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Anticipatory Stress: The Relation of Locus of Control, Optimism, and Control Appraisals to Coping

E. J. PEACOCK

University of Toronto, Canada

AND

P. T. P. WONG

Trent University and University of Toronto, Canada

This paper examined the locus of control beliefs and optimism as predictors of control appraisals and coping associated with three different anticipatory stressful situations (employment decisions, teacher bias, and natural disaster). The 118 undergraduate participants completed measures of locus of control (Rotter I-E), optimism (Life Orientation Test) and control appraisals (Stress Appraisal Measure) 2 weeks prior to completing the Inventory of Coping Schemas to report their coping strategies used in dealing with each stressor. Regression analyses indicated that optimism and locus of control were relatively independent predictors of control appraisals and that control appraisals were generally better predictors of coping than either locus of control or optimism. As expected, somewhat different patterns of significant predictors were obtained for the three stressors. Results are discussed in terms of the congruence model of effective coping, which predicts relations among control appraisals and coping for various types of stressful situations. © 1996 Academic Press, Inc.

Evidence has accumulated indicating that various personality characteristics, such as locus of control and optimism, are related to how people cope with stress (e.g. Lefcourt, 1980; Scheier & Carver, 1987). For example, an optimistic orientation has been associated with increased problem-solving efforts (Scheier & Carver, 1987; Scheier, Weintraub, & Carver, 1986), especially in controllable

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situations (Scheier *et al.,* 1986). Also, internal locus of control beliefs have been found to be associated with increased problem-focused coping or more adaptive coping (Anderson, 1977; Parkes, 1984). However, the mechanisms whereby personality variables affect coping remain unclear.

The cognitive-relational theory of stress (Lazarus & Folkman, 1984) postulates that the effects of personality on coping are mediated by cognitive appraisal. More specifically, secondary appraisal (Lazarus, 1966; Lazarus & Launier, 1978) has been hypothesized as playing an important mediating role. A major function of secondary appraisal is to determine what can be done about a stressful event, or whether it is controllable (Wong & Weiner, 1981).

Control appraisals assess whether personal coping resources are capable of meeting situational demands (Folkman, 1984). Although many researchers have suggested that control perceptions are important in the coping process, only a relatively small number of studies have directly investigated the relation between control appraisals and coping. The results from these studies are often equivocal or even contradictory.

A positive association between appraisal of the situation as controllable (changeable) and problem-focused coping has been reported in several studies (Bachrach & Zautra, 1985; Folkman & Lazarus, 1980; Folkman, Lazarus, Dunkel-Schetter, Delongis, & Gruen, 1986; Vitaliano, Russo, & Maiuro, 1987). However, Forsythe and Compas (1987) found that perceived control of an event was associated with problem-focused coping for major life events but not for daily problems. Furthermore, conflicting results have been obtained concerning the relation between control appraisals and other types of coping (e.g. Folkman & Lazarus, 1985; Stone & Neale, 1984; Vitaliano *et al.,* 1987). In short, the linkage between control appraisals and coping strategies is neither clearly established nor well understood.

THE CONGRUENCE MODEL OF EFFECTIVE COPING

Recently, the congruence model of effective coping has been proposed as a conceptual framework for understanding appraisal-coping relations (Peacock, Wong, & Reker, 1993; Wong, 1993). This model extends cognitive-relational theory by specifying two mechanisms linking appraisal and coping. First, the appraisal mechanism evaluates each stressful situation on various dimensions. Second, appraisal dimensions activate specific coping schemas.

Coping schemas represent generalized knowledge about which coping strategies are effective in common stressful situations. The objective of coping schemas is to reduce stress and resolve problems. When a person is faced with a stressful situation, coping schemas determine the specific coping strategies to be utilized. The selection of coping strategies is based on accumulated knowledge of the characteristics of situations, coping responses available, and the effectiveness of these coping strategies for different situations. Each coping schema is a

fuzzy category of the coping strategies most effective for a given type of situation. Therefore, once a coping schema is activated, the coping strategies most representative of the schema or most typically effective will be selected.

To date, we have distinguished eight coping schemas. The situational schema (also referred to as problem-focused or instrumental schema) consists of strategies most effective for controllable situations. The social support schema organizes strategies that involve seeking help from others for problems that one does not have the skills or abilities to solve for oneself. The preventive schema refers to coping strategies that are aimed at anticipated problems which are controllable. The passive-emotional schema is most appropriate for highly threatening situations of central importance and involves strategies to disengage in order to control strong emotional reactions. The active-emotional schema involves emotional management strategies suited for dealing with threatening situations of less central importance. The self-restructuring schema incorporates strategies that change oneself to solve a problem that is largely brought on by one's own cognitions or behaviours. The existential schema is suited for problems involving a sense of loss, suffering, or hardship by making life more tolerable through existential acceptance and the development of personal meaning. The spiritual schema involves efforts to deal with situations perceived as humanly uncontrollable by focusing on the spiritual dimension.

The congruence model of effective coping postulates that different coping schemas are activated by different patterns of appraisals. Appraisals assess situational characteristics on dimensions that correspond to the distinguishing features of coping schemas. Once an appraisal is made about a situation, the coping schema will be activated that contains the matching set of situational features. For example, an appraisal that a situation has a high degree of controllability should activate the situational coping schema, which would in turn result in the selection of coping efforts that have been effective in controllable situations.

