same conclusion, that optimism is beneficial for physical well-being. We should note, however, that the data are not completely consistent in this respect. For example, Chesterman, Cohen, and Adler (1990) found that optimism was positively related to the number of birth complications experienced by a group of older women. Similarly, Cohen, Kearney, Kemeny, and Zegans (1989) reported evidence to suggest that optimism may be associated with decreased immunocompetence (see also Sieber, Rodin, & Larson, 1991). In contrast, however, Bachen, Manuck, Muldoon, Cohen, and Rabin (1991) have found



the opposite effect among subjects exposed to an acute laboratory stressor. In the Bachen et al. (1991) study, it was the pessimists who showed decreased immunocompetence (as reflected in T-cell proliferation under mitogen stimulation). The underlying cause of these few negative effects is not readily apparent. It may have to do with differences in the particular life stress situation being studied, with differences in the particular subject population being examined, or with the particular outcome measures being used. Resolution of the basis for the inconsistencies will have to await further research.

### OPTIMISM AND COPING

The discussion thus far has been limited to a consideration of the idea that optimism may confer benefits on psychological and physical well-being. We have not considered potential mechanisms whereby these positive effects might be occurring. One obvious candidate concerns the manner in which optimists and pessimists cope with stress.

The possibility that optimists and pessimists cope differently with problems has been explored in several recent studies. In one of them (Scheier, Weintraub, & Carver, 1986, Study 1), undergraduates were asked to recall the single most stressful event that had happened to them during the preceding month. They then completed the Ways of Coping Checklist (Folkman & Lazarus, 1980) with respect to the event they had just recalled. Optimism correlated positively with problem-focused coping, especially among subjects who perceived the stressful event to be controllable. Optimism was also positively correlated with the use of positive reinterpretation and with the attempt to accept the reality of the situation. This latter association became manifest, however, only when subjects perceived the stressful event as uncontrollable. In contrast, optimism correlated negatively with the use of denial and the attempt to distance oneself from the problem.

We have also begun to examine the relationship between optimism and *dispositional* coping tactics (Carver, Scheier, & Weintraub, 1989), and a conceptually similar pattern of findings is emerging. That is, as was true of situational coping responses, optimists also report a dispositional tendency to rely on active, problem-focused coping. Consistent with this, they also report being more planful when confronting stressful events. In contrast, pessimism is associated with the dispositional tendency to disengage oneself from the goal or goals with which the stressor is interfering. Additionally, optimists report a bias toward accepting the reality of stressful events, whereas pessimists report the use of tactics such as denial and substance abuse that are designed to lessen their awareness of the problem at hand. Though optimists report accepting the reality of adverse events,

they also report attempting to make the best of the situation by trying to construe it in a more positive way and learning from the experience. Taken together, the findings serve to further reinforce the picture of optimists as active copers and pessimists as avoidant copers who are more prone to give up under adversity.

A third study relevant to the relationship between optimism and coping is the longitudinal study of men at risk for AIDS described earlier (Taylor et al., 1991). In background interviews, these men revealed that the primary source of their AIDS-related stress concerned their ability to deal effectively with unwanted thoughts about the possibility of developing AIDS. Consequently, a scale was constructed to assess what the men were doing to cope with their thoughts. Factor analysis of this instrument revealed five factors — maintaining positive attitudes, growing as a person/helping others, seeking social support, engaging in fatalism/self-blame/escape, and avoiding AIDS information. Two of these factors proved to differentiate optimists from pessimists: optimists scored higher on the positive attitudes factor than did pessimists and lower on the fatalism/self-blame/escape factor.

### OPTIMISM, COPING, AND WELL-BEING

The studies on coping reviewed thus far begin to establish a pattern, but they also have a serious limitation. That is, none of them assessed whether coping differences between optimists and pessimists underlie the effects of optimism on psychological and physical well-being. Three further studies have taken this additional step. All have been described earlier in the article. The first study concerns the adjustments made by undergraduates to college life (Aspinwall & Taylor, 1990); the other two involve the patients recovering from CABS (Scheier et al., 1989) and cancer surgery (Pozo et al., 1990).

