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Cognitive Vulnerability to Depression

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An argument has been made that nothing brings mental health professionals closer to understanding the essential features of disorders than does the construct of vulnerability (Ingram & Price, 2001). Nowhere is this assertion probably more true than in the case of depression, where the study of vulnerability has begun to emerge as a focal point in efforts to understand and prevent this disorder. This chapter discusses theory and research that has examined the essential features of vulnerability to depression. A number of conceptual paradigms (e.g., biological, genetic) have offered important insights into the nature of vulnerability to depression. However, because cognitive factors have been widely recognized in the psychological-science community to play an important role in risk for depression, the focus is on cognitive approaches to vulnerability.

Several assumptions about vulnerability are addressed, and then cognitive theories of depression, and the statements they make about vulnerability factors, are examined. The research relevant to these theories is reviewed, focusing first on research conducted with adults and then the more limited data available on vulnerable children. Following this review, several ideas are suggested about the nature of cognitive vulnerability that emerge from extant theories and data. Before beginning, however, note that space limitations preclude an exhaustive review of all of the information relevant to theory and research on cognitive vulnerability to depression. Nevertheless, although the review is selective, each of the major topics is considered in terms of how it pertains to depression and cogni-

tive vulnerability. Readers interested in a more detailed account of the various topics and issues should consult Ingram, Miranda, and Segal (1998) and Gotlib and Hammen (2002).

CONCEPTUAL ASSUMPTIONS UNDERLYING THEORY AND RESEARCH ON COGNITIVE VULNERABILITY TO DEPRESSION

Before starting the exploration of cognitive vulnerability to depression, it is important to briefly examine several assumptions that underlie much of the theory and research in this area. These assumptions reflect the diathesis–stress nature of depression, the cognitive diathesis proposed in depression theories, and ideas about definitions of vulnerability.

Diathesis–Stress

Most cognitive models of depression, and by extension cognitive vulnerability models of depression, are explicitly diathesis–stress models; these models argue that depression is the result of the interaction between cognitive factors and environmental stressors. The diathesis–stress approach specifies that, under ordinary conditions, people who are vulnerable to the onset of depression are indistinguishable from nonvulnerable people (Segal & Ingram, 1994). According to this idea, only when confronted with certain stressors do cognitive differences between vulnerable and nonvulnerable people emerge, which then turn into depression for those who are vulnerable (Ingram & Luxton, in press; Monroe & Hadjiyannakis, 2002; Monroe & Simons, 1991; Segal & Shaw, 1986). More specifically, most cognitive models propose that when stressful life events are encountered by vulnerable people, these events precipitate a pattern of negative, biased, self-referent information processing that initiates the first cycle in the downward spin of depression (Segal & Shaw, 1986). Alternatively, individuals who do not possess this diathesis react with an appropriate level of depressive affect to the event, but do not become depressed.

The Cognitive Diathesis in Diathesis–Stress Models

The cognitive diathesis proposed by most cognitive models can be traced to the depression theory proposed by Beck (1963, 1967). Beck was the first to argue that depression is the result of maladaptive cognitive structures; in particular, that schemas about the self are causally linked to the disorder and are triggered by stressful life events. Although definitions vary somewhat, many investigators conceptualize self-schemas as organized

representations of cognitive structures such as the memory system, degrees of association, information processing both internal and external, as the retrieval of information (Segal, 1984). Although no cognitive structures such as the memory system underlie depression.

Definitions of Vulnerability

There are few explicit definitions of vulnerability (Ingram et al., 1998). Research on vulnerability to depression has focused on the structure of vulnerability models. A definition of vulnerability is core to the theory that characterizes the onset of depression. It is important to note that, as a trait, this does not mean that, although psychological experiences can occur, vulnerability is also viewed as a function of external stressors. Unless it is activated, stress can also be viewed as a function of cognitive diatheses and stressful life events.

COGNITIVE THEORIES

Although few cognitive models of vulnerability, all make use of the discussion of the structure of vulnerability.

¹External forces are viewed as vulnerability because they are viewed as vulnerability refers to these

representations of an individual's prior experiences (Segal, 1988). Cognitive structures such as schemas are not randomly distributed throughout the memory system, but are instead connected to each other in varying degrees of association. Functionally, the self-schema significantly influences information processing by selecting what information is extracted from both internal and external sources, and by affecting the encoding as well as the retrieval of information (Alba & Hasher, 1983; Kihlstrom & Cantor, 1984). Although not shared by all cognitive theories of depression, cognitive structures such as schemas represent the guiding conceptual principle that underlies most contemporary accounts of depression.

Definitions of Vulnerability

There are few explicit definitions of vulnerability available in the literature (Ingram et al., 1998; Ingram & Price, 2001). However, theory and research on vulnerability suggest a number of features essential to the construct of vulnerability and can therefore be used to arrive at a suitable definition of vulnerability. The most fundamental of these features is that vulnerability is conceptualized as a trait rather than as the kind of state that characterizes the appearance of depression. That is, even as episodes of depression emerge and then disappear, vulnerability remains constant. It is important to note in this regard that even though vulnerability is seen as a trait, this does not mean it is necessarily permanent or unalterable. Although psychological vulnerability may be resistant to change, corrective experiences can occur that attenuate vulnerability (e.g., therapy). Vulnerability is also viewed as *endogenous* to the person (in contrast to risk that is a function of external forces),¹ as well as typically being viewed as *dormant* unless it is activated in some fashion. Related to this notion of dormancy, *stress* can also be viewed as a central aspect of vulnerability in that cognitive diatheses cannot precipitate depression without the occurrence of stressful life events.