This congruence model provides the basis for predicting coping behavior given a variety of appraisals. Specifically, it is predicted that appraisal of an anticipated controllable event will activate both the preventive and situational schemas. It is expected that appraisal of the situation as controllable by others will trigger the social-support schema. Finally, appraisal of the problem as uncontrollable by anyone is hypothesized to result in existential and spiritual coping; the extent to which each of these schemas is activated will vary with the person's maturity and belief systems. Finally, passive-emotional and active-emotional coping are expected to be activated primarily by threat appraisals rather than control appraisals.

PERSONALITY, APPRAISAL, AND CONTROL

According to the congruence model, locus of control beliefs and optimism affect coping primarily through their impact on control appraisals. For example, a person with strong internal control beliefs is more likely to view a stressful

situation as personally controllable and this appraisal will result in increased problem-focused coping efforts. Similarly, an optimistic individual, who expects positive outcomes, is also likely to view a problem as manageable and consequently engage in more problem-focused coping.

Some previous studies have shown that locus of control beliefs are associated with control appraisals (Parkes, 1984; Vitaliano *et al.,* 1987). The linkage between optimism and appraisal is less clear. Scheier *et al.* (1986) found no relation between optimism and control appraisals; but Reker (1988) found that optimism was associated with greater perceived control over a forthcoming examination.

Conceptually, locus of control and optimism are distinct but partially overlapping constructs. Reker & Wong (1984b) proposed a two dimensional view of optimism: people's expectation of positive outcomes can be based on either confidence in one's own efficacy or an expectation of good fortune. Both internally based optimism (e.g. perceived self-efficacy) and externally based optimism (e.g. belief in good luck) may contribute to the expectation of positive outcomes (Marshall & Lang, 1990; Reker & Wong, 1984b; Scheier & Carver, 1987). By including measures of locus of control and optimism in the same study, we can determine whether these two dispositional variables independently predict appraisal.

We are also interested in how situational variables contribute to the appraisal-coping process. Surprisingly, there have been very few investigations of how situational variables influence appraisal and coping. Furthermore, the results reported have been contradictory. Some findings highlight the variability in appraisal and coping across different stressors (Folkman & Lazarus, 1980; Folkman *et al.,* 1986), whereas other results suggest considerable stability or consistency across stressors (Dolan & White, 1988; Vitaliano *et al.,* 1987). Clearly, there is a need for systematic research on the effects of situational factors on appraisal and coping. Also, as Lazarus and Folkman (1984) emphasized, it is essential that the impact of situational variables be examined concurrently with personality variables.

The present study investigated the relation of locus of control and optimism to control appraisals and coping for three anticipatory stressors that differ in perceived controllability. The first objective was to determine whether locus of control beliefs and optimism independently predict control appraisals. The second objective was to investigate whether control appraisals, locus of control, and optimism independently contribute to the prediction of coping. The third goal was to determine whether these relations, as well as ratings of control appraisals and coping, are consistent across stressors differing in controllability.

Unlike most previous investigations of control appraisals which have relied on single item measures of the controllability of stressors (e.g. Folkman & Lazarus, 1980; Folkman *et al.,* 1986; Forsythe & Compas, 1987; Vitaliano, DeWolfe, Maiuro, Russo, & Katon, 1990), this study employed multi-item measures of

control scales from the Stress Appraisal Measure (SAM; Peacock & Wong, 1990). Three relatively independent scales were utilized to assess the extent to which a stressor is perceived as controllable-by-self, controllable-by-others, and uncontrollable-by-anyone.

In this study, we are concerned with how people cope with anticipatory stress. Consequently, the stressors selected were ones that were as relevant as possible to the subjects, were judged a priori as differing in perceived controllability, and involved possible future events that could affect the subjects. By its very nature, anticipatory stress always involves hypothetical events to some extent because the events may not occur at all or may not occur as anticipated. Nevertheless, the stress experienced is real, not hypothetical.

The present study utilized a within-subjects design in which undergraduates reported their control appraisals and coping for three different anticipatory stressors, namely employment decisions, teacher bias and natural disasters. We believe this design affords the opportunity for a clear examination of how individuals appraise different anticipatory stressors in terms of controllability and whether they appropriately match their coping strategies to the appraised controllability of the stressor.

The three stressors were selected on the basis of a priori judgments to differ in terms of perceived controllability. The stress of employment decisions was expected to be appraised highest on the controllable-by-self appraisal scale because the individual ultimately has control over decisions related to job search strategies and acceptance or rejection of employment offers, regardless of the employment opportunities available. It was predicted that the threat of natural disasters would be rated highest on the uncontrollable-by-anyone appraisal scale because there is nothing that an individual or others can do to influence the occurrence of this type of stressor. It was predicted that students would perceive teacher bias in evaluation as intermediate in controllability, being less controllable-by-self than employment decisions and lower on the uncontrollable-by-anyone scale than natural disasters.

