CHAPTER 14

EXPLANATORY STYLE, HELPlessness, AND DEPRESSION

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In the past several decades there has been a proliferation of research on the role of cognitive factors in the development of both depressive affect and diagnosable major depressive episodes (Coyne & Gotlib, 1983). One particular focus of research has been the reformulated learned helplessness model of depression (Abramson, Seligman, & Teasdale, 1978), which analyzes the role of explanations—or attributions—for bad events in the etiology of depression. This chapter reviews research on the reformulated learned helplessness model of depression. We begin with a discussion of original helplessness theory, and continue by describing the reformulated learned helplessness model. We then discuss data that support the reformulated model, and data that are inconsistent with the model. We conclude this chapter by posing several questions about the nature of the relationship between explanations, helplessness, and depression, and by suggesting answers to those questions and directions for future research.

THE ORIGINAL LEARNED HELPlessness MODEL OF DEPRESSION

The reformulated learned helplessness model of depression is based on earlier helplessness research with a variety of organisms (Maier & Seligman, 1976). Results from this research indicate that when organisms are exposed to uncontrollable negative events they often react with a characteristic passivity, and demonstrate subsequent cognitive, behavioral, and emotional deficits that are similar to the symptoms of depression. For example, a typical helplessness experiment (Seligman & Maier, 1967) used three groups of dogs. One group of dogs was shocked in a harness, but they could turn off the shock by pressing a panel with their noses. A second group of dogs was yoked to the first group so that they received equal amounts of shock, but had no control over shock termination. A third group, the control group, received no shock. Dogs in all groups were then
tested in a two-way shuttle box. Although jumping the partition in the shuttle box would have quickly terminated shock for all groups of dogs, the dogs who had been unable to control shock termination became helpless and tended not to jump the partition, but instead passively tolerated the shock.

What is the basis for this apparent helplessness? Central to the effect appears to be the lack of control over shock termination in the yoked dogs. In fact, the animals appear to have learned that their responses do not control outcomes, and to expect that future responses and outcomes will be noncontingent. When their initial responses are ineffective in controlling shock, the dogs become passive and helpless, eventually failing to learn new contingencies between responses in their repertoire and outcomes.

Seligman proposed the phenomenon of helplessness as a model for human depression (Miller & Seligman, 1975; Seligman, 1975). The helpless dogs appeared to demonstrate many of the same cognitive, motivational, and affective symptoms as the depressed human. For example, helpless dogs behaved as though they expected outcomes to be uncontrollable. This behavior is similar to the apparent expectations of depressed people—they often report feeling hopeless about change for the better and unable to cope with problems in the present. Similarly, depressed individuals often appear unmotivated and show lower levels of response initiation. Finally, the helpless dogs tended to huddle, whimpering, in a corner of the shuttle-box, a possible animal equivalent of the crying, pervasive sadness, and anhedonia reported by depressives.

However, one problem with the original helplessness theory of depression was its failure to mark boundary conditions, especially when human subjects were involved (Seligman & Nolen-Hoeksema, 1987). For example, research that attempted to demonstrate helplessness in humans by using unsolvable anagrams or inescapable noise sometimes demonstrated the opposite effect: a facilitation of performance through increased activity and attempts at mastery (Roth, 1980). While some individuals became helpless, others appeared to be quite resistant to helplessness deficits. In addition, the original theory could not explain why depressed individuals often blame themselves for bad events, especially when those events are clearly not their fault. Finally, the original theory could not predict the chronicity and generality of depressive reactions to bad events. Why do some individuals experience transient and specific affective reactions to a negative event whereas others slide into a major depressive episode when confronted with the same type of event?

THE REFORMULATED MODEL

The reformulated learned helplessness model of depression (Abramson et al., 1978) suggested that individual differences in a cognitive variable—the way people characteristically explain bad events—might account for these individual differences in depressive tendencies in response to bad events. According to the reformulated model, when people experience an aversive event they often ask why the event occurred. The reasons they give for bad events can then be analyzed along three theoretically orthogonal dimensions: internal-external, stable-unstable, and global-specific. The model predicts that individuals who characteristically produce internal, stable, and global explanations for bad events are more likely to become depressed in response to a bad event than individuals who make external, unstable, and specific explanations.

The model assigns a particular role to each attributional dimension in producing depression and helplessness deficits. First, if an individual believes that something about him or her caused a bad event (an internal explanation such as, “It's my fault”), he or she will experience self-esteem deficits in response to bad events. Second, an explanation invoking causes that persist over time (a stable explanation such as, “This always happens”) may be responsible for the chronicity of depressive deficits. Finally, if an individual believes that the cause will affect many aspects of his or her life (a global explanation such as, “Everything's a mess”), helplessness deficits may become generalized. Individuals who characteristically make internal, stable, and global explanations about negative events (for example, “I always mess up everything”) can be said to have a pessimistic explanatory style and, according to the Abramson et al. (1978) model, will be at risk for development of the cognitive, motivational, and affective deficits that are characteristic of a depressive episode whenever they confront an important negative event. In contrast, individuals who make external, unstable, and specific explanations about bad
events are less likely to experience loss of self-esteem and more likely to respond with a transient and circumscribed affective reaction to that event.

Note that this model makes several testable predictions. First, the model suggests that individuals have a characteristic way of explaining bad events. In other words, there may be stable individual differences in the types of explanations that individuals tend to make for good and bad events, and at least some cross-situational consistency in explanatory style. Second, the model predicts that individuals with a pessimistic explanatory style will be more likely than individuals with an optimistic explanatory style to become depressed following bad events, particularly when those events are very important to the individual concerned. Finally, the model posits a specific association between a pessimistic explanatory style and the deficits associated with helplessness and depression. Pessimists are hypothesized to be at increased risk for symptoms of depression and helplessness when confronted with bad events, but not necessarily at greater risk for other psychological problems.

