

Appraisal, Coping, Health Status, and Psychological Symptoms

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In this study we examined the relation between personality factors (mastery and interpersonal trust), primary appraisal (the stakes a person has in a stressful encounter), secondary appraisal (options for coping), eight forms of problem- and emotion-focused coping, and somatic health status and psychological symptoms in a sample of 150 community-residing adults. Appraisal and coping processes should be characterized by a moderate degree of stability across stressful encounters for them to have an effect on somatic health status and psychological symptoms. These processes were assessed in five different stressful situations that subjects experienced in their day-to-day lives. Certain processes (e.g., secondary appraisal) were highly variable, whereas others (e.g., emotion-focused forms of coping) were moderately stable. We entered mastery and interpersonal trust, and primary appraisal and coping variables (aggregated over five occasions), into regression analyses of somatic health status and psychological symptoms. The variables did not explain a significant amount of the variance in somatic health status, but they did explain a significant amount of the variance in psychological symptoms. The pattern of relations indicated that certain variables were positively associated and others negatively associated with symptoms.

Current theory and research on the relation between stressful events and indicators of adaptational status such as somatic health and psychological symptoms reflect the belief that this relation is mediated by coping processes. Presumably, these coping processes are at least moderately stable across diverse stressful situations, and so, over the long term, they affect adaptational outcomes.

The task of identifying the mechanisms through which coping may be related to outcomes has been approached from several directions. Wheaton (1983) and Kobasa (1979), for example, focused on characteristics of the personality that are antecedents of coping; Wheaton considered fatalism and inflexibility, and Kobasa considered hardiness. The assumption underlying this approach is that personality characteristics dispose the person to cope in certain ways that either impair or facilitate the various components of adaptational status. However, there is little evidence that these personality characteristics do in fact significantly influence actual coping processes (Cohen & Lazarus, 1973; Fleishman, 1984).

A second approach is to assess the way in which a person actually copes with one or more stressful events. Billings and Moos (1984), for example, assessed the ways in which individuals coped with a single recent stressful event; they found such coping to be related to depression. The assumption underlying this approach is that the way in which a person copes with one or more stressful events is representative of the way he or she copes with stressful events in general.

A third approach is to focus on characteristics of the stressful situations that people experience. Studies in which the researchers assess how people cope with situations in which they have no control over the outcome illustrate this approach (e.g., Shanahan, De-Nour, & Garty, 1976). The assumption is that people who are repeatedly in uncontrollable situations experience helplessness, become increasingly passive in their coping efforts, and ultimately experience demoralization and depression. Situations have also been characterized by the nature of the psychological threat they pose. Examples include studies of evaluation anxiety (e.g., Krohne & Laux, 1982) and loneliness (e.g., Jones, Hobbs, & Hockenbury, 1982; Schultz & Moore, 1984; Solano, Batten, & Parish, 1982), in which researchers evaluate the ways in which people cope with situations that threaten their self-esteem. In these instances any relation found between coping and long-term outcome is probably due to the person's repeatedly experiencing stressful situations that touch on a particular area of vulnerability, insofar as a single, isolated instance of poor coping is not likely to have long-term implications for health and well-being.

A fourth and more sophisticated approach, which is illustrated by the work of Pearlin and Schooler (1978), is to consider the relative contributions of personality characteristics and coping responses to psychological well-being. Pearlin and Schooler evaluated personality characteristics (mastery, self-esteem, and self-denigration) and the ways in which people cope with chronic role strains in relation to the amelioration of distress in each of four role areas: marriage, parenting, household economics, and occupation. They found that personality characteristics and coping responses had different effects that were relative to each other, depending on the nature of the stressful conditions. Personality characteristics were more helpful to the stressed person in those areas in which there was little opportunity for control, such as at work, whereas coping responses were more helpful in areas in which the person's efforts could make a difference, such as in the context of marriage.

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In our research, we draw on all of these approaches within the framework of a cognitive theory of psychological stress, which is described in the following section. We include in our analysis antecedent personality factors, actual coping processes reported by the same person in five different stressful encounters, and the appraised characteristics of those encounters. Our goal is to evaluate the contribution of each of these factors to adaptational status.

Stress and Coping Theory

The cognitive theory of psychological stress and coping on which this research is based (see Lazarus & Folkman, 1984b) is transactional in that the person and the environment are viewed as being in a dynamic, mutually reciprocal, bidirectional relationship. Stress is conceptualized as a relationship between the person and the environment that is appraised by the person as taxing or exceeding his or her resources and as endangering well-being. The theory identifies two processes, cognitive appraisal and coping, as critical mediators of stressful person-environment relationships and their immediate and long-term outcomes.

