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Interaction of Cognitive Appraisals of Stressful Events and Coping: Testing the Goodness of Fit Hypothesis[1]

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The present study investigated interactions between cognitive appraisals of, and coping with, stressful life events and their relationship with psychological symptomatology. Specifically, the "goodness of fit" between appraisals of the controllability of events and the use of problem- and emotion-focused coping was assessed for major life events and daily hassles. In relation to major life events, symptomatology was high when there was a poor fit between appraisals and coping (e.g., trying to change a stressor that was appraised as uncontrollable) and low when there was a good fit between appraisals and coping (e.g., palliating one's emotions when a stressor was perceived as uncontrollable). No effects were found in relation to daily hassles. Results were generally consistent with cognitive-transactional models of stress and coping.

KEY WORDS: coping; cognitive appraisals; stress; psychological symptoms.

Effective adaptation to stressful events entails the complex interplay of several different factors. These include the nature of the event itself, the individual's cognitive appraisal of the event, personal and social coping resources available to the individual, and the actual coping strategies that the person employs (see Lazarus & Folkman, 1984; Mischel, 1984, for discussions of cognitive-transactional models related to stress). An important assumption of a cognitive-transactional view of stress is that a specific strategy or mode of

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coping[3] cannot be defined as effective or ineffective independent of the context in which it is used. That is, coping effectiveness is dependent on the "match" or "goodness of fit" between coping efforts and other variables in the stress and coping process, including an individual's values, beliefs, and commitments (Folkman, Schaefer, & Lazarus, 1979), preferred coping style (Miller, 1981), and temperament (Lerner, Baker, & Lerner, 1985). From the perspective of a cognitive model of stress and coping, the interaction of coping with cognitive appraisals of stressful events is of primary interest.The way a stressor is perceived may either facilitate or impede coping with the event. Further, appraisals appear to be related to coping independent of the objective features of the stressor (Folkman & Lazarus, 1980).

Several studies have investigated the relationship of coping strategies with the characteristics of events or cognitive appraisals of events (e.g., Coyne, Aldwin, & Lazarus, 1981; Felton & Revenson, 1984; Folkman & Lazarus, 1980; Parkes, 1984; Stone & Neale, 1984). They have focused on events that vary in their controllability, defined either as an objective characteristic of the event or the subjective appraisal of the individual. Coping strategies appear to differ for events appraised as controllable versus uncontrollable (Folkman & Lazarus, 1980; Parkes, 1984; Stone & Neale, 1984). In general, although both problem-focused and emotion-focused coping are used with controllable and uncontrollable events by almost all individuals, these studies indicate that coping efforts intended to alter the source of stress by acting on it directly (problem-focused coping) tend to be used more with events appraised as controllable, while palliative coping strategies to moderate emotional reactions (emotion-focused coping) are used more with events perceived as beyond personal control. This pattern would seem to support a goodness of fit hypothesis, since individuals appear to attempt to change those stressors that they believe they can control and adapt to those they believe they cannot change. However, these three studies did not examine levels of psychological symptomatology associated with a good or poor match between appraisals and coping.

Only one study has examined adaptational status as a function of the event-appraisal-coping fit. Felton and Revenson (1984) found that positive affect, negative affect, and acceptance of one's illness did not vary as a function of the interaction of the controllability of the illness and the use of information seeking or wish-fulfilling fantasy as coping. These investigators

[3]In the present context we have drawn on the work of Lazarus and Folkman (1984), who define *coping* as "constantly changing cognitive and behavioral efforts to manage specific external and or internal demands that are appraised as taxing or exceeding the resources of the person" (p. 141). The various strategies that individuals use in coping with stress are further delineated into those efforts directed at managing or altering the problem causing the distress (problem-focused coping) and those directed at regulating emotional response to the problem (emotion-focused coping) (Folkman & Lazarus, 1980; Lazarus & Folkman, 1984).

examined coping with four illnesses (hypertension, diabetes mellitus, rheumatoid arthritis, and cancer) in which individuals may experience some degree of control over the onset and/or course of the disease. However, these illnesses may represent a limited range of perceived control when compared with more common stressors of lesser magnitude and, thus, the possibility of observing an interaction between coping and controllability may have been limited. The possibility of finding varying degrees of fit between coping and control was further constrained by assessing only two types of coping (wish-fulfilling fantasy and information seeking).