**MEASUREMENT OF EXPLANATORY STYLE**

Researchers have employed diverse methods of assessing explanatory style. For example, some investigators have measured solely internal and external attributions (Parry & Brewin, 1988) or have asked individuals to report recent stressful events and to rate them along attributional lines (e.g., Cochrane & Hammen, 1985; Cutrona, Russell, & Jones, 1984; Miller, Klee, & Norman, 1982). However, these approaches often either fail to provide all the necessary measures to fully test the reformulated model or are frequently of unreported and possibly low reliability, especially if only one or two events are utilized in determining explanatory style (Peterson, Villanova, & Raps, 1985). In contrast, the two most commonly used techniques for measuring explanatory style appear to have achieved adequate reliability and validity.

The Attributional Style Questionnaire

One way to measure explanatory style is with the Attributional Style Questionnaire (ASQ; Peterson, Semmel, von Baeyer, Abramson, Metalsky, & Seligman, 1982). This questionnaire asks individuals to imagine that a hypothetical event has happened to them, to provide a cause for each event, and to rate each cause on a scale of 1 to 7 for internality, stability, and globality. Subjects’ scores on each dimension for good and bad events can then be summed in order to yield a composite measure of explanatory style for negative and positive events. Reliabilities for the composite on the ASQ have proven to be modest but usually adequate: in the range of .30 to .70. In addition, Peterson and Villanova (1988) have developed an expanded version of the ASQ that utilizes only negative events, and for which reliabilities have proved quite satisfactory: in the range of .66 to .88.

A similar instrument, the Children’s Attributional Style Questionnaire (CASQ; Seligman, Peterson, Kaslow, Tanenbaum, Alloy, & Abramson, 1984) has been developed in order to study explanatory style in children. The CASQ is a forced choice version of the ASQ, and yields scores on the same three dimensions as the ASQ, as well as composite scores for negative and positive events. Reliabilities of composite scores on the CASQ tend to be modest: in the range of .50 to .73.

**Content Analysis of Verbatim Explanations**

The second technique for measuring explanatory style is the Content Analysis of Verbatim Explanations (CAVE; Peterson, Luborsky, & Seligman, 1983). This approach uses independent trained judges to rate verbatim causal statements extracted from spoken or written material on a scale of 1 to 7 for the same three dimensions. The CAVE technique has demonstrated high interrater reliability, and adequate intrasubject consistency (Burns & Seligman, 1989; Peterson et al., 1983). Ratings derived from the CAVE also correlate significantly with ratings on the ASQ (Peterson, Bettas, & Seligman, 1985), although these correlations tend to be modest: in the range of .30 (Peterson & Seligman, 1984; Peterson & Villanova, 1988).

Using the ASQ, the CASQ, and the CAVE techniques, it is possible to examine the predictions of the reformulated learned helplessness theory of depression. Results from several lines of research converge in demonstrating that explanatory style for negative events may be a stable individual difference, and that a pessimistic explanatory style is a risk factor for subsequent depression. In addition, several studies provide some evidence that explanatory style is specifically associated with
development of the cognitive, motivational, and affective deficits associated with helplessness and depression. We will examine each of these issues separately.

**IS EXPLANATORY STYLE A TRAIT?**

Can explanatory style be considered a personality "trait?" There are three criteria against which to judge the "traitness" of explanatory style: stability across time, consistency across domains, and intrasubject consistency.

**The Stability of Explanatory Style**

Evidence from several studies suggests that explanatory style, at least for negative events, is a stable individual difference, and in fact may be considered a trait. For example, studies using undergraduates' responses to the ASQ have obtained stability coefficients for attributions about negative events in the range of .50 to .70 over a 1-month period (Peterson et al., 1982). Similarly, Eves and Rush (1984) found some evidence for stability of explanatory style in depressed patients. They studied patients while depressed (Time 1) and after symptoms of depression had remitted (Time 2). The mean explanatory style of the depressives did not change significantly upon remission, and continued to be more pessimistic than the explanations made by controls.

More evidence for stability comes from two studies that used the CAVE technique to analyze explanatory style over longer time periods. Seligman and Elder (1985) assessed explanatory style in the sample of 28 women from the Berkeley-Oakland growth study. Content analysis of oral interviews conducted 27 years apart revealed significant stability for explanatory style for negative events over the time period analyzed \( r = .38 \) and no stability of explanatory style for positive events. Similarly, Burns and Seligman (1989) analyzed explanatory style across the adult lifespan. Thirty subjects whose average age was 72 years responded to questions about their current life and provided diaries or letters written an average of 52 years earlier. Event-explanation units were extracted from these two sources and randomized so that raters were not able to identify units as belonging to a particular subject. A content analysis of explanatory style derived from these two sources revealed that explanatory style for negative events was relatively stable throughout adult life \( r = .54, p < .002 \). However, there appeared to be no stability of explanatory style for positive events between the same two time periods. These results suggest that people have a characteristic way of explaining negative events.

**Consistency of Explanatory Style**

What about the second and third criteria, consistency across domains and intrasubject consistency? Some researchers have suggested that individuals do not actually have a characteristic style for explaining diverse negative events (Cutrona et al., 1984). However, studies that have reported inconsistency have often done so on the basis of only two or three attributions (e.g., Cutrona et al., 1984; Miller et al., 1982), and sometimes have interpreted coefficient alphas in the .50 range as indicative of inconsistency. Because current psychometric theory (Nunnally, 1978) indicates that more than two instances of a particular trait might be needed in order to uncover evidence of intrasubject consistency, it might be useful to examine evidence from studies that have analyzed explanations about larger numbers of events. In addition, while coefficients in the .50 range obviously do not indicate perfect consistency, they nonetheless provide some evidence of a tendency toward a moderately consistent individual explanatory style.