Cognitive appraisal is a process through which the person evaluates whether a particular encounter with the environment is relevant to his or her well-being and, if so, in what way. There are two kinds of cognitive appraisal: primary and secondary. In primary appraisal, the person evaluates whether he or she has anything at stake in this encounter. For example, is there potential harm or benefit to self-esteem? Is the health or well-being of a loved one at risk? A range of personality characteristics including values, commitments, goals, and beliefs about oneself and the world helps to define the stakes that the person identifies as having relevance to well-being in specific stressful transactions. In secondary appraisal the person evaluates what, if anything, can be done to overcome or prevent harm or to improve the prospects for benefit. Various coping options are evaluated, such as changing the situation, accepting it, seeking more information, or holding back from acting impulsively.

Coping refers to the person's cognitive and behavioral efforts to manage (reduce, minimize, master, or tolerate) the internal and external demands of the person-environment transaction that is appraised as taxing or exceeding the person's resources. Coping has two major functions: dealing with the problem that is causing the distress (problem-focused coping) and regulating emotion (emotion-focused coping). (For a review of this distinction in coping research, see Folkman & Lazarus, 1980; Lazarus & Folkman, 1984b.) Previous investigations (e.g., Folkman & Lazarus, 1980, 1985) have shown that people use both forms of coping in virtually every type of stressful encounter. Several forms of problem- and emotion-focused coping have been identified in previous research (Aldwin, Folkman, Schaefer, Coyne, & Lazarus, 1980; Folkman & Lazarus, 1985; Folkman, Lazarus, Dunkel-Schetter, DeLongis, & Gruen, in press). For example, problem-focused forms of coping include aggressive interpersonal efforts to alter the situation, as well as cool, rational, deliberate efforts to problem solve, and emotion-focused forms of coping include distancing, self-controlling, seeking social support, escape-avoidance, accepting responsibility, and positive reappraisal.

Cognitive appraisal and coping are transactional variables, by which we mean that they refer not to the environment or to the person alone, but to the integration of both in a given transaction. An appraisal of threat is a function of a specific set of environmental conditions that are appraised by a particular person with particular psychological characteristics. Similarly, coping consists of the particular thoughts and behaviors a person is using to manage the demands of a particular person-environment transaction that has relevance to his or her well-being.

In another report (Folkman et al., in press) in which the single stressful encounter and its immediate outcome was the unit of analysis, we examined the relations among cognitive appraisal, coping, and the immediate outcomes of stressful encounters. We used an intraindividual analysis to compare the same person's appraisal and coping processes over a variety of stressful encounters in order to understand the functional relations among these variables. The findings showed that type of coping varied depending on what was at stake (primary appraisal) and what the coping options were (secondary appraisal). For example, when people felt their self-esteem was at stake, they used more confrontive coping, self-control, escape-avoidance, and accepted more responsibility than when self-esteem was not at stake; when a goal at work was at stake, they used more planful problem solving than they used in encounters that did not involve this stake. Planful problem solving was also used more in encounters that people appraised as capable of being changed for the better, whereas distancing was used more in encounters that were not amenable to change. The findings also indicated that coping was related to the quality of encounter outcomes, but appraisal was not. Confrontive coping and distancing were associated with outcomes the subject found unsatisfactory, and planful problem solving and positive reappraisal were associated with satisfactory outcomes.

The Present Research

In this study we shift our attention away from the relations among appraisal and coping processes and their short-term outcomes that are viewed within the context of a specific stressful encounter. We focus instead on the relation between (a) appraisal and coping processes that are aggregated across stressful encounters and (b) indicators of long-term adaptational status.

Appraisal and coping processes should be characterized by at least a moderate degree of stability across stressful encounters if such processes are to have an impact on adaptational status. For example, a coping strategy such as confrontation, which involves a high degree of mobilization, is not likely to affect somatic health unless it is used by the person over and over again, and, similarly, a single act of self-blame is not likely to result in low morale or depression; many instances would be required (Lazarus & Folkman, 1984a).

The issue of stability in the ways in which people appraise and cope with diverse stressors remains relatively unaddressed at the empirical level. Several investigators found that situational appraisals of control were not related to dispositional beliefs about control (Folkman, Aldwin, & Lazarus, 1981; Nelson & Cohen, 1983; Sandler & Lakey, 1982), suggesting that situational appraisals of control may be more variable than stable. With respect to coping, the evidence to date suggests that coping efforts across

different types of situations are more variable than stable. Menaghan (1982) found greater support for specificity of coping according to role areas than for generalized coping styles across role areas in her analysis of the Chicago Panel Data (Menaghan, 1982; Pearlin, Lieberman, Menaghan, & Mullan, 1981; Pearlin & Schooler, 1978). Folkman and Lazarus (1980) found that people were more variable than stable in their relative use of problem- and emotion-focused coping across approximately 13 stressful encounters. In a later analysis of these data (Aldwin et al., 1980), in which eight (rather than two) forms of coping were evaluated, people were found to use certain forms of coping such as wishful thinking and positive reappraisal more consistently than other forms such as self-blame. An exception to this pattern was reported by Stone and Neale (1984), who found that people tended to be consistent in coping with similar types of stress on a day-to-day basis; however, they did not evaluate consistency with respect to diverse sources of stress.

