

Appraised Control, Coping, and Stress in a Community Sample: A Test of the Goodness-of-Fit Hypothesis

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ABSTRACT

Lazarus and Folkman proposed one of the most comprehensive theories of stress and coping in the psychology literature, but many of their postulates have received little empirical attention, and some of the existing research has yielded contradictory findings. This longitudinal study sought to clarify the associations among control appraisal, coping, and stress within this theoretical framework. The theory postulates that coping strategies used tend to match the level of appraised controllability of the stressor (matching hypothesis). It further states that the effects of problem-focused versus emotion-focused coping are moderated by the appraised controllability of the stressor (goodness-of-fit hypothesis). An alternative to the latter is the main-effects hypothesis, which states that problem-focused coping is generally more effective in reducing distress regardless of appraisal. These hypotheses were tested on 72 adults who completed questionnaires on coping and control appraisal. Stress was assessed using self-report (Symptom Checklist-90-Revised) and a behavioral measure (proofreading task) at two times approximately 2 months apart. Appraised control significantly predicted type of coping such that greater control was associated with more problem-focused and less emotion-focused coping. Although the main-effects hypothesis was not supported, the goodness-of-fit hypothesis was partly confirmed by a significant control by emotion-focused coping interaction predicting both self-report and behavioral measures of stress.

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INTRODUCTION

Stress has been conceptualized in various ways, but the most comprehensive theoretical framework proposed to date is the transactional model put forth by Lazarus and Folkman (1). This model is built on the assumption that stress depends on a number of subjective cognitive judgments that arise from the dynamic interplay between person and environment. Stress can be defined as a person–situation interaction which the individual appraises as relevant to his or her well being and as taxing his or her coping resources (2). No event or situation is considered to be inherently stressful. Rather, the individual's subjective judgment of the situation as threatening or harmful is what defines a stressor. Appraisals also address judgments of the resources available to the individual, such as coping strategies and the degree of control he or she perceives to have in meeting the demands of the situation (e.g., 3). These secondary appraisal processes guide the use of specific coping strategies, and the effectiveness of these strategies determines the reappraisal of the situation and the individual's psychological adjustment. This study addresses two basic hypotheses from the transactional model that have received little empirical attention. First, we examine whether control appraisals of life events guide individuals' choices of coping strategies (matching hypothesis). Second, the goodness-of-fit hypothesis stating that the effectiveness of problem- versus emotion-focused coping is moderated by control appraisals of the stressful event (goodness-of-fit hypothesis) is addressed. This is compared to the alternative main-effects hypothesis, which postulates that problem-focused strategies are inherently more effective irrespective of control appraisal.

Coping may be defined as “constantly changing cognitive and behavioral efforts to manage specific external and internal demands that are appraised as taxing or exceeding the resources of the person” (1, p. 141). In keeping with the dynamic nature of the model, coping is not considered a style or personality trait that remains stable across a variety of situations (e.g., 4) but is a set of coping strategies that are available to be implemented to match specific situations. Coping may take one of two general forms: emotion-focused or problem-focused coping (1). Emotion-focused coping strategies are directed toward altering the individual's emotional response to the stressor and include strategies such as self-blame, wishful thinking, and avoidance. They

are focused on internal emotional states, not on the situation that triggered the emotional states. Problem-focused coping, by contrast, functions to alter the problem itself by directly acting on the situation. Some coping strategies may serve both functions simultaneously, such as seeking social support (e.g., 5).

Decisions regarding the type of coping strategies used should depend on appraisal of the situation. In most situations, people will use both types of coping to varying degrees (2). However, it has also been suggested that if the stressor is appraised as controllable, the individual may be more likely to use problem-focused and less likely to use emotion-focused coping strategies than if the event is appraised as uncontrollable (1). There is some empirical evidence to support this claim. For example, controllable daily hassles have been associated with higher levels of problem-focused coping in college students (6). In addition, Folkman and Lazarus (7) reported work stressors (appraised as more controllable) to be associated with increased problem-focused coping and health-related stressors to be associated with increased emotion-focused coping in a middle-aged community sample. Finally, a study of uncontrollable problems after a nuclear accident suggested that emotion-focused coping was associated with better adjustment (8).