Studies that asked for explanations about five or more events have typically uncovered moderate consistency in the way individuals explain negative events from different domains. For example, Peterson et al. (1982) reported correlations in the range of .23 to .59 between achievement events and affiliative events on the ASQ. Surprisingly strong evidence for consistency was also reported by Anderson, Jennings, and Arnoult (1988) based on attributions derived from a different instrument, Anderson's Attributional Style Assessment Test. These investigators tested 413 subjects on ratings of interpersonal failures and noninterpersonal failures. After correcting for attenuation, the two attributional domains were correlated at the .91 level.

Further evidence for consistency across domains and within a given individual comes from an examination of coefficient alphas for negative events on the ASQ. These alphas typically are reported to be in the range of .30 to .70 (Cutrona et al., 1984; Peterson et al., 1982; Seligman, Abramson, Semmel, & von Baeyer, 1979; Zautra,
Evidence for Changes in Explanatory Style

Although results from numerous research projects utilizing diverse measures of explanatory style converge in providing evidence that individuals have a characteristic way of explaining bad events, we must qualify this finding based on reports that explanatory style sometimes changes as symptoms of depression remit (Persons & Rao, 1985; Seligman, Castellon, Cacciola, Schulman, Luborsky, Ollove, & Downing, 1988). For example, Seligman et al. (1988) compared the pretreatment explanatory style of 31 depressed individuals with measures of their explanatory style after treatment with cognitive therapy. Results indicated a significant difference in composite explanatory styles between the two times. As symptoms of depression lessened during the course of cognitive therapy, individuals became less pessimistic in their explanations for negative events. This finding initially appears to contradict our claim that explanatory style may be a trait. How might we reconcile this contradictory evidence?

One possibility is that cognitive therapy can change explanatory style (Seligman et al., 1988). According to this reasoning, explanatory style would remain stable in the absence of exposure to the specific techniques of cognitive therapy. However, as a result of involvement in cognitive therapy, individuals might learn to be less pessimistic in explaining negative events.

Some support for this hypothesis was obtained in a study by DeRubeis, Evans, Hollon, Garvey, Grove, and Tuason (1988). These researchers randomly assigned 106 unipolar depressed patients to a 12-week course of one of three active treatments. Patients were treated with cognitive therapy alone, imipramine pharmacotherapy alone, or combined cognitive and imipramine therapy. All patients completed the ASQ and several other cognitive measures. Interestingly, although patients treated solely with imipramine improved about as much as patients treated with cognitive therapy, only the patients treated with cognitive therapy demonstrated marked changes for the better in their explanatory styles for negative events. There was no significant change in ASQ scores in patients treated solely with pharmacotherapy. Thus, this study provided some support for the stability of explanatory style in the absence of techniques designed specifically to change an individual's style.

These results also are consistent with the stability of explanatory style reported by Eaves and Rush (1984) in a sample of depressed patients over a course of therapy in which none of them were treated with cognitive therapy. Because these patients were not exposed to some of the reattribution training procedures often used in cognitive therapy, they would have been less likely to have changed their explanatory style. Further research is needed to determine the stability of explanatory style across diverse populations and circumstances. However, current research results appear to demonstrate that for many individuals, explanatory style is relatively stable throughout adult life, and that in the absence of the reattribution training provided by cognitive therapy, explanatory style may be a relatively enduring risk factor for symptoms of depression and helplessness.

RELATIONSHIP BETWEEN EXPLANATORY STYLE AND DEPRESSION

Cross-Sectional Studies

Numerous studies have looked for a concurrent association between explanatory style and depression using demographically diverse samples and varied instruments. It is not our intention to cite every published report in this chapter. Rather, we
will examine evidence from several typical studies, then broadly summarize what appear to be basic findings about the relationship between explanatory style and depression. We will focus mainly on explanatory style for negative events, because this association has been the most widely researched and is most central to the predictions of the reformulated learned helplessness theory.

In an early investigation of the reformulated theory, Seligman et al. (1979) administered the ASQ and the short form of the Beck Depression Inventory (BDI, Beck & Beck, 1972) to a sample of 143 students at the University of Pennsylvania. The composite explanatory style for negative events was significantly correlated ($r = .48$) with depression as measured by the BDI. Similar results were obtained in a study of the ASQ scores of depressed patients and nondepressed patient controls (Raps, Peterson, Reinhard, Abramson, & Seligman, 1982). Patients with a diagnosis of primary affective disorder were more internal, stable, and global in their explanations for bad events than were psychiatric patients with diagnoses of schizophrenia or nondepressed medical patients. These results provide evidence in support of the reformulated learned helplessness theory by demonstrating a relationship between a pessimistic explanatory style and depression in two quite different samples of adults.

Studies of a dissimilar population—depressed children—have revealed a similar relationship between explanatory style and depressive symptoms (Kaslow, Rehm, & Siegel, 1984; McCauley, Mitchell, Burke, & Moss, 1988; Nolen-Hoeksema, Girgus, & Seligman, 1986; Seligman et al., 1984). For example, Nolen-Hoeksema et al. (1986) studied 168 children from New Jersey elementary schools. These children completed the CASQ and the Children's Depression Inventory (CDI; Kovacs, 1980) five times over a 1-year period. As predicted, a pessimistic explanatory style was associated with higher concurrent levels of depression. Moreover, depressive explanatory style for bad events measured at Time 1 was significantly correlated with depression 3 months to 1 year later, even when Time 1 CDI scores were partialled out of the prediction.

The studies described above demonstrate a clear association between a pessimistic explanatory style and depression. Has research from other labs converged with these results? In general, the answer appears to be yes. Although an early review of cross-sectional data on the relationship between explanatory style and depression reported several negative findings and suggested equivocal support for the hypothesized relationship between depression and explanatory style (Coyne & Gotlib, 1983), recent reviews provide stronger evidence for the existence of a relationship of moderate size between explanatory style and scores on measures of depression such as the BDI (Beck, Ward, Mendelson, Mock, & Erbaugh, 1961). For example, a recent meta-analysis (Sweeney, Anderson, & Bailey, 1986) examined results of 104 studies based on a total of 15,000 subjects. Correcting for attenuation due to reliabilities of the instruments used, they reported an average correlation of .44 between composite explanatory style for negative events and depression. Effect sizes of the underlying internal, stable, and global dimensions were slightly smaller in magnitude, ranging from .34 to .37. In addition, mediator analyses demonstrated that there was a significant relationship between internal, stable, global, and composite dimensions of explanatory style and depression regardless of type of subject (college student or psychiatric depressive), type of outcome about which explanations were made (hypothetical or real), and many of the other mediators tested.