The limited available evidence suggests that appraisal and coping processes may not be characterized by a high degree of stability. Yet theoretically there should be at least some stability that is due to the influence of personality characteristics such as those studied by Wheaton (1983), Kobasa (1979), and Pearlin and his colleagues (Menaghan, 1982; Pearlin et al., 1981; Pearlin & Schooler, 1978). Stability could also derive from the person being in the same kinds of environmental conditions (Stone & Neale, 1984).

Our purpose is to evaluate the extent to which people are stable in their primary and secondary appraisal and coping processes across diverse stressful encounters, and to determine the extent to which these processes, apart from the personality characteristics that might influence them, make a difference in adaptational status.

Method

Sample

The sample consisted of 85 married couples living in Contra Costa County, California, with at least one child at home. The sample was restricted to women between the ages of 35 and 45; their husbands, whose ages were not a criterion for eligibility, were between the ages of 26 and 54. In order to provide comparability with our previous community-residing sample (Folkman & Lazarus, 1980), the people selected for the study were Caucasian, primarily Protestant or Catholic, and had at least an eighth-grade education, an above-marginal family income (\$18,000 for a family of four in 1981), and were not bedridden.

Qualified couples were identified through random-digit dialing. Prospective subjects received a letter explaining the study, then a telephone call from a project interviewer who answered questions and requested a home interview. Of the qualified couples who received letters, 46% agreed to be in the study. The acceptance rate was comparable with that of our previous field study, and not unexpected given that both members of the couple had to be willing to participate. The average age of the women was 39.6, and that of the men was 41.4. The average subject had 15.5 years of education, and the median family income was \$45,000. Eighty-four percent of the men and 57% of the women were employed for pay. People who refused to be in the study differed from those who participated only in years of education (a mean of 14.3 years). Ten couples dropped out of the study; this was an attrition rate of 11.8%. The data from these couples were excluded from the analysis; this yielded a final sample of 75 couples. Interviews were conducted in two 6-month waves from September 1981 through August 1982.

Procedures

Subjects were interviewed in their homes once a month for 6 months. Husbands and wives were interviewed separately by different interviewers on the same day and, if possible, at the same time. Interviews lasted about 1½ to 2 hours. The data reported in this article were gathered during the second through sixth interviews.

Measures

The second through sixth interviews were devoted primarily to the reconstruction of the most stressful event that the subject had experienced during the previous week. The interviewer used the Stress Interview, a structured protocol developed for this study, to elicit information about multiple facets of the event. We drew upon questions about the subject's cognitive appraisal of the stressful encounters that were reported, and the ways in which the subject tried to manage the demands of those encounters. These questions are described in the paragraphs that follow. Additional questionnaires, which are also described in the paragraphs that follow, were administered in order to assess personality characteristics and adaptational status.

Antecedent variables included the personality traits of mastery, interpersonal trust, self-esteem, values and commitments, and religious beliefs. These variables were selected on both theoretical (e.g., Folkman, Schaefer, & Lazarus, 1979; Lazarus & DeLongis, 1983; Lazarus & Folkman, 1984a, 1984b) and empirical (e.g., Pearlin & Schooler, 1978; Rotter, 1980) grounds.

Mastery was measured during the second interview with a scale developed by Pearlin and his associates (cf. Pearlin & Schooler, 1978) for use with a community-residing adult sample. The scale assesses the extent to which one regards one's life chances as being under one's control in contrast to being fatalistically determined. Subjects responded on a 4-point Likert scale about the extent to which they agreed or disagreed with the following statements:

I have little control over the things that happen to me.

There is really no way I can solve some of the problems I have.

There is little I can do to change many of the important things in my life.

I often feel helpless in dealing with the problems of life.

Sometimes I feel that I'm being pushed around in life.

What happens to me in the future mostly depends on me.

I can do just about anything I really set my mind to do.

In this study the internal consistency of the scale (alpha) was .75.

Interpersonal trust was measured during the third interview with a substantially shortened version of Rotter's (1980) Interpersonal Trust Scale. Subjects responded on a 5-point Likert scale about the extent to which they agreed or disagreed with the following statements:

In dealing with strangers one is better off to be cautious until they have provided evidence that they are trustworthy.

Most people can be counted on to do what they say they will do.

The judiciary is a place where we can all get unbiased treatment.

It is safe to believe that in spite of what people say, most people are primarily interested in their own welfare.

Most people would be horrified if they knew how much news that the public hears and sees is distorted.

In these competitive times one has to be alert or someone is likely to take advantage of you.

Most salesmen are honest in describing their products.