Some theories of defense mechanisms are based on the premise that some mechanisms are inherently more adaptive than others (e.g., 9). This theoretical viewpoint has sometimes also been applied to coping theories such that problem-focused strategies are often assumed to be superior to emotion-focused strategies in promoting adjustment, regardless of the situation. This main-effects hypothesis has received some limited empirical support in cross-sectional studies (10,11) and one longitudinal study (12). However, these studies examined only isolated coping strategies (11,12), and contradictory evidence has also been reported (e.g., 6,10).

The discrepant findings cast doubt on the idea that problem-focused coping is universally more effective. It is likely that, as Folkman et al. suggested, neither of these strategies is inherently adaptive or maladaptive (3) but that coping may have to be considered as it interacts with the appraisal of the situation to more reliably predict psychological adjustment. According to the goodness-of-fit hypothesis, the effectiveness of a coping strategy in reducing distress depends on the degree to which it matches the situation as it is appraised. Control appears to be particularly important in this regard. Controllable stressors may be best dealt with by using coping that is focused on the problem itself, whereas such efforts may be ineffective or harmful in the face of an uncontrollable stressor about which little can be done (8). Conversely, in the case of an uncontrollable problem, a more emotion-focused approach may best reduce distress because one's internal state may be more amenable to change than the situation itself. Put simply, a "good fit" between appraisal and coping would consist of the greater use of emotion-focused coping when dealing with an uncontrollable stressor and greater problem-focused coping for a controllable stressor.

The empirical literature examining the goodness-of-fit hypothesis is small and almost exclusively cross-sectional. Forsythe and Compas (10), for example, reported a significant

coping by control interaction for major life events. However, the goodness-of-fit hypothesis was only supported for a ratio of problem- to emotion-focused coping but not for raw coping scores. Vitaliano, DeWolfe, Maiuro, Russo, and Katon (13) found that the percentage of problem-focused coping was negatively correlated with depression regardless of appraised changeability of the stressors; however, in support of the goodness-of-fit hypothesis, this correlation was significantly stronger for changeable stressors. In addition, there was a trend ($p < .1$) for a positive correlation between percent emotion-focused coping and depression for situations appraised as changeable. Conway and Terry (11) reported a significant control by self-denigration (an emotion-focused coping strategy) interaction effect on depression as predicted by the goodness-of-fit hypothesis. It should be noted that at least two studies did not find support for this hypothesis (6,12). The discrepant findings may be attributed to use of different coping and distress measures, different scoring methods of coping subscales, and different study populations used.

The existing literature provides relatively little evidence for some of the basic hypotheses of Lazarus and Folkman's model (1). This may be due to a general lack of empirical research directly addressing these hypotheses as well as some of the methodological inconsistencies and shortcomings of existing research. Some of these issues are addressed in this study. For example, all but one of the studies (12) reviewed used cross-sectional designs that did not control for prior levels of distress. It could be argued that, rather than the fit between appraisal and coping determining distress, it may be prior levels of distress that determine both choice of coping and subsequent levels of distress. Previous research has also limited assessments of stress to self-report measures. Conclusions would be strengthened by a multimeasure assessment approach and would reduce concerns of reporting biases that may occur when using self-report only (e.g., 14,15). This study, therefore, included a behavioral measure of stress—a proofreading task (16), which has been used extensively in previous studies of stress and has been shown to be associated with other measures of stress including self-report and physiological measures (e.g., 14,17). Finally, due to controversy in the literature regarding the relative validity of two different scoring methods of the coping scales, this study tested all hypotheses using the raw and relative scoring methods (5).

This study tested the three basic hypotheses describing coping and control addressing some of the methodological problems of previous research. First, we examined whether the coping strategies used tended to match the level of appraised controllability of the stressor—that is, we hypothesized that appraised controllability would be positively related to the use of problem-focused coping and negatively to the use of emotion-focused coping. We further examined two alternative hypotheses regarding the relation of coping and distress: The main-effects hypothesis, which suggests that problem-focused coping strategies are generally more effective in reducing distress than emotion-focused strategies (regardless of control appraisal of the stressor), and the goodness-of-fit hypothesis of control appraisal and coping, which predicts that type of coping

(emotion-focused or problem-focused) would interact with control appraisal such that the combination of low control and high emotion-focused coping and high control and low emotion-focused coping would be associated with the least stress, and vice versa for problem-focused coping.

