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Cognitive Theories of Depression Viewed from a Diathesis-Stress Perspective: Evaluations of the Models of Beck and of Abramson, Seligman, and Teasdale[1]

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Research on cognitive models of depression has frequently neglected either the relations between different levels of cognitive-personality variables, the interaction of person and event factors, or both. We evaluated the utility of multivariate, interactional representations of the models of Beck, and of Abramson, Seligman, and Teasdale, for predicting depressive symptoms in a sample of 83 undergraduates. Beck's model was able to account for an estimated 32% of population variance in depressive symptoms, and the reformulated helplessness model for 19% In both cases, these figures are higher than those found in studies that represented the models more simply. Although depressive symptoms were associated with both person and event variables, the hypothesized person-event interaction effects were not found. The strongest correlates of depressive symptoms were perceptions of upsetting real events. Some of these event perceptions were, in turn, associated

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with the frequency of negative events, suggesting a need for cognitive theories of depression to incorporate a greater emphasis on the objective role of life events.

KEY WORDS: depression; diathesis-stress models; Beck's theory; reformulated helplessness theory.

Much recent psychological research on depression has attempted to test the cognitive theories proposed by Beck and his colleagues (Beck, 1967; Beck, 1987) and by Abramson, Seligman, and their colleagues (e.g., Abramson, Seligman, & Teasdale, 1978). However, most previous studies have neglected one or both of the following two aspects of these models: (1) They specify more than one level of relevant cognitive-personality variables, and (2) they are essentially diathesis–stress models.

Both theories describe a relatively stable, trait-like cognitive vulnerability or diathesis for depression. Abramson *et al.* (1978) point to the importance of a charaterological tendency to attribute negative events to internal, stable, and global causes, which they refer to as a depressogenic attributional style. Beck (1967) has described a rather broader set of dysfunctional attitudes that create a diathesis for depression. In addition, both theories also encompass at least one additional level of cognition relevant to depression. Abramson *et al.* (1978) propose that it is when the depressogenic attributional style is brought to bear on events experienced by the individual, giving rise to *actual event attributions*, that depressive symptoms may occur. Similarily, Beck (1967) suggests that when events are interpreted in the context of dysfunctional attitudes, certain negative *actual event perceptions* will occur that may give rise to depressive symptoms. Thus, both theories specify both a trait-like cognitive diathesis and a set of specific event-related cognitions that derive from that diathesis. Yet most research to date has addressed only one or the other of these levels of cognitive variable, not both.

The diathesis–stress nature of the models is the idea that dysfunctional attitudes and attributional styles increase the probability of depression only to the extent that they are activated by stressful live events (Alloy, Clements, & Kolden, 1985; Beck, 1967; Riskind & Rholes, 1984). Several recent studies have looked at the relations of depression or depressive symptoms to the interaction between cognition and the frequency or intensity of stressful events (e.g. Hammen, Marks, Mayol, & DeMayo, 1985; Metalsky, Abramson, Seligman, Semmel, & Peterson, 1982; Metalsky, Halberstadt, & Abramson, 1987; Olinger, Kuiper, & Shaw, 1987; Persons & Rao, 1985; Robins & Block, 1988; Rothwell & Williams, 1983). However, none of these studies reported subjects' perceptions of, or attributions for, the actual events; they measured only the proposed chronic vulnerability factor of dysfunctional attitudes or attributional style.