COGNITIVE THEORIES OF VULNERABILITY

Although few cognitive theories of depression focus extensively on vulnerability, all make statements about the causes of depression, and it is in the discussion of such causes that these theories arrive at a conceptualization of vulnerability. It is important to note in this regard these theories

¹External forces are conceptualized in terms of risk factors (e.g., poverty) rather than vulnerability because they do not specify the mechanisms of onset or maintenance; the term *vulnerability* refers to these mechanisms.

are usually aimed at understanding depression in adulthood, but to the extent that they focus on vulnerability, these models typically propose that events in childhood create cognitive vulnerability. Even though some only briefly allude to this vulnerability (e.g., Ingram, 1984), others provide more detailed descriptions of the origins of cognitive vulnerability (e.g., Abramson, Metalsky, & Alloy, 1989; Beck, 1967). In addition, some models are not explicitly models of depression, but the cognitive variables they describe are relevant to understanding the development of cognitive vulnerability factors to depression (e.g., Bowlby, 1980). The theories that speak to cognitive vulnerability are examined, first by briefly describing the basic elements of these theories, and then through a look at the statements they make about the development of cognitive vulnerability.

Cognitive Schema Models

As previously noted, Beck (1967) proposed the first cognitive theory of depression. Beck argued that dysfunctional cognitions, such as cognitive errors, are important causal elements for depression. However, this theory goes beyond cognitive errors and suggests that "deeper" cognitive structures are also involved in precipitating depression. Specifically, Beck contended that there are three "layers" of cognition involved in the causes of depression. First, automatic thoughts are the recurring, intrusive, and negative thoughts that occur in depressed individuals. Second, underlying these automatic thoughts are irrational cognitions or beliefs, sometimes referred to as "conditionals." These beliefs tend to take the form of "if-then" beliefs that are negative in nature. For example, a depressive conditional belief might be, "If I don't get the job I applied for, then I am stupid." Third, automatic thoughts and irrational beliefs are a function of a deeper depressive self-schema that organizes thoughts, beliefs, and information processing in a negative way. A number of theories other than Beck's have been proposed, and although they differ in some respects, all tend to rely on similar theoretical notions (e.g., Ingram, 1984; Ingram et al., 1998; Teasdale, 1983; Teasdale & Barnard, 1993).

Although most cognitive schema theories of depression suggest the operation of a more or less generalized negative self-schema, some investigators have specified a specific problematic organization of these cognitive structures. For example, in more recent statements on the nature of depressive self-schemas, Beck (1987) refined his theory to include two categories of problematic schema content (see also Robins, 1990; Robins & Block, 1988; Robins & Luten, 1991). The first is interpersonal in nature, and is referred to as *sociotropy/dependency*; individuals with this concept embedded in their cognitive schemas value positive interchange with others and focus on acceptance, support, and guidance from others. The second

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type of cognitive content is concerned with achievement and is called *autonomy/self-criticism*; these individuals rely on independence, mobility, and achievement, and are prone to be self-critical. According to this formulation, the experience of stressors congruent with these themes should activate these dysfunctional cognitive structures and precipitate depression. For example, disruptions in interpersonal relationships should be especially problematic for the person with the sociotropic schema whereas problems in achievement situations (e.g., work) should activate depressive experiences for the person with the autonomous schema type.

Origins of Vulnerability in Cognitive Schema Models. Theories that focus on cognitive schemas in depression generally suggest these schemas develop in response to stressful or traumatic events in childhood and adolescence (Ingram et al., 1998). In adulthood, these schemas sensitize individuals to respond in a cognitively and emotionally dysfunctional fashion to events similar to those experienced in childhood. For example, Beck (1967) suggested that "in childhood and adolescence, the depression-prone individual becomes sensitized to certain types of life situations. The traumatic situations initially responsible for embedding or reinforcing the negative attitudes that comprise the depressive constellation are the prototypes of the specific stresses that may later activate these constellations. When a person is subjected to situations reminiscent of the original traumatic experiences, he may then become depressed" (p. 278). Beck's theory thus locates the nexus of vulnerability, even for adults, in childhood experiences. Other theories (e.g., Goodman & Gotlib, 1999; Ingram et al., 1998) make similar statements.

Hopelessness Depression

The hopelessness theory of depression represents a conceptual progression that started with the original learned helplessness theory (e.g., Seligman, 1975). This progression began in 1978 when learned helplessness theory was reformulated to focus on individuals' tendencies to make certain kinds of attributions about the causes of events (Abramson, Seligman, & Teasdale, 1978). In particular, the tendency to make unstable, specific, and external attributions for positive events, and to make stable, global, and internal attributions for negative events, was proposed to lead to depression. Most recently, Abramson et al. (1989) refined this theoretical approach, which they referred to as the hopelessness theory of depression. In addition to dysfunctional attributional tendencies, Abramson et al. (1989) argued that the cause of hopelessness depression is the expectation that highly desired outcomes will not occur, or that highly aversive out-

comes will occur, coupled with the perception that no responses are possible that will be able to change the likelihood of these outcomes.

Origins of Vulnerability in the Hopelessness Model. Rose and Abramson (1992) and Gibb, Alloy, Abramson, and Marx (2003) suggested several possible developmental factors that may underlie hopelessness theory. Specifically, they argued that children who experience negative events such as maltreatment attempt to find the causes, consequences, and meaning of these events. They further noted that young children evidence a tendency to make internal attributions for all events, including negative events; thus these children tend to see themselves as the cause of maltreatment. In some situations, the variables involved in this process precipitate the development of the negative attributional style that produces risk for depression. For example, the occurrence of negative events that are internalized affects the child's self-concept and, in so doing, may lead to broad tendencies to internalize negative events. These attributional tendencies alone, however, are insufficient to lead to the hopelessness attributional style. Rather, to the extent that negative events are repetitive and occur in the context of relationships with significant others (e.g., parents), these events will undermine the need for the child to maintain a positive self-image as well as optimism about future positive events. Additionally, the persistence of these events will produce a pattern of attributions for negative events that, over time, will become both stable and global. Attributional patterns thus become more traitlike, and in this way provide the foundation for hopelessness in the face of stressors in the future—a process that produces hopelessness depression.

