Psychological Distress and Well-Being in Advanced Cancer: The Effects of Optimism and Coping

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This study examined the relations among optimism, coping, functional status, and psychological adjustment in 75 adults diagnosed with cancer. Both the positive and the negative aspects of psychological adjustment were assessed. All participants had been diagnosed with advanced stages of cancer (i.e., Stages II, III, and IV). Participants completed three assessments across a 4-month time period. Both optimism and coping were associated with psychological adjustment, even after controlling for functional status and prior adjustment. Additionally, optimism and coping were differentially related to distress and well-being. Optimism was strongly and positively associated with well-being and inversely related to distress. Escape-Avoidance coping was positively associated with distress and Accepting Responsibility coping was negatively associated with well-being. Comparisons between the current and prior studies indicated that individuals who are diagnosed with more advanced stages of cancer or who have survived bone marrow transplantation exhibit higher levels of optimism than do healthy individuals and individuals with early-stage disease.

KEY WORDS: optimism; coping; cancer; functional status.

INTRODUCTION

Dispositional optimism, which is defined as the tendency to expect positive versus negative life outcomes (Scheier & Carver, 1992), is a stable, personal characteristic that has been shown to play a protective role in long-term psychological outcomes. Optimists report better psychological ad-

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justment to negative life events (Scheier, Weintraub, & Carver, 1986) and serious illnesses, including cancer (Carver *et al.*, 1993, 1994; Friedman *et al.*, 1992). Evidence thus suggests that optimism operates as an adaptational mechanism in the face of a wide variety of significant stressors, including life-threatening disease.

Generally, optimism appears to be an important prospective predictor of distress for individuals with life-threatening illnesses (Carver *et al.*, 1994; Scheier *et al.*, 1989). In one study of women with early-stage breast cancer, optimism was strongly associated with, and predicted changes in, adjustment through a 1-year follow-up, even after controlling for prior adjustment. Specifically, individuals exhibiting increased levels of optimism also reported increased levels of subjective well-being, whereas a more pessimistic outlook was associated with poorer adjustment (Carver *et al.*, 1994). Thus, optimism may be a predisposing marker for vulnerability to adjustment difficulties, particularly in women with early-stage breast cancer. Indeed, results have been consistent across several samples. For example, Curbow and colleagues examined the role of personal changes and dispositional optimism in the psychological adjustment of long-term survivors of bone marrow transplantation (BMT) (Curbow, Somerfield, Baker, Wingard, & Legro, 1993). Results indicated that low levels of optimism were significantly predictive of more negative mood after controlling for both demographic and illness variables. Similarly, in an investigation of the role of optimism in the adjustment of HIV seronegative and seropositive men (i.e., men at risk for developing AIDS), higher levels of optimism were associated with less distress (Taylor *et al.*, 1992).

Optimism may act as a buffer against stress by influencing the types of coping strategies individuals choose to employ (Scheier *et al.*, 1986). That is, optimists and pessimists spontaneously employ different coping strategies. Optimism is positively associated with active, problem-focused coping strategies, such as acceptance, positive reappraisal, and seeking social support, whereas it is negatively associated with the use of denial, behavioral disengagement, and focus on emotion (Carver *et al.*, 1993; Scheier & Carver, 1985; Scheier *et al.*, 1986; 1989). Further, the effects of optimism on psychological distress are mediated by specific coping strategies. That is, higher levels of optimism are associated with the use of acceptance, which is associated with decreased levels of distress. In contrast, individuals with a less optimistic outlook are more likely to employ denial and behavioral disengagement as coping techniques which are both associated with increased distress (Carver *et al.*, 1993). Thus, optimists and pessimists utilize different strategies when encountering stressful situations, with optimists being more likely to use strategies that are more adaptive and more likely

to result in favorable psychological outcomes (Scheier & Carver, 1985; Scheier *et al.*, 1986).