The present investigation was designed to further address the question as to whether psychological distress varies as a function of the goodness of fit between cognitive appraisal and coping with a variety of common life stressors. Specifically, it was hypothesized that events perceived as controllable are best suited to the use of problem-focused coping, while events appraised as uncontrollable fit best with emotion-focused coping. Thus, levels of psychological symptoms were expected to be highest when the use of emotion-focused coping was emphasized with events appraised as controllable and problem-focused coping was emphasized with uncontrollable events. This relationship was examined for both infrequent but high-impact "major life events" and chronic, recurring "daily hassles" (DeLongis, Coyne, Dakof, Folkman, & Lazarus, 1982; Kanner, Coyne, Schaefer, & Lazarus, 1981), as both of these types of stressful events have been shown to be related to psychological symptoms.

METHOD

Subjects

Subjects were 84 college students (32 male and 52 female) with a mean age of 19 years enrolled in an introductory psychology course. Subjects were predominantly white and of middle to upper socio-economic status. All subjects were volunteers and received extra course credit for their participation in the study. Males and females did not differ on any of the major independent or dependent variables. Thus, all analyses are presented for the total sample only.

Materials

Identification of Most Distressing Major and Daily Events. Prior studies of coping have often focused on a group of individuals encountering a single common stressful event (e.g., Miller & Mangan, 1983; Folkman & Lazarus,

1985). While this design "controls" for the nature of the event, the importance or significance of the event may vary greatly across subjects. The purpose of the present study was to examine subjects' coping with events that were experienced as highly stressful. Thus, they reported on the most distressing major life event and the most distressing daily hassle in the recent past. While the actual events varied considerably, all were highly stressful for the participants.

To facilitate subjects' identification of a single most distressing recent major and daily event, subjects were presented with a list of 104 daily events (e.g., people interrupting you when you are trying to get work done, getting a traffic or parking ticket) and 71 major events (e.g., death of a relative, parents getting divorced) identified in an open-ended survey of college freshmen (Compas, Davis, & Forsythe, 1985). Participants indicated all daily events that had occurred during the prior 2 weeks and all major events that had happened during the past 6 months. Each event that had occurred was rated on a 7-point scale of desirability, ranging from "extremely negative" (−3) to "neutral" (0) to "extremely positive" (+3). After responding to the event list, subjects were instructed to select the single most distressing daily event from the past 2 weeks and the single most distressing major event from the prior 6 months as referents for the measures of appraisal and coping.

All subjects were able to identify "most distressing" daily and major events. Thirty-six different major events and 26 different daily events were selected from the event lists. The most frequently selected daily events involved school hassles (e.g., "doing poorly on an exam or paper," "homework or studying") and were chosen by 44% of the subjects. The most frequently selected major events were concerned with illness or death of a family member and moving away from home to enter college, chosen by 40% of the sample.

Assessment of Cognitive Appraisals of Events. Subjects completed a self-report measure of their cognitive appraisals of the single most distressing negative major life event that occurred during the previous 6 months and the most distressing negative daily event from the prior 2 weeks. Appraisal of the controllability of events was of central importance for the present study. Subjects dichotomously rated the amount of control that they believed they had over the event ("I had a great deal of control" versus "I had very little control"). Dichotomous ratings were obtained because appraisals were planned to be used as categorical variables in testing the goodness of fit between appraisals and coping. Subjects also rated the cause of each event as either internal (caused by something about me) or external (caused by something outside myself) to further clarify the nature of the controllability appraisals. Appraisals of control were significantly correlated with appraisals of events as caused by internal factors (r = .63 and .72 for major and daily events, respectively). This suggests that subjects were rating the controllability of the cause of the event rather than the outcome.

Assessment of Coping. Coping with the single most distressing major and daily events was assessed with the revised version of the Ways of Coping Checklist (Folkman & Lazarus, 1980, 1985). It consists of 66 coping strategies, including both problem- and emotion-focused methods. Each item is rated on a 4-point scale ranging from "not used at all" to "used a great deal." Weighted scores are calculated that reflect the number of strategies used and the extent to which they were used. The scale was completed separately in reference to each of the two events. The total number of strategies and total weighted scores were highly correlated for major events ($r = .88$, $p < .001$) and daily events ($r = .83$, $p < .001$) in the present sample.