In the college adaptation study (Aspinwall & Taylor, 1990), subjects completed the Ways of Coping Checklist (Folkman & Lazarus, 1980) at the beginning of the study, with respect to the manner in which they were trying to adjust to college life. Factor analysis revealed four major coping factors — avoidant coping, active coping, seeking support, and searching for meaning. The first three of these factors were related through structural equation modeling to the personality factors that were measured concurrently, as well as to the psychological and physical health outcome variables obtained 3 months later (sampling problems precluded retention of the fourth factor in the model). The model was constructed so as to represent the coping dimensions as mediating the associations between personality and subsequent health.

Consistent with findings already discussed, optimism correlated significantly with two of the three coping dimensions included in the model. Optimists were more likely than pessimists to engage in active coping, whereas they were less likely to engage in avoidance coping. Given the nature of the structural model tested, it was clear that these relationships were independent of any covariation that existed between optimism and the other personality characteristics measured at the same time (i.e., self-esteem, locus of control, and desire for control).<sup>5</sup>

The second noteworthy set of findings concerned the relationships between these two coping tendencies and psychological well-being at the end of the quarter. Both of these coping tactics were significant predictors of later adjustment, but in opposite directions. Use of avoidance coping was negatively associated with adjustment, whereas use of active coping was positively associated with adjustment. As evaluated by the model, the indirect link between optimism and adjustment running through coping was significant. Thus, the beneficial effects of optimism seemed to be operating at least in part through the differences in coping.

Aspinwall and Taylor (1990) also assessed self-reported physical health in this study. Optimism again proved to exert an indirect influence on health reports through coping. There were two pathways through which optimism operated. One ran through the use of avoidance, which was itself linked directly (and inversely) to physical health. The second pathway operated through the indirect connections just described between optimism, coping, and psychological well-being. That is, the causal model specified by Aspinwall and Taylor included a path from psychological well-being to physical well-being. Since psychological well-being predicted physical well-being in this study, the variables that predicted psychological well-being also (indirectly) predicted better physical health. Thus, there was evidence that coping mediated the link between optimism and both psychological and physical well-being.

Although the CABS project (Scheier et al., 1989) did not include a full measure of coping strategies, several items were included in the protocol to assess the use of particular attentional-cognitive strategies as ways of dealing with the experience surrounding the period of surgery. Before surgery, optimists were more likely than pessimists to report that they were making plans for their future and setting goals for their recovery. Optimists also tended to report being less focused on the negative aspects of their

<sup>5</sup>Indeed, our study of adaptation to college life (Scheier & Carver, 1991) suggests that optimists may even become more adaptive in their patterns of coping over time. Compared to pessimists, optimists in our study became more likely to formulate plans of action to cope with the stress they were facing. In contrast, they became less likely over time to use denial, and to disengage themselves from the coping process.

experience (their distress emotions and physical symptoms) than pessimists. Once the surgery was past, optimists were more likely than pessimists to report seeking out and requesting information about what the physician would be requiring of them in the months ahead. Optimists were also less likely to report trying to suppress thoughts about their physical symptoms, but only marginally so.

Path analyses were conducted to assess whether these coping differences were responsible for outcome differences. Generally speaking, the analyses provided relatively little support for the idea that these coping responses underlay the effects of optimism, although there were isolated instances of particular coping strategies mediating particular outcomes. There was one notable exception to this general characterization, however. The impact of optimism on quality of life 6 months postoperatively seemed clearly due to the indirect effect of differences in coping. Thus, at least for perceived quality of life, optimism did act indirectly through coping.

We have also begun to explore the role of coping responses in the ongoing study of adjustment to breast cancer surgery (Pozo et al., 1990). Recall that patients in this study were interviewed the day before surgery, 7 to 10 days postsurgery, and again 3, 6, and 12 months later. In addition to the measure of negative mood, all subjects in this study completed an instrument called the COPE (Carver et al., 1989) at all assessment points. The COPE asks respondents to indicate the extent to which they have been engaging in each of a series of behavioral or cognitive tactics as a way of dealing with the stresses surrounding (in this case) the experience of their illness and surgery. Presurgically, the patient indicates how much she has used each tactic since learning she would need surgery; postsurgically, she refers to the time since surgery; and at each followup she refers to the preceding month.

Prior to surgery, optimism was associated with reports of planning and taking active steps to do whatever there was to be done. These associations disappeared once the surgery had passed. Both before and after surgery, optimism was also associated with a pattern of reported coping tactics that revolved around accepting the reality of the situation, placing as positive a light on the situation as possible, and trying to relieve the situation with humor. By the time of the 12-month followup, all of these associations had weakened to the point of nonsignificance. In contrast to this picture of constructive coping, optimism was inversely associated with a pattern of overt (conscious) denial and reports of behavioral disengagement (giving up) at each assessment point in this study.