Attachment Theory

As proposed by Bowlby (1969, 1973, 1980), attachment theory addresses processes that shape the capacity of people to form meaningful emotional bonds with others throughout their lives.² Although attachment begins in infancy, and is thus thought to be primarily a childhood process, the effects of attachment do not end in childhood; several investigators have argued that, once developed, attachment patterns persist into adulthood and affect a multitude of relationships (Ainsworth, 1989; Bartholomew & Horowitz, 1991; Doane & Diamond, 1994; Ricks, 1985). Indeed, Bowlby summed up this lifelong process most succinctly by suggesting that attachment is a process that stretches from "cradle to grave."

²The terms *bonding* and *attachment* are used interchangeably, even though some authors (e.g., Parker, 1979) have argued that they are not the same. For the purposes of this chapter, however, they are similar enough to be thought of as reflecting the same construct.

The quality of a child's attachment, in particular, consists with parents' normal behavioral, emotional, and life. However, attachment from secure attachment in some fashion. Most children and adolescents with problematic self-conduct disorders (see 1994), and risk for Cicchetti, 1990).

Cognitive Vulnerability that appears to originate in attachment theory. Similar to attachment theory, attachment theory models. Quite the cognitive representation through interaction with others, according to most models continue experience about attachment will be reflective of the individual's working model of personal interaction with others (see relationships for potential relationships provide the

COGNITIVE VULNERABILITY

Although by no means the major cognitive vulnerability and depression risk factor, attachment theory suggests that attachment style may converge in some form with other important constructs to lead to depression. The genesis of depression

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and Abramson and several other theories. In fact, negative events and mean- ingless ten- sive negative maltreatment precipitate as risk for are inter- related to broad tendencies (tributional and occur in its), these cognitive self- normally, the for nega- and global. y provide future—a

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The quality of contact with caretakers is a key determinant of the individual's attachment patterns (Ainsworth, Blehar, Waters, & Wall, 1978). In particular, consistently affectionate, nurturant, and protective interactions with parents promote the development of the child's ability to form normal behavioral, cognitive, and emotional bonds with others throughout life. However, attachment does not always function normally; deviations from secure attachment result when bonding processes are disrupted in some fashion. Moreover, such dysfunctional attachment patterns in children and adolescents have been suggested to be related to peer rejection, problematic self-control, social competence deficits, alcohol abuse, conduct disorders (see P. M. Cole & Zahn-Waxler, 1992; Doane & Diamond, 1994), and risk for depression (Bemporad & Romano, 1992; Cummings & Cicchetti, 1990).

Cognitive Vulnerability According to Attachment Theory. The risk that appears to originate from dysfunctional attachment or bonding patterns may stem from cognitive variables (Ingram et al., 1998). In particular, attachment theory has long emphasized the concept of internal working models. Quite similar to schema models, these are thought to reflect the cognitive representation of relationships that have been generalized through interactions with key figures early in the individual's life. According to most attachment theorists, once developed these working models continue to influence the cognitions and feelings that individuals experience about relationships with important others. Insecure attachment will be reflected in the organization and functioning of the individual's working models, leading to distorted information about interpersonal interactions and thus to an increased risk for maladaptive relations with others (see Bowlby, 1988). Given the importance of interpersonal relationships for providing support and buffering against stress, dysfunctional relationships that are caused by maladaptive information processing provide the basis for vulnerability to depression.

COGNITIVE VULNERABILITY RESEARCH

Although by no means an exhaustive list, the models reviewed represent the major cognitive approaches to the conceptualization of depression and depression risk. Next consider the research that is relevant to the depression risk proposals of these models. Even though these models diverge in some theoretical respects, they also converge on a number of important constructs (e.g., how maladaptive information processing can lead to depression risk), as well as on the notion that the developmental genesis of depression risk resides in the effects of interactions with signifi-

cant others early in life. Accordingly, although each approach has stimulated a somewhat different research tradition, and tested somewhat different ideas about vulnerability, this research tends to concentrate on assessing the link between cognition and vulnerability to depression, and how this link might be related to important developmental experiences and interactions between parents and children.

Priming Studies

A central premise of some cognitive approaches to depression is that vulnerable individuals possess cognitive risk factors that are largely inactive until individuals encounter adversity in a domain that is central to their sense of self-worth. For example, in Beck's model, stress in the person's environment is postulated to activate the negative self-schema, particularly stress matching the individuals' core doubts and concerns about self-worth (Segal, Shaw, Vella, & Katz, 1992). Even though a number of studies have assessed cognitive functioning during a depressive episode, because this cognitive functioning could be a consequence of depression, these studies are usually uninformative about cognitive processes that are thought to be linked to the onset of a depressive episode (Barnett & Gotlib, 1988). Additionally, research examining cognitive functioning in currently nondepressed but vulnerable individuals has generally failed to show that they think in depressotypic ways, but this too is also uninformative because it fails to take into account the diathesis-stress nature of most cognitive theories (Ingram et al., 1998).