Optimism, therefore, is an important variable to consider when an individual is faced with a significant stressor, such as the diagnosis of cancer, as it is related to overall adjustment through its effect on coping. Although optimism has been found to be psychologically adaptive in the face of early-stage breast cancer and persons who are posttreatment, having survived BMT, we have limited information concerning whether the beneficial effects of optimism persist in the face of potentially catastrophic illness such as advanced cancer (Carver *et al.*, 1994). Individuals in active medical treatment for advanced cancer must concurrently cope with possible surgery, chemotherapy, radiation therapy, severe treatment side effects, and a poor prognosis, the combination of which might lessen the strong influence of optimism found in prior studies. Although individuals undergoing BMT confront a similar scenario, the sample examined by Curbow *et al.* (1993) was comprised of long-term survivors of BMT. That is, optimism has not been investigated in a sample of individuals who are in the midst of a life-threatening crisis. Investigation of the optimism construct in a sample of individuals who have been diagnosed with advanced cancer would thus provide a more rigorous test of the construct given the increased magnitude of the stressor, including more imminent threat to life. Thus, the current study sought to compare the stability and extent of optimism between a sample of individuals with advanced cancer and other samples (i.e., medically healthy, early-stage cancer, BMT survivors). Additionally, the effects of optimism and coping on the psychological adjustment of these individuals were examined.

A second purpose of the current study is to examine whether the correlates of psychological distress and well-being, in terms of coping and optimism, are distinct. Many studies conducted thus far have examined adjustment as a unidimensional construct (e.g., Carver *et al.*, 1993; Dunkel-Schetter, Feinstein, Taylor, & Falke, 1992; Taylor *et al.*, 1992), although evidence suggests that adjustment might be better represented by a two-factor model that recognizes separate negative and positive domains of mood (Diener & Emmons, 1984; Watson & Tellegen, 1985) with different correlates (Zautra & Reich, 1983; Watson, 1988). At least one study has specifically sought to examine adjustment in terms of this two-factor approach among individuals with cancer. In a sample of women undergoing adjuvant chemotherapy for breast cancer, Manne *et al.* (1994) demonstrated that the correlates of positive and negative affect were unique: negative affect was associated with more use of confrontive coping, whereas positive affect was associated with more use of self-control. Thus, it has been suggested that future investigations of coping in cancer patients should include

predictors of both positive and negative domains of psychological adjust-
ment (Manne *et al.*, 1994).

Consideration of the potential effects of functional status also would
add to what is known about the association between optimism and adjust-
ment to advanced stages of cancer. Prior research has demonstrated that
disease- and treatment-related variables, such as functional status and treat-
ment side effects, are often significantly associated with coping and
psychological adjustment (Curbow *et al.*, 1993; Dunkel-Schetter *et al.*, 1992;
Manne *et al.*, 1994). Further, in a sample of women with breast cancer,
Manne *et al.* (1994) reported that one significant relation between coping
and adjustment was no longer significant once physical symptoms were
taken into account. Little is known regarding the associations among op-
timism, functional status, and psychological outcome among individuals in
active treatment, as functional status is typically not controlled for in studies
of optimism (e.g., Carver *et al.*, 1993, 1994; Friedman *et al.*, 1992).

This study examined the associations between optimism, coping, and
psychological distress and well-being in adults diagnosed with advanced
cancer, taking functional status and prior adjustment into account. Re-
search questions included (1) Does optimism remain stable across time
when individuals are diagnosed with advanced cancer, as has been found
in other populations? (2) Do levels of optimism differ in individuals in
treatment for advanced cancer in comparison to other populations? (3) Are
optimism and coping differentially related to psychological distress and
well-being? and (4) After controlling for functional status, do optimism and
coping play as crucial a role in adjustment as has been shown in other
cancer populations (e.g., early-stage disease, BMT survivors)? A longitudi-
nal design was used to examine the relative contributions of dispositional
optimism, functional status, and prior psychological distress and well-being
to the prediction of distress and well-being.

METHOD

Subjects

As part of a larger study on couples coping with cancer (Manne, 1995),
159 adults with cancer were approached for participation in the current
study. Patients were recruited from outpatient clinics at Memorial Sloan-
Kettering Cancer Center. Eligibility criteria included (1) being 18 years of
age or older, (2) having no current or past neurological or psychiatric dis-
orders, (3) speaking English, (4) being married or living with a partner,
and (5) undergoing current medical treatment including chemotherapy

and/or radiation. Between the time of recruitment and Time 3, 23 partici-
pants died and thus were dropped from analyses, leaving 136 eligible
participants. Time 1 data were completed by 121 participants, of whom 95
completed Time 2 data and 75 completed Time 3 data. Feeling too ill,
tired, or busy were cited as the primary reasons for which participants with-
drew from the study, accounting for 26% of all eligible participants. An
additional 25 (18%) participants did not complete questionnaires fully and
thus were excluded from analyses. A comparison of participants who with-
drew from the study or did not fully complete questionnaires (n=46) to
those that completed all three times of assessment (n=75) revealed no sig-
nificant differences in terms of age, gender, education, employment status,
years married, functional status, time since diagnosis, evidence of metastatic
disease, psychological distress, well-being, and dispositional optimism. Al-
though attrition in the current study (38%) was higher than that found in
other studies of optimism and cancer [i.e., 14% Curbow *et al.* (1993); and
34% Friedman *et al.* (1992)],[3] this is likely due to the longitudinal design
of the current study. Characteristics of the final sample are described in
Table I.