METHOD

Participants

Participants were recruited through Walter Reed Army Medical Center and advertisements in the Washington, DC area, as part of a larger longitudinal study of stress in parents of healthy and chronically ill children. Participants included 44 women and 28 men who were between 24 and 60 years of age ($M = 36.01$, $SD = 7.4$). Most (93%) were married, 48.6 % had at least a college degree, 58.9% had an annual household income of over \$30,000, and 78.3% worked outside the home.

Procedures

All study sessions were conducted in the participants' homes to facilitate study participation. The study was introduced at an initial session (Time 0) during which all procedures were explained and informed consent was obtained. Subsequent sessions were scheduled approximately 2 months apart, at which time questionnaires and tasks were administered. Each session lasted approximately 45 min. Only data from the first two assessments (Time 1 and Time 2) were used for this study. The measures that were included for the analyses are described later. They were administered in the following order: At Time 1 participants completed the Symptom Checklist-90-Revised (SCL-90R) followed by the proofreading task; at Time 2 participants completed the SCL-90R, the proofreading task, Demographics, and the Ways of Coping Checklist-Revised (WCCL-R).

Measures

Demographic variables. Basic demographic information was obtained including age, race, income, education, and gender using a face valid questionnaire.

WCCL-R (18). This revised version of the original 68-item WCCL (7) included 42 items loading on five factors (problem-focused, support seeking, self-blame, wishful thinking, and avoidance coping). This questionnaire was administered at Time 2. Following the method described by Folkman and Lazarus (7), respondents were asked to list a major stressful event or experience that had occurred in the past year and to refer to that event when answering the subsequent questions. Participants then rated how frequently they used each particular coping strategy in dealing with this event on a 4-point scale ranging from 0 (*never used*) to 3 (*regularly used*). Reliability of the subscales ($\alpha = .74-.88$), and construct validity have been established (18). In addition, participants were asked the degree to which they felt the event was controllable on a 5-point scale ranging from 1 (*strongly disagree*) to 5 (*strongly agree*). Because we were inter-

ested in examining emotion-focused and problem-focused coping, we combined the self-blame, wishful thinking, and avoidance subscales into one emotion-focused coping score (13). The problem-focused coping scale was left intact. Zero-order correlations revealed moderate intercorrelations among the three emotion-focused subscales and a near zero correlation of the total emotion-focused coping score and problem-focused coping (see Table 1). Support seeking was not included in either the emotion- or problem-focused category as it includes elements of both types of coping.

Two sets of scores were computed for each coping strategy, raw scores, and relative percentage scores. Raw scores were simply calculated by summing the scores for each scale. However, it has been suggested that these scores may be biased by differential numbers of items on each scale and may not reflect a person's relative coping effort (5). Therefore, all results were verified using relative scores that were calculated according to methods proposed by Vitaliano et al. (5).

First, the mean score was obtained for each subscale by dividing the raw score by the number of items on the scale. The relative score was then calculated by dividing the mean score for the particular scale by the sum of the mean scores of all of the scales. This was calculated for the combined emotion-focused score and the problem-focused subscale. In keeping with published methods (5), support seeking was included in the denominator when calculating percentages of problem and emotion-focused coping, such that relative percent scores reflect a percentage of all coping efforts used including support seeking.

SCL-90-R (19). Participants were asked to rate how much they had been bothered by each of 90 symptoms over the past 2 weeks on a 5-point rating scale ranging from 0 (*not at all*) to 4 (*extremely*). This measure yields nine subscales: Somatization, Obsessive-Compulsive, Interpersonal Sensitivity, Depression, Anxiety, Hostility, Phobic Anxiety, Paranoid Ideation, and Psychoticism. Validity and reliability are well established (20). Only the Depression and Anxiety subscales were of interest for this study, as these symptoms are thought to be reflective of overall distress and have been examined in previous studies of this nature (21). Internal consistency for these two subscales are .90 and .85, respectively (20). This measure was administered at Time 1 and Time 2.