The coping tactics that coalesced around optimism and pessimism were also strongly related to the distress that subjects reported. Positive

reframing, acceptance, and the use of humor were all related inversely to self-reports of distress, both before surgery and after. Denial and behavioral disengagement were positively related to distress at all measurement points in the study. At the 6-month followup, a new association emerged, such that distress was positively correlated with another kind of avoidance coping — mental disengagement, or self-distraction. Not unexpectedly, given the pattern of these correlations, further analysis revealed that there was a substantial indirect effect of optimism through coping on distress, particularly at postsurgery. The direct effect of optimism (i.e., unmediated by coping) also remained significant, however, at presurgery and at the 3-month followup.

### OPTIMISM AND POSITIVE HEALTH HABITS

Taken together, the results reviewed thus far are quite uniform in their representation of optimists as active, problem-focused copers. The fact that optimists are more likely to engage in problem-focused coping takes on additional significance when viewed in the context of this special issue. That is, to the extent that good health represents a desired goal for most persons, the data suggest that optimists might be more likely than pessimists to engage in positive health practices.

Preliminary data from at least four sources suggest that this is in fact the case. One source of information comes from the most recent panel of the CABS project described earlier (Scheier et al., 1990). Subjects in this study were asked at the time of the 5-year followup to provide information about their current health habits. Optimists were more likely than pessimists to be taking vitamins on a regular basis, and less likely to be eating unhealthy lunches (i.e., lunches containing fatty meat). They were also more likely to have enrolled in a cardiac rehabilitation program. Thus, optimists were generally more likely to be engaging in positive health practices than were pessimists.

The second source of information comes from a project recently conducted by Maroto, Shepperd, and Pbert (1990) in a closely related domain. These researchers tracked a group of heart patients who were participating in a cardiac rehabilitation program. Optimism was measured at entry into the outpatient phase of rehabilitation along with the patients' standing on several risk factors for coronary artery disease. The patients' standing on these same risk factors were then reassessed at the completion of the rehabilitation program. Optimism was associated with greater success in lowering levels of saturated fat, body fat, and global coronary risk, and with raising the level of exercise across the rehabilitation period.

Another source of information on this point comes from the AIDS study (Taylor et al., 1991) described earlier. An important component of this study is to determine how optimism–pessimism impacts on the practice of “risky” sex. A significant concurrent association emerged at the first of two assessment points between optimism and the number of anonymous sexual partners that the subjects had, but only among HIV seronegative men (i.e., only among men who had not yet been infected with the AIDS virus). Among these men, optimists reported having fewer anonymous sexual partners than did pessimists.

A final study examined the relationship between optimism–pessimism and health maintenance behaviors among a large group of undergraduate men and women (Robbins, Spence, & Clark, 1991). Along with a number of other questionnaires, subjects completed the LOT and responded to a brief measure of their health maintenance behaviors. The results showed that optimism was positively related to the practice of health-enhancing behaviors. Moreover, this positive association remained significant even when the data were first adjusted for a variety of different scales relating to negative affectivity (Watson & Clark, 1984). Indeed, this partial correlation remained significant even when a measure of positive instrumentality was added to the covariate list.

### **PESSIMISM AND DISENGAGEMENT AS A HEALTH THREAT**

Until now we have focused largely on the positive coping tactics of optimists. The coin has a flip side, however, and it may be useful to discuss in a bit more detail the tendency on the part of pessimists to deny and avoid, as manifested in various forms of mental and behavioral disengagement.

The notion that pessimism is associated with a tendency toward disengagement and giving up has been studied directly, in research that explored two particularly extreme forms of the disengagement tendency. One of these studies was based on Hull’s (1981) argument that alcohol is often used strategically by problem drinkers to diminish self-awareness (in an effort to eliminate thoughts about oneself and one’s problems). Given the prevailing tendency on the part of pessimists to use disengagement as a coping mechanism, it follows that the use of alcohol for this purpose should be more likely among pessimists than optimists.

A study to test this possibility was conducted among men who had just completed treatment for alcoholism and had then entered an aftercare program (Strack, Carver, & Blaney, 1987). The question was who would complete the aftercare program successfully and move forward into the working world, and who would instead return to alcohol. As expected, pessimists were more likely than optimists to return to alcohol before

completing the program. On the other hand, a more recent study has failed to find evidence for a role of optimism in remaining abstinent during inpatient treatment for alcoholism (Carver & Dunham, 1991).