On the basis of the congruence model, it was predicted that the coping strategies utilized for each of the three stressors would match the control appraisals of the stressor. Consequently, it was predicted that situational, preventive, and self-restructuring coping would be highest for employment decisions, next highest for teacher bias, and lowest for the natural disaster stressor. On the other hand, the natural disaster stressor was expected to be associated with higher levels of existential and spiritual coping than the other two stressors. Additionally, it was predicted that in regression analyses the controllable-by-self appraisal would be a significant predictor of situational, preventive, and self-restructuring coping. The controllable-by-others appraisal was expected to be a significant predictor of social support coping. Also, it was hypothesized that the uncontrollable-by-anyone appraisal would predict existential and spiritual coping.

METHOD

Subjects

The subjects were undergraduate students enrolled in an introductory psychology course. They earned research credits for their participation. During recruitment, potential subjects were informed that to be eligible for participation in the study, they had to be seeking full-time employment for the upcoming summer. One hundred thirty-three students participated at Time 1. Two weeks later at Time 2, 118 of these students (89 females and 28 males) completed the second package of questionnaires.

Measures

Locus of control. The Rotter I-E scale (Rotter, 1966) was used as a measure of locus of control beliefs. Even though the items from this instrument load on several distinct factors (e.g., Marsh & Richards, 1986), the overall score from this measure provides an index of global control beliefs (Cohen & Edwards, 1989). The instrument consists of 29 forced-choice pairs of statements (Rotter, 1966). Six of these items are filler items and are not used for scoring purposes. Respondents are instructed to choose the one statement from each pair that they most strongly believe to be true. The scale was scored so that high scores on the scale reflect an external locus of control. The mean score was 10.7 (SD = 4.6).

Optimism. Optimism was measured by the Life Orientation Test (Scheier & Carver, 1985). The LOT consists of eight items (plus four filler items) that are designed to measure an individual's generalized expectancy for positive outcomes. The response format for each item was a 5-point scale, ranging from strongly disagree to strongly agree. Scheier and Carver (1985) have presented evidence supporting the convergent and discriminant validity of the LOT as well as evidence for its reliability. In the present study, the mean LOT score was 20.3 (SD = 4.8).

Control appraisals. Situational control appraisals were measured using three control scales from the Stress Appraisal Measure (SAM; Peacock & Wong, 1990). Each scale consists of four items and is intended to measure a different dimension of control appraisals; controllable-by-self (e.g., Do I have the ability to do well in this situation?), controllable-by-others (e.g., Is there someone or some agency I can turn to for help if I need it?), and uncontrollable-by-anyone (e.g., Is the outcome of this situation uncontrollable by anyone?). Each item is rated using a 5-point response format (1 = not at all; 5 = Extremely). Previous research has shown that items from these scales load on three relatively independent first-order factors (Peacock & Wong, 1990). In the present study, the mean internal consistency estimates were: .85, .89, .69 for the controllable-by-self, controllable-by-others, and uncontrollable-by-anyone scales, respectively.

Coping. The Inventory of Coping Schemas (ICS; Wong, Reker, & Peacock, 1991) was used to measure respondents' self-reported coping strategies. This 81-item instrument assesses a broad range of coping strategies and is an expanded version of the Coping Inventory, which has been employed in a number of studies (Greenglass, 1988; Peacock, Wong, & Reker, 1993, Wong & Reker, 1985).

Working within the context of the congruence model of effective coping (Wong, 1993), we began by identifying major types of common life problems, such as controllable situational problems, anticipated future problems, etc. The second step was to ask the basic question "What kinds of strategies would be most appropriate for this type of problem?" Coping behaviors identified by our own extensive open-ended field research as well as selected coping items from existing coping instruments were grouped into various categories. For example, all coping efforts that are capable of changing a problematic situation were categorized as situational coping. We soon realized that some of the coping categories we identified (e.g., existential, preventive, spiritual) were either not included or underrepresented in other published coping measures.

On the basis of further content analysis and empirical findings, the five broad coping categories identified in the Coping Inventory were revised and extended to yield eight coping categories or

schemas. The schemas tapped by the ICS are: (1) *Situational* (8 items focusing on one's direct actions to change a situation or solve a problem), e.g., "Confront the problem by taking appropriate actions," "Make a plan of action and follow it," "Be determined and persistent in attacking the problem." (2) *Social support* (6 items measuring reliance on others to change a situation or solve a problem), e.g., "Rely on others to do what I cannot do myself," "Receive practical help from friends," "Depend on opinions of people who have experienced similar problems." (3) *Passive-emotional* (13 items covering distancing, wishful thinking, and self-blame), e.g., "Put off doing something about the problem," "Wish that I were a different person," "Blame myself for what has happened." (4) *Active-emotional* (13 items tapping expressiveness, emotional social support seeking, and tension reduction), e.g., "Express my feelings and thoughts," "Seek emotional support from others," "Talk to myself to reduce tension." (5) *Preventive* (11 items dealing with attempts to improve one's self and conditions), e.g., "Try to improve my situation in anticipation of future needs," "Rehearse the anticipated situation in my mind," "Develop better time management skills so that I will be more efficient in the future." (6) *Existential* (10 items focusing on philosophical issues of human existence, including acceptance and attempts to create meaning and purpose), e.g., "Accept what has happened because eventually things will work out as well as can be expected," "Try to maintain a sense of contentment or fulfillment in life," "Believe that there is meaning and purpose to the things that happen to me." (7) *Self-restructuring* (11 items dealing with attempts to change one's cognitions and behaviors), e.g., "Change my attitude in view of this problem," "Change my behavior to better fit the situation," "Rearrange my activities to accommodate the situation." (8) *Spiritual/religious* (9 items related to reliance on God or religion in dealing with both existing and anticipated problems), e.g., "Believe that God watches over me," "Seek help and direction from God," "Follow religious principles."