TABLE 1
Correlations Among Subscales of the
Ways of Coping Checklist-Revised

	1	2	3	4	5
1. Self-blame					
2. Wishful thinking	.35**				
3. Avoidance	.49**	.49**			
4. Support seeking	.00	.02	-.09		
5. PFC	.38**	-.26*	.10	.30**	
6. EFC (summary)	.64**	.84**	.85**	-.03	-.00

Note. PFC = problem-focused coping; EFC = emotion-focused coping (summary score of self-blame, wishful thinking, avoidance).

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

Proofreading performance (16). The proofreading task was included as a behavioral measure of stress. It was derived from acute stress studies where it has been shown to be a reliable measure of stressor aftereffects. In addition, performance has been consistently affected by perceptions of controllability of the stressor (16,22). Proofreading performance was reduced in individuals experiencing various life stressors in a number of studies (e.g., 23,24) and has been found to distinguish between stress and control groups along with differences in physiological and subjective measures of stress (e.g., 17,23,24). Based on previously published methods (e.g., 16,17), participants were given a 7-page, double-spaced passage from Jacobs's *The Life and Death of Great American Cities* and were asked to proofread the text and circle every error they could find, including typographical errors, misspellings, and grammatical errors; these errors had been systematically inserted into the text. Participants were given 5 min to complete the task. The number of errors identified was then divided by the number of errors contained in the passage they read, yielding the percentage of errors accurately identified. It is expected that performance on this task will decrease as a function of the degree of mismatch between control appraisals and coping use. Proofreading performance was assessed at Time 1 and 2 using different passages containing comparable numbers of errors according to published procedures (e.g., 8,23).

RESULTS

Of the 72 participants who completed Time 1 and 2 questionnaires, 67 had complete data for the proofreading task (missing values were due to failure to accurately complete the task). We examined variables for normal distributions and checked for potential outliers that may skew results. The depression and anxiety scores from the SCL-90-R were subjected to logarithmic transformations to reduce skewness to acceptable levels (25). One participant's emotion-focused coping score was discarded because it was over 3 standard deviations above the mean (25). Demographic variables were examined for their associations with the main dependent and independent measures. There was a significant gender difference in proofreading performance at Time 2, with women exhibiting better performance than men, $F(1, 67) = 4.88, p = .03$. None of the other demographic variables were significantly related to any of the main study measures. Zero-order correlations among dependent measures revealed a high correlation between the Depression and Anxiety subscales ($r_s > .70, p < .001$); therefore, only results for Depression will be reported. All results were comparable when the Anxiety subscale was entered as a dependent variable.

Sixty-two percent of participants reported health-related types of stressors, including illness of their child and other health problems in the family including death. Furthermore, 14% reported employment related stressors, 6% financial stressors, 6% marital problems, and 12% other types of stressors that did not correspond to any of the aforementioned categories. To examine any possible differences in perceived control and use of coping strategies across types of stressors, we compared health-related stressors to all other types combined. Health-re-

lated stressors were appraised as significantly less controllable than other types of stressors, $F(1, 61) = 8.26, p < .01$, confirming previous findings by Folkman and Lazarus (7). However, use of emotion-focused and problem-focused coping strategies did not differ by type of stressor ($p_s > .05$).

The Matching Hypothesis

First, we examined correlations between control appraisals and use of problem-focused coping and emotion-focused coping strategies. In accordance with our predictions, perceived control was negatively correlated with emotion-focused coping ($r = -.33, p < .01$), and positively correlated with problem-focused coping ($r = .25, p < .05$). Results were similar when relative coping scores were used ($r = -.30, p < .05$ and $r = .41, p < .01$, respectively).

Main-Effects Versus Goodness-of-Fit Hypothesis

Analyses next examined predictions of the main-effects and goodness-of-fit hypotheses, testing relations of coping and distress. For each of the regression equations the Time 1 distress measure was entered on Step 1, appraised controllability on Step 2, followed by emotion- or problem-focused coping on Step 3. Time 1 depression was a significant predictor of Time 2 depression, predicting 35% of the variance. No other main effects were found to be significant. Neither appraised control nor coping were significantly related to the distress measures at Time 2 ($p_s > .10$). These results were confirmed using relative coping scores as predictors in Step 3, which showed no significant main effects on any of the dependent variables ($p_s > .10$).