How might we explain findings by some researchers of a lack of association between some dimensions of explanatory style and depression? A recent power analysis (Robins, 1988) suggests one answer. Robins (1988) demonstrated that only five of the numerous published studies he analyzed had a probability of at least .80 of detecting a small to medium relationship between the underlying dimensions of explanatory style and depression. In fact, five of those high-power studies revealed an association between the stable and global dimensions of explanatory style for negative events and depression. In contrast, results of low-power studies were almost evenly divided in reporting confirming or disconfirming evidence for the hypothesized association between stable and global dimensions of explanatory style and depression. Robins' (1988) results highlight the fact that nonsignificant findings are more likely in low-power investigations, and raise the possibility that studies that report a lack of association between explanatory style and depression may merely have had insufficient power to detect a significant correlation. Robins' (1988) study also suggests that investigators in this field need to pay close attention to the power of their research designs. For example, researchers may need to in-
crease their sample sizes and use instruments of demonstrated acceptable reliability, such as the expanded ASQ developed by Peterson and Villanova (1988), in order to reveal a significant relationship between explanatory style and depression.

**Evidence for an Interaction Between Explanatory Style and Negative Life Events**

We have described results of cross-sectional studies that establish the existence of a concurrent relationship between explanatory style and depression. The more critical question for the model is whether explanatory style and negative events interact to predict depression. As noted by several researchers (Alloy, Abramson, Metalsky, & Hartlage, 1988; Seligman & Nolen-Hoeksema, 1987), the reformulated learned helplessness model specifies that explanatory style is merely a risk factor for subsequent depression. In other words, a pessimistic explanatory style is neither necessary nor sufficient for the development of depression. The pessimistic explanatory style is not necessary because there may be other risk factors for depression; for example, neurochemical imbalances. The pessimistic explanatory style is not sufficient because individuals with a pessimistic explanatory style are at increased risk for depression only when confronting negative life events. In the absence of negative events these pessimists will be no more likely than optimists to experience depression.

What then is the evidence for the existence of this interaction?

**Experiments of Nature**

One way to answer this question is to analyze the results of experiments of nature. Because it is not possible to expose human subjects to important aversive outcomes, we can study their reactions to naturally occurring aversive events. One such aversive event for college students is the midterm examination.

Several researchers have studied college students before and after their midterm exams (Follette & Jacobson, 1987; Metalsky, Abramson, Seligman, Semmel, & Peterson, 1982; Metalsky, Halberstadt, & Abramson, 1987). The helplessness reformulation predicts that students who explain bad events—for example, failure on an exam—in terms of internal, stable, and global factors will be likely to react with depressive affect in response to the bad event. Upon learning that they have received a bad grade in the midterm, these pessimists would be more likely to become depressed than students who receive an equally bad grade but explain bad events by invoking external, unstable, and specific factors.

The results of the Metalsky et al. (1982, 1987) studies tend to support the prediction. For example, in the Metalsky et al. (1982) study, undergraduates completed the ASQ and the Multiple Affect Adjective Check List (MAACL; Zuckerman & Lubin, 1965) in class several days before they took their midterm. They also were asked to indicate with what grades they would be happy or unhappy. After the midterm students again completed the MAACL. Internality and globality for bad events predicted increases in depressed mood for those students receiving low grades but not for students receiving high grades.

The Metalsky et al. (1987) study modified the original procedure in order to perform a more fine-grained analysis of the interaction. Two changes are noteworthy. First, students completed the MAACL at several times shortly after the midterm in order to assess the temporal parameters of any affective response to a bad grade. Second, students completed an expanded ASQ utilizing twice as many negative events in both the achievement and interpersonal domains, and focusing only on the relation between depressed affect and the dimensions of stability and globality of bad events. Results from the Metalsky et al. (1987) study indicated that students’ moods immediately following their grades were predicted solely by the outcomes themselves, such that regardless of their explanatory styles (which in this study were a composite of stability and globality scores for bad events), getting a poor grade on the exam was associated with transient depressive affect. However, students’ enduring affective reactions conformed to the predictions of the model. Explanatory style was a significant predictor of depressed mood several days after receiving a bad grade. This interaction indicates that in the group of students who had done poorly on the exam, explanatory style was associated with enduring depressed affect, whereas there was no relationship between explanatory style and mood in the group of students who had done well on the exam.

Similar to the Metalsky et al. (1987) study, Follette and Jacobson (1987) found no significant relationship between explanatory style and depressed affect measured at the same time students
were informed that they had done poorly on their exam. However, Follette and Jacobson (1987) apparently did not measure affective distress several days after the exam, so it is not clear whether overall results of this study provide evidence that is consistent or inconsistent with the reformulated learned helplessness model of depression.

Studies of children (Nolen-Hoeksema et al., 1986), prisoners (Peterson & Seligman, 1984), and women after childbirth (Cutura, 1983) also have demonstrated the hypothesized interaction between life events and explanatory style in the prediction of depressed affect. Thus, evidence based on different samples converges in demonstrating support for the reformulated model. Based on this research, a pessimistic explanatory style appears to increase the likelihood of an enduring depressive reaction in response to bad events.