If returning to alcohol abuse is an extreme sort of disengagement, it is not the worst that might be imagined. Consider suicide, for example, in many ways the ultimate form of disengagement — a disengagement from life itself. Beck, Steer, Kovacs, and Garrison (1985) conducted a 10-year followup of people who had been hospitalized with suicidal ideation. During the hospitalization, all had completed the BDI (Beck, 1967) and the Hopelessness Scale (Beck et al., 1974), assessing pessimism. Ten years later, pessimists were more likely to have killed themselves than optimists (see also Fawcett, Scheftner, Clark, Hedeker, Gibbons, & Coryell, 1987; Petrie & Chamberlain, 1983). It is of interest that overall BDI scores did not predict subsequent suicide in this study. One item of the BDI did predict suicide reliably, however: an item that deals explicitly with pessimism for the future. This is one further source of information that suggests that pessimism is not merely another name for depression.

### IS IT REALLY OPTIMISM?

Optimism, as we construe it, is a broad concept relating to a variety of other personality characteristics. As one might expect, optimism is correlated with several different measures of neuroticism and trait anxiety (e.g., Robbins et al., 1991; Smith, Pope, Rhodewalt, & Poulton, 1989). It is also correlated with measures of personality characteristics that are more positive in nature such as self-mastery (Marshall & Lang, 1990), locus of control (Aspinwall & Taylor, 1990; Scheier & Carver, 1985), and self-esteem (Aspinwall & Taylor, 1990; Scheier & Carver, 1985). Given these correlations, the question might be asked whether optimism really underlies the findings that we have outlined in this article, or whether the findings are better explained in terms of alternative constructs.

In this regard, Smith et al. (1989) have recently suggested that the effects of optimism–pessimism are best understood in terms of neuroticism or negative affectivity, based on two sets of considerations. First, LOT scores in their research correlated more highly with two measures of negative affectivity than they did with an alternative measure of optimism–pessimism. Ideally, this pattern of correlations should have been reversed. Second, associations reported by Smith et al. between optimism and several outcome measures were sometimes substantially reduced when neuroticism was controlled.

Should effects of pessimism be attributed to neuroticism as Smith et al. (1989) suggested? Not necessarily. Let's first consider the issue of con-

vergent and discriminant validity. Smith et al. took as their alternative measure of optimism the Generalized Expectancy for Success Scale (GESS; Fibel & Hale, 1978). This measure may be a less than optimal indicator, in spite of our suggestions to the contrary elsewhere (e.g., Scheier & Carver, 1987). More concretely, this scale assesses optimism by asking respondents to indicate their specific expectancies across a number of distinct life domains. The assumption is that a measure of generalized expectancies can be derived by summing the person's specific expectancies across domains. This assumption may not hold. That is, generalized optimism may be more of an emergent phenomenon, arising out of domain-specific expectancies, but being somewhat separate from them (cf. Marsh, 1986). If so, one would not expect correlations between the GESS and the LOT to be exceedingly high. Indeed, research by ourselves (Scheier et al., 1989) and others (Taylor et al., 1991) suggests that correlations between generalized optimism and domain-specific expectancies can be quite low. This suggests that one should look elsewhere for an alternative measure of optimism.

What about the second basis for Smith et al.'s (1989) suggestion — the fact that associations between optimism and other variables are sometimes reduced when neuroticism is controlled? In this regard, it is important to keep in mind that neuroticism is conventionally viewed as a multifaceted construct which consists partly (though not entirely) of pessimism. Its broad scope means that it confounds pessimism with other qualities, such as emotional lability and worry (Scheier, 1987). Thus, to ask whether an effect of pessimism is really an effect of neuroticism begs the question of whether all facets of neuroticism are important in producing the effect, or only that part of neuroticism which is pessimism.