Most repairmen will not overcharge even if they think you are ignorant of their specialty.

Most elected public officials are really sincere in their campaign promises.

The alpha for the version of the Interpersonal Trust Scale used in this study was .70.

Three other personality characteristics were assessed, but were not included in the analysis: self-esteem, values and commitments, and religious beliefs. Self-esteem was measured with the Rosenberg (1965) Self-Esteem Scale during the second interview. Preliminary analyses indicated that the measures of self-esteem and mastery were highly correlated ($r = .65$) and showed virtually the same pattern of relations with the other variables in the system. Because of its redundancy with mastery and its potential overlap with the self-esteem component of depression, which is included in the measure of psychological symptoms, self-esteem was not included in further analysis.

Values and commitments and religious beliefs were also measured with scales developed for this study. The Values and Commitments Scale was adopted from Buhler's (1968) work in order to assess the qualities or things that an individual might value or feel committed to. A factor analysis of the 70-item scale produced eight subscales: self-actualization, success, adherence to authority, comfort and security, self-indulgence, traditional family life, mastery and challenge, and accepting hardship. Religious beliefs were measured with a 17-item checklist. A factor analysis of this questionnaire produced three subscales: religiosity, atheism, and fatalism. Values and commitments and religious beliefs were not included in the analysis because preliminary evaluation indicated that they were related neither to the outcome variables nor to any other variables in the system.

Primary appraisal (of what was at stake) was assessed as part of the Stress Questionnaire, which was administered in interviews 2-6. It was measured with 13 items that described various stakes people might have in a specific encounter. Subjects indicated the extent to which each stake was involved on a 5-point Likert scale. Two subscales, previously identified through factor analysis (Folkman et al., in press), were used in this study: self-esteem, a six-item scale that comprised items such as the possibility of "losing the affection of someone important to you," "losing your self-respect," and "appearing incompetent" (alpha averaged over five administrations was .78); and concern for a loved one's well-being, a three-item scale that included the possibilities of "harm to a loved one's health, safety or physical well-being," "a loved one[s] having difficulty getting along in the world," and "harm to a loved one's emotional well-being" ($\alpha = .76$). The remaining items ("not achieving an important goal at your job or in your work," "harm to your own health, safety, or physical well-being," "a strain on your financial resources," and "losing respect for someone else") were used as individual items in the analysis.

Secondary appraisal (of coping options) was measured with four items from the Stress Questionnaire. Subjects indicated on a 5-point Likert scale the extent to which the situation was one "that you could change or do something about," "that you had to accept," "in which you needed to know more before you could act," and "in which you had to hold yourself back from doing what you wanted to do."

Coping was assessed as part of the Stress Questionnaire with the 66-item revised Ways of Coping Checklist (Folkman & Lazarus, 1985; Folkman et al., in press). The checklist contained a broad range of coping and behavioral strategies that people use to manage internal and external demands in a stressful encounter. A factor analysis, which we described in a prior report (Folkman et al., in press), produced eight scales: *confrontive coping* (e.g., "stood my ground and fought for what I wanted," "tried to get the person responsible to change his or her mind," "I expressed anger to the person(s) who caused the problem"; $\alpha = .70$); *distancing* (e.g., "went on as if nothing had happened," "didn't let it get to me—refused to think about it too much," "tried to forget the whole thing," "made light of the situation; refused to get too serious about it"; $\alpha = .61$); *self-control* (e.g., "I tried to keep my feelings to myself," "kept others from knowing how bad things were," "tried not to burn my bridges, but

leave things open somewhat"; $\alpha = .70$); *seeking social support* (e.g., "talked to someone who could do something concrete about the problem," "accepted sympathy and understanding from someone"; $\alpha = .76$); *accepting responsibility* (e.g., "criticized or lectured myself," "realized I brought the problem on myself," "I apologized or did something to make up"; $\alpha = .66$); *escape-avoidance* (e.g., "wished that the situation would go away or somehow be over with," "tried to make myself feel better by eating, drinking, smoking, using drugs or medications, etc.," "avoided being with people in general," "slept more than usual"; $\alpha = .72$); *planful problem solving* (e.g., "I knew what had to be done, so I doubled my efforts to make things work," "I made a plan of action and followed it," "came up with a couple of different solutions to the problem"; $\alpha = .68$); and *positive reappraisal* (e.g., "changed or grew as a person in a good way," "I came out of the experience better than I went in," "found new faith," "I prayed"; $\alpha = .79$).