Several prior studies have included factor analyses of the Ways of Coping Checklist and have generated different factor structures, particularly regarding the emotion-focused coping scales (e.g., Aldwin, Folkman, Schaefer, Coyne, & Lazarus, 1980; Folkman & Lazarus, 1985; Folkman, Lazarus, Dunkel-Schetter, DeLongis, & Gruen, 1986; Parkes, 1984; Vitaliano, Russo, Carr, Maiuro, & Becker, 1985). These studies differ in the characteristics of subjects and nature of stressors for which coping was reported, potentially leading to the different factor structures. Because the Folkman and Lazarus (1985) investigation used a sample similar to that in the present study (i.e., university undergraduates), the factors identified in that study were most appropriate for the present study. However, in the present sample coefficient alphas for the subscales of emotion-focused coping ranged from .32 to .80, with five of seven falling below .70. Thus, all analyses were based on the two broad categories of problem-focused ($\alpha = .78$) and emotion-focused coping ($\alpha = .87$), as finer distinctions were not considered sufficiently reliable.

Prior research has indicated that individuals use both problem- and emotion-focused coping in almost all stressful episodes (e.g., Folkman & Lazarus, 1980, 1985), and use of these two modes of coping tends to be correlated (e.g., Folkman, Lazarus, Gruen, & DeLongis, 1986). As expected, total problem- and emotion-focused coping were highly correlated for major ($r = .68$, $p < .001$) and daily events ($r = .65$, $p < .001$) in the present sample. Further, problem- and emotion-focused coping may each influence the effectiveness of the other. For example, the use of coping strategies to reduce one's emotional arousal may facilitate subsequent efforts at problem solving. Because of the interdependent nature of problem- and emotion-focused coping, previous researchers have examined the *relative* use of *both* types of coping rather than the absolute level of either type assessed independently. For example, Folkman and Lazarus (1980) examined the proportion of the two types of coping used by individuals in response to specific stressful episodes. An individual who uses a great deal of problem-focused coping in combination with minimal emotion-focused efforts is coping differently from a person who uses the same amount of problem-focused co-

ping along with a high level of emotion-focused coping. Because of the importance of the relationship between these two types of coping, the match between appraisals of control and the relative use of problem- and emotion-focused coping was examined in addition to the match between appraisals and each type of coping independently.

Separate weighted scores were calculated for problem-focused and emotion-focused strategies used for each event by summing the weighted scores of items pertaining to these two types of coping. The 11 problem-focused coping items could result in scores ranging from 0 to 33, and the 56 emotion-focused coping items could yield scores ranging from 0 to 168. To test the goodness of fit between coping and appraisals, the relative amount of problem-focused to emotion-focused coping was determined. A ratio of problem-focused to emotion-focused coping reported by each subject was calculated for each most distressing event. These ratios could range from maximum use of problem-focused and minimum use of emotion-focused strategies (a ratio of 33/0) to minimum use of problem-focused and maximum use of emotion-focused coping (a ratio of 0/168). Maximum use of both problem- and emotion-focused coping would yield a ratio of 33/168, or .19. A higher ratio reflects the use of relatively more problem-focused coping.

Assessment of Psychological Symptoms. Symptomatology was assessed with the Hopkins Symptom Checklist (HSCL; Derogatis, Lipman, Rickels, Uhlenhuth, & Covi, 1974). The HSCL is a 58-item self-report measure of a variety of emotional, behavioral, and somatic problems experienced during the previous week. Factor analysis has yielded the following five dimensions: depression, anxiety, somatization, interpersonal sensitivity, and obsessive-compulsiveness (Derogatis et al., 1974). Test-retest reliability, internal consistency, and criterion and construct validity are all adequate (Derogatis, et al., 1974). Internal consistency reliabilities for the present sample were as follows: total symptoms, $\alpha = .93$; depression, $\alpha = .84$; somatization, $\alpha = .76$; obsessive-compulsive, $\alpha = .74$; interpersonal sensitivity, $\alpha = .74$; anxiety, $\alpha = .62$.

