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A Prospective Study of Hope, Optimism, and Health

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Abstract

The present investigation sought to distinguish hope from optimism in the context of a ten week prospective study involving reports of health outcomes. Gottschalk's (1985) Hope Scale and Scheier and Carver's (1987) Life Orientation Test, which assesses optimism, were given to subjects, along with a health questionnaire. Ten weeks later subjects were given a second health questionnaire. To rule out potential confounds we included measures of neuroticism, depression, extroversion, and social desirability. After controlling for the effects of correlated confounds, we found that *lower hope scores* (but not optimism) *were correlated with several dimensions of reported health, including frequency and severity of illness.*

Positive states of mind have long been associated with health and successful coping while depression, despair, and hopelessness have been linked to capitulation, illness, and even death (Seligman, 1975; Taylor, 1991). Over the past two decades, a number of studies have reported an apparent connection between health outcomes and states of hope (Gottschalk, 1974; Snyder, Harris, Anderson, Holleran, Irving, Sigmon, Yoshinobu, Langelle, & Harney, 1991), optimism (Scheier & Carver, 1987), or pessimism (Peterson & Seligman, 1987). Criticisms of this literature have appeared in the form of theoretical arguments (Angell, 1985) as well as empirical studies (Marshall, Wortman, Kasulas, Hervig, & Vickers, 1992; Smith, Pope, Rhodewalt, & Poulton, 1989).

Writers from a variety of disciplines have suggested that while emotional states such as hope and optimism can facilitate coping, there may be costs associated with "positive illusions" (Snyder, 1989; Tennen & Affleck, 1987). A century ago, Neitzche (cited in Menninger, 1959) referred to hope as the worst of evils for it prolonged the torment of man", referring to those instances where false hopes promote wishful thinking, denial, and a maladaptive delay in confronting reality. Angell (1985), writing in the *New England Journal of Medicine*, suggested that efforts to link positive states of mind to recovery from illness may place an additional burden on the patient, who may be led to believe that recuperation is simply a matter of willpower. Angell (1985) also cites several large scale investigations which showed no significant relationship between psychosocial variables and health outcomes.

From a methodological perspective, many of the initial studies linking positive emotional states to health relied upon verbal reports of physical symptoms. This strategy led to a general concern that some self-report measures of positive affect may overlap with broader dispositions such as neuroticism, depression, or extroversion, thereby obscuring the real source and meaning of any reported physical symptomatology. For instance Smith, et al. (1989) reported that when neuroticism was controlled in a partial correlation, the relationship between a well known measure of optimism, the Life Orientation Test (LOT: Scheier & Carver, 1987) and health was reduced to near zero. In contrast, Marshall et al. (1992) have attempted to show that optimism overlaps with extroversion, while pessimism tends to merge with neuroticism.

In summary, two related trends are noted in the literature on personality and health. On an empirical level, there is increased sensitivity to the potential role of confounding variables. On a theoretical level, the increased attention given to psychological factors in health is beginning to spawn finer conceptual distinctions (e.g., Snyder, et al. 1991). Theoretical distinctions are particularly needed to advance theory building in health psychology and to help to clarify some of the ambiguities regarding the potential impact of positive states of mind on physical health.

General Focus of the Present Investigation

Our primary goal in this study was to differentiate two constructs that have been traditionally related to health outcomes, hope and optimism. We start with a conceptual analysis. We then outline an empirical investigation designed to assess the correlation of these constructs to several dimensions of reported health.