For each of the regression equations, the interaction term of Appraised Control \times Coping was entered on Step 4 to test the goodness-of-fit hypothesis. Control and coping scores were first centered around zero before calculating their cross-product to minimize multicollinearity (26). The regression lines for the significant interactions were then plotted following published methods (26). The interaction of Control \times Emotion-Focused Coping accounted for significant variance in depression, and proofreading performance, explaining 9.8 and 6.8% of the variance, respectively (see Table 2). For problem-focused coping, no significant interaction effects emerged. Again, analyses using relative coping scores confirmed this pattern of results with emotion-focused coping predicting a significant, albeit slightly smaller proportion of the variance in Time 2 distress (5.9 and 6.4% for depression and proofreading performance, respectively). In addition, a significant Control \times Relative Problem-Focused Coping interaction emerged only for proofreading performance, predicting 16.2% of the variance in residualized scores.

Regression lines were plotted for each of the significant Control \times Coping interactions showing that effects were in the predicted direction. Figures 1 and 2 depict findings for raw coping scores. High levels of appraised control in combination with high levels of emotion-focused coping as well as low control in combination with low emotion-focused coping were associated with the highest levels of symptoms of depression and poorest performance on the proofreading task. Conversely, high con-

TABLE 2
Regression Analyses of Residualized Scores of Depression and Proofreading Performance on Perceived Control,
Raw Emotion-Focused Coping Scores, and Control \times Coping Interactions

	R^2	ΔR^2	β	F	df
Depression					
Step 1: Time 1 depression	.355	.355	.596	39.01***	1, 71
Step 2: Appraised control	.356	.001	-.035	.13	1, 70
Step 3: Emotion-focused coping	.356	.000	-.066	.39	1, 69
Step 4: Control \times Coping	.454	.098	.319	12.21**	1, 68
Proofreading (% correct)					
Step 1: Time 1 proofreading	.000	.000	-.016	.02	1, 65
Step 2: Appraised control	.001	.001	.031	.06	1, 64
Step 3: Emotion-focused coping	.024	.023	-.161	1.49	1, 63
Step 4: Control \times Coping	.092	.068	-.269	4.62*	1, 62

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

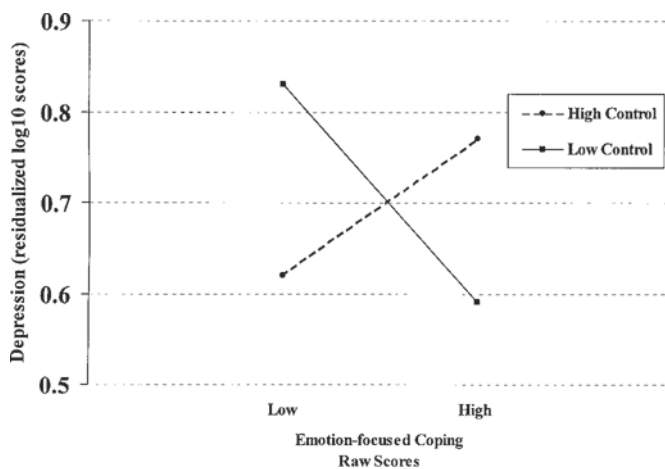


FIGURE 1 Interactions between emotion-focused coping (raw scores) and appraised controllability on residualized depression scores of the SCL-90-R (low = -1 SD, high = +1 SD).

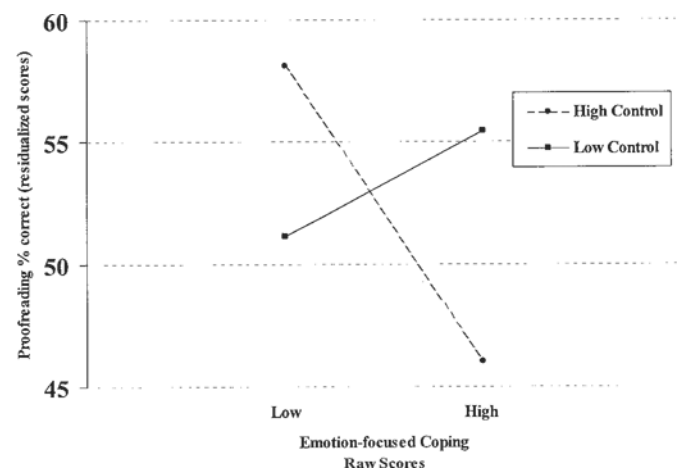


FIGURE 2 Interactions between emotion-focused coping (raw scores) and appraised controllability on residualized proofreading scores (low = -1 SD, high = +1 SD).