Procedure

Data were collected from subjects during a single administration. Subjects were informed that they would be participating in a study of the ways in which people cope with stressful events in their lives. After completing a consent form, all participants filled out the list of life events, the appraisal scales and the Ways of Coping Checklist in reference to two events, and the HSCL. Identifying information was excluded from all questionnaires to maintain confidentiality.

RESULTS

Coping and Perceived Control

Weighted problem-focused coping scores were greater for major events appraised as controllable ($M = 13.82$) than those appraised as uncontrollable ($M = 10.81$, $t(81) = 2.24$, $p < .05$). Emotion-focused coping did not differ as a function of control appraisals for major events. The proportion of problem- to emotion-focused coping varied as a function of appraisals of controllability for major life events ($t(81) = 3.88$, $p < .011$), with a higher proportion of problem- to emotion-focused coping used for controllable than for uncontrollable events. Neither problem-focused or emotion-focused nor the proportion of problem- to emotion-focused coping differed as a function of appraisals of control for daily events.

Relationships of Appraisals and Coping with Symptomatology

The relationship of control appraisals and coping with psychological symptoms was assessed in several steps. Two X two analyses of variance for most distressing major and daily events were conducted using the following combinations of independent variables: (a) control appraisals (high vs. low control) and problem-focused coping (high vs. low); (b) control appraisals and emotion-focused coping (high vs. low); and (c) control appraisals and the *ratio* of problem- to emotion-focused coping (high vs. low proportion of problem- to emotion-focused coping). Dichotomous ratings of high versus low control over the events were used to classify subjects on the factor of perceived control. Subjects were classified as high or low on each coping variable on the basis of a median split procedure, omitting subjects at the median. Interactions of control appraisals with problem- and emotion-focused coping are presented separately to allow for direct comparison with prior studies. Next, the interaction of control appraisals and the ratio of problem- to emotion-focused coping is presented as the test of the main hypothesis.

Control Appraisals X Problem- and Emotion-Focused Coping. Total weighted HSCL symptoms (i.e., the sum of subjects' ratings of severity) varied as a function of problem-focused coping for major ($F(1, 69) = 13.66$, $p < .001$) but not for daily events. Total weighted HSCL symptoms were higher for high levels of coping than for low levels of coping. Total weighted HSCL symptoms varied as a function of emotion-focused coping for both major ($F(1, 75) = 12.64$, $p < .001$) and daily events ($F(1, 77) = 14.77$, $p < .001$). In each case, weighted HSCL symptoms were higher for high levels of coping than for low levels of coping. To test for these effects across the five subscales of the HSCL, multivariate analyses of variance (MANOVAs) were

run and found to be significant for problem-focused coping with major events ($F(6, 64) = 4.58, p < .001$) but not daily events, and for emotion-focused coping with both major ($F(6, 64) = 4.58, p < .001$) and daily events ($F(6, 72) = 3.38, p < .01$). Univariate analyses indicated that the depression, obsessive-compulsive, interpersonal sensitivity, and anxiety scales varied as a function of problem- and emotion-focused coping with major events. With regard to daily events, the depression, obsessive-compulsive, and interpersonal sensitivity subscales varied as a function of emotion-focused coping. In all cases, higher symptoms were associated with higher reports of coping. No main effects for control appraisals or appraisal X coping interactions were found in any of the analyses.

Control Appraisals × Ratio of Problem- to Emotion-Focused Coping. The central hypothesis regarding the goodness of fit was examined in a two-way ANOVA with independent variables of control appraisals and the ratio of problem- to emotion-focused coping, using total weighted HSCL symptoms as the dependent variable. Mean, total weighted HSCL scores as a function of control appraisals and coping ratios for major and daily events are presented in Table I. A good fit between appraisal and coping is represented in the cells in which control appraisals are high and the coping proportion is high (i.e., relatively more problem-focused coping) and those in which control appraisals are low and the coping proportion is low (i.e., relatively more emotion-focused coping). An ANOVA was run using total weighted HSCL scores as the dependent variable. Results of the ANOVA for major events yield no main effects for control appraisals or coping ratio. The interaction between appraisal and coping is significant ($F(1, 74) = 9.25, p < .01$). As depicted in Figure 1, this interaction supports the goodness of fit hypothesis,

Table I. Mean HSCL Symptom Scores as a Function of Control Appraisals and Coping for Major and Daily Events[a]

Type of event	Control appraisal	Proportion of problem- to emotion-focused coping	
		High	Low
Major	High	97.10 ($n = 21$)	106.00 ($n = 13$)
	Low	110.63 ($n = 19$)	93.04 ($n = 25$)
Daily	High	95.77 ($n = 22$)	99.36 ($n = 14$)
	Low	101.53 ($n = 15$)	108.44 ($n = 9$)

[a]Higher scores reflect higher symptom levels.