Participants completed Time 1 questionnaires an average of 10.2
months postdiagnosis (median=3.8 months). Cancer diagnoses were pri-
marily gastrointestinal (77%) but also included breast (13%), unknown
primary (4%), lung (3%), and ovarian cancer (1%). Eighty-eight percent

Table I. Sample Characteristics

Variable	
Age (years)	
M	55.4
SD	11.5
Range	35–75
Gender	
Female	33
Male	42
Ethnicity	
Caucasian	71
African-American	3
Asian-American	1
Education	
Partial high school	2
Completed high school	35
Completed college	27
Graduate/professional training	11

[3]Attrition was not reported for Carver *et al.* (1993).

(n=66) of participants had undergone cancer-related surgery. Of the 67% of participants exhibiting metastatic disease, 37% exhibited metastatic disease of the liver and 65% exhibited unresectable disease as rated by their primary physicians. Clinical staging revealed that 59% (n=44) of the sample exhibited Stage IV disease, 17% (n=13) exhibited Stage III disease, and 24% (n=18) exhibited Stage II disease. Forty percent (n=33) of subjects were rated by their primary physicians as having a life expectancy of 12 months or less and 60% (n=42) were rated as having a life expectancy greater than 12 months.

Procedure

Patients were recruited from outpatient medical consulting clinics. After informed consent was obtained, participants were given the initial packet (Time 1) of questionnaires. At this time, medical information was obtained from participants' medical charts. Approximately 2 months (Time 2) and 4 months (Time 3) later, second and third packets of questionnaires were mailed to participants along with addressed, stamped envelopes. At Time 3, primary physicians completed a second assessment of each participant's medical status.

Measures

Life Orientation Test (LOT; Scheier & Carver, 1985). The LOT, a measure of dispositional optimism, is an eight-item scale (plus four filler items) in which items are rated on a 5-point Likert-type scale from "Strongly Disagree" to "Strongly Agree." Sample items include "I always look on the bright side of things" and "Things never work out the way I want them to" and higher scores represent greater degrees of optimism. The internal consistency reliability for this scale was similar to α's obtained in prior studies, with a Cronbach's α of .84 at Time 1 and .90 at Time 3. The LOT was administered at Time 1 and Time 3.

Ways of Coping Questionnaire—Revised Version (WOC-R; Folkman, Lazarus, Dunkel-Schetter, DeLongis, & Gruen, 1986). Coping style was assessed via a revised version of the Ways of Coping Questionnaire, a self-report measure of a broad range of coping strategies. The WOC-R contains 66 items assessing cognitive and behavioral strategies that may be used in specific stressful encounters. Items are rated on a 4-point Likert scale from "0 = not used" to "3 = used a great deal" and scores yield eight subscales including Escape–Avoidance, Confrontive Coping, Seeking Social Support, Accepting Responsibility, Positive Reappraisal, Distancing, Planful Problem-Solving and

Self-Control. For the current study, instructions for the WOC-R were modified so as to provide more specific scores regarding the problems of coping with cancer and its treatment. Given the relatively low α coefficients obtained for Distancing (=.51), Confrontive Coping (=.55), and Self-Control (=.64), interitem correlations were examined to determine whether any single items contributed to these low α coefficients. These subscales were excluded from analyses as deleting any items did not improve the coefficient. Coefficient α's for the remaining subscales were adequate and ranged from .67 for Accepting Responsibility to .80 for Positive Reappraisal, which are similar to previously reported α's for this measure (Folkman *et al.*, 1986; Manne *et al.*, 1994). The WOC-R was administered at Time 2.