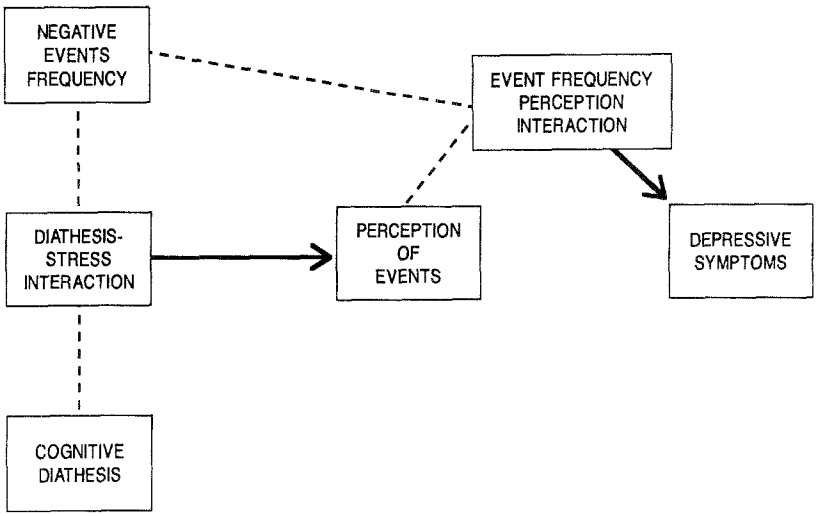

Fig. 1. General representation of cognitive models of depression. (Solid lines represent paths hypothesized as causal by these models. Dashed lines show that interaction terms are correlated with, but cannot be caused by, their constituent variables.)

A MULTIVARIATE INTERACTIONAL MODEL OF DEPRESSION

We propose that both theories can be represented by a generic model, shown in Figure 1, which has two causal stages. Working "backward" causally,[3] depression is a function of the *interaction* of certain types of negative event perceptions with the frequency of occurrence of negative events. In the prior stage of the model, event perceptions themselves are a function of the *interaction* of certain cognitive-personality diatheses with the frequency of negative events. Other relations are also consistent with these models, though not required of them. For example, depression may be simply correlated with event frequency, and with perceiving events in particular ways.

Although we have used negative event frequency as the principal index of stressful events, one could argue that other dimensions, such as importance or severity of events, are equally valid indices. From our perspective, however, these latter types of measures confound objective and subjective qualities, which we have tried to separate into event frequency and event perceptions. It is also possible that sheer frequency of events is too gross a meas-

[3]The model described assumes depression to be only an effect, rather than also a potential cause of the "predictor" variables. While this is undoubtedly an oversimplication (Teasdale, 1983), the present study is unable to distinguish causal directions, and so the model as typically described by cognitive theorists is tested here.

ure or construct, and indeed some recent studies, including our own, have examined more specific categories of personally meaningful events (Hammen *et al.*, 1985; Robins & Block, 1988; Zuroff & Mongrain, 1987). However, in line with most previous work on the relations of depression to life events or cognition–event interactions, we chose to use a simple frequency measure of negative events.

We report here two studies, each designed to test this multivariate interactional representation of either Beck's theory or that of Abramson, Seligman, and Teasdale. Both studies used the same sample and procedure, which provided an opportunity to compare the abilities of each model to predict level of depressive symptoms. We have made the assumption that the models are relevant to depressive symptoms in nonclinical populations as well as to clinical depression. In study 1, the reformulated helplessness model was tested by predicting depressive symptom level from measures of attributional "style," the frequency of recent negative events, attributions for the causes of those events, and the interactions among these three sets of variables. In study 2, Beck's model was analogously tested by predicting depressive symptom level from measures of dysfunctional attitudes, the frequency of recent negative events, a wide array of perceptions of those events, and the interactions among these three sets of variables.

METHOD

Subjects and Procedure

We view all of the variables in the models as continua, including level of depressive symptomatology. A nonselected sample that spanned a wide range of depressive symptom levels (BDI range 0 to 28, $M = 6.0$, $SD = 6.2$) was therefore employed.

Eighty-three undergraduate students (35 male and 48 female) participated for course credit. Their mean age was 19 (range 17 to 29). They completed the Dysfunctional Attitudes Scale (DAS; Weissman & Beck, 1978) at the beginning of the semester; between 4 and 8 weeks later, they completed the Attributional Style Questionnaire (ASQ; Peterson *et al.*, 1982), the Life Events Inventory (LEI; Cochrane & Robertson, 1973), the Perceptions of Events Questionnaire (PEQ), and the Beck Depression Inventory (BDI; Beck, Rush, Shaw, & Emery, 1979), each described below.

Measures

The Dysfunctional Attitudes Scale was included as a measure of a cognitive trait variable relevant to Beck's theory. The version used here (Form

B) contains 40 statements reflecting attitudes believed to be risk factors for depression. The possible range of scores is 40 to 280, with higher scores indicating more dysfunctional attitudes. Previous research shows the DAS to have high internal consistency and temporal stability and to be moderately correlated with depressive symptoms (Hamilton & Abramson, 1983; Oliver & Baumgart, 1985).