The *adaptational status* (outcome) variables were extent of psychological symptoms and somatic health status. *Psychological symptomatology* was assessed with the Hopkins Symptom Checklist (HSCL), which was developed by Derogatis and his colleagues (Derogatis, Lipman, Covi, Rickels, & Uhlenhuth, 1970; Derogatis, Lipman, Rickels, Uhlenhuth, & Covi, 1974). It is a 58-item scale that has demonstrated a sensitivity to low levels of symptoms in normal populations (Rickels, Lipman, Garcia, & Fisher, 1972; Uhlenhuth, Lipman, Balter, & Stern, 1974) and a relatively high stability over an 8-month period (test-retest coefficient approximately .70) in a comparable population (Kanner, Coyne, Schaefer, & Lazarus, 1981). The HSCL was completed by subjects during the week before their final interview. It contains five subscales, but because of high intercorrelations among the subscales, and a similar patterning of relations between the subscales and the other variables in the study, we used the sum of ratings as a single score. *Somatic health* was assessed in the sixth interview with a self-report questionnaire adopted with minimal modification from that used by the Human Population Laboratory (Belloc & Breslow, 1972; Belloc, Breslow, & Hochstim, 1971). It contains questions about a wide variety of chronic conditions and specific somatic symptoms, as well as disability in working, eating, dressing, and mobility (cf. DeLongis, Coyne, Dakof, Folkman, & Lazarus, 1982). Subjects were assigned to one of four levels of health (disabled, chronically ill, symptomatic, and healthy), according to their most serious health problem, with low scores indicating poor health. Items that pertained to the person's overall energy level were excluded from the scoring because of their overlap with psychological symptoms. The scale has been found to be acceptably reliable and valid in comparison with medical records (Andrews, Schonell, & Tennant, 1977; Meltzer & Hochstim, 1970).

Two additional measures of adaptational status—the Center for Epidemiologic Studies Depression Scale (CES-D; Radloff, 1977) and the Bradburn Morale Scale (Bradburn, 1969; Bradburn & Caplovitz, 1965)—were also used in the study. These scales were highly correlated with the HSCL ($r_s = .72$ and $-.56$, respectively) and with each other ($r = -.74$), and showed a similar patterning of correlation with the other variables in the system. Because of their apparent redundancy with the HSCL, the CES-D and the Bradburn Morale Scale were not included in this analysis.

Results

Four sets of variables—personality characteristics (mastery and interpersonal trust), primary appraisal (measured with the six stakes indices), secondary appraisal (measured with the four indices of coping options), and coping (measured with the eight coping scales)—were used in the analysis in order to explain somatic health status and psychological symptoms. Paired *t* tests were used to determine whether the responses of husbands and wives differed within each of the four sets of predictor variables. We determined significance with the Dunn Multiple Comparison test. There were no significant gender differences in personality

characteristics, secondary appraisal, or coping. There was a significant difference in primary appraisal because of two stakes: wives endorsed concern for a loved one's well-being more than did their husbands, and husbands endorsed concern about a goal at work more than did their wives. Given the absence of gender differences in three of the four sets of variables and the small gender difference in the fourth set, responses were pooled for the analyses to be reported.¹

Stability

The stability of each of the primary and secondary appraisal and coping variables was estimated with autocorrelations across the five measurement occasions, as shown in Table 1.

The mean autocorrelations of the primary appraisal of stakes indices ranged from .12 to .37, the secondary appraisal indices from .12 to .24, and the coping scales from .17 to .47.

Bivariate Correlations

The primary appraisal, secondary appraisal, and coping scores were aggregated across five occasions, and a mean was calculated for each variable. The intercorrelations within each set of predictor variables, including mastery and interpersonal trust, which were assessed one time only, are shown in Table 2.

The correlations between the personality variables (mastery and interpersonal trust) and appraisal and coping ranged from .01 to .37; most of the *r*s were below .20.

The correlations between the four sets of predictor variables and the two outcome variables are shown in Table 3. Eleven of the 20 correlations with somatic health status were significant; these were all weak to moderate, and none exceeded .30.

There were 17 significant relations out of 20 with psychological symptoms, 10 of these exceeding .30. Both of the personality variables, all of the primary appraisal variables, and all but one of the coping variables were significantly correlated with symptoms. The secondary appraisal variables showed weaker relations with psychological symptoms; only two of the four coping options showed significant correlations.

Multiple Regression Analyses

Somatic health. In hierarchical regression analyses, four sets of predictor variables (personality variables, primary appraisal, secondary appraisal, coping) were regressed on somatic health status. One of the stakes scales, concern with own physical well-being, was eliminated from the set of primary appraisal variables because it was confounded with the outcome variable. The regression equation did not achieve significance. Although the four sets of independent variables accounted for 16% of the variance in somatic health, the adjusted R^2 was less than 1%.