In contrast, "priming" studies explicitly focus on diathesis-stress perspectives that are central to many cognitive theories of depression (Hollon, 1992), and thus assess the outcomes associated with the activation of negative self-referent cognitive structures in response to stresslike encounters. These studies typically rely on inducing a negative mood state in nondepressed but vulnerable individuals, with the hope of modeling in the laboratory the effect that stress has on most people—that is, the production of negative mood. In theory, this brief negative mood state should activate the kind of cognitions that serve as vulnerability factors for the more severe mood state that is a depressive episode. More generally, these studies seek to model the processes whereby the normal sad mood states that are occasionally experienced by everyone energize the mechanisms that lead to a downward spiral into depression for some people (i.e., those who are vulnerable). In more specific terms, vulnerability is conceptualized as the availability of relatively well-developed and well-elaborated cognitive structures that are linked to negative affective structures (Ingram, 1984; Ingram et al., 1998). Once brought about by any variety of life events, the structures responsible for the experience of sadness provide

access to the extension. This process pressed mood into depression by those system of dysfunction that is thought to referent information for vulnerability tended to model.

Some priming, for example, Broese van Groenou, Craighero, and Endersson's endorsement of diathesis-stress theory was unrelated to the findings mentioned that shift in mood were unrelated to the findings of Friedman (1999) and Friedman (1999) never depressed. Negative sociotropy

Despite some support for a consensual reactive cognitive vulnerability to depression (Segal, 1998; Scher, Segal, & Ingram, 1998) using a variety of studies by Teasdale, Persons, and Byrnes, Hedlund and Rutter, and Ingram and Ritter (1999) and Williams (1999) and diatheses in children.

The previous research on schemas, but Segal's research on schemas not only with vulnerable nondepressed patients and depressive behavioral findings of dysfunction that lead to a negative mood state, a significant increase in mood with other priming studies. On the other hand, showing that testing, a follow-

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access to the extensive and elaborate processing of depressive information. This process serves to generate a downward extension of normal depressed mood into the more significant and debilitating experience of depression by those who possess these networks. Thus, once this intricate system of dysfunctional themes is activated by the type of negative mood that is thought to follow the experience of stress, a pattern of negative self-referent information processing is precipitated that escalates into depression for vulnerable people (Segal & Shaw, 1986). Priming studies are intended to model this process.

Some priming failures have been reported in the literature. For example, Brosse, Craighead, and Craighead (1999) found that increased endorsement of dysfunctional attitudes following a negative mood induction was unrelated to depression history. Dykman (1997) also documented that shifts in dysfunctional attitudes following a mood induction were unrelated to depression history. Similarly, Solomon, Haaga, Kirk, and Friedman (1998) failed to find differences in irrational beliefs between never depressed and recovered depressed persons following priming by negative sociotropic and autonomous event scenarios.

Despite some failures, there is enough evidence of priming effects to support a consensus that vulnerable individuals do possess dormant but reactive cognitive schemas of the type that should be linked to cognitive vulnerability to depression (Gotlib & Krasnoperova, 1998; Ingram et al., 1998; Scher, Segal, & Ingram, in press; Segal & Ingram, 1994). For instance, using a variety of cognitive measures that reflect dysfunctional cognition, studies by Teasdale and Dent (1987), Dent and Teasdale (1988), Miranda, Persons, and Byers (1990), Miranda, Gross, Persons, and Hahn (1998), Hedlund and Rude (1995), Ingram, Bernet, and McLaughlin (1994), Ingram and Ritter (2000), Taylor and Ingram (1999), and Segal, Gemar, and Williams (1999) all supported the activation of what appear to be cognitive diatheses. Some research has described evidence of cognitive diatheses in children as young as 8 years old (i.e., Taylor & Ingram, 1999).

The previous studies supported the activation of dysfunctional self-schemas, but Segal et al. (1999) in particular provided evidence that these schemas not only can be activated, but that they appear to be associated with vulnerability to the experience of depression. In this study, depressed patients who had recovered after being treated with either cognitive behavioral therapy (CBT) or pharmacotherapy (PT) completed ratings of dysfunctional attitudes before and after a priming procedure (i.e., a negative mood induction). Following priming, PT patients showed a significant increase in dysfunctional cognitions, a finding that is consistent with other priming data (see Segal & Ingram, 1994). CBT patients, on the other hand, showed no change in DAS scores. Several years after initial testing, a follow-up study reassessed patients and found that their cogni-

tive reactions to the mood induction predicted relapse, even after controlling for the effects of previous depression history. Thus, these data suggest a link between cognitive reactivity and risk for later depressive relapse, a key element of schema theories of depression.

Behavioral High Risk Research

Another approach to empirically assessing cognitive vulnerability uses a behavioral high risk paradigm, which employs a theoretically defined risk factor and selects people who, on the basis of the risk factor, are assumed to be vulnerable to depression. Although a number of studies have used this paradigm, two well-known high risk approaches have provided data on cognitive vulnerability: the Temple–Wisconsin Cognitive Vulnerability to Depression Project and the depressogenic personality/life stress congruency approach.

The Temple–Wisconsin Cognitive Vulnerability to Depression Project. One of the more comprehensive studies undertaken to assess vulnerability is the Temple–Wisconsin project (Alloy & Abramson, 1999, see also Abramson et al., 2002). This two-site longitudinal study examines the etiological proposals of both the hopelessness model and cognitive schema theory as represented by Beck's (1967) model. This study assesses a group of individuals who, upon entry into college, were identified as possessing negative inferential styles or negative self-schemas, and compares their outcomes with individuals who do not show these cognitive characteristics.