The same issue bears on trait anxiety, though less obviously so, because trait anxiety as a concept is seemingly less multifaceted in nature. It is important to remember, however, that knowing what variable is being measured requires one to look at the indicators in the measure, the specific items of which it is composed, and not just at the measure's title (cf. Briggs, 1989; Nicholls, Licht, & Pearl, 1982). Trait anxiety, though conceptually different from pessimism, is often measured by item sets in which some items have strong overtones of pessimism, or by items assessing qualities that are conceptually distinct from both pessimism and trait anxiety but moderately related to each, such as depression. As an example, consider the following representative items from the Trait Anxiety Scale (Spielberger, Gorsuch, & Lushene, 1970): "I am happy," and "I feel blue." Both of these items are depression items, and as such might be expected to relate to both pessimism and trait anxiety. Indeed in cases such as this, it seems reasonable to ask whether the overtones of optimism vs. pessimism carried



in the measure actually underlie certain effects previously ascribed to the *alternative* constructs.

In light of these issues, we have been assembling a data set that is designed specifically to address the problem of variable overlap (the data set was first reported in Scheier et al., 1989). We have examined the factor structure of an item set produced by combining the items from the LOT with the items from several traditional measures of neuroticism and trait anxiety. Analysis of this combined data set (using varimax rotation) indicated a clear optimism factor, which correlated in the .80s with raw LOT scores. Subsequent analyses further revealed that this optimism factor uniquely predicted a significant amount of variance in depression, choice of coping strategies, and reports of physical symptoms (this latter effect was, however, limited only to men). These findings suggest that optimism, as a component of these more general constructs and otherwise, adds uniquely to the prediction of the outcomes in question.

Also relevant to the issue at hand is the research described earlier by Robbins et al. (1991) on the relationship between optimism and positive health habits. Recall that these researchers found a significant association between optimism and the use of positive health maintenance behaviors. What is important in this context is the finding that this relationship remained significant even after variations in health maintenance behaviors were first adjusted for a variety of covariates involving negative affectivity, neuroticism, and trait anxiety. If optimism as measured by the LOT were completely redundant with the alternative constructs measured by these other instruments, this partial correlation simply would not have been significant.

Let us now briefly consider the overlap between optimism and positive personality characteristics, as opposed to the overlap between pessimism and negative personality traits. As noted, we have been collecting data on a large number of measures relevant to the issue of the conceptual and empirical integrity of the optimism construct. Our data set now contains measures of positive characteristics as well as negative ones — including traditional measures of self-esteem, self-mastery, and positive affectivity. The same general pattern of findings that is described above seems to be emerging here (although analyses for positive characteristics are not yet complete). Factor analysis of the overall data set once again reveals a clear optimism factor that predicts aspects of coping, depression, and physical symptoms, independent of the other positive personality qualities that were measured.

Evidence consistent with this is also available from two other projects. Robbins et al. (1991) measured what they called positive instrumentality in their study of health behaviors. Inspection of the items from their scale,

e.g., "I feel secure that I can do most of the things I try," suggests that it might best be construed as a measure of self-mastery or competency. The association that was found between optimism and health-enhancing behaviors was significant even when variations in this variable were statistically controlled. Similarly, all of the effects that were obtained for optimism in Aspinwall and Taylor's (1990) study of adaptation to college life were found to be independent of self-esteem, locus of control, and desire for control.

In short, although the data are somewhat mixed (Marshall & Lang, 1990; Smith et al., 1989), we see no compelling reason at this point to attribute the effects of optimism to an alternative construct.

### IS OPTIMISM ALWAYS GOOD?

Implicit in the material that has been presented thus far is the view that optimism is good for a person. However, a number of people have raised the possibility that optimism, especially unrealistic optimism, may confer coping disadvantages (Epstein & Meier, 1989; Tennen & Affleck, 1987; Weinstein, 1984). It may be useful at this point to consider this possibility more fully.

There are at least two ways in which optimism might lead to poorer outcomes. One of them derives from the suggestion that it is possible to be too optimistic, or to be optimistic in unproductive ways (cf. Epstein & Meier, 1989; Tennen & Affleck, 1987; Weinstein, 1984). We have assumed that positive expectancies cause the person to continue to work toward the attainment of goals. Implicit in this view is the notion that the optimistic person views the positive outcome as at least *partially* contingent on continued effort. The outcome may be partially attributable to other things as well — e.g., good fortune, the help of a friend, and divine intervention. But the person must also believe that continued striving is a precondition for these other resources to play a role. In the absence of such a belief, the person might simply sit and wait for success to happen, ultimately decreasing the chance that success will occur. Though this is a potential consequence of being too high in dispositional optimism, we have seen no systematic evidence that it actually occurs.