Despite convergent evidence, by themselves these studies do not provide a definitive test of the predictions of the reformulated model. The number of studies that specifically test the diathesis-stress component of the reformulated theory is still very small. As noted by Alloy et al. (1988) and Brewin (1985), an adequate test of the basic postulates of the reformulated learned helplessness theory of depression would necessitate future research with a clearer focus on the interactive component of the theory. Although several studies appear to support the existence of the interaction, more research is needed in order to assess the robustness and generality of these findings. In addition, it could be useful to systematically examine how differences in the type of bad events, or the frequency and quantity of events might interact with explanatory style to produce different outcomes. It also should be noted that not all studies that have tested the interactive component of the theory have found evidence of an interaction. For example, Hammen, Adrian, and Hiroto (1988) reported that depression in children at Time 2 was predicted by symptom levels measured at Time 1 and by stressful life events, but not by attributions or the interaction between explanatory style and life events. It is as yet unclear what factors (other than chance) might account for positive results in one study and negative results in another. Finally, studies that depend on experiments of nature can be criticized on several grounds. For example, we are unable to exert experimental control over bad events, and we cannot rule out potential confounds in interpreting obtained results (Seligman & Nolen-Hoeksema, 1987).

Experimental Studies

Although laboratory procedures do not have the ecological validity that is a major strength of an experiment of nature, laboratory work permits experimental control over the presentation of bad events and subsequent examination of systematic differences in subjects' responses. Two basic approaches have been used to study explanatory style and depressed affect in the lab. The first approach is to classify individuals based on their characteristic explanatory styles and look for variations in their responses to good and bad events. The second approach is to attempt to manipulate individuals' explanations for a bad event and look for subsequent changes in performance or mood.

Results of an experiment by Sacks and Bugental (1987) provide evidence that composite scores on the ASQ interact with negative events to predict subsequent depression. In this study, undergraduates were first tested on the ASQ, then exposed to an experimentally rigged social failure or success. When exposed to social failure, subjects with a pessimistic explanatory style became more depressed than optimistic subjects or both pessimists and optimists who were exposed to social success.

In addition, results of several laboratory investigations of explanatory style have provided some evidence in support of the idea that each attributional dimension may mediate a qualitatively distinct class of responses to a bad event. For example, in an examination of the role of the internal-external dimension of explanatory style, subjects induced to make more internal explanations for a bad event tended to exhibit more loss of self-esteem than a group making external explanations (Abramson, 1979). Similar results were obtained by Mikulincer (1986, 1988). In one study (Mikulincer, 1988), subjects were divided into three groups—internal, nondefined, and external attributors—on the basis of their explanatory style for bad events. Mikulincer (1988) then exposed these subjects to either one unsolvable problem, four unsolvable problems, or no unsolvable problems. Following exposure to four unsolvable problems, individuals with an internal explanatory style demonstrated poorer performance on a test task and stronger feelings of incompetence than individuals with an external explanatory style. These studies thus provide preliminary evidence for the hypothesized relationship between internal explanations for a bad event and subsequent self-esteem deficits.

Several studies also have examined the stable-
unstable and global-specific dimensions of explanatory style. Consistent with the reformulated learned helplessness theory, Peterson and Seligman (1981) found that subjects induced to explain an uncontrollable event in stable instead of unstable terms exhibited helplessness deficits for a longer time period. And studies that have examined the hypothesized relationship between global explanations and the generality of depressive deficits have demonstrated that subjects who make global explanations for bad events tend to generalize helplessness deficits from the experimental task to a new task (Alloy, Peterson, Abramson, & Seligman, 1984; Mikulincer, 1986; Pasahow, 1980). In contrast, subjects in these studies who made specific attributions for failure demonstrated little generalization of performance deficits.

Are the Three Dimensions of Explanatory Style Orthogonal?

In addition to assigning a particular role to each attributional dimension, the reformulated model described the three dimensions of explanatory style as theoretically orthogonal. However, while it may be useful to conceptualize the three dimensions as theoretically distinct, there is currently good evidence that ratings on each dimension are probably not orthogonal, but instead are at least moderately correlated (e.g., Peterson et al., 1982; Peterson & Villanova, 1988). Moreover, several experimental studies have demonstrated interactions between the three dimensions. These interactions suggest that lowered self-esteem, chronicity of deficits, and generalization of deficits after exposure to negative events may be a function of elevated scores on all three dimensions, rather than each type of deficit being uniquely attributable to an elevated score on just one. For example, Mikulincer (1986) demonstrated that, compared with individuals who scored high on only one attributional dimension, individuals who made both global and stable attributions or both global and internal attributions for failure exhibited more generalization of performance deficits to a new task.

Brewin and Shapiro (1985) also described an interaction between the three dimensions of explanatory style. In the initial phase of the Brewin and Shapiro (1985) study, all subjects were exposed to four unsolvable problems and asked to make attributional ratings for their failure on this task. The second phase involved an assessment of subjects' subsequent performance on a test task using 20 anagrams. Finally, all subjects were told that the experimenter had manipulated their initial failures, a procedure designed to induce subjects who had initially made internal and global attributions to reattribute their failure to external and specific causes. After this reattribution manipulation, subjects were asked to solve 10 additional anagrams. Results indicated that this manipulation selectively improved the performance of subjects who had initially made internal and stable, or internal and global, attributions for their failure.

Summary of Evidence for the Hypothesized Interaction

Taken together, results of experiments of nature and work in the lab provide support for the diathesis-stress component of the reformulated learned helplessness model. Based on current research, we can conclude that a maladaptive explanatory style interacts with negative life events to predict helplessness and depressive deficits. Based on current research, we also can conclude that individuals who make internal, stable, and global explanations for negative events are at risk for the lowered self-esteem, enduring affective reactions, and generalized performance deficits that are predicted by the reformulated model. And while there is some evidence for the role of each underlying dimension in producing specific depressive deficits, there is also evidence that the dimensions of explanatory style may interact to increase vulnerability to depression.

PESSIMISTIC EXPLANATORY STYLE

The reformulated learned helplessness model of depression predicts that individuals with a maladaptive explanatory style will be at increased risk for depression and helplessness when confronting important negative life events. Part of the strength of this prediction stems from its specificity to helplessness and depression. The model is most useful if it clearly specifies who will tend to experience problems, under what circumstances the problems will occur, and what the exact nature of the problems we would expect to observe will be. Thus, based on the model, we would expect research results to reveal a clear link between a pessimistic explanatory style and depression or helplessness, but little or no link between a pessimistic explanatory style and psychopathology in general. This, of course, amounts in part to a question
about the discriminant validity of the construct (Campbell & Fiske, 1959).

