For a full exposition of this theoretical model, see Barlow (2002) and Zinbarg (1998). In brief, interactions among the following factors are recognized in the genesis of GAD: negative affectivity or neuroticism; attentional vigilance and narrowing to signals of potential threat; a tendency toward interpreting ambiguous situations as threatening; passive avoidance, overcautiousness, or procrastination; perceptions of uncontrollability and unpredictability; and cognitive avoidance, distraction, or other active efforts to resist or neutralize worrying.

Conceptualization of the Development of Excessive Worry and Anxiety

A diathesis-stress model is postulated to account for the initial development of excessive worry and anxiety (figure 2.1). First, it is important to recognize that anxiety is universal and serves an adaptive function. Anxiety arises from activity in a neuropsychological system whose functions are to detect signals of danger and to prepare to cope with threat. The closely related emotion of panic, or fear, implies a discharging of the fight-or-flight mechanism when threat is imminent. Many of the physiological symptoms of a panic attack may be seen as the activation of the underlying physiology necessary to support the immediate and strenuous action involved in escape or fighting. Anxiety, on the other hand, is associated with simultaneous excitation and inhibition of the fight-or-flight mechanism in response to signals of potential or approaching threat that is not yet imminent. In other words, anxiety involves a preparation, or priming, of the fight-or-flight mechanism, making it easier to activate this mechanism (figure 2.2). This priming accounts for the ten-
sion that is often associated with anxiety. When the threat of danger is real, anxiety is crucial to our survival. Seen in this light, it would be surprising if someone were born without the capacity to experience anxiety.

There is considerable evidence showing that the reactivity, or sensitivity, of the anxiety system has an inherited component (biological vulnerability). This component, labeled “negative affectivity,” “neuroticism,” “emotionality,” or “behavioral inhibition,” appears to correspond to the level of physiological sensitivity, or arousability, and may be the genetic diathesis that underlies many, if not all, of the anxiety disorders, and even depression. This is not to say that GAD is inherited from one’s parents. Rather, it is believed that this predispositional variable of physiological arousability interacts with stressful life events to produce intense anxiety. That is, the tendency to experience anxiety runs in families, and for reasons not fully understood, some people respond to stress with excessive worry and tension, whereas others may experience panic attacks, hypertension, headaches, and so on.
Chronic and intense anxiety is particularly likely to develop when an inherited strong level of physiological arousability combines with a learning history that fosters the perception that aversive events are unpredictable and uncontrollable (psychological vulnerability). For such a person, the tendencies to perceive threat to be ever-present, or lurking around every corner, and to be constantly on guard and aroused in preparation for dealing with danger become understandable. There is also evidence to suggest that depression can emerge out of chronic anxiety, or as a complication of chronic anxiety, in some people (in figure 2.1, this is represented by the arrow from generalized anxiety to depression).

The case of Rick is a good clinical representation of these constructs. Rick was a computer programmer who was robbed 2 years ago in the parking garage of his condominium complex. The robbery took place at 2 o’clock in the morning. As he got out of his car, two men attacked him and took his wallet and briefcase. Prior to the robbery, Rick had been relatively shy, but did not characterize himself as being a chronic worrier or a con-

**Figure 2.2**

Relationship of worry, anxious apprehension, and fear (panic). Redrawn from Craske (1999), with permission.
stantly anxious person. Since the attack, Rick has had difficulty relaxing, and he feels constantly on edge and vulnerable to ever-present danger in his surroundings. This is accompanied by a high level of startle reactivity. Rick feels a need to be on guard, since he attributes the mugging to a lack of readiness. In other words, he believes that, had he been ready at the time, he would not have gotten out of his car or he would have done something to avoid being mugged. Therefore, it remains crucial to him to be always ready and on guard now, to be prepared for further unpredictable dangers. What he had once perceived as being a safe world was upset by this unexpected event, and now his whole sense of safety and danger has been altered. Clinically, his guardedness was readily observed when he was asked to do relaxation exercises. He reported that, every time he tried to relax, he would become more anxious. He felt increasingly vulnerable to more bad things happening if he allowed himself to relax.