Theoretical Focus: Contrasting Hope and Optimism

There is a tendency among lay people and even certain investigators (e.g., Tiger, 1979) to presume that hope and optimism are indistinguishable. Nevertheless, there are significant differences between these two constructs. Optimism has been generally regarded as a cognitive variable (Scheier & Carver, 1987) while hope has tended to be seen as an emotion, albeit with cognitive components (Averill, Catlin, & Chon, 1990; Staats, 1989). According to Scheier and Carver (1987) optimism can be described as a generalized belief in good outcomes. Stated differently, optimists expect things to go their way. Optimism, as conceived by Scheier and Carver (1987), is related to ego strength and internal control (see also Marcel, 1962; Pruyser, 1986). In contrast, hope is an affective variable. To classify hope as an emotion acknowledges that hope motivates action and affects thoughts and behavior. Hope is also hard to control and is nearly universal in nature (Averill, et al. 1990; Scioli, 1990). Where optimism is grounded in evidence, reasons, and a belief in personal efficacy (Scheier & Carver, 1987), hope is rooted in early trust experiences (Erikson, Erikson, & Kivnick, 1986) and may be influenced by external or collaborative control beliefs (Pargament, Olsen, Reilly, Falgout, Ensing, & Van Haitsma, 1992; Scioli & McClelland, 1991). Stated differently, control beliefs related to hope may arise either from a reliance on "external props" such as religious institutions, medical technology, and social support (Klenow, 1991) or a more active, collaborative relationship with a greater force, religious, spiritual, or secular in nature (Pruyser, 1986). In short, hope is less dependent on rationality and ego. As Snyder (1989) observes, hope is more accurately viewed as a means of "reality negotiation" and hence is closer to Taylor's (1991) notion of a "positive illusion."

In summary, optimism is a cognitive construct consisting of a generalized belief in positive outcomes based on rational estimates of a person's likelihood of success and a belief in personal efficacy. Hope, in our view, is an emotion rooted in early trust experiences and influenced by external and collaborative control beliefs.

Empirical Focus: Hope, Optimism, and Health

In addition to the conceptual distinctions outlined above, we sought to assess the correlations involving these constructs, hope and optimism, and measures of health outcomes. A direct comparison of hope-health outcomes and optimism-health outcomes could shed further light on several important questions. Are health outcomes related to psychosocial variables? If health outcomes are related to psychological states, which specific constructs are involved? Are certain psychological states related to particular health outcomes? That is, if hope and optimism can be differentiated conceptually, will these constructs be differentially related to aspects of health outcomes as well?

Finally, we incorporated into our study the concerns of previous investigators who have found that certain emotion constructs and measures may overlap with broader constructs such as neuroticism. Toward this end we included an assessment of four potential confounds of hope and optimism: neuroticism, extroversion, depression, and social desirability. From the perspective of the larger purpose of this study (to differentiate hope and optimism) we were interested in including these confounds for two reasons. First, we were concerned whether our psychosocial variables were related to health, once potential confounds were controlled. But secondly, if we could assess the effect of these potential confounds on hope and optimism, this process could provide another empirical means of differentiating these two emotions.

Method

Subjects and Procedure

The subjects were 57 students recruited from psychology courses at a small New England College. The mean age for this sample was 19.5 yrs. and included 22 men and 35 women.

At the start of the fall semester, subjects completed a battery of tests, including a standard self-report measure of dispositional optimism, the Life Orientation Test (LOT; Scheier & Carver, 1987), a standard measure of depression (the Center for Epidemiological Studies-Depression Scale; Radloff, 1977), and a personality inventory which assesses neuroticism, extroversion, and social desirability (the Eysenck Personality Inventory; Eysenck & Eysenck, 1968). Subjects also completed a story exercise used to derive hope scores (the Hope Scale; Gottschalk, 1974, 1985) and a health questionnaire (McClelland & Jemmott, 1980).

Ten weeks later subjects completed the identical health questionnaire but were asked to include only those problems and conditions experienced in the time period since the initial testing.

Measures

Measure of hope

Given our perspective that hope is an emotion with cognitive, extra-rational, and affective elements, we did not believe that traditional self-report methods of assessing hope were adequate. For example, although Snyder, et al. (1991) have developed a 12 item self-report "Hope Scale" this group has chosen to conceptualize hope as a "cognitive set" (Snyder, et al., p. 570). In contrast, Staats (1989) has acknowledged that hope may contain cognitive and affective components and has attempted to assess both dimensions, the former via the author's (self-report) "Hope Index", and the latter through a modification of Bradburn's (1969) Affective Balance Scale, (the "Expected Balance Scale").

While we are more sympathetic to Staats' general approach to hope; we do not believe the reliance upon a second self-report measure to capture the affective realm is appropriate. For these reasons we chose to measure hope using an adaptation of Gottschalk's (1974) Hope Scale, which relies on content analysis. Subjects were asked to write about the most significant life event they had experienced in the past four years in as much detail as possible. Four raters read and scored each story for seven criteria (4 indicating presence of hope, 3 indicating absence of hope). The interrater agreement was .61. The percent agreement in terms of presence or absence of hope was .88. To avoid concerns about reliability, scores were summed across the four raters for each subject in the same manner employed by Peterson and Seligman (1987) in their assessment of pessimistic attributional style through content analysis of verbatim explanations, i.e., their CAVE technique.