Optimism might also prove detrimental in situations that are not amenable to constructive action. When problem-focused coping is possible, optimists should have an advantage, because they are the ones who tend to use these tactics. However, problem-focused coping may be less adaptive in situations that are not open to change (Janoff-Bulman & Brickman, 1982). The tenacity of optimists may put them at a relative disadvantage in situations that are unalterable (cf. Tennen & Affleck, 1987).

This might be so if the coping strategies of optimists were limited to the problem-focused domain. But they are not. In addition, optimists use a host of emotion-focused coping techniques, including a tendency to accept the reality of the situation, to put the situation in the best possible light, and to grow personally from experiences they face. In light of these coping options, optimists may enjoy a coping advantage even in situations that cannot be changed.

We find it particularly noteworthy that optimists turn toward acceptance in uncontrollable situations, whereas pessimists remain more committed to the use of denial (see, e.g., Scheier et al., 1986). Although both tactics reflect emotion-focused coping, there are important qualitative differences between them that may, in turn, be associated with very different types of outcomes. More concretely, denial (the refusal to accept the reality of the situation) means attempting to adhere to a world view that is no longer valid. In contrast, acceptance implies a restructuring of one's experience so as to come to grips with the reality of the situation one is in (cf. Taylor, 1983; Taylor, Collins, Skokan, & Aspinwall, 1989). Acceptance thus may involve a deeper set of processes, in which the person actively works through the experience, attempting to integrate it into an evolving world view. The active attempt to come to terms with presenting problems may confer special benefits on acceptance that denial does not share (cf. Clark, 1991; Pennebaker, 1989). And indeed, this difference in orientations seems to go hand-in-hand with differences in coping outcomes (Pozo et al., 1990).

Acceptance may not be totally without cost, however. If a stressor is short-lived and occurs infrequently, it may be more efficient to cope by denying its existence rather than by doing the work needed to accept its reality. Consistent with this reasoning, there are data to suggest that denial can be useful during the initial stages of coping, or when used to cope with stressors that are short in duration (e.g., Levenson, Kay, Monteferrante, & Herman, 1984; see also Suls & Fletcher, 1985). On the other hand, as stressors become longer in duration, or recurring or chronic, the person may be better off trying to accept them than trying to deny them. By accepting a situation for what it is, the person adopts a more accurate view of reality, which allows for the possibility that compensation and gain can be gathered from life in other ways. If one continues to deny, gain and compensation in other ways may not be possible. It is interesting to note in this regard that optimists also tend to rely on personal growth as a coping tactic. This tactic would seem to be the ideal complement to acceptance because one can nearly always construe an event as providing some personal gain by considering it an opportunity for potential growth. In any event, the use of denial should become increasingly less adaptive as the duration of the

stressor increases. The available data suggest that this is in fact the case (Levine et al., 1987; see also Suls & Fletcher, 1985).

### IS PESSIMISM ALWAYS BAD?

What about the reverse side of the question? Can pessimism ever work in your favor? Evidence is available on this question, but the data bear on a more focused type of pessimism than we have been discussing. Cantor and her colleagues have been conducting a longitudinal study of college students, investigating (among other things) a coping style that they term defensive pessimism (Cantor & Norem, 1989). Defensive pessimism focuses around a particular life domain, such as academic performance. The defensive pessimist in the academic arena is someone who anticipates and worries about negative outcomes, despite a prior record of high academic success. The orientation is construed as self-protective and thus defensive in two different ways. First, the expectation of poor performance buffers the person against failure should it actually occur. Second, the worry and concern about failure actually prompts the person into action, the result being that defensive pessimists tend to perform as well as academic optimists (with a similar performance background) on tests.

There are three points to be made about this work. First, defensive pessimism does seem to work, at least in the short run, for those who use it. Second, although defensive pessimism works, it does not work any better than optimism. That is, the academic performances of defensive pessimists and optimists did not differ from each other in Cantor & Norem's (1989) study. Thus, this is a case in which a certain type of pessimism fails to hurt behavior rather than to facilitate it.

Third, although the style can be adaptive in the short run, it apparently is less so in the long run. That is, by their third year of college, subjects who had been identified as defensive pessimists as freshmen were no longer performing as well as the academic optimists; moreover, they were now reporting more psychological symptoms and less life satisfaction than optimists (Cantor & Norem, 1989). These findings present an interesting parallel to our previous discussion of denial. That is, just as the effects of denial become more negative over time, so too do the effects of defensive pessimism. As such, the data raise serious questions about the utility of this strategy.