The Attributional Style Questionnaire was included as a measure of a cognitive trait variable relevant to the reformulated helplessness theory. It consists of six positive and six negative hypothetical events. Subjects are instructed to imagine the event happening to them and to rate its cause on three 7-point scales measuring internality, stability, and globality. Summary scores are typically obtained for each dimension separately and for their composite, for negative and positive events separately. The possible range of scores is 6 to 42 for each dimension and 18 to 126 for the composites. Only the attributions for negative events were used in the present study, since positive events have generally been found to be unrelated to depression (Vinokur & Selzer, 1975). Although test-retest reliability is moderate for these measures, internal consistency has often been reported to be quite low, particularly for internality (Peterson *et al.*, 1982).

The Life Events Inventory is a list of 55 positive and negative events. Subjects indicate which events they experienced during a preceding time period. A 3-month period was used here in order to minimize inaccuracy of recall. Each event was coded as negative or positive/ambiguous by two raters. Interrater agreement was 100%; 36 events were coded negative and 19 positive/ambiguous. Only negative events were included in analyses. One of these was considered to be a possible symptom of depression (sexual difficulties) and therefore was excluded, leaving a total of 35 negative life events (NegLE). Simple frequency scores were used rather than weighted scores because these two methods have been shown usually to be highly correlated with each other and similarily related to dependent measures (e.g., Vinokur & Selzer, 1975).

The Perceptions of Events Questionnaire was developed for the study. It asks subjects to rate their three most upsetting recent events on nine 7-point scales, designed to tap a relatively broad array of the subject's perceptions of the event and their response to it. These scales were selected on the basis of theory and prior research on the relation of depression to event appraisals (e.g., Hammen & Cochran, 1981; Wortman & Dintzer, 1978). These ratings were considered measures of the specific event cognitions relevant to Beck's model; the three types of attribution specified by Abramson *et al.* are included within the set. Specifically, the items of the PEQ ask about the subject's perceptions of how upsetting the event was; the degree of resulting life change; internality, stability, globality, and intentionality of causal attributions; control over effects of the event, and over its occurrence; and perceived availability of social support. Average ratings

of up to the three most upsetting events, referred to as PE scales, were employed in data analyses in order to increase reliability.

The Beck Depression Inventory was used to measure depressive symptom level. This 21-item inventory is the most widely used self-report measure of depression, for which it has been shown to have good validity in a university student population, using psychiatric interview-based judgment as the criterion (Bumberry, Oliver, & McClure, 1978).

Data Analysis

In both studies, the particular instantiation of the more general model outlined in Figure 1 was tested in two stages, using hierarchical multiple regression procedures.[4] In the first stage, the dependent variable was depressive symptom level; in the second stage, perceptions of, or attributions for, events. In each of these regression equations, two main effect variables were entered one after another, followed by the interaction term. In order to aid the interpretation of any significant two-way interaction effects, the slope for the effects[5] of each of the two variables was computed at three different levels of the other variable: at the mean, and at 1 standard deviation below and above the mean.

RESULTS

Study 1: The Attributional Model

Internal Consistency and Correlations Among Attributional Dimensions

On the ASQ, Stable and Global attributions and the Composite showed only a modest degree of internal consistency (alpha = .57, .56, and .52, respectively), and Internal almost none (alpha = .14). Across the three most upsetting real-life events, only Global demonstrated much consistency at alpha = .52. The alphas for Internal, Stable, and the Composite were only .28,

[4]An alternative approach to testing causal models, using latent variable analyses such as LISREL, cannot be applied to the present data because it is highly desirable to have four or more indicators per latent construct. Furthermore, latent variable models have a relative inability to handle interactions, in which we were most interested, except in simple models (Kenny & Judd, 1984).

[5]The term *effect* is used here in the statistical sense of ability to account for variance in the dependent variable. The results actually describe only associations that may be congruent with, but do not require, the particular causal paths hypothesized by the cognitive theories.