Measure of health outcomes

Health outcomes at Times 1 and 2 were measured through a standard questionnaire (McClelland & Jemmott, 1980) that asks subjects to report all specific illnesses they have had in the past 30 days (including acute illnesses, e.g., colds, flu, minor infections; chronic problems, e.g., back conditions, chronic bronchitis; and chronic-intermittent illnesses that persist over time but intermittently remit such as asthma and allergies).

A blind rater classified the illnesses into the three categories of; acute, chronic, and chronic intermittent illnesses. A reliability check of this process using a second blind rater and 20 random illnesses showed 100% agreement. We computed a fourth health variable, namely, total illness, by summing across the number of acute, chronic, and chronic intermittent illnesses.

Finally, subjects were asked to indicate the discomfort associated with each illness on a scale from 0 (none) to 9 (agony), and the total duration in units of days for each illness. We calculated a total severity score by summing across the discomfort ratings associated with the illnesses. A total duration score was calculated by summing across the days listed for each illness.

Results

In Table 1 (see below) we present the Pearson correlations for scores on Gottschalk's (1974) Hope Scale, optimism scores from the Life Orientation Test, and depression scores obtained from the Center for Epidemiological Studies Depression Scale (CESD). As expected, scores on the measures of hope and optimism were inversely related to CESD depression scores. It is worth noting that, while scores on the measures of hope and optimism were significantly correlated, only 16 % of the variance in hope scores is explained by scores on the optimism scale. This pattern of findings offers some further evidence on the validity of Gottschalk's (1974) Hope Scale and Scheier and Carver's (1987) Life Orientation Test as well as the uniqueness of the constructs, hope and optimism.

Table 1

Validity Coefficients for Optimism (Life Orientation Test), Hope

(Gottschalk Scale), and Depression (Center for

Epidemiological Studies-Depression Scale) (n = 46)

	Hope Scores	Depression Scores
Optimism Scores	.40*	-.28
Hope		-.14

* p < .01

In Table 2 (see below) optimism and hope scores are correlated with reports of illness collected at the start of the semester. To adjust for the number of comparisons we applied the more stringent alpha level of .01. As table 2 shows, none of the correlations were statistically significant at this level. Nevertheless, it is interesting that nearly all of the correlations in Table 2 carry a negative sign. The one exception to this pattern are the scores on the Hope Scale and reported number of chronic illnesses. The correlation between these two variables was positive, although non-significant ($r = .26, p = .045$)

Table 2

Correlations for Time 1 Optimism (Life Orientation Test), Time 1 Hope (Gottschalk Scale), and Time 1 Health

	Total Illness	Acute Illness	Chronic Illness	Chronic-Intermittent Illness	Illness Severity	Illness Duration
Optimism ($n = 46$)	-.25	-.05	-.26	-.13	-.25	-.22
Hope ($n = 42$)	-.04	-.23	.26	.04	-.11	-.31

Table 3 (below) contains the correlations of scores on the hope and optimism measures obtained at the start of the semester with reports of illness collected ten weeks later. Lower scores on the Hope Scale were correlated with a higher frequency of reported total and acute illnesses. Lower scores on both the hope and optimism measures were correlated with reports of greater severity of illness.

Table 3

Correlations for Time 1 Optimism (Life Orientation Test), Time 1 Hope (Gottschalk Scale), and Time 2 Health: (Ten-Week Time Lag)

	Total Illness	Acute Illness.	Chronic Illness	Chronic- Intermittent ills.	Illness Severity	Illness Duration
Optimism ($n = 48$)	-.33	-.30	-.15	-.18	-.41*	-.10
Hope ($n = 44$)	-.39*	-.41*	.11	-.30	-.52*	-.30

* $p < .01$

The effect of potentially confounding variables on the measures of hope and optimism is presented in Tables 4 and 5 (see below). Table 4 displays the correlations between scores on the measures of hope and optimism, and the four potential confounding variables. Scores on the Eysenck and Eysenck (1968) Neuroticism Scale were significantly correlated with optimism scores, but none of the potential confounding variables were significantly correlated with hope scores. Based on these findings and the correlations involving scores on the hope and optimism measures, and Time 1 health outcomes, we partialled (factored) out Neuroticism and Time 1 health scores from the correlations between scores on the optimism measure and Time 2 health reports. We also partialled (factored) out Time 1 health scores from the correlations between scores on the Hope Scale and Time 2 health reports.