### RELATED THEORETICAL APPROACHES

Thus far we have focused on one particular theoretical orientation — optimism vs. pessimism conceptualized in terms of generalized expectancies

for good vs. bad outcomes. We should note, however, that there are several other theoretical frameworks which bear some similarity to this one, which have given rise to their own literatures. Several of these alternatives are discussed in the sections that follow.

### *Attributional Style*

One body of work derives from the notion of attributional or explanatory style (Abramson, Seligman, & Teasdale, 1978). This work has its origins in the animal conditioning laboratory, in the discovery that prolonged exposure to inescapable aversive stimuli creates learning and motivational deficits (e.g., Overmier & Seligman, 1967). Several years later a cognitive model was proposed to indicate how a similar learned helplessness effect can occur in humans (Abramson et al., 1978). In this cognitive model, people's causal explanations for past events influence their expectations for controlling future events. The explanations thus influence people's feelings and their subsequent behavior.

As the attributional theory developed, the researchers gravitated toward consideration of individual differences, and began to focus more on the possible existence of stable tendencies toward using one or another sort of attribution. An instrument was developed to measure these attributional-style tendencies (Seligman, Abramson, Semmel, & von Baeyer, 1979) and two patterns of explanatory style later came to be characterized as optimistic vs. pessimistic (Peterson & Seligman, 1984). A tendency to attribute negative outcomes to causes that are stable, global (i.e., influencing many diverse events), and internal is regarded as pessimistic. A tendency to attribute negative events to causes that are unstable, specific, and external is regarded as optimistic.

There is a clear conceptual link between this theory and the approach that we have discussed throughout the article. Both theories rely on the assumption that the consequences of optimism vs. pessimism derive from differences in people's expectancies (at least in part). This assumption has been focal in our theory, and it is also important — albeit less focal — in the attributional approach. On the other hand, correlations between the LOT and measures of attributional style are generally not strong. We tend to get correlations in the high teens or low .20s. Though the reason for this is not entirely clear, it may stem from the difference in emphasis between the approaches — the fact that the attributional measures focus on people's judgments about how events are caused, whereas the LOT focuses directly on expectations for the future.

In spite of the modest association between measures, research findings relating to attributional style tend to parallel the findings that have been obtained for dispositional optimism. For example, it is now quite clear that a pessimistic explanatory style is associated with symptoms of depression. There is also support for the idea that pessimistic explanatory tendencies represent a vulnerability to the development of depressed symptoms following negative events. Extensive reviews of this research literature are available elsewhere (Peterson & Seligman, 1984; Robins, 1988).

Researchers in the attributional tradition have also focused their attention on the link between attributional style and physical well-being (for a review, see Peterson & Bossio, 1991). As with psychological distress, the parallels between the data on attributional style and optimism are clear. For example, Peterson, Seligman, and Vaillant (1988) tracked the physical health of a large sample of men from the Harvard classes of 1942–1944, who were selected as being both physically and psychologically healthy, as well as academically successful. Explanatory style was assessed when the men were undergraduates using a special technique to analyze their answers to questions about experiences during World War II. A health status rating was created for the men every 5 years by having an internist evaluate information obtained from their personal physicians. When health status at age 25 was partialled out, pessimism was correlated with poorer health status at ages 45, 55, and 60.

Part of the association between attributional style and physical health may be due to effects that attributional style have on immune function. Kamen-Siegel, Rodin, Seligman, and Dwyer (1991) correlated pessimistic explanatory style with measures of immunocompetence in a group of older adults. Persons with a pessimistic style showed signs of lower cell-mediated immunity than did persons with an optimistic style, controlling for the influence of current health, depression, medication, recent weight change, sleep, and alcohol use. In sum, there is now ample evidence that attributional style is related in important ways to psychological and physical well-being. By implication, this research serves to underscore the role played by dispositional optimism as well.

### *Self-Efficacy*

Another construct that is relevant to this discussion is self-efficacy (Bandura, 1977, 1986). Self-efficacy expectancies are people's expectations of being either able or unable to execute desired behaviors successfully. Bandura (1977) proposed that this type of expectancy lies at the heart of

therapeutic behavior change, and has gone on to argue that it plays a major role in effortful behavior more generally (Bandura, 1986).