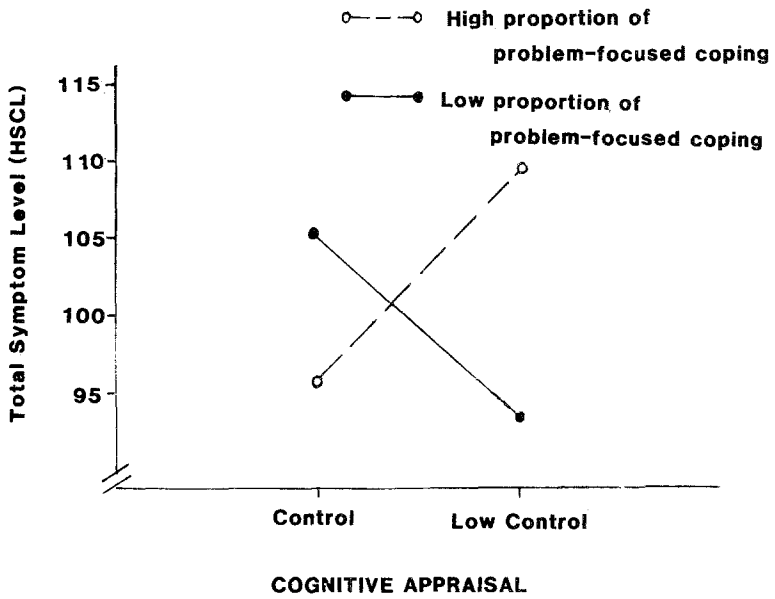

Fig. 1. Mean HSCL symptom scores as a function of appraisal of control and proportion of problem- to emotion-focused coping for major events.

since lower symptom scores are associated with use of relatively more problem-focused coping with events perceived as controllable and relatively more emotion-focused coping with events perceived as less controllable.

A MANOVA was used to examine the HSCL subscales as dependent variables. The MANOVA to test for effects on the HSCL subscales did not yield significant main effects for appraisal or coping ratio, while the interaction was significant ($F(6, 69) = 2.57, p < .03$). This interaction was significant for depression, somatization, obsessive-compulsive, and interpersonal sensitivity ($p < .05$) and for anxiety ($p < .001$). No significant main or interaction effects were found for daily events. Thus, the goodness of fit was not supported for daily events.

DISCUSSION

These findings support the hypothesis that psychological symptoms vary as a function of the match or fit between cognitive appraisals of major life events and ways of coping with these events. The use of relatively more problem-focused coping efforts was associated with lower symptom levels

when events were perceived as controllable. However, these same coping strategies were associated with higher levels of distress when used to deal with events over which individuals believed they had little control. The use of relatively more emotion-focused coping strategies to palliate one's reaction to a stressor displayed the converse pattern. These coping methods were associated with lower symptom levels when events were perceived as low in controllability and higher distress scores when appraisals were of high control. These findings were consistent across a range of different symptoms, including those related to anxiety, depression, and somatic problems. The interaction of coping with perceived control was not found when problem- and emotion-focused coping were evaluated separately, underscoring the importance of examining the relative use of these two types of coping.

The fact that these findings occurred in relation to subjects' most distressing recent major life events but not in conjunction with their most distressing daily events, while not hypothesized, is consistent with what one might expect given the different magnitude of these events. The ramifications of mismatching one's cognitive appraisal and coping on a single daily hassle may be much less severe than a poor fit between these factors on a major event. The contrast of the most frequently selected daily event ("doing poorly on an exam or paper") and the two most often cited major events ("death of a family member" and "entering college") lends support to this notion. Just as the *accumulation* of daily hassles has been found to be strongly associated with symptom levels (e.g., Kanner et al., 1981), the mismatching of appraisals and coping with daily events may become important only when it occurs cumulatively across a number of daily stressors.