In completing this coping instrument, respondents are asked to rate on a 5-point scale, ranging from (1) "not at all" to (5) "a great amount," the extent to which they employed each of the coping strategies in dealing with a specified problem. They are also asked to list any strategies they might have used but not covered in the instrument.

The psychometric properties of the ICS have been found to be more than adequate. The scales have good internal consistency. In the present study, Cronbach's αs for the eight coping schemas were .88 (situational), .80 (social support), .81 (preventive), .81 (passive-emotional), .80 (active-emotional), .82 (existential), .84 (self-restructuring), and .97 (spiritual/religious). Data supporting the validity of the ICS were obtained by examining intercorrelations ($N = 76$) of the ICS scales with the Ways of Coping (WOC) scales (Folkman *et al.,* 1986). The range of correlations of the WOC scales with each of the ICS scales were as follows: –.21 (escape-avoidance) to .48 (planful problem solving) for situational coping; –.14 (distancing) to .67 (seeking social support) for social support coping; –.12 (distancing) to .42 (positive reappraisal) for preventive coping; –.43 (planful problem solving) to .50 (escape-avoidance) for passive-emotional coping; –.21 (distancing) to .58 (seeking social support) for active-emotional coping; –.15 (escape-avoidance) to .51 (positive reappraisal) for existential; –.18 (escape-avoidance) to .45 (positive reappraisal) for self-restructuring coping; .00 (accepting responsibility) to .51 (positive reappraisal) for spiritual coping. Thus, ICS scales had zero to moderate negative correlations with the WOC scales that were conceptually least similar and moderate positive correlations with the WOC scales that were conceptually most similar. Nevertheless, the moderate magnitude of the positive correlations provides evidence to support our contention that the ICS measures aspect of coping not tapped by previous coping instruments, such as the WOC scales.

Additionally, it was found for this sample that a measure of perceived well-being (Reker & Wong, 1984a) was positively correlated with situational (.32) and existential coping (.25), negatively correlated with passive-emotional coping (–.41), and not significantly correlated with the other ICS scales. In another sample of undergraduates ($N = 143$), who were coping with a forthcoming examination, psychological symptomatology, as measured by the Brief Symptom Inventory (Derogatis, 1975), was significantly correlated with seeking social support (.20), active-emotional coping (.35) and passive-emotional coping (.43), but was not significantly correlated with the other ICS scales. Also, with this sample, the situational coping scale was the only ICS scale that correlated

significantly with grade achieved on a previous examination (.21) and with the grade achieved on the subsequent examination (.22). Taken together, these findings provide initial support for the validity of the ICS scales.

Procedures

At Time 1, subjects were given a questionnaire booklet consisting of the Rotter I-E scale, LOT, and the SAM with three different versions of the initial instructions. For the employment stressor, instructions directed respondents to evaluate "your future preparation and decision making regarding summer employment this year." For teacher bias, the instructions asked respondents to rate "possible future teacher bias or unfairness that may affect your final grade this year." The instructions for natural disaster, that respondents were asked to evaluate "the possibility of you being a victim of a natural disaster (e.g., hurricane, flood, earthquake, storm, etc.)."

At Time 2, 2 weeks later, subjects completed a questionnaire booklet consisting of three copies of the Inventory of Coping Schemas, with each copy addressing one of the three stressors. Thus, only the initial instructions identifying the stressor differed. For each stressor the wording used was exactly the same as for the previous appraisal ratings. Orders of the instruments were counterbalanced across subjects.

RESULTS

Appraisal and Coping across Stressors

Control appraisals. The mean control appraisal scores for each of the three stressors are shown in Table 1. As expected, the overall multivariate test of the stressor effect was significant, Wilks $\lambda = .269$, $F(6,112) = 55.26$, $p < .001$. Univariate orthogonal planned comparisons were conducted to test specific hypotheses. It was hypothesized that the employment stressor would be rated as the most controllable, the natural disaster stressor as the least controllable, and the teacher bias stressor as intermediate in controllability. As predicted, the employment stressor was appraised as significantly more controllable-by-self than teacher bias ($F = 64.86$, $df = 1/117$, $p < .001$); together, these stressors were

TABLE 1
MEAN CONTROL APPRAISAL RATINGS (ON 5-POINT SCALE) FOR EACH OF THE THREE STRESSORS

	Stressor		
Control appraisal	Employment decisions	Teacher bias	Natural disaster
Controllable-by-self			
M	4.11	3.54	3.21
SD	.62	.82	.83
Controllable-by-others			
M	3.79	3.38	3.25
SD	.78	.90	.92
Uncontrollable-by anyone			
M	1.46	1.74	2.94
SD	.59	.74	1.00

rated significantly more controllable-by-self than the disaster stressor (F = 72.41, df = 1/117, p <. 001).