Psychological symptoms. Using psychological symptoms as the dependent variable, we performed a series of multiple regression analyses. First, the four sets of predictor variables were entered hierarchically. In each case the personality variables were always entered first because in our theoretical framework they are antecedents of appraisal and coping processes. The order in which the appraisal and coping variables were entered was rotated in order to evaluate their relative contributions to the total variance accounted for by the regression models. The secondary ap-

Table 1
Mean Autocorrelations of the Predictor Variables
Across Five Occasions

Predictor variable	Mean autocorrelations
Primary appraisal (stakes)	
Self-esteem	.37
Loved one's well-being	.12
Own physical well-being	.20
Goal at work	.25
Financial security	.22
Respect for another person	.21
Secondary appraisal (coping options)	
Could change the situation	.15
Must accept situation	.16
Need to know more before acting	.12
Have to hold back	.24
Coping	
Confrontive coping	.21
Distancing	.32
Self-controlling	.44
Seeking social support	.17
Accepting responsibility	.26
Escape-avoidance	.40
Planful problem solving	.23
Positive reappraisal	.47

praisal variables did not significantly explain variance in the outcome variable regardless of their position in the equation, and they were eliminated from further analyses.

A regression analysis was then performed with three sets of predictor variables entered in the following order: personality variables (mastery and trust), primary appraisal variables (six stakes scales), and coping (eight coping scales). Together, these variables explained 43% of the variance; the adjusted R^2 was .36. The personality variables accounted for 18% of the variance ($p < .001$), whereas the primary appraisal variables accounted for an additional 17% ($p < .001$), and the coping variables accounted for an additional 9% ($p = .02$). When the ordering of the primary appraisal variables and the coping variables was switched in order to determine which explained a greater proportion of variance in psychological symptoms, the coping variables accounted for 20% ($p < .001$) of the variance beyond that accounted for by the personality variables, and the primary appraisal variables accounted for an additional 5% ($p = .099$) of the variance. The overlap between primary appraisal and coping that these analyses revealed is consistent with previous findings that indicated that they were strongly related within stressful encounters as well (Folkman et al., in press).

Because there is no theoretical basis for ordering primary appraisal and coping variables when they are aggregated across

¹ For purposes of statistical analysis, we treated our subjects as independent of their spouses. In so doing, we may have overestimated the available degrees of freedom. To examine this possibility, we adjusted the degrees of freedom to reflect the *N* of couples rather than the *N* of individuals. Several bivariate correlations that were significant ($p < .05$) became nonsignificant with the restricted degrees of freedom. However, in the key regression analysis, in no case did an *F* statistic or a part correlation that was previously significant ($p < .05$) become nonsignificant.

Table 2
Intercorrelations Within Sets of Predictor Variables

Variable set	1	2	3	4	5	6	7	8	M	SD
Personality variables										
1. Mastery	1								23.55	3.51
2. Interpersonal trust	.23	1							27.45	4.58
Primary appraisal (stakes)										
1. Self-esteem	1								10.12	3.29
2. Loved one's well-being	.35	1							6.04	1.88
3. Own physical health	.18	.45	1						1.91	0.79
4. Goal at work	.36	-.07	.08	1					1.96	0.88
5. Financial security	.10	.27	.28	.36	1				1.78	0.82
6. Respect for another	.46	.25	.17	.28	.22	1			2.02	0.84
Secondary appraisal (coping options)										
1. Could change	1								1.68	0.87
2. Must accept	-.42	1							2.60	0.87
3. Need to know more	.21	-.03	1						1.45	0.83
4. Have to hold back	-.15	.05	.17	1					1.81	0.98
Coping scales										
1. Confrontive coping	1								3.94	2.09
2. Distancing	.14	1							3.05	1.78
3. Self-controlling	.50	.42	1						5.77	2.87
4. Seeking social support	.51	.00	.37	1					5.40	2.40
5. Accepting responsibility	.48	.46	.51	.28	1				1.87	1.44
6. Escape-avoidance	.52	.35	.44	.38	.55	1			3.18	2.48
7. Planful problem solving	.39	.16	.52	.38	.26	.20	1		7.25	2.35
5. Positive reappraisal	.40	.13	.46	.45	.23	.26	.49	1	3.48	2.96

Table 3
Correlations Between Predictor Variables and Measures of Adaptational Status

Predictor variable	Psychological symptoms	Health status
Person variables		
Mastery	-.30***	.20**
Interpersonal trust	-.35***	.08
Primary appraisal (stakes)		
Self-esteem	.38***	-.20**
Concern for loved one	.15*	-.14*
Financial strain	.25**	-.10
Goal at work	.22**	-.01
Lose respect for another	.37***	-.14*
Harm to own physical well-being	.30***	-.26***
Secondary appraisal (options for coping)		
Could change the situation	-.10	.02
Must accept the situation	-.08	.05
Need to know more	-.14*	.08
Have to hold back	.32***	-.21**
Coping		
Confrontive	.47***	-.17*
Distancing	.19**	-.22**
Self-controlling	.32***	-.16*
Seeking social support	.27**	-.01
Accepting responsibility	.37***	-.25**
Escape-avoidance	.51**	-.24*
Planful problem solving	.09	-.07
Positive reappraisal	.19**	.00

* $p < .05$. ** $p < .01$. *** $p < .001$.

encounters, and because the regression analyses provided no empirical basis for ordering, the primary appraisal and coping variables were combined into one set for a final regression analysis. In this analysis, the personality variables were entered as the first set, and the primary appraisal and coping variables as the second set. This regression analysis is summarized in Table 4.