*The Role of Personal Agency.* There are obvious similarities between self-efficacy and the optimism–pessimism construct, but there are also two noteworthy differences. One difference is the extent to which the sense of personal agency is seen as the critical variable underlying behavior. Our approach to optimism vs. pessimism intentionally de-emphasized the role of personal efficacy. In our view, perceptions of personal efficacy are one very important source of favorable expectancies for successful goal attainment, but they are only one such source. Other sources include perceptions of being in a benign or hostile environment, available assistance from other people, religious faith, and belief in the effectiveness of medications or placebos. Bandura's theory, which treats personal efficacy as the sole final pathway to behavior, appears to include no theoretical role for such influences on people's expectancies.

We do agree with Bandura that personal efficacy is important. Indeed, in some circumstances the goal behind behavior is literally to accomplish something by oneself. In such circumstances the sense of personal agency is critical to the determination of behavior. Yet there are also many situations in human behavior in which people do not particularly care how a good outcome occurs, only that it *does* occur. Indeed, people sometimes prefer not to have personal control over outcomes (Burger, 1989). When the person believes that the situation favors goal attainment, and that reasonable effort will yield success, a sense of personal efficacy (as opposed to a locus-independent optimism) is less important.

*Specific vs. Generalized Expectancies.* The second difference between self-efficacy and optimism concerns the breadth of the expectancy on which the construct focuses. Bandura (1977, 1986) has rather consistently taken the position that people's behavior is best predicted by focalized, domain-specific (or even act-specific) expectancies. Optimism, in contrast, is a very generalized expectancy. Our view is that both narrow and broad expectancies have a role to play as influences on behavior, and the available data seem to bear out this belief.

Consider, for example, the CABS study described earlier (Scheier et al., 1989). This CABS project contained a measure of dispositional optimism, but it also contained measures of specific expectancies. These specific expectancies were operationalized in terms of the number of weeks that the patients thought it would take for their lives to normalize following surgery, in each of five behavioral domains. Analysis revealed three important facts. First, the average correlation between dispositional optimism and these specific expectancies was only in the moderate range. Second, optimism sometimes predicted outcomes that domain-specific expectations

could not predict. Finally, even when the outcome data were first adjusted for variations on these specific expectancies, virtually all of the significant findings relating to dispositional optimism remained intact. Thus, dispositional optimism was accounting for outcome variance in this study over and above the variance that could be accounted for on the basis of specific expectations.

Conceptually similar findings have emerged from Taylor et al.'s (1991) study on coping with risk for AIDS (also described earlier). Taylor et al. assessed specific expectancies by having subjects indicate the extent to which they thought they were vulnerable to developing AIDS in the future. Although these specific expectancies did influence a variety of outcomes, they could not be used to provide a counterexplanation for the effects of optimism, because specific expectancies and dispositional optimism were largely independent in this study. Taken together with the results of the CABS study, these data clearly suggest that both specific and generalized expectancies are useful in the prediction of behavior. Each contains predictive power that is not provided by the other.

### CONCLUDING COMMENT

We began this article by noting that a number of people who stand outside the boundaries of psychology as a science and profession have long touted the benefits of a positive orientation to life. Only more recently have researchers given systematic attention to this idea and its many possible manifestations in the human experience. The evidence gathered thus far (as reviewed here) provides considerable support for the assertion that optimism does in fact confer benefits. Compared to pessimists, optimists manage difficult and stressful events with less subjective distress and less adverse impact on their physical well-being.

In part, this "optimistic advantage" seems due to differences between optimists and pessimists in the manner in which they cope with stress. Optimists place the best face on the problems that they confront; almost paradoxically, however, they also tend to accept the reality of problems when they do occur, rather than try to wish them away. They also try to deal with problems head on, taking active and constructive steps to make their situations better. Pessimists are more inclined than optimists to engage in a variety of tactics of avoidance coping, and are more likely to give up on efforts to move toward their goals. In short, optimists seem to be more fully engaged in their lives and making the best of them; pessimists experience life as harder and less manageable.

The evidence obtained thus far provides a window on how optimists and pessimists differ from each other, but the picture is not yet complete.



For example, although optimists and pessimists do report differences in their patterns of coping, those coping differences do not always prove to be pathways by which differences in eventual well-being come to exist. This means that there are still pathways yet to be uncovered, aspects of the puzzle yet to be resolved. In light of what has been found thus far, however, the challenge of clarifying this picture would seem to be well worthwhile.

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