Mental Health Inventory (MHI; Veit & Ware, 1983). The MHI was designed to assess psychological distress and well-being in the general population. We chose to utilize the MHI as our sample is more representative of the general population than a psychiatric population. The MHI assesses symptoms experienced during the past month and includes 38 items rated on a 6-point Likert scale ranging from "all of the time" to "none of the time." Factor analysis revealed a stable factor structure which includes a higher order Psychological Distress (PD) versus Psychological Well-Being (PWB) dimension. Internal consistency reliabilities were adequate as reflected by Cronbach's α's ranging from .96 to .97 for the overall scale from Time 1 to Time 3, from .94 to .95 for PD and from .95 to .96 for PWB. The MHI was administered at Times 1, 2, and 3.

Cancer Rehabilitation and Evaluation System (CARES; Schag & Heinrich, 1988). Functional status was assessed via the CARES, a 38-item self-report questionnaire. Items are rated on a 5-point scale (0 = "not at all"; 4 = "very much") that indicates the degree to which each item applied to the respondent over the past month. Example items from the CARES include, "I have difficulty walking and/or moving around," "I frequently have pain," and "I have difficulty doing household chores." Internal consistency of the CARES is adequate with α coefficients ranging from .92 to .93. The CARES was administered at Times 1, 2, and 3.

RESULTS

Changes in Illness Status Over Time

The CARES was administered at all three times of assessment, thus providing a longitudinal index of functional status. Scores on this measure ranged from 0 to 75, with mean scores of 24.5, 21.4, and 20.3, respectively. Repeated-measures ANOVA revealed no significant differences in func-

tional status over the three times of assessment $[F(74,1) = 2.65, p > .05]$. Items endorsed as being most problematic included difficulty with physical activities (e.g., running, playing sports), having less energy than usual, and interference with or inability to work due to cancer or its treatment.

Changes in Optimism, Distress, and Well-Being Over Time

Table II presents mean scores for dispositional optimism, psychological distress, and well-being across time. A paired t test was conducted to examine changes in LOT scores from Time 1 to Time 3 and revealed no significant difference between the two times of assessment $[t(74)=.95, p=.344]$.

Analyses of variance were conducted to examine change in levels of distress and well-being over time. Repeated measures ANOVA revealed a main effect for time $[F(2,148)=5.67, p<.01]$, and examination of simple effects indicated that psychological distress at Time 3 was significantly lower than at Time 1. In terms of well-being, repeated measures ANOVA revealed no main effect for time. Thus, participants reported decreasing levels of distress and stable levels of well-being across time.

Comparison of LOT Scores Between Studies

Mean optimism scores for the current sample were compared to those obtained in prior studies in order to determine whether adults with ad-

Table II. Descriptive Statistics for Psychological Variables

	Mean	SD	Range
Optimism			
Initial	30.81	6.0	19–40
Follow-up	30.35	6.7	16–40
Depress			
Initial	48.95	14.2	26–94
Follow-up	45.05	14.8	23–103
Well-being			
Initial	57.71	13.2	28–81
Follow-up	60.67	12.9	22–84
Coping[a]			
Seeking Support	1.05	.68	0–3.00
Escape-Avoidance	.73	.52	0–2.13
Positive Reappraisal	1.13	.69	0–3.00
Accept Responsibility	.38	.51	0–2.25
Planful Problem-Solving	.84	.66	0–2.50

[a]Mean and standard deviation values for the coping subscales of the WOC-R reflect mean item ratings.

vanced cancer would differ from other samples. The t tests, as presented in Table III, indicated that optimism scores obtained from the current sample (M=30.35, SD=6.0) were significantly higher than those obtained from samples of undergraduate men and women (Scheier & Carver, 1985), adult men (Mroczek, Spiro, Aldwin, Ozer, & Bosse, 1993), adult cancer patients (Friedman et al., 1992), and women with early-stage breast cancer (Carver et al., 1993). It does not appear that age accounts for these differences as the mean age for the Mroczek et al. (1993) sample (M=60 years) is similar to that of the current sample (M=55.4 years). In contrast, current optimism scores were significantly lower than those obtained from bone marrow transplant survivors (Curbow et al., 1993).