Explanatory Style and Anxiety

We will examine the issue of discriminant validity by first looking at evidence from several studies that have compared explanatory styles of individuals diagnosed as depressed and individuals diagnosed as primarily anxious. Despite the fact that there is often a great deal of overlap between symptoms of anxiety and symptoms of depression (Lipman, 1982), these symptoms are classified by the Diagnostic and Statistical Manual of Mental Disorders (DSM-III-R; American Psychiatric Association, 1987) into clinically distinct syndromes. In addition, anxiety and depression are theoretically distinguishable (Garber, Miller, & Abramson, 1980). Although many actual situations involve aversive stimuli that are perceived as both unpredictable and uncontrollable, the unpredictability and uncontrollability of events can be dissociated in the lab to reveal corresponding differences in behavior and motivation. In theory, subjects exposed solely to unpredictable aversive stimuli should demonstrate anxiety and increased motivation (Miller, 1981), whereas subjects exposed to uncontrollable aversive events should demonstrate mainly depressed affect and decreases in motivation (see Garber et al., 1980, for a more complete discussion of this distinction). Because the reformulated learned helplessness model suggests that it is primarily the expectation that important outcomes will be uncontrollable that leads to symptoms of helplessness and depression, the model predicts a stronger association between a pessimistic explanatory style and depression than between a pessimistic explanatory style and anxiety.

A recent comparison of explanatory styles of depressed and anxious outpatients (Riskind, Castellon, & Beck, 1989) provides some evidence in support of this prediction. Riskind et al. (1989) used the CAVE technique to analyze the thought diaries of 12 depressed and 12 anxious outpatients. A discriminant function analysis based on explanatory style for negative events correctly classified 92% of the depressed patients and 58% of the anxious patients. Because anxiety was classified at a level no different than chance, results of this study suggest that depression, but not anxiety, is associated with a characteristic explanatory style.

Other investigators have reached similar conclusions. Heimberg, Vermilyea, Dodge, Becker, and Barlow (1987) compared scores on the ASQ for individuals diagnosed by structured clinical interview as dysthymic patients, anxiety disorder patients, and normal controls. They also administered the BDI to all subjects in the study, and classified both anxious and dysthymic groups by level of depression reported on the BDI. Results tended to support the reformulated model. Dysthymic subjects demonstrated a pessimistic explanatory style for negative events, and anxious subjects demonstrated a pessimistic explanatory style only if they were also at least moderately depressed. The composite explanatory styles of patients suffering only from symptoms of anxiety were not significantly different from the explanatory style of the normal controls.

The results of these two studies provide some evidence that depression is associated with a characteristic explanatory style whereas anxiety is not. However, not all studies have supported this aspect of the model. For example, Ganellen (1988) administered the ASQ to 50 anxiety disorder patients, many of whom were also depressed. His results indicated that anxiety symptom severity and depression symptom severity were both positively and significantly correlated with explanatory style for negative events. Consistent with the model, anxiety was uncorrelated with ASQ scores when depression was partialled out. However, less consistent with the model, depression was uncorrelated with ASQ scores when anxiety was partialled out. One reason for these results may be the reported high correlation in this sample between symptoms of depression and symptoms of anxiety, leaving little unique variance for either. However, because the study did not include patients diagnosed as primarily depressed it is difficult to resolve this issue.

A recent study by Heimberg, Klosko, Dodge, Shadick, Becker, and Barlow (1989) also revealed a significant association between a pessimistic explanatory style and social phobia. These researchers compare the explanatory styles of dysthymic patients with those of individuals suffering from agoraphobia, social phobia, or panic disorder. Surprisingly, although the patients diagnosed as social phobics were significantly less depressed than the dysthymic patients, they obtained similar scores on the composite ASQ for negative events. Furthermore, in an analysis of covariance that controlled for subjects' scores on the BDI, a diagnosis
of social phobia was still significantly associated with a maladaptive explanatory style.

In summary, explanatory style appears to have demonstrated some discriminant validity in several comparisons of depressed and anxious individuals. However, current evidence is mixed, and the number of studies that have focussed on this issue is still quite small. In particular, current research suggests that some anxious individuals, especially those individuals suffering from social phobia, may be nearly as pessimistic as depressed individuals in their explanations for negative events. Further research will be needed before we can resolve the theoretical questions raised by these findings.

Explanatory Style and Other Psychological Problems

While it seems clear that explanatory style is probably unrelated to the development of psychoses or disorders such as schizophrenia (Raps et al., 1982), explanatory style has been found to be associated with a number of psychological problems other than depression. These include reports of an association between a pessimistic explanatory style and loneliness (Anderson et al., 1988), and reports of associations between a pessimistic explanatory style and general distress (Nezu, Nezu, & Nezu, 1986; Zautra et al., 1985).

There are several possible interpretations of these results. First, depression is probably not a unitary entity (Abramson, Metalsky, & Alloy, 1989; Alloy et al., 1988; Watson & Clark, 1984). Rather, by current diagnostic criteria, such as those recommended in DSM-III-R, depression may be conceptualized as a syndrome composed of diverse symptoms, none of which is necessary or sufficient for a diagnosis of depressive disorder. Because several studies have reported positive zero-order correlations between measures of depression and measures of loneliness and general distress (e.g., Anderson, Horowitz, & French, 1983; Gotlib, 1984; Nezu et al., 1986), it is possible that explanatory style is indirectly related to variables such as loneliness via the relationship of loneliness to the syndrome of depression. If this interpretation were correct, partialling depression out of the correlation between explanatory style and variables such as loneliness would result in a nonsignificant relationship between explanatory style and loneliness. However, the studies cited did not report the partial correlations that would be necessary to test this hypothesis.