Table 4

Correlations for Optimism (Life Orientation Test), Hope (Gottschalk Scale), and Potential Confounds

	Neuroticism	Social Desirability	Extroversion	Depression
Optimism ($n = 48$)	-.59*	.02	.17	-.28
Hope ($n = 45$)	-.02	-.22	-.14	-.06

* $p < .01$

In Table 5 partial correlations show the relative effects of potential confounds on the relationships involving optimism and hope scores obtained in September, and illness reports solicited ten weeks later. When scores on the Neuroticism Scale were partialled out of the correlation involving optimism scores and health reports, the predictive power of optimism, as measured by the Life Orientation Test, was diminished considerably. None of the partial correlations involving scores on the optimism measure and health reports were significant. In contrast, Time 1 health outcomes did not have the same effect on Gottschalk's (1985) Hope Scale. Scores on the Hope Scale showed a significant (partial) correlation with reported frequency of total illnesses, and reports of illness severity.

Table 5

Time 1 Optimism (Life Orientation Test), Time 1
Hope (Gottshalk Scale), and Health at Time 2, with Neuroticism
and Time 1 Health Controlled

Time 1	Health Variables at Time 2			
Variable (Controlled for)	Total Illness	Acute Illness	Illness Duration	Illness Severity
Optimism (Neuroticism) ($n = 48$)	-.26	-.23	-.05	-.32
Optimism (T1 Health) ($n = 48$)	-.23	-.32	-.02	-.33
Hope (T1 Health) ($n = 44$)	-.45*	-.34	-.21	-.48*

$p < .01$

Discussion

Summary of Findings

The presumed relationships involving hope, optimism, and health outcomes were largely supported in the present study. Lower optimism scores, obtained from Scheier and Carver's (1987) Life Orientation Test at Time 1, were significantly correlated with reports of greater illness severity 10 ten weeks later. However, after we controlled for scores on a measure of Neuroticism or reports of time 1 health, we found the resulting partial correlations statistically nonsignificant. In contrast lower hope scores on Gottschalk's (1985) Hope Scale were correlated with a greater frequency of reported total illnesses and reports of greater severity of illness after controlling for the potentially confounding effects of reported illnesses at Time 1.

In the present sample neuroticism did not erode the optimism-health relationship in as drastic a fashion as reported by Smith, Pope, Rhodewalt, and Poulton (1989).

Scores on Gottschalk's (1974) Hope Scale were not significantly correlated with neuroticism, depression, or extroversion and were less affected by Time 1 illness scores. It therefore appears that scores on the Hope Scale are a more robust predictor of reported health outcomes than optimism as measured by Scheier and Carver's (1987) Life Orientation Test.

Additional research with Gottschalk's (1985) Hope Scale and the Life Orientation Test, employing a larger sample size and greater statistical power is recommended. There were several interesting observations that did not meet the more stringent criterion of an alpha level of .01 but which met the criterion of a .05 alpha level. These observations included optimism scores and the potentially confounding effects of depression scores, as well as hope scores and reports of chronic versus acute illnesses, and suggestions of links between hope scores and reports of duration of illness. Further investigation might clarify these points. Researchers might also extend the time between the initial measurement of hope or optimism and subsequent measurements of health outcomes. In Scheier and Carver's (1987) initial prospective study of optimism and health, the time lag was four weeks. We extended the time frame to 10 weeks in the current study.

Contrasting Hope and Optimism

Several of our findings suggest important differences between hope and optimism. While these scores were significantly correlated, only 16 % of the variance in hope scores was explained by the variation in optimism

scores. Over one-third of the variance in optimism scores was explained by the variance in neuroticism scores. Hope scores were essentially unrelated to neuroticism scores ($r = -.02$).