.27, and .19, respectively. These poor reliabilities naturally limit the strengths of relations that can be demonstrated with other variables. With regard to intercorrelations, on the ASQ, Global was modestly correlated with Internal ($r = .25$, $p < .05$) and Stable ($r = .28$, $p < .05$), but the latter two did not significantly correlate with each other ($r = .14$). For actual events, there was no evidence of relations among any of the three attribution dimensions (r's = .01, .05, and .11). These findings fail to support the existence of an atttributional style, at least as measured in these ways, and suggest that the role of each dimension needs to be examined separately, not just by use of a composite score.

Stage 1: Predicting Depressive Symptoms

BDI scores were significantly correlated with NegLE frequency ($r = .28$, $p < .05$), with Stable, Global, and Composite attributions on the ASQ ($r = .25$, .26, and .24, all p's $< .05$), and with Global ($r = .38$, $p < .001$) and Composite ($r = .35$, $p < .01$) PE attributions. The joint and interactional effects of these variables were examined using hierarchical multiple regressions. These analyses are shown in Table I. For each attributional dimension, and their composite, four regression analyses were conducted. The first assessed the relation of BDI to event attributions when event frequency is partialed out, and to the interaction of these variables (analysis a). The second reversed the order of entry to examine the relation of BDI to event frequency, when event attributions were partialed out (analysis b). In order to determine whether the relations of depressive symptoms to attributional style and to its interaction with event frequency could be mediated by attributions for the three most upsetting events, we also conducted regressions in which these relations were assessed after partialing out the effects of actual event attributions (analysis c for each dimension). Finally, for each dimension and the composite, we determined which combination of main effect and interaction terms accounted for the highest percentage of BDI variance.

Event Attribution–Event Frequency Interaction. Although NegLE was a significant predictor of BDI scores, this relation was reduced to nonsignificance after partialing out PE Global or Composite attributions. PE Global and Composite attributions for actual events were both associated with BDI, and these relations remained significant after partialing out NegLE. BDI was not related to PE Internal or Stable attributions or to the interactions of NegLE with any of the PE attribution dimensions.

Attributional Style–Event Frequency Interaction. ASQ Stable attributions remained significantly related to BDI after partialing out PE Stable, but the relations of ASQ Global and Composite attributions to BDI were no longer significant after partialing out PE Global or PE Composite, respec-

Tatle I. Results of Hierarchical Regressions of Depressive Symptom Level (BDI) on Life Events Frequency (NegLE), Attributions for Hypothetical (ASQ) and Actual (PE) Events, and Their Interactions[a]

	R^2 change	F	p		R^2 change	F	p
Internal attributions				Stable attributions			
a. Step 1. NegLE	.07	5.40	.02	a. Step 1. NegLE	.07	5.40	.02
2. PE Internal	.01	0.87	.35	2. PE Stable	.00	0.26	.62
3. PE Int × NegLE	.01	0.99	.32	3. PE Sta × NegLE	.05	3.81	.06
b. Step 1. PE Internal	.02	1.55	.22	b. Step 1. PE Stable	.01	0.48	.49
2. NegLE	.06	4.64	.04	2. NegLE	.06	5.09	.03
c. Step 1. PE Internal	.02	1.55	.22	c. Step 1. PE Stable	.01	0.48	.49
2. ASQ Internal	.00	0.07	.79	2. ASQ Stable	.05	4.22	.04
3. NegLE	.06	4.78	.03	3. NegLE	.05	4.43	.04
4. ASQ Int × NegLE	.00	0.04	.84	4. ASQ Sta × NegLE	.04	3.48	.07
Global attributions				Composite attributions			
a. Step 1. NegLE	.07	5.40	.02	a. Step 1. NegLE	.07	5.40	.02
2. PE Global	.10	9.53	.00	2. PE Composite	.08	7.29	.01
3. PE Glo × NegLE	.01	0.57	.45	3. PE Comp × NegLE	.01	0.82	.37
b. Step 1. PE Global	.14	12.24	.00	b. Step 1. PE Composite	.12	10.34	.00
2. NegLE	.03	2.98	.09	2. NegLE	.03	2.58	.11
c. Step 1. PE Global	.14	12.24	.00	c. Step 1. PE Composite	.12	10.34	.00
2. ASQ Global	.02	1.72	.19	2. ASQ Composite	.02	2.03	.16
3. NegLE	.03	2.51	.11	3. NegLE	.02	2.02	.16
4. ASQ Glo × NegLE	.02	1.96	.17	4. ASQ Comp × NegLE	.05	4.35	.04

[a]Degrees of freedom for the denominator of the F tests were 80 for Step 1, decreasing by 1 at each successive step.

tively. ASQ Internal attributions were not significantly related to BDI. The only significant attributional style by event frequency interaction, after controlling for the relevant event attribution dimension, was that between NegLE and ASQ Composite. Even after PE Composite attributions were accounted for, the positive relation between BDI and NegLE was greater among subjects who had higher ASQ Composite scores.