The lack of any main effects for appraisals of control on symptom levels is striking. As recent discussions of perceived control of stressful events have noted, a sense of personal control can be associated with either heightened or decreased distress (e.g., Folkman, 1984). The results of the present study support this notion. A belief that one had little control over an aversive major event in one's life was not associated with psychological symptoms per se. Rather, the appraisal of a low level of personal control was associated with higher symptoms only when paired with coping strategies that are intended to change the stressor. This combination may serve to heighten the salience of uncontrollability as problem-focused coping strategies continually fail to bring the stressor under greater personal control.

These findings differ from those of Felton and Revenson (1984), who failed to find an interaction of coping with types of events or cognitive appraisals of events. The difference may be a result of focusing on a more diverse array of life events and coping strategies in the present study. This may have resulted in greater variability in subjects' perceptions of personal control over these events and, thus, increased the possibility of finding variations in how well coping strategies were matched with these appraisals.

On the other hand, the results of the present study are consistent with those of Miller and Mangan (1983), who, although studying psychological constructs other than perceived control, report an interaction between preferred coping style (the tendency to seek or avoid information) and a situational factor (information level). Individuals who expressed a preference for information (monitors) displayed lower arousal and anxiety when provided with information about a stressful medical procedure than when information was withheld. Those who preferred to avoid information (blunters) displayed the opposite pattern. The present findings indicate a similar interaction between the coping strategies used by individuals and their cognitive appraisals of a stressor.

Psychological symptoms also varied as a direct function of both problem- and emotion-focused coping, with higher symptom levels associated with greater amounts of each type of coping. That is, individuals who reported greater distress also reported they were doing more to try to cope with their situation. This pattern is similar to other studies using self-report checklists of coping (e.g., Folkman, Lazarus, Gruen et al., 1986) and indicates that, at the aggregate level, coping behavior may in part reflect an individual's level of distress. Self-report measures of coping may reflect individuals' efforts to cope with their emotional responses to stressful events (e.g., feelings of anxiety or depression) as well as coping with the event itself. Thus, higher levels of coping would be expected when emotional distress is high.

The significant interaction between perceived control and the ratio of problem- to emotion-focused coping suggests that these two types of coping can be used to facilitate one another in the coping process. That is, using different balances of problem- and emotion-focused coping for controllable and uncontrollable events was associated with lower distress. For example, although the total amount of problem-focused coping was correlated with higher symptoms regardless of the perceived controllability of the event, the use of problem-focused strategies in combination with some emotion-focused techniques was related to lower symptoms in coping with controllable events. This implies that *how* one copes with stress may facilitate positive adaptation, while *how much* one copes may reflect one's level of distress.

While the present study indicates that certain coping strategies are associated with less distress for use with some appraisals than others, it does not indicate why some individuals might use an inappropriate strategy. For example, if individuals have appraised events as beyond their personal control, why would they continue to try to cope by attempting to change stressors that they believe they cannot influence? One possibility is that these individuals are selecting coping strategies that fit with their *generalized* rather than stiuational beliefs about control (cf. Folkman, 1984; Parkes, 1984). Alternatively, individuals may have responded in a fashion consistent with

their preferred ways of coping (cf. Miller & Mangan, 1983). When appraisals of a particular stressful event are in conflict with one's preferred way of coping, these preferences may override situational appraisals in their relationship to coping.

These findings must be viewed with some caution since the cross-sectional design of the present study prohibits any casual inferences about the efficacy of coping in reducing symptomatology. That is, the match between coping and perceivied control may have led to reduced symptoms, lower distress may have facilitated greater congruence between coping and appraisals, or an unobserved factor may have influenced this relationship. Further, perceptions of control may be the result of efforts to cope with a stressful event rather than a factor that shapes coping behavior. For example, the effectiveness of problem-focused coping efforts may influence the degree to which one believes a stressor can be changed or controlled. Given that coping with a stressful event is a process that extends over time, the use of prospective research designs in subsequent studies will be important in clarifying the link between appraisals and coping.

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