Consistent with predictions, the mean rating on the uncontrollable-by-anyone dimension for the natural disaster stressor was significantly higher than for the other two stressors combined (F = 213.41, df = 1/117, p < .001). Also, the mean on this dimension for teacher bias was significantly higher than the mean for the employment stressor (F = 20.66, df = 1/117, p < .001).

In addition, teacher bias was rated significantly lower than the employment stressor on the controllable-by-others dimension (F = 21.43, df = 1/117, p < .001), but the mean for the employment and teacher bias stressors combined was significantly higher than the mean for the disaster stressor (F = 15.30, df = 1/117, p < .001). As predicted, on all three control dimensions, the means for teacher bias were intermediate to those for the employment and disaster stressors. Clearly, these findings confirm that the three stressors differed significantly in terms of appraised controllability.

Coping. Within each coping category there was considerably variability in the means across the three stressors (see Table 2). Mutivariate analysis of variance indicated that across all coping categories the overall stressor effect was significant, yielding a Wilks λ = .345 and $F(16/102)$ = 12.12, p < .001. To test specific hypotheses regarding the nature of these differences, univariate orthogonal planned comparisons were conducted. In order to control the familywise Type I error rate in this set of comparisons, the per comparison Type I error rate was set at .005. Consistent with predictions, the mean for the employment and teacher bias stressors combined was significantly higher than the mean for the natural disaster stressor in the case of situational (F = 35.52, df = 1/117, p < .005) and preventive coping (F = 30.02, df = 1/117, p < .005).

Similar comparisons indicated the natural disaster mean was significantly higher than the mean of the other two stressors combined for social support (F = 21.47, df = 1/117, p < .005), existensial (F = 8.63, df = 1/117, p < .005), and spiritual coping (F = 32.58, df = 1/117, p < .005). For both passive-emotional and active-emotional coping, the differences were not significant f.

Significantly higher levels of situational (F = 10.47, df = 1/117, p < .005) and self-restructuring coping (F = 22.89, df = 1/117, p < .005) were reported for the employment stressor than for teacher bias. For social support coping, the difference between the employment and teacher bias stressors was not significant. Overall, these analyses indicate that mean coping levels varied depending on the controllability of the stressor and, in most cases, the differences were consistent with predictions.

Regression of Control Appraisals on Locus of Control and Optimism

Multiple regression analyses were used to examine locus of control and optimism as predictors of control appraisals. For the employment stressor, locus of control and optimism predicted significant variance in the three control apprais-

TABLE 2
MEAN COPING RATINGS (ON 5-POINT SCALE) FOR THE THREE STRESSORS

Coping category	Stressor		
	Employment decisions	Teacher bias	Natural disaster
Situational			
M	3.69	3.52	3.27
SD	.63	.67	.77
Social support			
M	2.92	2.95	3.22
SD	.64	.70	.80
Preventive			
M	3.47	3.38	3.23
SD	.56	.61	.61
Passive-emotional			
M	2.14	2.22	2.17
SD	.73	.79	.67
Active-emotional			
M	2.78	2.85	2.87
SD	.56	.56	.59
Existential			
M	3.20	3.02	3.22
SD	.65	.59	.66
Self-restructuring			
M	3.23	3.05	3.10
SD	.54	.59	.60
Spiritual			
M	2.48	2.47	2.73
SD	1.23	1.25	1.28

als: controllable-by-self, $R^2 = .11$, $F(2,115) = 7.26$. $p < .01$ ($\beta_{Lot} = .22$, $\beta_{I\text{-}E} = -.20$); controllable-by-others, $R^2 = .12$, $F(2,115) = 8.11$, $p < .001$ ($\beta_{Lot} = .23$, $\beta_{I\text{-}E} = -.20$); uncontrollable-by-anyone, $R^2 = .15$, $F(2,115) = 10.08$, $p < .001$ ($\beta_{Lot} = -.17$, $\beta_{I\text{-}E} = .30$). For the teacher bias stressor; significant variance was predicted for two control appraisals: controllable-by-self, $R^2 = .16$, $F(2,115) = 10.83$, $p < .001$ ($\beta_{Lot} = .29$, $\beta_{I\text{-}E} = -.20$), and uncontrollable-by-anyone, $R^2 = .15$, $F(2,115) = 10.18$, $p < .001$ ($\beta_{Lot} = -.27$, $\beta_{I\text{-}E} = .21$). In these analyses, LOT and Rotter I-E scores were significant ($p < .05$) independent predictors, except for the controllable-by-others appraisal of the teacher bias stressor, in which case only Rotter I-E was a significant predictor. For the disaster stressor, neither LOT nor Rotter I-E scores were significant predictors for any of the three control appraisals.