Conceptualization of Worry within Generalized Anxiety Disorder

All of us experience occasional worry and anxiety, especially when under stress. Moreover, it appears that most of us tend to worry about the same themes, regardless of whether we have GAD or not. When these worries occur infrequently and are controllable, they are considered realistic and normal worries. Research from our Center and elsewhere has suggested that, phenomenologically, the uncontrollability of worry may be the prime pathological feature of worry associated with GAD (Borkovec, Shadick, & Hopkins, 1991; Craske, Rapee, Jackel, & Barlow, 1989).

The processes that serve to maintain high levels of anxiety are hyper-vigilance and cognitive biases favoring the processing of threat at early stages of processing (e.g., preattentive scanning for threat, favoring threatening interpretations of ambiguous stimuli), avoidance behaviors (that become more pronounced and observable, depending on the specificity of the situational cues that set the occasion for anxiety and the extent to which overt avoidance is possible); and cognitive avoidance at later stages of processing, including both distraction and the shift away from imagistic processing of threat and toward verbal-linguistic processing that is characteristic of the process of worry (Borkovec, Shadick, & Hopkins,
Individuals characterized by preattentive scanning for threat and a bias toward threatening interpretations of ambiguous events would be more likely to identify mildly threatening stimuli and to encode ambiguous stimuli as threatening. As a result, such individuals would experience anxiety in response to cues that others do not find threatening. Moreover, it has been shown that the preattentive scanning for threat occurs at a relatively early and “automatic” level of information processing, outside of conscious awareness. Hence, the individual may not even be immediately aware of the triggers of his or her anxiety, experiencing worry, characterized by a vague sense of dread and apprehension, without even knowing what he or she is worried about! In any event, the automaticity of this preattentive bias is almost certain to lead to the experience of worry and anxiety as being intrusive.

Though avoidance behavior is not as obvious in patients with GAD as it is in patients with other anxiety disorders, patients with GAD nevertheless do engage in subtle patterns of avoidance, including checking and preventive behaviors, procrastination, and attempts to control worry, such as cognitive avoidance and distraction (e.g., Brown, Moras, Zinbarg, & Barlow, 1993; Craske, Rapee, Jackel, & Barlow, 1989; Hoyer, Becker, & Roth, 2001; Schut, Castonguay, & Borkovec, 2001; Tallis & de Silva, 1992). Behavioral overcautiousness (i.e., preventive behaviors, procrastination, and subtle avoidance) and the tendency toward cognitive avoidance at later stages of information processing prevent elaboration and more accurate evaluation of the anxiety-triggering stimuli. For example, the process of worry often involves a strong component of planning as to how to avoid threat. In the extreme, this can be problematic, given that the more resources that are devoted to such planning, the fewer there are to evaluate the realistic likelihood and impact of the threat. Thus, worry and distraction increase the likelihood that the cues triggering unnecessary or disproportionate anxiety retain their anxiety-provoking properties. Such cognitive avoidance strategies undoubtedly must be reinforced by the immediate relief that they might produce. However, this relief is likely to be short-lived, as there is evidence documenting the difficulty of sustaining distraction for very long (Wegner, Schneider, Carter, & White, 1987; Wegner & Erber, 1992; Wenzlaff, Wegner, & Roper, 1988). This evidence suggests that thought suppression produces an automatic priming of the unwanted thought (Wegner & Erber, 1992). Thus, thought sup-
Figure 2.3
The process of anxious apprehension. Redrawn from Barlow (2002), with permission.
pression paradoxically increases the accessibility of the unwanted thought, increasing the likelihood that the individual’s processing resources will be automatically “recaptured” by the threat cues that initially triggered the worry episode. This inability to terminate bouts of worry and provide more than momentary relief, together with the intrusive quality of the initiation of worry, contribute to the sense of uncontrollability of worry that appears to distinguish normal worry from worry associated with GAD.