Data reported from this project thus far have suggested a number of cognitive factors that may be linked to vulnerability. Most critically, those identified as being at high cognitive risk are more likely to experience depression at some point in the future (Abramson et al., 1999). Results have also suggested that, compared to the low risk group, high risk subjects process negative self-referent information more fully than positive self-referent information (Alloy, Abramson, Murray, Whitehouse, & Hogan, 1997). Regarding the origins of vulnerability, Alloy et al. (2001) also reported that the mothers of cognitively high risk individuals exhibit more negative cognition than do the mothers of low risk individuals, the fathers of high risk students are less emotionally accepting, and both the mothers and fathers of high risk students are more likely to make more stable and global attributions for the stressful events that their children experience. Gibb et al. (2001) also found more reports of emotional maltreatment in high risk individuals in the Temple–Wisconsin data. Overall, data from the Temple–Wisconsin project indicate that cognitive factors can predict the eventual onset of depression, they are related to dysfunctional infor-

mation processing, and to some degree may

Congruency Betw Depression. A difference in risk stems from recent key life events and loss of autonomy and people vulnerable to occur. Although most of the congruency hypothesis (Segal et al., 1992). F. Nietzel and Harris style and congruent so than is the normal that some types of combination of elevative social events lead to criticism matching (1995) acknowledge stress matches over model is complex in people's lives, they went to the study of depression, the empirical finding depression that location and need structure events (see Zuroff,

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Parent–Child Bond

As already noted, attachment and depression interactions. More options can produce v

mation processing, are associated with parents' cognitive processing, and to some degree may be the result of emotional maltreatment.

Congruency Between Personality and Life Stress and Vulnerability to Depression. A different conceptual and operational definition of high risk stems from research examining the match between the occurrence of key life events and specific sensitivities. Recall that sociotropy/dependency and autonomy/self-criticism describe cognitive styles that leave people vulnerable to depression when congruent stressful life events occur. Although most of this research is cross-sectional, evidence in support of the congruency hypothesis has begun to accumulate (e.g., Robins, 1990; Segal et al., 1992). For instance, in reviewing findings from 24 studies, Nietzel and Harris (1990) concluded that the match between cognitive style and congruent life stress places is associated with depression more so than is the nonmatching of events of similar severity. They also found that some types of matches were especially problematic; for example, the combination of elevated sociotropy/dependency interacting with negative social events led to greater depression than did the autonomy/self-criticism matching or the other two mismatches. Coyne and Whiffen (1995) acknowledged the greater predictive power of personality by life stress matches over mismatches, but because they did not believe this model is complex enough to accommodate fluctuations in the course of people's lives, they were more skeptical about the relevance of this model to the study of depression vulnerability. This skepticism notwithstanding, the empirical findings are clearly supportive of cognitive models of depression that locate vulnerability in the activation of individuals' meaning and need structures, and how these structures match up with life events (see Zuroff, Mongrain, & Santor, 2004).

Parent-Child Interactions in the Production of Cognitive Vulnerability. Different kinds of parent-child interactions may be associated with the development of cognitive vulnerability to depression. This section discusses research that has assessed some of these interactions, in particular, data that have been reported on attachment/bonding and cognitive vulnerability to depression, and data examining the link between cognitive vulnerability and abuse.

Parent-Child Bonding and Attachment

As already noted, attachment and the cognition that is linked to attachment and depression is considered an important outcome of parent-child interactions. Moreover, the idea that problematic parent-child interactions can produce vulnerability to depression is a theme that tends to oc-

cur across cognitive models. Several studies have assessed this theme. For example, a number of the studies examining the impact of parental interactions on depression and cognition have assessed the recall of certain kinds of interactions as they pertain to possible cognitive vulnerability. Two types of interactions that have been of particular interest to theorists and researchers are parental care and parental overprotection. Parker (1979, 1983) suggested that low levels of parental care (defined as either neglect or by overt rejection) lead to future cognitive vulnerability by disrupting the child's self-esteem. In contrast to low levels of expressed care, overprotectiveness is thought to operate on vulnerability because the parent is so anxious or intrusive that a genuine caring relationship cannot be established with the child.

Studies that examine the cognitive component of the link between interactions such as these and depression, however, are much less common than those assessing the link between parent-child interactions and the development of depression per se.³ McCranie and Bass (1984) reported that among women nursing students, an overcontrolling mother was associated with greater dependency needs, whereas for students who reported both a mother and a father who were overcontrolling, a greater tendency toward self-criticism was found. Likewise, in a study among medical students, Brewin, Firth-Cozens, Furnham, and McManus (1992) reported that higher levels of self-criticism were related to reports of inadequate parenting. This was especially true for individuals who consistently reported high levels of self-criticism. Similar results have been found by Blatt, Wein, Chevron, and Quinlan (1979). Because both self-criticism and dependency are thought to be possible cognitive vulnerability factors, and have been shown in other studies to be associated with depressive states (Blatt & Zuroff, 1992), these data may be relevant for understanding the development of the cognitive diatheses for depression.

From a somewhat different perspective, studies by Whisman and Kwon (1992), Roberts, Gotlib, and Kassel (1996) and Whisman and McGarvey (1995) generally examined current attachment levels in adults, and found that insecure attachment is related to higher levels of depressive symptoms (similar to data from a number of other studies examining the link between attachment/bonding and depression). More importantly from a cognitive vulnerability perspective, however, they also found that this relation was mediated by depressotypic attitudes and dysfunctional

³A number of studies have assessed the relation between attachment/bonding and depression, and have typically found that poor attachment/bonding is in fact related to the development of depression as well as to anxiety (for reviews see Blatt & Homann, 1992; Burbach & Borduin, 1986; and Gerlsma, Emmelkamp, & Arrindell, 1990). Because the focus of this chapter is on cognitive vulnerability, the focus here is primarily on those studies that have examined the link between attachment, depression, and cognition.

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attributions of the type that have been proposed by various depression theories to be central to the development of depression. These studies thus provide empirical evidence that disturbed parent-child interactions may not only create risk factors for depression, but that these risk factors are cognitive in nature.