Regression of Coping on Locus of Control, Optimism, and Control Appraisal

Intercorrelations of locus of control, optimism, control appraisals, and coping are shown in Table 3. Stepwise multiple regression analyses were performed to

TABLE 3
INTERCORRELATIONS FOR EMPLOYMENT (TOP PANEL), TEACHER BIAS (MIDDLE PANEL), AND DISASTER (BOTTOM PANEL) STRESSORS

	1	2	3	4	5	6	7	8	9	10	11	12	13
Employment													
1. I-E		−.30	−.28	−.29	.37	−.21	.08	−.14	.41	.04	−.06	−.22	.09
2. LOT			.28	.29	−.27	.26	−.04	.22	−.49	.03	.20	.24	.03
3. SELF				.63	−.26	.49	.12	.52	−.20	.31	.26	.44	.01
4. OTHERS					−.21	.47	.09	.42	−.20	.21	.24	.52	.10
5. UNCONT						−.23	.03	−.26	.34	−.13	−.20	−.16	.00
6. SITU							.07	.67	−.33	.28	.35	.65	.00
7. SOCSUP								.48	.23	.52	.32	.39	.18
8. PREVEN									.09	.39	.43	.68	.13
9. PAS-EMO										.54	.09	.03	.23
10. ACT-EMO											.39	.44	.15
11. EXISTN												.51	.40
12. RESTRUC													.20
13. SPIRIT													
Bias													
1. I-E		−.30	−.29	−.16	.30	−.20	.16	−.11	.37	.06	−.12	−.18	.13
2. LOT			.35	.20	−.33	.34	−.04	.20	−.49	.11	.14	.17	−.01
3. SELF				.52	−.38	.34	−.03	.28	−.26	.28	.12	.31	−.11
4. OTHERS					−.28	.41	.08	.27	−.13	.20	.12	.26	.05
5. UNCONT						−.29	.10	−.22	.35	−.03	.09	−.13	.12
6. SITU							.33	.59	−.37	.47	.21	.50	−.01
7. SOCSUP								.59	.25	.52	.34	.38	.19
8. PREVEN									.01	.64	.43	.62	.15
9. PAS-EMO										.09	.20	.06	.21
10. ACT-EMO											.36	.47	.09
11. EXISTN												.55	.31
12. RESTRUC													.16
13. SPIRIT													
Disaster													
1. I-E		−.30	−.18	−.15	.10	−.20	.10	−.12	.38	.02	−.07	−.14	.14
2. LOT			.15	.18	−.14	.24	.02	.19	−.43	.12	.15	.23	.03
3. SELF				.59	−.27	.37	−.01	.32	−.24	.22	.30	.36	.04
4. OTHERS					−.27	.43	.07	.33	−.16	.29	.30	.35	.12
5. UNCONT						−.20	.07	−.14	.18	−.04	−.20	−.18	.05
6. SITU							.37	.67	−.21	.54	.28	.72	−.02
7. SOCSUP								.44	.16	.47	.18	.41	.15
8. PREVEN									.06	.65	.42	.68	.14
9. PAS-EMO										.10	.16	−.01	.26
10. ACT-EMO											.34	.58	.12
11. EXISTN												.59	.37
12. RESTRUC													.16
13. SPIRIT													

Note. $N = 117$; I-E, Rotter Locus of Control; LOT, Life Orientation Test; SELF, Controllable-by-Self Appraisal; OTHERS, Controllable-by-Others Appraisal; UNCONT, Uncontrollable-by-Anyone Appraisal; SITU, Situational Coping; SOCSUP, Social Support Coping; PREVEN, Preventive Coping; PAS-EMO, Passive Emotional Coping; ACT-EMO, Active Emotional Coping; EXISTN, Existential Coping; RESTRUC, Self-Restructuring Coping; SPIRIT, Spiritual Coping.

examine control appraisals, locus of control, and optimism as predictors of coping. To control the familywise Type I error rate in this set of analyses, procedures recommended by Cohen and Cohen (1975) were followed. The nominal Type I error rate was set at .005 for evaluating the significance of variance predicted.

The results of these analyses are summarized in Table 4. Controllable-by-self appraisals significantly predicted situational coping for the employment stressor, but for the other two stressors the controllable-by-others appraisal was the only significant control appraisal to predict situational coping. Additionally, LOT was a significant predictor of situational coping for teacher bias. For both preventive and active-emotional coping, the controllable-by-self appraisal emerged as the only significant predictor for the employment and teacher bias stressors, whereas the controllable-by-others appraisal was the single significant predictor for the natural disaster stressor. In the case of existential coping, controllable-by-self appraisal was the only significant predictor for the employment stressor and controllable-by-others appraisal was the only significant predictor for the disaster stressor; no significant predictor of existential coping emerged for the teacher bias stressor. For self-restructuring coping, the controllable-by-others appraisal unexpectedly emerged as a significant predictor for the employment stressor; for the other two stressors, the controllable-by-self appraisal was the only significant predictor of self-restructuring coping.