Predicting BDI from the Full Model. The equation that explained the greatest amount of BDI variance was that involving Global ASQ attributions, NegLE, Global PE attributions, and all of their interactions, for which $R^2 = .26$, adjusted $R^2 = .19$.

Stage 2: Predicting Actual Event Attributions

We conducted hierarchical regression analyses in order to determine the relations of the event attribution (PE) dimensions with the corresponding dimensions on the ASQ and with NegLE. These regressions allowed us to determine the unique and interactive effects of these two variables. Neither PE Internal, PE Stable, nor PE Composite was significantly related to the corresponding scales of the ASQ (r's = .09, −.06, and .20, respectively), and controlling for event frequency did not significantly change these findings. In contrast, PE Global was significantly related to ASQ Global ($r = .27$, $p < .05$); this relationship was largely unaffected by first controlling for event frequency, change in $R^2 = .06$, $F(1, 76) = 5.39$, $p < .05$. NegLE was significantly related only to Composite event attributions ($r = .25$, $p < .05$); this relation remained significant after controlling for the ASQ Composite, change in $R^2 = .05$, $F(1, 76) = 4.59$, $p < .05$. There were no significant relations of actual event attributions to the interactions of any ASQ variables with the frequency of events.

Summary of Study 1 Results

Despite serious measurement limitations, we found a number of significant relations, shown in Figure 2, that supported some aspects of the reformulated helplessness model and failed to support others. The model as tested here was able to account for up to an estimated 19% of the variance in BDI scores in the population from which we sampled. Consistent with recent reviews of the literature (Hammen, 1985; Robins, 1988), a relation between depressive symptoms and actual event attributions was found only for global attributions. None of the interactions between event frequency and event attributions were significantly related to depressive symptoms. Stable attributions on the ASQ were related to depressive symptoms, but, contrary to

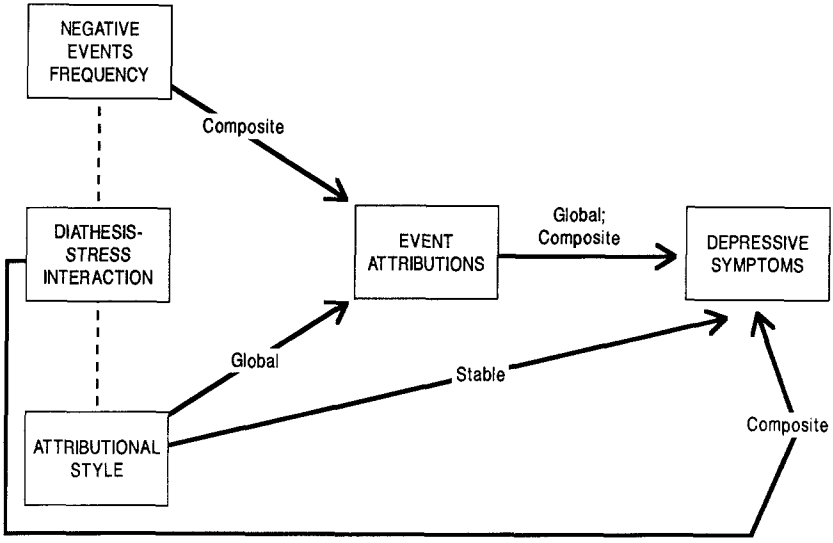

Fig. 2. Paths in the Abramson, Seligman, and Teasdale model supported by the present results. (Shown by solid lines. Dashed lines represent the relations of interaction terms to their constituent variables.)

the theory, this relationship could not have been mediated by stable attributions for actual upsetting events. Indeed, only the ASQ global dimension was correlated with its corresponding event attribution measure. There was also no evidence to support the hypothesis that specific event attributions are made when a chronic attributional style is "primed" by negative events. An interesting nonpredicted finding was that the attributions subjects made for actual upsetting events were related, in part, to the sheer number of negative events they reported. The implications of these findings will be discussed after we present the analyses of Beck's (1967) model.