Other studies have suggested that disruptions in the parent-child bonding process may be associated with cognitive vulnerability to depression. For instance, Manian, Strauman, and Denney (1998) found that self-discrepancy patterns of the type thought to be related to emotional regulation are associated with recollections of parenting warmth and rejection—dimensions quite similar to the caring scale of the PBI. Such data imply that parental rejection may be a key factor in not only the development of depression, but in the origin of cognitive vulnerability to this depression. Likewise, Parker (1979) found recollections of diminished maternal care to be associated with the kind of cognitive deficits frequently seen in depression. Echoing this finding, Ingram, Overbey, and Fortier (2000) indicated that recollections of maternal care were associated with deficits in positive cognition and excesses in negative cognition. Dysfunctional cognition of this type has been specified by depression theories to represent a key causal agent in the onset and maintenance of the disorder.

In another study assessing the possible childhood antecedents of cognitive vulnerability to depression, Ingram and Ritter (2000) found that college students, who were thought to be vulnerable because they had previously experienced an episode of depression, displayed more negative errors on an information-processing task when they had been primed by a sad mood than did unprimed vulnerable people or primed nonvulnerable subjects. In addition, prior ratings of maternal care were negatively associated with errors on the negative stimulus aspects of the task, suggesting that lower levels of care were associated with the processing of more negative information when vulnerable individuals were in a negative mood. This study, along with those previously reviewed, clearly points in the direction of early interactional patterns leading to the kinds of cognitive patterns linked to depression. More specifically, these data suggest that a perceived lack of caring by mothers in particular may set the stage for the development of a cognitive self-schema that is activated in response to a sad mood and that eventually leads to depression.⁴

Early Abuse and Maltreatment Experiences. A related but different kind of parent-child interaction has been examined in studies that assess

⁴Such interpretations do not suggest that fathers are unimportant in these possible vulnerability functions, but rather that these data simply tend to be less likely to detect a role for fathers.

abuse experiences. Although different in focus, just as research has shown consistent relations between perceptions of the quality of parental care and later depression, data have also suggested a consistent relation between reports of abuse, particularly sexual abuse, and depression (for reviews, see Browne & Finkelhor, 1986; Cutler & Nolen-Hoeksema, 1991; and Kendall-Tackett, Williams, & Finkelhor, 1993). In one of the few studies that investigated cognitive variables within the context of abuse and depression, Kuyken and Brewin (1995) assessed memory retrieval in depressed patients, some of whom had experienced sexual and/or physical abuse as children. They found that depressed women who had been sexually (but not physically) abused showed an inability to recall specific memories in response to both positive and negative cues. According to their study, such abuse may lead to the avoidance of key memories and disruptions in working memory, which may then play a role in mediating the relation between abuse and depression.

Rose, Abramson, Hodulik, Halberstadt, and Leff (1994) also examined the mediational effect of cognitive variables on the relation between sexual abuse and depression, albeit from a very different perspective. In this study, one subgroup of depressed individuals who had experienced childhood sexual abuse was also characterized by negative cognitive styles. It was speculated that these adverse early experiences led to the development of negative cognitive processing patterns linked to vulnerability to depression. This speculation was further supported by Rose and Abramson (1995), who indicated that degree of childhood maltreatment was correlated with degree of dysfunctional cognition. Taken together, the data reported by Kuyken and Brewin (1995), Rose et al. (1994), and Rose and Abramson (1995) suggest that a history of early adverse experiences (e.g., sexual abuse) may produce the early cognitive patterns that lead to the later development of depression.

Summary of Research on Cognitive Vulnerability to Depression

The extant data clearly suggest that negative self-related cognitions, whether conceptualized from a cognitive schema standpoint or an attributional standpoint, serve as cognitive vulnerability factors within the context of a diathesis-stress relation. Priming data show that these cognitive factors exist in vulnerable individuals, and they can be activated by the effects of stresslike experiences, such as the occurrence of negative mood. Moreover, some of these data, along with data on attributional styles, show that dysfunctional cognitive factors are associated with the onset of depression in response to stressful events. High risk research has also shown that the match between the type of event and the particular

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The data also reveal that disrupted interactions with parents pose a risk factor for later depression as a function of the development of cognitive vulnerability mechanisms. Such disruptions may take the form of poor parenting, as in overcontrol and a lack of care, or may be more malevolent, as in the sexual or emotional abuse of children and adolescents. Although theoretical perspectives suggest that the link between these parental behaviors and later depression in adulthood is cognitive in nature, the empirical data on the cognitive effects of these disturbed interactions are relatively sparse. Nevertheless, the extant data do support the idea that cognitive variables form mediational pathways between troublesome parent-child/adolescent interactions and depression. Of course, these data are not the only types that bear on the issue of cognitive vulnerability to depression and the origins of cognitive vulnerability. Most of the studies reviewed thus far have examined these factors in adults—most of them young adults. A body of data also exists on such factors in children and adolescents.

COGNITIVE VULNERABILITY FACTORS IN HIGH RISK CHILDREN

A number of studies have assessed cognitive functioning in depressed children (see Garber & Flynn, 2001b). Although important, these data are relatively uninformative about vulnerability factors inasmuch as cognitive patterns that occur during depression, and may therefore appear to serve as a vulnerability factor, may instead be a consequence of the disorder (Barnett & Gotlib, 1988). However, one way to examine the origins and development of cognitive vulnerability for depression is to examine cognitive functioning in children who are not depressed, but who are at risk for depression. One group of high risk children are those whose mothers are depressed (Goodman & Gotlib, 1999; Hammen, 1991a).

Only a limited number of studies have examined cognitive functioning in high risk children. In one study that did so, the negative attributional styles of children with mood-disordered mothers were assessed. Findings indicated that the children of depressed mothers reported more negatively toned self-attributions than did children of nondepressed mothers (Radke-Yarrow, Belmont, Nottelmann, & Bottomly, 1990). Rake-Yarrow et al. also found some correspondence between mother and child statements; for example, a mother who endorsed the statement "I hate myself" was likely to have a child who endorsed the statement "I am bad."