As alluded to earlier, Borkovec and his colleagues (Borkovec, Shadick, & Hopkins, 1991) have suggested that the process of worry itself reduces the generation of imagery, particularly those aspects of imagery that encode efferent commands to the autonomic system. They further suggest that this tendency is strongest among people with GAD (see also Freeston, Dugas, & Ladouceur, 1996). A very recent study has found that verbal-linguistic processing of threat is associated with subjective reports of weaker negative affect than imagery-based processing of the same threat (Holmes & Mathews, in press). Earlier studies have found that worry also suppresses the physiological component of negative affect (Borkovec & Hu, 1990; Vrana, Cuthbert, & Lang, 1986). Such suppression of anxious arousal would reinforce and maintain worry (Butler, Wells, & Dewick, 1992). It would also prevent the activation of the full memory structure supporting anxiety—including its stimulus, meaning, and efferent components—which has been hypothesized to be necessary for anxiety reduction (Foa & Kozak, 1986; Lang, 1985).

Concepcionalization of Generalized Anxiety Disorder

The experience of scanning for threat at a preattentive level, combined with a tendency to favor threatening interpretations of ambiguous stimuli, develops into GAD, when accompanied by an inability to effectively terminate bouts of worry. It is primarily the later stages of processing threatening information that appear to differentiate “nonclinical” worriers from those who go on to meet the criteria for a disorder (MacLeod & Hagan, 1992; Rutherford & MacLeod, 1990). “Nonclinical” worriers appear to be able to respond to the initiation of worry, either with a relatively accurate appraisal of an unrealistic danger (perhaps as a result of staying with the initial threatening image long enough for natural ha-
bituation and decatastrophizing processes to operate) or by the formulation of a more or less effective plan for coping with a realistic danger. Either way, “nonclinical” worriers are able to effectively terminate a bout of worry.

In contrast, the heightened tendency to shift toward verbal-propositional processing and away from imagery that is characteristic of GAD may be reinforced by its immediate effect of damping down arousal and negative affect, but it leads to a failure of habituation in the long run. Thus, the shift toward verbal-propositional processing and away from imagery contributes to one of three vicious cycles involved in the maintenance of GAD. In figure 2.4, this aspect of the model is represented by the step labeled “verbal processing (suppress image)” that connects worry back to the automatic threatening image.

As verbal-propositional processing damps down negative affect, but does not eliminate it entirely, the individual with GAD also tends toward volitional avoidance of elaborative processing of threat. In turn, efforts to distract paradoxically serve to increase the accessibility of the threatening images, and thoughts and thereby create difficulty terminating worry. In figure 2.4, this aspect of the model is represented by the step labeled “distract” that completes the second vicious cycle connecting worry back to automatic threatening images.

**Figure 2.4**
Model of maintenance of generalized anxiety disorder. Redrawn from Barlow (2002), with permission
Difficulty in terminating worry or the tendency for tension to heighten self-focus is likely to interfere with the individual’s ability to concentrate on other tasks, thereby impairing performance and providing additional sources of worry. Even when the worry trigger is a realistic danger, the individual with GAD may not be able to terminate worry long enough to engage in effective problem-solving. Thus, a third vicious cycle may begin, as the ineffective problem-solving is taken as further evidence that stressors are uncontrollable, and as a result, the individual begins to worry about worrying. In figure 2.4, this aspect of the model is represented by the step labeled “dysfunctional performance,” which connects worry back to increases in the experience of negative affect, thereby completing the last of the three positive feedback loops.

Worry about the recurrence of worry or anxiety decreases as a function of decreasing sensitivity to worry themes and control over the worry process. This is one of the functions of worry control treatment. The treatment targets the maladaptive cycle that maintains states of high anxiety and worry. (This will be covered in more detail later.)