The findings clearly show the important contribution of control appraisals in the prediction of situational, preventive, active-emotional, existential, and self-

TABLE 4
SUMMARY OF REGRESSION ANALYSES PREDICTING COPING FOR THE THREE STRESSORS

	Stressors					
	Employment decisions		Teacher bias		Natural disaster	
Coping	Predictor	R^2 Change	Predictor	R^2 Change	Predictor	R^2 Change
Situational	Self	.24***	Others	.17***	Others	.19***
			LOT	.07***		
Preventive	Self	.27***	Self	.08***	Others	.11***
Pas-emotion	LOT	.23***	LOT	.24***	LOT	.18***
	I-E	.08***	I-E	.05***	I-E	.07***
Act. emotion	Self	.09***	Self	.08***	Others	.08***
Existential	Self	.07***			Others	.09***
Restructuring	Others	.27***	Self	.10***	Self	.13***

Note. No significant predictors emerged for Social Support and Spiritual Coping for any of the three stressors. For clarity of presentation, only significant predictors are shown. Pas. Emotion, Passive-Emotional Coping; Act Emotion, Active Emotional Coping; Restructuring, Self-Restructuring Coping; Self, Controllable-by-Self Appraisal; Others, Controllable-by-Others Appraisal.

*** $p < .005$.

restructuring coping. For these coping schemas, the variance accounted for by a single control appraisal scale ranged from 7 to 27%. However, for passive-emotional coping, the results were strikingly different. Across all three stressors, optimism and locus of control independently predicted passive-emotional coping, but not control appraisals. There were no significant predictors found for social support and spiritual coping.

DISCUSSION

There were three main sets of findings from this study. First, there were clear and consistent differences in both control appraisals and coping across stressors. Second, optimism and locus of control beliefs were relatively independent predictors of control appraisals. Third, when coping was the criterion, control appraisals were generally better predictors than optimism and locus of control; the relations between control appraisals and coping were generally consistent with predictions from the congruence model of effective coping.

Control Appraisals and Coping across Stressors

Control appraisals. As expected, control appraisals differed across the three stressors, demonstrating that control appraisals are sensitive to stressor characteristics in a systematic, predictable manner. These results extend previous findings from studies in which different respondents rated different stressors (Folkman & Lazarus, 1980; Folkman *et al.,* 1986; Pychyl *et al.,* 1987; Vitaliano *et al.,* 1987) and provide further evidence that three separate dimensions of control appraisals vary with stressful situations.

Coping. Similar to the results for control appraisals, there was a significant multivariate stressor effect on coping. Individuals reported significantly different levels of coping across the three stressors. This confirms that perceived controllability of stress is closely associated with the amount of coping reported. This partially explains why controllable situations are generally less stressful than uncontrollable ones.

The major finding is that the differences in specific coping categories were consistent with the predictions based on the congruence model. Specifically, situational and preventive coping were significantly higher for the two controllable stressors than for the uncontrollable stressor, whereas existential and spiritual coping were significantly higher for the uncontrollable stressor than for the two controllable ones. However, passive-emotional coping, which was expected to be higher for the uncontrollable stressor than for the two controllable stressors did not differ significantly across stressors.

Although the level of coping for most coping categories varied considerably across the three stressors, both passive-emotional and active-emotional coping changed little across stressors. Thus, emotional coping appears to be less sensi-

tive to differences in the perceived controllability of stressors than the other coping schemas investigated in this study.

Very little research has been done regarding the stability of emotional coping across different stressors. Two studies (Dolan & White, 1988; Folkman *et al.,* 1986) which employed a within-subjects design and investigated different stressors did not report the extent to which coping varied across stressors. Other studies employing between-group comparisons, have produced equivocal results concerning the level of emotional coping across different stressors (e.g., Folkman *et al.,* 1986; Pychyl *et al.,* 1987). Perhaps, emotional coping is more related to individual differences in emotional reactivity than to situational differences, as suggested by studies on dispositional reactivity and emotional coping (Bolger, 1990; McCrae & Costa, 1986).

Regression of Control Appraisal on Locus of Control and Optimism

Locus of control emerged as a modest predictor of all three control appraisal dimensions. Higher levels of internal control beliefs were positively associated with perceptions of the situation as both controllable-by-self and controllable-by-others but negatively related to uncontrollable-by-anyone. Although locus of control beliefs may influence control appraisals, locus of control accounts for only a small percentage of the variance in control appraisals.

The study also shows that the relation between locus of control beliefs and control appraisals varied across the stressors. Locus of control was a significant predictor of control appraisals for the employment and teacher bias stressors, but it did not predict control appraisals for the natural disaster stressor. This finding is consistent with previous results indicating that the effects of locus of control were greater for stressors judged as offering an opportunity for change than for those offering little opportunity for change (Vitaliano *et al.,* 1987).

Optimism and locus of control contributed independently and almost equally to the prediction of control appraisals. The finding that optimism is related to control appraisals has important implications. Scheier and Carver (1985, 1987) have suggested that optimism impacts directly on coping efforts. A study by Scheier *et al.* (1986) also reported that control appraisals were unrelated to optimism. However, their failure to find a relation between optimism and control appraisals may be due to the following: (1) Respondents made retrospective reports on events that had already occurred up to two months previously; retrospective biases in recall may have attenuated the effects of optimism. (2) Respondents reported their most stressful event experienced in the previous week; different people were reporting appraisals for different stressors. It is possible that the effects of optimism may depend on the nature of the stressor. (3) A single-item measure of control appraisal with unknown psychometric properties was utilized; therefore, the measure of control appraisals may not have been reliable enough to detect the effects of optimism.