Study 2: Beck's Model

In this study, we examined a model that incorporates a broader range of dysfunctional attitudes, assessed by the DAS, and perceptions of events, measured by all nine PEQ scales, than that used in Study 1.

Internal Consistencies of PE Scales

Internal reliabilities of these three-item scales were adequate only for the measures of Upsettingness, Change, and Social Support Available (all

alphas > .64). The reliability of the Global attributions scale was moderate at alpha = .52. The other five scales all had alphas of .28 or less, suggesting that these types of perceptions did not vary consistently across persons.

Stage 1: Predicting Depression Level

All of the measures of cognition and life events used in the study were correlated with BDI: DAS $r = .46$, $p < .001$; NegLE $r = .32$, $p < .05$; PE set $R = .36$, $p < .01$. The unique and interactional effects of these variables were examined by hierarchical multiple regressions. These analyses are shown in Table II. Parallel to our analyses of the attributional model, four regressions were conducted. The first assessed the relation of BDI to the interaction of the set of event perceptions with event frequency, and to event perceptions when event frequency is partialed out (analysis a). The second reversed the order of entry to examine the relation of BDI to event frequency when event perceptions were partialed out (analysis b). In order to determine whether the relations of depressive symptoms to dysfunctional attitudes and to their interaction with event frequency could be mediated by the event perceptions measured here, we also conducted a regression in which these relations were assessed after partialing out the relation of depressive symptoms to event perceptions (analysis c). Finally, we determined what combination of main effect and interaction terms could account for the greatest proportion of BDI variance.

Event Perception–Event Frequency Interaction. Although NegLE was a significant predictor of BDI scores, this relation was reduced to nonsignificance after partialing out the PE set. In contrast, the PE set remained a strong predictor of BDI even after partialing out NegLE. BDI had significant bivariate correlations with four of the PE scales: Upsettingness, Amount

Tatle II. Results of Hierarchical Regressions of Depressive Symptom Level (BDI) on Negative Life Events Frequency (NegLE), Perceptions of Events (PE Set), Dysfunctional Attitudes (DAS), and Their Interactions[a]

		R^2 change	F	p
a. Step 1.	NegLE	.10	6.58	.01
2.	PE Set	.28	2.48	.02
3.	PE Set × NegLE	.13	1.22	.31
b. Step 1.	PE Set	.36	3.19	.01
2.	NegLE	.02	1.40	.24
c. Step 1.	PE Set	.36	3.19	.01
2.	DAS	.06	4.83	.03
3.	NegLE	.01	0.95	.34
4.	DAS × NegLE	.03	2.67	.11

of Life Change, Global Attributions, and low Availability of Social Support. However, only low Availability of Social Support remained a significant predictor when all nine scales were entered as a set in the regression analysis, which controls for their shared variance. There was not a significant relation to BDI of the interaction of NegLE with the PE set, as Beck's model predicts there would be. Nor were the interactions involving any individual PE scales significant.

Dysfunctional Attitudes–Event Frequency Interaction. The relation of BDI to DAS scores remained significant after first partialing out the relation of BDI to the PE set, though it dropped from $R^2 = .16$ to change in $R^2 = .06$. These results suggest that the relation of BDI to DAS is not entirely mediated by the nine types of event perceptions assessed here. The interaction of DAS and NegLE was not significantly related to BDI.

Predicting BDI from the Full Model. In a multiple regression analysis predicting BDI from DAS, NegLE, the PE set, and all interaction terms, the squared multiple correlation coefficient was $R^2 = .63$, adjusted $R^2 = .25$. The large drop in adjusted R^2 results from the large number of variables (43). A more parsimonious model that included only the main effects and the DAS by NegLE interaction (analysis c) gave an R^2 of .46 and adjusted R^2 of .32.