According to the partial correlations, controlling for all the other variables in the equation showed that mastery, interpersonal trust, and concern for a loved one's well-being were negatively associated with psychological symptoms, whereas confrontive coping, concern about financial security, and concern about one's own physical well-being were positively associated with symptoms.

Discussion

The central issue of this research is whether the ways in which people cognitively appraise and cope with the internal and external demands of stressful events are related to somatic health status and psychological symptoms. Because the assumption of stability of appraisal and coping processes over occasions underlies this issue, we give our attention first to our findings regarding stability, and then turn to the relations among the personality variables, appraisal, coping, and adaptational status.

The Stability of Appraisal and Coping Processes

On the whole the coping variables tended to have higher autocorrelations than did the primary and secondary appraisal

Table 4
Regression Analysis: Psychological Symptoms on Person Characteristics and Aggregated Primary Appraisal and Coping Variables

Predictor variables	R^2	Part correlation
Personality characteristics		
Interpersonal trust		-.16**
Mastery	.18***	-.14**
Primary appraisal (stakes) and coping variables		
Confrontive coping		.14**
Concern for loved one's well-being		-.14**
Concern for own physical well-being		.14**
Concern with finances		.13**
Planful problem solving		-.11*
Escape-avoidance		.10
Self-control		.07
Accepting responsibility		.06
Goal at work		-.06
Self-esteem		.05
Positive reappraisal		-.04
Distancing		-.03
Seeking social support		.01
Losing respect for another	.43***	.00

Note. Change in R^2 is .25, which is significant at $p < .01$.

* $p < .10$. ** $p < .05$. *** $p < .01$.

variables. This pattern could be the result of the greater inherent reliability of the multi-item coping scales (alphas ranged from .61 to .79) in comparison with the other variables, which, with the exception of self-esteem stakes and concern for a loved one's well-being, were single items whose reliability is uncertain.

Although the coping scales showed more stability than the other variables, there were interesting differences in the magnitudes of their separate autocorrelations. The three coping scales with the lowest mean autocorrelation, confrontive coping (average $r = .21$), seeking social support (average $r = .17$), and planful problem solving (average $r = .23$), include virtually all the problem-focused coping strategies that were assessed. The low autocorrelations suggest that the use of these problem-focused forms of coping are strongly influenced by the situational context. Positive reappraisal had the highest mean autocorrelation (.47). A comparable scale was also the most stable in a previous study (Aldwin et al., 1980), with approximately the same level of autocorrelation over 9 months. The fact that positive reappraisal was more stable than other kinds of coping in two studies with different populations suggests that it may be more heavily influenced by personality factors than other coping strategies.

Similarly, the generally low autocorrelations among the primary and secondary appraisal variables may reflect their sensitivity to conditions in the environment. Indices that assess concern with a loved one's well-being, a goal at work, financial security, respect for another, and whether the outcome of an encounter can be altered are oriented to what is happening in the environment. The main exception both conceptually and empirically is the stakes index that assesses the extent to which a person's self-esteem is involved in an encounter. This stake

pertains more to the person's internal state than to the environment, and it is interesting to note that it also had the highest autocorrelation of the primary and secondary appraisal variables.

Relations Among the Predictor Variables

The intercorrelations within the sets of the aggregated variables measuring primary appraisal, secondary appraisal, and coping parallel those that are based on unaggregated scores (Folkman et al., in press), although the intercorrelations that are based on the aggregated variables tend to be slightly larger, especially among the coping variables. One interpretation for the larger intercorrelations is that aggregating variables over occasions led to reduced error variance (cf. Epstein, 1983). Another interpretation also fits our data. Intraindividual analysis of these same variables (Folkman et al., in press) indicated that our subjects used an average of 6.5 forms of coping in each stressful encounter. The amount of each form of coping that was used varied according to what was at stake and the appraised changeability of the encounter. In our analysis, even though subjects tended to cope differently from encounter to encounter, by the time they described how they coped with the demands of five separate encounters, they had probably drawn upon most of the available forms of coping, thus reducing variability and increasing the interrelations.

Somatic Health Status

The significant relations between appraisal, coping, and somatic health status were all negative, which indicated that the more subjects had at stake and the more they coped, the poorer their health was. In contrast, the more mastery they felt, the better their health was. However, none of the correlations exceeded .26. Given the modest bivariate correlations and the intercorrelations among the variables, it is not surprising that in combination the predictor variables did not account for significant portions of variance in somatic health status.