The above interpretation of the relationship between explanatory style and problems other than depression does not particularly challenge the claim that explanatory style should be specifically related to depression and helplessness. However, a second type of interpretation is possible; namely, that explanatory style is actually directly related to the development of loneliness and other psychological problems through as yet unspecified mechanisms. Can the reformulated learned helplessness model handle data that suggest that explanatory style may function as a predictor of psychological problems other than depression? We believe that the reformulated learned helplessness model can accommodate these data, and accommodate them without a serious loss of specificity. We will elaborate on this issue at the end of the following discussion.

DISCUSSION AND SUGGESTIONS FOR FUTURE RESEARCH

Explanatory Style—A New Trait?

We have provided evidence that explanatory style can be conceptualized as a personality trait. Research suggests that explanatory style for negative events demonstrates some cross-situational consistency and moderate stability over the adult lifespan. The stability of explanatory style compares favorably with stabilities reported for many traditional personality constructs. For example, Conley (1984) reported correlations in the range of .30 to .40 for variables such as neurotic tendency and introversion over a period of 45 years. Similarly, Leon, Gillum, Gillum, and Gouze (1979) analyzed the stability over a 30-year period of scores on 13 scales of the Minnesota Multiphasic Personality Inventory (MMPI) and reported correlations ranging from .28 for hypochondriasis to .74 for introversion.

The suggestion that explanatory style may be a trait inevitably leads to a question about what kind of trait it might be. We wonder about the relationship between explanatory style and personality constructs such as neuroticism and introversion. An understanding of a personality variable usually develops gradually over years of research on the convergent and discriminant validity of components of the construct. However, research on the convergent and discriminant validity of explanatory style is still in its infancy, and much work remains to be done.
Recent research on the constructs of negative affectivity (NA) and positive affectivity (PA; Watson & Clark, 1984; see also their chapter in this volume) may be of relevance to questions about explanatory style as a personality trait. Watson and Clark (1984) have suggested that constructs such as neuroticism might be subsumed by the more general construct of negative affectivity. Moreover, they report that negative affectivity seems to be more clearly and specifically associated with anxiety than with depression (Watson, Clark, & Carey, 1988). While depressed individuals are often high in NA, their research suggests that depressed individuals are also low in PA and that depression may be a complex and multidimensional psychological state. Thus, we do not believe that explanatory style is merely another way to measure neuroticism or negative affectivity. Results of studies that have reported significant associations between explanatory style and depression, but not between explanatory style and anxiety, suggest that explanatory style measures something other than neuroticism. However, a satisfactory resolution of this issue awaits further research.

A more interesting possibility is that explanatory style measures an entirely new aspect of personality. In theory, event-explanation units are examples of causal reasoning and may reflect actual processes by which individuals interpret their lives or negotiate reality (e.g., Higgins & Snyder, this volume; Snyder, 1989; Snyder & Higgins, 1988). Investigations of the relationship between event-explanation units and causal versus noncausal reasoning are currently underway (Stearns, 1989), and we soon hope to be able to answer more fully some of these questions.

The Role of Explanatory Style in the Onset, Maintenance, and Relapse of Symptoms of Depression

Several recent studies have examined the interaction between explanatory style and negative events. Consistent with the reformulated learned helplessness model, results from these studies suggest that a pessimistic explanatory style may increase the risk of experiencing depressive deficits in response to bad events. However, as noted by Brewin (1985) the reformulated learned helplessness model is primarily a vulnerability model of depression. The model specifies who is at risk for development of symptoms of depression, and indicates that the chronicity of those symptoms is determined mainly by the stability of the explanation for the event that was originally related to onset of depressive deficits. According to the reformulated model, the more stable the original causal explanation, the greater the duration of the episode of depression.

The reformulated learned helplessness model's focus on factors that increase vulnerability to the onset of symptoms of depression has been empirically useful. However, recent research suggests that the scope of the theory may be too narrow. In other words, explanatory style may be related not only to the initiation of an episode of depression, but to the maintenance of depressive symptoms and relapse as well. For example, the results of research by Seligman, Kamen, and Nolen-Hoeksema (1988) on patients involved in therapy for depression demonstrated a significant positive correlation between change in explanatory style and change in symptoms of depression. The more an individual's explanatory style improved, the more their depression improved. The change in the composite ASQ score for negative events was correlated .65 (p < .0001) with the change in depressive symptoms as measured by the BDI, and .52 with the change in clinician-rated measures of depression. Several interpretations of this finding are possible, but one plausible interpretation suggests a role for explanatory style in the maintenance of at least some depressive symptoms. As explanatory style changes for the better, depressive symptoms are no longer maintained, and symptoms of depression remit.

The impact of individual differences in explanatory style on potential for relapse was explored in a 2-year follow-up of 44 patients treated with either pharmacotherapy or cognitive therapy for depression (Evans et al., 1988). Results of the initial phase of treatment for both groups of patients were reported by DeRubeis et al. (1988) and were discussed briefly earlier in this chapter. Recall that while patients in both the pharmacotherapy and the cognitive therapy groups demonstrated post-treatment remission of symptoms of depression, only the patients treated with cognitive therapy demonstrated corresponding improvement in their scores on the ASQ. Interestingly, patients treated with medication relapsed at twice the rate of the cognitive therapy patients. Furthermore, there was some evidence that explanatory style mediated the likelihood of relapse. Across both groups, posttreatment ASQ scores were a signifi-
cant predictor of time to subsequent relapse, even when posttreatment depression scores were partialled out.

These results must be replicated before we can draw firm conclusions. However, evidence is accumulating that explanatory style may affect the entire course of depressive illness, increasing an individual's risk of development of depression, acting to maintain symptoms of depression, and promoting an eventual recurrence of symptoms. Like an insidious virus, the effects of a pessimistic explanatory style may lie dormant in afflicted individuals, increasing the likelihood of an outbreak of symptoms, and maintaining those symptoms once they occur. Furthermore, the research is consistent with the possibility that antidepressant medication may provide only symptomatic relief in depressed individuals, whereas cognitive therapy may act in a curative fashion on at least one of the causes of depression—an individual's pessimistic explanatory style.