A particularly thorough study was reported by Jaenicke et al. (1987) as part of a larger project conducted by Hammen (1991a). In this study, the offspring of unipolar, bipolar, nonpsychiatric medical patients, and normal mothers were examined using a self-referent incidental recall task (e.g., Rogers, Kuiper, & Kirker, 1977). In this task, the incidental recall of personally relevant adjectives can be used to make inferences about schemas and information processing that are operative in depression (Ingram & Kendall, 1986). This task has been used most frequently in the assessment of adults, but was modified for use with children by Hammen and Zupan (1984). Recall results suggested a lack of positive information recall for the children of both unipolar and bipolar mothers. On other tasks, children in the unipolar and bipolar groups also reported a less positive self-concept and evidenced a more negative attributional style.

In another study assessing possible cognitive vulnerability mechanisms in the children of depressed mothers, Taylor and Ingram (1999) examined information-processing indices of negative self-schemas in both high risk (children whose mothers were depressed) and low risk children (children whose mothers were not depressed). Prior to completing a self-referent encoding and recall task, half of the children in the Taylor and Ingram (1999) study participated in a priming (mood induction) task. When recall patterns were examined, negative mood enhanced the recall of negative personally relevant stimuli for only high risk children, suggesting the emergence of negative cognitive schemas in these children, but not in low risk children. Thus, these data purport that depressed mothers may transmit negative cognitive characteristics to their children, which form the basis of a negative self-schema that is activated in response to negative mood producing events.

Garber and Flynn (2001a) assessed perceptions of self-worth, attributional style, and hopelessness in the children of depressed mothers. They reported that maternal depression was related to all three of these negative cognitions, and beyond maternal depression, low maternal care was associated with limited child self-worth. Children's attributional style also was found to mirror maternal attributions for child-related events; that is, children made the same types of attributions for child-related events as did their mothers.

In a longitudinal study of the perceptions of control in children, Rudolph, Kurlakowsky, and Conley (2001) found that both stress and family were associated with deficits in the perception of control, and in more helplessness. To the extent that these perceptions and a sense of helplessness contribute to vulnerability to depression, the results reported by Rudolph et al. (2001) suggest that, although parenting may be important in producing vulnerability, other factors also play a role. In fact, data from D. A. Cole, Jacquez, and Maschman (2001) and Williams, Connolly, and

Segal (2001) also examined (romantic partners) in children and adolescents.

In sum, data from children who are adolescents have negative outcomes may transmit to children. The data also extremely important to this cognitive depression appear to be linked to the appearance as well as to dysfunction make a strong case for interventions in the form of and that eventually (Goodman & Gotlib)

THE NATURE OF DEPRESSION DIRECTIONS FOR

This chapter has examined the state of the field. It has also examined the risk variables that follow from the theory of constructs that conceptualize and explain depression. Despite this and studies providing information on the origin of these themes, as well as cognitive vulnerability

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It may seem surprising that interpersonal standing cognitively predicted, the appearance of depression is r

Segal (2001) also evidence that other individuals (e.g., teachers and romantic partners) may play a role in creating cognitive vulnerability in children and adolescents.

In sum, data from studies examining the cognitive characteristics of children who are at risk for depression support the idea that these children have negative cognitive structures available, and that depressed parents may transmit these negative cognitive characteristics to their children. The data also indicate, however, that even though parents are extremely important, other interpersonal relationships may also contribute to this cognitive vulnerability creation. Clearly, children at risk for depression appear to have negative self-schemas that, when accessed, are linked to the appearance of self-devaluing and pessimistic thoughts, as well as to dysfunctional information processing. Theory and data thus make a strong case that negative events in childhood are essential elements in the formation of cognitive structures that place children at risk, and that eventually predispose adults to the experience of depression (Goodman & Gotlib, 1999).

THE NATURE OF COGNITIVE VULNERABILITY TO DEPRESSION: SUMMARY AND SOME DIRECTIONS FOR THE FUTURE

This chapter has reviewed some of the major theories of depression and examined the statements these theories make about cognitive vulnerability. It has also examined the data that has sought to empirically address the risk variables featured in these theories. These theories and the data that follow from them do not chart a single course through the multitude of constructs that have been proposed; rather, theories and research conceptualize and examine these factors from a variety of different perspectives. Despite this diversity, some themes that run through these theories and studies provide important clues about the nature of cognitive vulnerability and the origins of this vulnerability process. Next consider some of these themes, as well as some theoretical speculations on the nature of cognitive vulnerability to depression.

The Role of Interpersonal Events

It may seem surprising for a chapter on cognitive vulnerability to highlight interpersonal events, but they are nevertheless crucial for understanding cognitive vulnerability as well as the factors that create it. Indeed, the apparent antipathy between cognitive and interpersonal models of depression is not only unnecessary, but also quite arbitrary (Gotlib &

Hammen, 1992; Joiner & Coyne, 2002). Although a variety of interpersonal events are important in creating cognitive vulnerability, current theory and data have suggested that attachment processes play a critical role in this process. We thus address some of the implications of the idea that attachment processes play this critical role.

Attachment and Bonding in the Creation of Cognitive Vulnerability.

The fact that attachment processes occur throughout a number of different species, including humans, suggests that it has considerable evolutionary significance. Bowlby (1988) was quite clear on this point: "It is . . . more than likely that a human being's powerful propensity to make these deep and long-term relationships is the result of a strong gene-determined bias to do so, a bias that has been selected during the course of evolution" (p. 81). The motivation to bond is thus hardwired in our past. Although there are a number of functions that attachment and bonding serve, the ongoing maintenance of affective bonds plays a critical role in our most basic emotional needs—the maintenance of proximity to individuals of our own kind.