Regression of Coping on Control Appraisal, Optimism, and Locus of Control

In general, the results from the regression of coping on control appraisals, optimism, and locus of control supported predictions from the congruence model. In addition, for all coping schemas except passive-emotional coping, control appraisals emerged as better predictors of coping than optimism and locus of control across all three stressors. This provides further evidence that control appraisals are importantly linked to coping strategies, as predicted by cognitive-relational theory and the congruence model of effective coping.

The present results were generally consistent with the hypothesis that controllable-by-self appraisals would predict situational, preventive, and self-restructuring coping. Specifically, controllable-by-self appraisal significantly predicted situational coping for the employment stressor, preventive coping for the employment and teacher bias stressors, self-restructuring coping for the teacher bias and natural disaster stressors.

Unexpectedly, the controllable-by-others dimension did not predict social support coping. In fact, none of the variables significantly predicted social support coping. Use of social support represents an important means of dealing with situations that are potentially controllable but which are beyond one's own coping resources; consequently it would be expected that one's appraisal of controllability would be related to social support seeking (Heller & Swindle, 1983). Although there is a large social support literature, it has dealt mainly with social support as a stress buffer (see Cohen & Wills, 1985); little attention has been given to how cognitive appraisal is related to seeking social support under different stressful conditions.

Also unexpectedly, the uncontrollable-by-anyone dimension did not emerge as an independent predictor of any coping schema, even though it was significantly correlated with several coping schemas. In a previous cross-sectional study, perceived uncontrollability was found to predict existential and spiritual coping (Peacock *et al.,* 1993). From a congruence perspective, the perception of a stressor as uncontrollable-by-anyone is expected to elicit either passive-emotional, existential, or spiritual coping, because nothing much can be done for such a stressor, except to make oneself feel better through cognitive and spiritual means.

It was only for passive-emotional coping that optimism and locus of control beliefs emerged as better predictors of coping than control appraisals. Higher levels of external control beliefs and lower levels of optimism predicted passive-emotional coping. However, it is possible that the relation of locus of control and optimism to passive-emotional coping simply reflect the common influence of dispositional emotional reactivity. Both the LOT and Rotter I-E contain items that possibly tap negative affect; furthermore, evidence supporting such overlap between the LOT and a measure of emotional reactivity has been reported (Smith *et al.,* 1989). Future research needs to examine further the interrelations among

emotional reactivity, optimism-pessimism, internal-external beliefs, and emotional coping.

The different pattern of results found for passive- and active-emotional coping provides empirical support for the conceptual distinction between these two emotional coping categories. Optimism and locus of control were significant predictors of passive-emotional coping but not active-emotional coping. These two types of emotional coping not only may have different correlates but may also have different adaptive functions. Conceptually, passive-emotional coping is most akin to Lazarus and Folkman's (1984) view of emotion-focused coping as being those coping efforts that function to make the person feel better but that do not alter the problem. Active-emotional coping efforts, on the other hand, can potentially result in changes to the stressor itself, at least indirectly. For example, expressing one's feelings to others can result in assistance from those individuals. It is recommended that future studies investigating emotional coping differentiate between active- and passive-emotional coping.

Limitations

This study was designed to investigate self-reports of appraisal and coping for three anticipatory stressors. This design circumvented the problems associated with relying on retrospective reports of past stressful events obtained at a single point in time. Nevertheless, the present design introduced other potential concerns. One is the possibility that the stressful events were hypothetical rather than real to the subjects, even though they were ones we had determined to be generally relevant to our college sample. As our interest is in people's rational knowledge of stress and coping, the findings provide relevant information bearing on subjects' implicit theories of stress, appraisal, and coping, regardless of whether the events were real or hypothetical. An issue remaining for subsequent research is the relation between people's rational knowledge about effective coping and what they actually do in response to stressors

Another possible concern is that the stressors may have differed on one or more dimensions, other than controllability, which could account for the observed relations between control appraisals and coping. In correlational research, such confounds are prevalent; it will be important to interpret the present results cautiously until the findings can be supported by subsequent research. Additionally, this study is limited by the fact that it did not provide a direct test of whether appraisals mediate coping. The use of confirmatory approaches, such as structural equation modeling techniques, would provide a more rigorous test of this hypothesis.

Summary

Overall, the results of this study further our understanding of the association between control appraisals and coping. The findings are consistent with the

hypothesis that control appraisals provide the mechanism through which situational and broad personality variables affect coping. As well, the study makes a contribution by demonstrating how individuals vary their control appraisals and coping across the three stressors investigated. These results are inconsistent with explanations of appraisal and coping based on static personality traits, but are consistent with cognitive-relational theory.

Additionally, the results demonstrate that the congruence model provides a useful conceptual framework for systematically investigating how individuals effectively manage life stress. The model emphasizes that effective coping occurs when an individual's appraisal accurately matches situational demands and when appraisals activate congruent coping schemas. The congruence model differs from other recent conceptualizations of effective stress management (e.g., Antonovsky, 1987; Holahan & Moos, 1991) by postulating the mechanisms through which the appropriate selection and deployment of coping resources occurs. Further investigation of the personal resources that promote accurate appraisal and congruent coping is needed to advance our understanding of how individuals adapt to life stress.

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