Stage 2: Predicting Perceptions of Events

We next tested the hypothesized causally prior stage of the model: predicting perceptions of events on the basis of dysfunctional attitudes, event frequency, and their interaction, using hierarchical multiple regressions. DAS significantly predicted only perceived Availability of Social Support, $r = -.28$, $p < .05$. This relation remained significant after first partialing out NegLE. Negative events frequency was associated with subjects' rating events as having more Global causes, $r = .21$, $p < .05$, and themselves as having less Social Support, $r = -.25$, $p < .05$. These associations remained significant after controlling for DAS. The DAS by NegLE diathesis–stress interaction did not significantly predict any PE ratings.

Summary of Study 2 Results

The full model was able to account for an estimated 32% of the BDI variance in the population from which we sampled. However, only some of the specific predictions of Beck's model were supported, whereas others were not (compare Figures 1 and 3). Several types of event perceptions were related to depressive symptoms: perceived upsettingness, amount of change, global

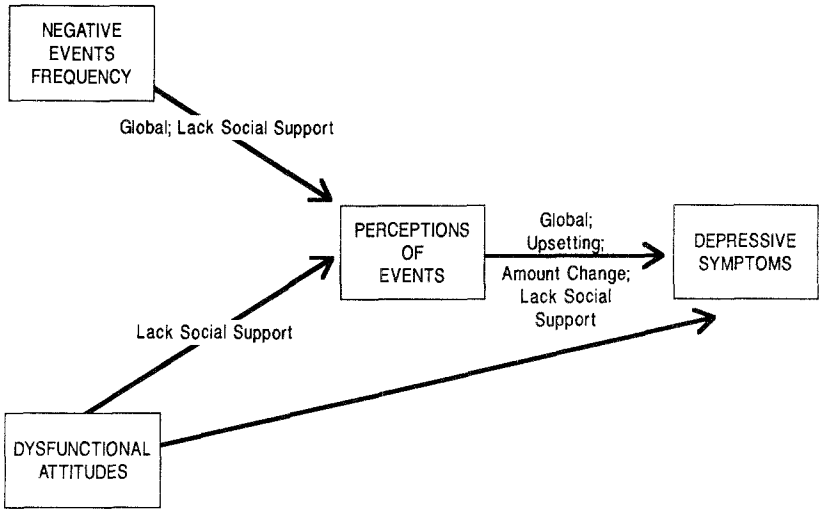

Fig. 3. Paths in Beck's model supported by the present results.

attributions, and perceived lack of available social support. However, the hypothesis that depressive symptoms would be associated with the interaction of a high negative event frequency and certain types of event perceptions was not supported. The hypotheses that dysfunctional attitudes would be associated with depressive symptoms and that this association would be mediated primarily by perceptions of events were both supported. Dysfunctional attitudes also had a direct relation with depressive symptoms, independent of any mediated effect. We did not find evidence of a relation to either depression or event perceptions of the attitude–event frequency interaction. In summary, our findings are consistent with a model in which stressful life events and dysfunctional attitudes produce certain perceptions of upsetting events that lead to depressive symptoms. However, the results did not demonstrate diathesis–stress interactions predicted by Beck's theory.

GENERAL DISCUSSION

Both studies generally supported the value of a multivariate approach to understanding the relations of psychosocial factors to depressive symptoms. In studies that examine only the bivariate relations between depression or depressive symptoms and cognitive or life events variables, correlations are typically on the order of .2 to .4, accounting for, at best, 16% of the variance. In contrast, the multivariate models tested here were able to account

for 26% of the sample BDI variance in the case of the attributional model and 63% in the case of Beck's model. Even correcting for chance inflations due to the number of variables relative to the number of subjects, these figures are 19% and 32%, respectively, for population estimates.

The fact that the representation of Beck's model had far greater predictive power than the attributional learned helplesness model suggests that, although the latter has some validity, it may focus on too narrow a set of variables. Abramson, Metalsky, and Alloy (1989) recently presented an important clarification and expansion of the model that indeed greatly increases the number of variables that need to be considered in future multivariate studies, as well as suggesting greater specificity regarding the types of depression for which the model is relevant. This expanded model may well have greater predictive power than the one tested here.

Perceptions of events were the set of variables most strongly related to depressive symptoms, and of these, perceived available social support had the strongest unique statistical effect. The lack of interaction of social support with event frequency supports the direct rather than buffering conception of the role of social support.