Relations Among Optimism, Coping, and Psychological Adjustment

Table IV presents correlational analyses between criterion and predictor variables. A more stringent significance criterion, an experiment-wise error rate of .005 (Bonferroni), was utilized given the large number of correlations computed. Analyses revealed that initial functional status was significantly associated with distress. That is, individuals reporting greater functional impairment at Time 1 also reported greater concurrent distress. Optimism had a significant, inverse relationship with distress and a significant, positive relationship with well-being. That is, participants with a more optimistic outlook exhibited an increased sense of well-being and less psychological distress than those who were less optimistic. In terms of coping, the use of Escape–Avoidance and Accepting Responsibility were significantly and positively associated with increased distress. Also, increased use

Table III. T tests Comparing LOT Scores Between the Current and Prior Studies

Study	Population	N	M (SD)	df	t
Scheier & Carver (1985)	Undergrad men	267	21.4 (5.2)	340	12.67*
	Undergrad women	357	21.0 (4.6)	430	15.17*
Mroczek et al. (1993)	Adult men	1192	21.2 (4.3)	1265	17.40*
Friedman et al. (1992)	Cancer patients With evidence of disease	38	21.8 (4.6)	111	7.71*
	Without evidence of disease	50	21.8 (4.8)	123	8.43*
Carver et al. (1993)	Women with early-stage breast cancer	70	25.6 (5.3)	143	4.99*
Curbow et al. (1993)	BMT survivors	135	35.6 (7.1)	208	5.42*

Note. All means compared to Time 3 LOT scores for current study (M=30.35, SD=6.7).
*p < .005.

Table IV. Correlational Analyses of Predictor and Criterion Variables

	Initial		Follow-Up	
	PD	WB	PD	WB
Functional status				
Initial	.34*	−.31	.15	−.13
Follow-up			.28	−.28
Optimism				
Initial	−.53*	.69*	−.50*	.58*
Follow-up			−.61*	.73*
Coping				
Seek Support	.12	−.07	.06	.18
Escape-Avoidance	.43*	−.21	.61*	−.29
Positive Reappraisal	.02	.06	−.05	.26
Accept Responsibility	.20	−.09	.49*	−.36*
Planful Problem-Solving	.04	.05	.03	.12

Note. PD, psychological distress; WB, well-being.
*$p < .005$ (experiment-wise error rate, Bonferroni).

of Accepting Responsibility coping was associated with decreased well-being. This indicates that persons who employ wishful thinking or make specific efforts to escape or avoid the stressor (e.g., "slept more than usual," "avoided being with people in general") experience greater psychological distress. Those who accept responsibility for the problem (e.g., "realized I brought the problem on myself"), and thus for finding a solution to the problem (e.g., "I made a promise to myself that things would be different next time"), are more likely to experience greater distress and less well-being.

Prediction of Psychological Distress and Well-Being

Bivariate correlations between demographic and illness variables and the outcome measures for this study were conducted to determine the need to control for these variables in regression analyses. Variables examined included age, gender, employment status, education, time since diagnosis, presence of metastatic disease, and life expectancy. Participant age was inversely correlated with psychological distress ($r = -.42$, $p<.001$) and positively correlated with well-being ($r = .26$, $p<.05$). No other variables exhibited significant associations with the dependent variables. Analysis of variance (ANOVA) revealed that psychological distress and well-being did not differ as a function of disease stage.

Two hierarchical regression analyses were conducted, with distress and well-being at Time 3 serving as separate criterion variables. Participant age was entered first given its significant association with distress and well-being. Functional status at Time 3 was then entered into each equation as prior research has revealed a significant association for that variable with psychological adjustment. Also, to control for prior distress and well-being, Time 1 assessment of these variables was entered into the equation. Time 3 dispositional optimism was then entered.[4] Thus, in order of entry, variables entered into the regression equations were (1) participant age, (2) functional status, (3) prior distress or well-being scores, (4) concurrent optimism, and (5) Escape–Avoidance and Accepting Responsibility coping subscales (entered as a block). Prior to analysis, all variable scores were centered at their means to reduce multicollinearity (Cohen & Cohen, 1983).

Tables V and VI present the standardized β weights, adjusted R^2, R^2 change, and p values for the prediction of psychological distress and well-being, respectively. Both equations were significant, accounting for 70% ($p < .0001$) and 66% ($p < .0001$) of the variance in distress and well-being, respectively. Higher levels of distress were associated with younger age (R^2 change $= .23$, $p < .001$), lower functional status (R^2 change $= .10$, $p < .005$), lower levels of dispositional optimism (R^2 change $= .09$, $p < .0001$), and greater use of Escape-Avoidance coping (R^2 change $= .11$, $p < .0001$). Thus, optimism and Escape-Avoidance coping contributed significantly to the equation, even after controlling for age, functional status, and prior distress. In contrast, higher levels of well-being were associated with older age (R^2 change $= .11$, $p < .01$), higher functional status (R^2 change $= .09$, $p < .05$), higher levels of optimism (R^2 change $= .30$, $p < .0001$), and less use of Accepting Responsibility coping (R^2 change $= .03$, $p < .05$).