From a clinical perspective, it could be useful to determine if explanatory style is actually involved in the entire course of a depressive episode. For example, if a pessimistic explanatory style is involved in the maintenance of depression and increases the likelihood of subsequent relapse, then scores on the ASQ might provide a cognitive marker of the efficacy of any treatment for depression and of an individual's risk for subsequent relapse.

An Analysis of the Issue of Specificity

We have reviewed evidence from several studies that suggests that explanatory style predicts depression better than it predicts anxiety. However, other studies have suggested that explanatory style may be associated with symptoms of anxiety, loneliness, and indices of general psychological distress. In addition, explanatory style appears to predict outcomes as diverse as quitting a job, health and illness throughout the adult lifespan, and pathological gambling. In one study, life insurance sales agents with a relatively pessimistic explanatory style were less productive and more likely to quit their jobs than were the more optimistic sales agents (Seligman & Schulman, 1986). In another study, Peterson, Seligman, and Vaillant (1988) analyzed the explanatory styles of 99 graduates of the Harvard classes of 1942–1945. Pessimistic explanatory style predicted poorer health in these individuals 20 to 35 years later, even after controlling for earlier physical health. Finally, McCormick and Taber (1988) demonstrated greater relapse to gambling after treatment in individuals with a pessimistic explanatory style.

These findings suggest that explanatory style can predict a rather diverse set of variables, ranging from increased likelihood of quitting a job, through loneliness and depression, to disease and perhaps death. The research indicates an association between explanatory style and a broad range of outcomes, yet earlier in the chapter we claimed that this diversity fails to significantly compromise the specificity of explanatory style. We now review the reasoning behind this claim.

As noted earlier in the chapter, there are several possible interpretations of these findings. The first interpretation is the easiest for the reformulated learned helplessness theory to accommodate. This interpretation suggests that the relationship between explanatory style and diverse psychological problems is generally mediated by the effects of depression. For example, the relationship between explanatory style and health in the Peterson et al. (1988) study could have been caused by the following sequence of events. First, as documented in this chapter, individuals with a poor explanatory style are more likely to become depressed. Depression may then have a number of health consequences (see Peterson & Seligman, 1987, for a discussion of this issue). One consequence might be that changes in appetite, feelings of hopelessness, and lowered response initiation would lead to poorer nutrition, fewer doctor visits, and less vigilant health care, making the depressed individual more susceptible to health problems. Alternatively, exposure to uncontrollable events, and feelings of depression and anxiety, may lead directly to higher production of corticosteroid and endogenous opioids, with resultant lowered immunocompetence (see Sklar & Anisman, 1981; Jemmott & Locke, 1984, for reviews of this literature). By either account, explanatory style specifically predicts only those symptoms characteristic of depression. Depression, in turn, may be associated with the development of diverse psychological and physiological problems.

A second possibility is that explanatory style is directly related to outcomes such as loneliness and disease through the relationship between explanatory style and helplessness. Recall that the reformulated learned helplessness theory not only suggests an association between explanatory style and
depression, but also proposes an association between a pessimistic explanatory style and helplessness. And although helplessness is a syndrome characterized by cognitive, motivational, and affective deficits that are similar to the symptoms exhibited by depressed individuals, the deficits associated with helplessness are not necessarily identical to the deficits associated with depression. Rather, the syndrome of helplessness and the syndrome of depression might be regarded as overlapping constructs that share many, but not all, elements.

Because the reformulated model suggests that explanatory style is directly related to helplessness, and symptoms of helplessness are not necessarily identical to symptoms of depression, we might sometimes find helplessness deficits in individuals who demonstrate few depressive deficits. While this interpretation does not seriously compromise the specificity of the model, because the reformulated learned helplessness theory was developed as a model of both helplessness and depression, it creates a major practical problem. Namely, although we can easily describe and predict depressive deficits by using reasonably well defined and researched diagnostic criteria, there is less research and no clearly described diagnostic category that specifically predicts the kinds of deficits to be expected in the related category of human helplessness. We expect current research on the relationship between explanatory style and diverse psychological problems to provide an empirical base that will support theoretical development of this issue.

A third possible interpretation of the relationship between explanatory style and diverse psychological problems would be that explanatory style is related to various problems either by mechanisms other than those specified by the helplessness theory, or in a superficial and epiphenomenal fashion. We believe that the evidence presented in this chapter, much of which conforms to the specific predictions of the reformulated learned helplessness model, renders this last possibility implausible. However, because theories can be disproved but not proved, the merits of this last interpretation await future critical tests of the reformulated learned helplessness model.

CONCLUSIONS

We have presented evidence that explanatory style may be a personality trait and that a pessimistic explanatory style increases the risk of development of symptoms of depression in response to bad events. We also have suggested that explanatory style may predict other psychological problems in which the cognitive, behavioral, and affective symptoms characteristic of helplessness play a role. It is possible that the tendency to become helpless—to give up—when confronting bad events is associated with human dysfunction in a number of domains, and it remains for future research to establish the mechanism that links a pessimistic explanatory style to diverse outcomes.

A final question involves the role of other variables in the development of depression and helplessness. While there is good evidence that having a pessimistic explanatory style is an important risk factor for depression, it seems likely that other cognitive variables also play a role. For example, preattributional variables such as consensus or consistency (Brewin & Furnham, 1986), and individual differences in rumination (Zullow, 1984; Zullow, Oettingen, Peterson, & Seligman, 1988) or off-task cognitions (Mikulincer, 1989; Mikulincer & Nizan, 1988) may have important additive effects in the etiology and maintenance of a depressive episode. Researchers are slowly piecing together a complete model of cognitive factors that influence the course of depression.

REFERENCES