Lazarus and Folkman (1984b) suggest three pathways through which coping might adversely affect somatic health status. First, coping can influence the frequency, intensity, duration, and patterning of neurochemical responses; second, coping can affect health negatively when it involves excessive use of injurious substances such as alcohol, drugs, and tobacco, or when it involves the person in activities of high risk to life and limb; and third, certain forms of coping (e.g., particularly denial-like processes) can impair health by impeding adaptive health/illness-related behavior. Other writers, such as Depue, Monroe, and Shachman (1979), emphasize stable patterns of appraisal as a critical pathway through which somatic outcomes are affected.

All these pathways depend on stable patterns of appraisal and coping, which were not evident in this study. Furthermore, the pathway through which denial-like coping impedes health/illness-related behavior often depends on the presence of health-related stressors, but in this study only 48 (6%) of the 750 stressful encounters that subjects reported were directly related to health. Thus whether appraisal and coping processes do in fact affect health outcomes through the pathways just described remains uncertain.

Psychological Symptoms

Despite the lack of stability in some of the process variables, the regression analysis indicates that personality variables and aggregated appraisal and coping processes have a significant relation to psychological symptoms. Mastery and interpersonal trust were significantly correlated with psychological symptoms, even after we controlled for appraisal and coping. Mastery and interpersonal trust were conceptualized in this study as personality factors that influenced appraisal and coping processes, but the bivariate correlations indicated that they were relatively independent of these processes. Thus although these personality factors are important correlates of psychological symptoms, we are left unclear as to the mechanisms underlying this relation.

The pattern of correlations between the stakes variables and psychological symptoms indicated that in general the more subjects had at stake over diverse encounters, the more they were likely to experience psychological symptoms. The exception is having concern for a loved one's well-being, which was negatively correlated with symptoms. One interpretation of this relation is that attending to a loved one's well-being might have a salutary effect, or that people who are more other-centered than self-centered are less alienated and better off psychologically. Another interpretation, which reverses the cause-effect pattern, is that the more psychological symptoms one experiences, the more difficult it is to attend to the well-being of a loved one.

The significant part correlations between coping and psychological symptoms were confined primarily to problem-focused forms of coping. Planful problem solving was negatively correlated with symptoms, whereas confrontive coping was positively correlated. These relations parallel those found in a prior analysis of specific stressful encounters (Folkman et al., in press), in which planful problem solving was associated with satisfactory encounter outcomes, and confrontive coping with unsatisfactory outcomes. On the basis of the findings from the two studies, it is tempting to suggest that planful problem solving is the more adaptive form of coping. However, it is important not to value a particular form of coping without reference to the context in which it is used (see also Vaillant, 1977). There may be occasions, for example, when confrontive coping is the more adaptive form, as is suggested by studies of coping among cancer and tuberculosis patients (e.g., Calden, Dupertuis, Hokanson, & Lewis, 1960; Cuadra, 1953; Rogenstine et al., 1979).

The failure of individual forms of emotion-focused forms of coping to contribute significantly to adaptational status at the multivariate level may have been due to multicollinearity. Escape-avoidance, for example, which had a .51 zero-order correlation with symptoms, was also correlated with confrontive coping at .52. Theoretically we expect different forms of coping to be intercorrelated, as noted earlier. The intercorrelations, however, pose problems at the analytic level, and may mask important relations.

Conclusion

A major issue raised by this research concerns the stability of the variables that were used in the analysis. These variables represent processes that occur in specific person-environment transactions. Our research suggests that on the whole these pro-

cesses tend to be more variable than stable (see also Folkman & Lazarus, 1980). Nevertheless, they accounted for a significant amount of variance in psychological symptoms. To the extent that this finding depended on what little stability there was in the observed processes, researchers should turn their attention to how they might more effectively identify the stable aspects of stressful person-environment transactions, and the appraisal and coping processes that occur within their context.

The analysis reported here was based on a sample of just five stressful encounters. A larger sample of encounters might have revealed greater stability, particularly in emotion-focused forms of coping, and increased our ability to explain adaptational status.

Another way in which our approach may have affected the results has to do with the level of abstraction at which we assessed appraisal and coping processes. By examining specific thoughts and acts, we assessed these processes at a relatively microanalytic level. Although this procedure is necessary in order to examine the functional relations among these processes, informal observations of behavior suggest that people have characteristic ways of appraising and coping that transcend specific thoughts and acts, which a more abstract, macroanalytic approach might reveal. Unfortunately, traditional measures of coping style, such as repression-sensitization (Byrne, 1961), tend to be unidimensional and do not adequately capture the richness and complexity that characterize actual appraisal and coping processes. A major challenge in stress and coping research is to develop a method for describing stable styles of appraising and coping that does not sacrifice the cognitive and behavioral richness of these processes (Folkman & Lazarus, 1981). At this higher level of abstraction the links between appraisal, coping, and outcomes such as psychological symptoms should become clearer.

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