DISCUSSION

This study examined the relations among functional status, optimism, coping, and psychological distress and well-being in a sample of adults who were diagnosed with advanced stages of cancer. The primary aim was to investigate whether the predictive value of dispositional optimism would persist in the face of this severe, life-threatening stressor. The current results confirm and extend prior research which has indicated that optimism is strongly associated with psychological adjustment. Even after accounting

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[4]As Time 1 and Time 3 optimism scores (LOT) did not differ and Time 3 scores are closer in time to the DV, Time 3 optimism was entered into the regression equations.

Table V. Hierarchical Regression Analysis Predicting Distress at Follow-up

Variable entered	β	Adj. R^2	R^2 change
Age	−.48	.21	.23**
Functional status	.31	.30	.10*
Prior distress	.50	.50	.20***
Optimism	−.34	.58	.09**
Coping subscales			
Escape-Avoidance	.40	.70	.11***
Accept Responsibility	—	—	—

Note. Overall $F(5,58) = 29.99***$.
  *$p < .05$.
 **$p < .001$.
***$p < .0001$.

for prior adjustment and functional status, dispositional optimism exhibited a clear influence on adjustment, particularly on well-being. Specifically, a more optimistic outlook was associated with a greater sense of well-being and less distress. In terms of coping, Escape-Avoidance coping was the only strategy found to be predictive of distress. That is, individuals who reported a greater tendency to cope via escape or avoidance of the stressor (e.g., "refused to believe it had happened," "wished that the situation would go away or somehow be over with") reported greater levels of distress. Accepting Responsibility coping contributed a significant proportion of the variance to well-being in that lower levels of this coping strategy were related to higher levels of well-being. Thus, those less likely to attribute the cause of cancer to themselves also reported increased well-being. Finally,

Table VI. Hierarchical Regression Analysis Predicting Well-Being at Follow-up

Variable entered	β	Adj. R^2	R^2 change
Age	.33	.09	.11*
Functional status	−.31	.18	.09*
Prior well-being	.40	.32	.16**
Optimism	.61	.63	.30***
Coping subscales			
Escape-Avoidance	—	—	—
Accept Responsibility	−.20	.66	.03*

Note. Overall $F(5,58) = 25.64***$.
  *$p < .05$.
 **$p < .001$.
***$p < .0001$.

inclusion of functional status measures in the assessment of the psycho-
logical adjustment of adults with cancer was crucial, as functional status
was a significant predictor of both distress and well-being. Overall, the cur-
rent results suggest that optimism serves a similar adaptive function in
advanced cancer as in individuals who are healthy or who have an illness
with a more favorable prognosis.

In this sample of individuals who are quite ill and have a poor prog-
nosis, optimism was found to be stable across time, a consistent finding in
prior research (Scheier & Carver, 1985). Results presented in Table III,
however, also indicate that individuals with poor prognoses (i.e., advanced
cancer), or those who have encountered and survived a life-threatening
medical procedure (i.e., BMT), report greater degrees of optimism than
do healthy individuals and ill individuals with better prognoses (i.e., early-
stage breast cancer). Whether these statistically significant differences
constitute clinically significant differences in optimism is unclear, although
quite possible. That is, we do not know whether a 10-point difference in
LOT scores translates in any meaningful way to day-to-day outcome ex-
pectancies.

One viable hypothesis regarding this pattern of findings is that opti-
mism is stable in the context of a particular stressor but may vary across
the life span, depending on the stressor being encountered. That is, opti-
mism may interact with specific stressors and may thus be less of a
dispositional trait than previously believed. An examination of why this is
the case might be productive in terms of our understanding the value of
optimism in dealing with life events.