trol/low emotion-focused coping and low control/high emotion-focused coping were associated with the lowest levels of symptoms and highest proofreading performance (see Figures 1 and 2). The relative problem-focused coping by control interaction showed that high control/high problem-focused coping and low control/low problem-focused coping were associated with the highest proofreading performance, an indication of lower stress levels.

DISCUSSION

This study examined hypotheses that have been proposed as part of Lazarus and Folkman's (1) transactional model of stress and coping. As predicted, events that were appraised as relatively uncontrollable were addressed with less problem-focused and more emotion-focused coping efforts, and vice versa. These data suggest that when people are confronted with a stressor

they consider to be relatively uncontrollable, they are more likely to use coping strategies that regulate their emotions rather than engage in what may seem to be futile efforts at changing the situation. Other studies have reported similar associations between appraisal and use of coping strategies, (e.g., 6,7), and these findings fit with the theory proposed by Lazarus and Folkman (1).

The second hypothesis, which proposed that problem-focused coping would be associated with less distress and emotion-focused coping with more distress regardless of appraised controllability, was not supported by the data. None of the coping scales were significant predictors of Time 2 distress after Time 1 distress was statistically controlled. Previous studies have found mixed results regarding this main-effects hypothesis. For example, Conway and Terry (11) reported significant zero-order correlations between coping and depression. How-

ever, studies that have examined the main effects hypothesis from both a cross-sectional and a longitudinal perspective (controlling for prior distress symptoms) have reported an attenuation or elimination of the main effects of coping on symptoms once prior symptom levels were controlled (e.g., 12,27). Examination of zero-order correlations in this study yielded significant positive correlations between emotion-focused coping and depression ($r = .27, p < .05$), suggesting that the main effects reported in the literature may at least in part be confounded by prior distress that affects both the use of coping strategies and subsequent distress.

The goodness-of-fit hypothesis, which postulates that a good match between appraisal and coping strategies will result in more optimal psychological adjustment, was at least partly confirmed. On the whole, Appraised Control \times Coping interactions were significant for emotion-focused coping. In line with the hypotheses, low-control appraisals in combination with high levels of emotion-focused coping and high control combined with low use of emotion-focused coping was associated with the least amount of distress. This effect held for self-report and proofreading performance after prior levels of these measures of stress were controlled. These findings suggest that emotion-focused coping may be effective in dealing with stressors that are judged to be uncontrollable, thus challenging the notion that emotion-focused coping is an inherently poorer coping mechanism. It is only when dealing with stressors that are appraised as controllable that greater use of emotion-focused coping appears to be less effective.

Of interest, Problem-Focused Coping \times Control interactions did not predict self-reported distress. This may have been a result of the relatively small sample size used in this study. In addition, measurement limitations may provide an explanation for the null findings on problem-focused coping. The WCCL-R only includes one problem-focused coping subscale but has three emotion-focused coping subscales. It is possible that this scale did not explore all possible problem-focused coping strategies that were important to this population. Replications of the findings using larger sample sizes and possibly more extensive measures of problem-focused coping may provide clarity regarding the relative importance of problem-focused and emotion-focused coping strategies in moderating the effects of controllable and uncontrollable stressors.