An assessment of the first order correlations involving optimism scores, hope scores, and reports of health outcomes, show further differences between these two emotions. While both (Time 1) optimism scores and (Time 1) hope scores were significantly related to (Time 2) ratings of illness severity, only (Time 1) hope scores were significantly related to the number of total illnesses and acute illnesses at Time 2.

There is one additional set of first order correlations that deserves further mention. We noted above in Table 2, that most of the correlations involving hope and optimism scores with illness variables carried a negative sign. However reports of chronic illness at Time 1 were correlated

with *lower* optimism scores but *higher* hope scores. Both of these correlations were significant at the .05 alpha level, but not at the more stringent .01 level. It may be understandable why chronic illness might lead to less optimism, but why might such a state of affairs lead to increased Hope? Following Godfrey's (1987) philosophical analysis of hope, we might consider two forms of hope, an aim directed or goal oriented form which Godfrey (1987) calls "ultimate hope", and a more generalized form that he refers to as "fundamental hope". Translating these concepts into more traditional psychological terms we might refer to the former as state hope and the latter as trait hope. Using this distinction we could view one form of hope, i.e., state hope, as a type of "emergent property" engendered by serious, and/or persistent illness and other profound life challenges. As Pruyser has stated, it may well be (in some cases) that "Hope presupposes a tragedy" (Pruyser, 1986, p. 122). In contrast, trait hope might function as a generalized disposition that facilitates successful adaptation to serious life events (see also, Snyder, et al., 1991)

Why should hope in general, as measured in the present study, demonstrate a stronger association with health outcomes? There are at least two potential explanations. First, it is possible to discuss the obtained differences in terms of self-reported affective states (e.g., optimism as measured by the Life Orientation Test) versus implicit affective states (e.g., hope as measured by content analysis). McClelland (1989) has argued that implicit variables derived from content analyses of associative thought or fantasy may be rooted in emotional learning and may be more closely linked to autonomic functions, and ultimately to health outcomes.

It may also be that hope scores showed a stronger relationship with health outcomes in the present study because the two emotions are fundamentally different and serve separate roles in the process of coping with stress and life challenges. In the philosophical literature, more than one writer has suggested that hope may mediate major life events, while optimism may mediate more routine or minor hassles (see also Kanner, Coyne, Schaefer, & Lazarus, 1981). Perhaps more hopeful individuals, as compared to optimists, are better able to cope with more serious life events, and are thus less susceptible to illness.

Perception of control is another factor which may help to explain the complex connections involving hope, optimism, and illness. It has been repeatedly shown that feelings of personal control may be health promoting (Langer & Rodin, 1983; Seeman & Seeman, 1983; Seligman, 1975). Yet in certain life circumstances, e.g., experiences with chronic illness or other unremitting and aversive life events, an individual's degrees of freedom or opportunities for direct control may be severely limited. Such constrictions in the face of stress can easily lead to feelings of helplessness (Seligman, 1975). It is perhaps with respect to such situations that the distinction between hope and optimism can be especially important. For states of helplessness need not become states of hopelessness. Even where personal control is impossible and optimism fades, hope may remain and perhaps even flourish in the presence of collaborative or external control beliefs such as we discussed earlier.

Further Theoretical and Methodological Implications

A thorough assessment of hope may ultimately require a multi-modal strategy, combining self-reports, with behavioral assessments and one or more indirect methods to capture the affective and existential aspects of this emotion. Frank (1977) for one, suggested that certain "transcendent states", which may include hope, may be primarily right hemisphere mediated and largely ineffable (and therefore hard to access via self-reports).

Most of the work on hope falls into one of two categories; philosophical and literary works which emphasize the emotional, spiritual, and existential aspects of hope, and a far smaller body of empirically based psychological research that has stressed cognitive and behavioral dimensions. This pattern may be partly attributable to pragmatics. It is far easier to operationalize cognitive and behavioral constructs. One could also add the fact that it has taken until quite recently for psychology as a science to "rediscover affect" (Zajonc, 1984).

In short, there is much wisdom in the clinical, literary, and philosophical writings on hope that could shed considerable light on the psychology of this emotion. One of our tasks as psychologists may be to find better methods of operationally defining the constructs embedded in these accounts.

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