Why might optimism change as the result of a life-threatening illness
or event? First, although optimism may be stable in the context of daily
life, extreme stressors such as the diagnosis of a life-threatening illness may
produce increases in optimism. Without a longitudinal investigation of op-
timism from prediagnosis through treatment, however, this hypothesis
cannot be substantiated. Second, Curbow *et al.* (1993) suggested that op-
timism acts as a resistance resource that protects individuals from the
potential negative effects of cancer and its treatment. In the context of an
uncontrollable, life-threatening situation, increased optimism may be adap-
tive. That is, optimism may serve as a critical coping resource by promoting
active, problem-focused coping and reducing the perceived magnitude of
the threat (Taylor *et al.*, 1992). An alternative explanation might be that
as individuals endure uncontrollable and uncertain situations, they perceive
their ability to adapt to situations they previously viewed as hopeless and
overwhelming. For example, the participants in the study by Curbow *et al.*
(1993) had undergone and survived bone marrow transplantation, an ex-
tremely arduous and risky medical procedure. In that sample, elevated

levels of optimism might thus be related to perceptions of having survived extreme adversity, which might then positively affect the individual's general outcome expectancies.

Optimism was differentially related to the positive and negative aspects of adjustment, distress and well-being. Specifically, dispositional optimism was more important for the prediction of well-being versus distress, as it accounted for a much greater proportion of the variance in the prediction of well-being (30 versus 9%). As with optimism, certain coping strategies were differentially related to psychological distress and well-being. Accepting Responsibility coping was negatively associated with well-being, whereas Escape-Avoidance coping exhibited a significant, positive association with distress but not well-being. Therefore, the current results provide support for the two-factor model of mood in that optimism, which is considered to be a psychosocial asset, was more closely associated with well-being, the positive aspect of mood, than distress. That is, the current results support the hypothesis that positive psychological resources influence well-being, whereas negative resources influence distress (Zautra & Reich, 1983). Additionally, this study further supports the hypothesis that the positive and negative aspects of adjustment are independent and have distinct correlates (Diener & Emmons, 1984; Manne et al., 1994; Watson, 1988; Zautra & Reich, 1988).

In general, few of the coping strategies measured were related to adjustment, which may be due in part to use of a more stringent significance criterion or to inadequate internal reliability of several coping subscales. Alternatively, Carver et al. (1993) reported that prospective effects of active coping on adjustment are rare and perhaps particularly so in uncontrollable situations. The only coping strategies that exhibited significant relations with the outcome variables were Escape-Avoidance, which was positively associated with distress, and Accepting Responsibility, which evidenced a negative association with well-being. Escape-Avoidance may allow individuals to divert their focus from an unpleasant and uncontrollable situation (Folkman et al., 1986), although it has been consistently associated with emotional distress in cancer patients (Dunkel-Schetter et al., 1992; Manne et al., 1994). Accepting Responsibility coping involves acknowledgement of own's own role in the development of the current problem (e.g., "I criticized or lectured myself," "I realized I brought the problem on myself"). Regarding advanced cancer, this appears to be a very unproductive strategy.

The clinical utility of the current results also needs to be examined. Carver et al. (1994) suggest use of the LOT as a screening device. For example, the LOT could be administered to all patients with newly diagnosed cancer and more intensive assessment of those individuals who present with a pessimistic outlook could be undertaken. Psychological in-

tervention could then focus on cognitive-behavioral strategies aiming to alter outcome expectancies. If optimism is indeed a stable, personal characteristic, it may prove very difficult to affect therapeutic change in this domain. Certainly, empirical investigation of the efficacy of such an intervention is needed. Similarly, investigation of whether it is possible to modify coping styles to positively affect adjustment is warranted. With regard to coping, the current results do not reveal any particular strategies as being strongly related to well-being. Dunkel-Schetter *et al.* (1992) suggested that it may be most reasonable to teach patients to mobilize social support, as this is a resource that is available to a wide range of people and may be easier to implement than attempts to change a person's world views.

Limitations of this investigation include one-time assessment of coping, which does not allow for the examination of coping over time, nor does it allow for the assessment of long-term adaptiveness of specific coping strategies (Scheier *et al.*, 1986). Further, the sample was relatively homogeneous with respect to socioeconomic status, race, and marital status, thereby limiting the generalization of results. The exclusive use of self-report measures is an additional problem, as the degree to which they reflect actual behavior is unsubstantiated. Observational studies for the purpose of validating coping measures are clearly warranted (Dunkel-Schetter *et al.*, 1992). Additionally, the current study does not allow for determination of causality. Prior research has indicated that coping strategies mediate the effect of optimism on distress (Carver *et al.*, 1993), which may have been the case in the current study.

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