The fact that dysfunctional attitudes had a direct relation to depressive symptoms as well as one mediated by event perceptions suggests that dysfunctional attitudes may be related to other depressogenic ways in which people perceive events, which were not tapped by our measurement instrument. Another possibility is that when an individual becomes somewhat depressed, the degree of depression may be partly a function of the meaning that depressive symptoms themselves have for the individual, which may depend in turn on some underlying schemata tapped by the DAS. For example, an individual who strongly holds the belief that "I ought to be able to solve my problems quickly and without a great deal of effort" or that "I should be happy all the time" may react more negatively to symptoms of depression than one who does not, which may then intensify the level of depression (Teasdale, 1983).

Some of the strong predictions of the models were not supported. In the reformulated helplessness model, only roles for global and, to a lesser extent, stable attributions were supported. Most important, the predicted cognition–event interactions were not found for either model. Before dismissing the possible importance of such interaction effects, two possible explanations for the lack of such effects here should be considered. First, several measurement operations were less than optimal. We found that many of the event perception scales had poor internal consistencies, making it difficult to detect possible relations involving the constructs they purport to measure. Indeed, it is noteworthy that the four PE scales that were significantly related to depressive symptoms were the only four that had even moderately good internal consistencies. The ASQ scales also had only moderate

internal consistencies (cf. Cutrona, Russell, & Jones, 1984) and low intercorrelations among dimensions (cf. Zautra, Guenther, & Chartier, 1985) that suggest that the composite score does not measure a unitary construct. Another measurement issue is that the ability to find interactive effects involving life events may have been limited by the small number of negative events reported ($M = 2.7$, $SD = 2.3$). A longer period for which to report events, or an inclusion of more minor events or chronic strains may result in a greater number and range of events. A second possible explanation for the lack of interaction effects is that such effects may occur only when there is a quite specific match between the particular dysfunctional attitudes held by an individual and the particular type of events experienced (Hammen et al., 1985; Olinger et al., 1987; Robins & Block, 1988; Zuroff & Mongrain, 1987).

The frequency of stressful life events, by itself, was associated with differences in perceptions of individual upsetting events, specifically with more global attributions and less perceived social support. In retrospect, this finding certainly makes sense and is not inconsistent with either model, even though not predicted by them. It is likely that stressful life events have a cumulative effect such that, in an already stressed state, an individual's threshold of sensitivity to events is lowered, and each event is perceived as being difficult to adapt to. Resources may be perceived to be insufficient. In addition, when there are many stressful life events, a number of them may indeed have similar contributory causes that may be aspects of the individual's own behavior or of environmental circumstances such as economic deprivation. In such cases, reporting that the cause of a particular upsetting event also quite globally influences other areas of one's life may be an essentially veridical perception. This raises the question of whether the types of event perceptions assessed here represent distortions or are largely correct. Miller, Klee, and Norman (1982) found significant correlations between experimenters' and depressed patients' causal attributions for actual stressful events that had occurred to the patients. The present results suggest that cognitive theories need to be modified, at least in emphasis, to include a greater role for the individual's actual social context (Coyne & Gotlib, 1983; Oatley & Bolton, 1985).

Several limitations should be kept in mind in drawing inferences from the results: First, generalizations from predictors of depressive symptoms in this unselected sample to clinical levels of depression should not be assumed but should be tested empirically. Second, there is no psychopathology control group, or other measure of distress, so the specificity of the present findings to depressive symptoms as opposed to other dysphoric states cannot be determined. Third, and most important, is the cross-sectional design of the study. Though we have tested the empirical viability of a particular

causal conceptualization, no actual cause–effect relations have been demonstrated. The relations found here are also consistent with alternative models in which, for example, depressive symptoms lead to particular event perceptions, reported attitudes, attributions, or life events. To address the causal directionality issue more directly requires converging evidence from a combination of analogue experiments and multivariate prospective studies of initially nondepressed subjects.

Despite the above considerations, we believe that the present study is important because it assessed the relations of depressive symptoms to both characterological vulnerability and perceptions of naturally occurring events, to event frequency, and to the interactions of these person and event variables. The findings strongly support the value of looking at multiple factors in relation to depression. More complex models that also include reliable, valid measures of other variables, such as chronic strains, coping skills, objective social support, and biological factors, may provide an even better fit.

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