This study is the first to include a behavioral measure of stress in a test of the goodness-of-fit hypothesis. The nonsignificant correlation between Time 1 and 2 proofreading scores should be noted. Performance on this task is situationally determined, and one would expect correlations to be low, especially if a stressful event intervened in between the two administrations, as may be the case for some of the study participants. Why intercorrelations are lower than for self-report is not clear and could be due to other influences on performance. Proofreading performance has consistently been shown to be affected by both chronic and acute stress. Results for this task were comparable to those obtained using self-report measures, which strengthens these findings considerably. However, future studies are needed to replicate these results using behavioral measures

as well as other non-self-report measures of stress (e.g., cardiovascular and endocrine measures). Of interest, the proofreading task revealed an additional finding that was not present for the self-report measures: a significant relative Problem-Focused Coping \times Control interaction. The reason this finding occurred only for proofreading and only when using relative scores is not clear. One may speculate that this interaction suggests that attempts at control (reflected in high problem-focused coping efforts relative to low attempts at regulating emotions) in the face of an uncontrollable stressor may lead to subsequent helpless behavior and lack of effective action even on an unrelated and presumably controllable task. This general helpless behavior may be reflected in poorer performance on the proofreading task. Seligman (28) would argue that such learned helplessness would also be associated with depression; however, low control and high problem-focused coping were not associated with higher levels of depression in this study. This interaction was not found for absolute problem-focused coping scores, which raises the possibility that such helpless behavior may only ensue if attempts at controlling an uncontrollable situation are not balanced by a comparable effort at regulating distressing emotions. This interpretation is speculative at best, and future studies may help to resolve this issue by assessing stress on various dimensions, including psychological, behavioral, and physiological measures.

A note regarding the two scoring methods of coping—raw and relative scores—is warranted. The inclusion of both scoring methods in this study was based on Vitaliano et al.'s (5) argument that the two methods are conceptually distinct. These authors reasoned that two individuals with identical frequency of emotion-focused coping (raw scores) may have very different coping profiles based on how frequently they use other strategies. According to the authors, this would have clinical implications for their adjustment to stressors. Although this idea has much intuitive appeal and fits well with Lazarus and Folkman's (1) model, few studies have compared the two scoring methods. Only one other study tested the goodness-of-fit hypothesis using both scoring methods and found no difference in the results (11). The importance of this distinction remains to be clarified.

This study is the first to provide support for the goodness-of-fit hypothesis in a longitudinal design allowing control of the possible confound of prior distress levels. Conclusions regarding causality, however, should be considered with caution. One caveat to be noted is the time frame chosen for the coping measure. Participants were allowed to choose any stressful event experienced over the past year, thus raising the possibility that the stressor and associated coping efforts in fact preceded the "baseline" stress measures in some cases. Thus, although this study provides some control for prior distress levels, the interpretation is limited by the possibility that this was not a true baseline for at least part of the study sample. One may argue that using a 2-month time frame, which would have fallen in between Time 1 and 2 assessments, may not have completely eliminated this problem, as participants may still have chosen to report ongoing stressors the onset of which predated that prescribed time frame. This issue raises the concern that retro-

spective reports of stressful events and use of coping strategies is not the most adequate assessment strategy for this research. A related issue concerns the question of causality regarding appraisal and coping use. Our study design did not allow us to determine whether the choice of coping strategies followed or preceded the appraisal process. For example, it is conceivable that control appraisals would be higher after the person has effectively used problem-focused coping in dealing with a stressor. This reasoning does not contradict Lazarus and Folkman's (1) model, as the authors considered stress and coping to be a continual feedback process that includes appraisal and reappraisals of the situation.

Further limitations concern the study sample, including the relatively small sample size already mentioned and the possibility that the generalizability of these findings may be limited by the participant population chosen (approximately 75% of participants had a child with a chronic illness). Most previous studies on this topic have focused on special populations including college students, psychiatric patients, caregivers, and medical patients (11–13). Studies using community samples representative of the general population will increase confidence in the generalizability of the transactional model.

This research has potential implications for stress management interventions and the idea that teaching effective coping strategies may need to undergo a shift from a model of inherently adaptive and maladaptive strategies (e.g., 9) to a more complex and flexible one that allows for moderator variables. In line with Lazarus and Folkman's theory (1), these results suggest that the person–situation interaction needs to be taken into account. In fact, studies that have incorporated this model into broader coping effectiveness training interventions by teaching individuals to accurately appraise stressor controllability and to adjust choice of coping strategies accordingly have reported significant improvements in coping efficacy, distress, and depression (29,30). Future research should examine other potential situational appraisals that may constitute important moderators of the coping–stress relationship.

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