It is thus not an evolutionary accident that interpersonal loss is one of the most powerful precipitants of depression (Ingram et al., 1998). Indeed, humans are biologically wired to not only seek out interactions with others, but to seek out intimate interactions with at least some people. This social behavior reflects a biologically driven process that eventuates in reproductive success (Gilbert, 1992) and has thus been selected for by evolutionary processes because it helps to perpetuate our species. Indeed, at the other end of the continuum, when social-contact seeking is absent it is considered a reflection of psychopathology of another type (e.g., schizoid personality disorder).

A variety of negative effects may occur when events happen in childhood that adversely affect attachment processes; childhood is obviously a time of enormous learning and thus the occurrence of negative events can have a profound effect on the child's developing cognitive and affective neural connections (Ingram et al., 1998; Goodman & Gotlib, 1999). Because occasional negative events are a routine part of growing up, it is to the extent that negative events occur in abundance, occur in the context of multiple and likely interacting domains (e.g., a very dysfunctional family, divorce, high levels of poverty, problematic peer relationships), are chronic or extremely traumatic, or are depriving of the child's emotional needs, that cognitive and affective development will be proportionally impacted. Moreover, the long-term effects of negative events are likely to be particularly virulent when they involve key attachment figures. For instance, lack of caring or involvement (evidenced in the extreme by abandonment) most likely leaves a vulnerability to depression. This lack of caring can be

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xiety of interpersonal relationships, current theories lay a critical role on the idea that

reflected by neglect in some cases, or in others, extreme criticism or abuse. In fact, although other factors certainly play some role, data have begun to suggest that lack of care may be the single most important factor in producing vulnerability to depression (Ingram et al., 1998).

Possible Mechanisms of the Development of Depressive Self-Schemas

of Vulnerability. number of different possible evolutionary functions: "It is . . . more likely to make these deep-rooted, evolutionarily determined biases of evolution" (p. . . . Although there is some evidence, the ongoing process of the most basic emotional needs of our own

What are the mechanisms by which interpersonal experiences such as a lack of care might lead to depressive cognitive structures? Within the context of having a depressed mother, Goodman and Gotlib (1999) named a variety of factors that may be linked to the development of negative cognitive structures, such as modeling negative cognition and interactions, and exposure to depressive behaviors and affect. Similarly, D. A. Cole et al. (2001) pointed out the relevance of the "looking glass" hypothesis for the development of depressive cognitive structures. Originally proposed by Cooley (1902) and by Mead (1934), the looking glass hypothesis suggests that the view of oneself is constructed by the perceptions of others of the person, and the communication of these perceptions. In the child who is developing a schema of the self, negative experiences like a lack of care and rejection by attachment figures are likely to generate personal themes of derogation and unworthiness that become deeply encoded in self-structures. Also deeply encoded are concepts linked to the experience of disrupted attachment such as representations about the behavior of significant others. In the terminology of attachment theory, these experiences should not only determine the schemas, or working models, of oneself, but should also determine how one is inclined to see others, as well as the expectations of how to interact with others.

personal loss is one of the most common (Ingram et al., 1998). Indeed, the actions of others with other people. This eventually results in reactions that are determined by evolutionary processes. Indeed, at the time it is absent it is present (e.g., schizoid

Attachment disruptions are almost certainly characterized by the experience of negative affect. It is thus important to note that during critical maturation periods, cognitive structures are not the only neural networks that are developing. The affective structures with which we are all born (see LeDoux, 1996, 2000) are also in the process of becoming more differentiated and developing associations to other structures (see Jordan & Cole, 1996). As these cognitive and affective structures collaterally develop, connections between them almost certainly develop in such a way that negative cognitive self-structures become closely linked to negative affective structures. Negative affect is thus associated with unfavorable conceptions of the self. Hence, the depressive self-schema does not only represent a negative view of the self, but also a connection to negative affective structures.

happen in childhood is obviously a negative event can have an impact on affective structures (LeDoux, 1999). Because of this, it is to the extent of the experience of the context of multigenerational family, disruptions), are chronic emotional needs, are usually impacted. They are likely to be particularly affected. For instance, lack of abandonment) and lack of caring can be

If attachment disruptions are brief and secure attachment interactions are reestablished, then negative cognitive representations are likely to be

limited and more weakly associated with negative affective networks. Alternatively, if the attachment process is more problematic, then such connections between negative self-representations and negative affect should become more extensive and more strongly linked. Thus, if negative emotion-producing events related to the self are numerous, particularly traumatic, or chronic, they will have a correspondingly profound effect on the development of, and connections between, representations of the self and others, and on the experience of negative affective states. The soon-to-be vulnerable to depression person thus develops a schema of the self as unlikable and unlovable that is strongly tied to the experience of negative affect.

Depressogenesis of Cognitive Mechanisms

All individuals encounter stress and negative emotions in their lives, but not all experience depression as a result of this stress and emotion. However, when individuals who have negative cognitive structures that are connected to negative affective structures encounter these experiences, not only will they experience negative emotions, but these negative emotions will also activate a variety of maladaptive cognitions about the self; the experience of negative affect thus brings the negative self-schema "online." Life stress, or negative events, that are cognitively interpreted in terms of one's own inadequacy and inferiority thus turn a "normal" negative affective state into depression (Teasdale, 1988). We are reminded in this regard of Freud's differentiation between mourning and melancholia: In mourning the person's response to a loss is "this is terrible," whereas in melancholia the person's response to this loss is "I am terrible." Therefore, the vulnerability function, or depressogenesis of the cognitive mechanisms outlined, lies in the transition from normal negative affective states to a depressive psychopathological state via the connection between negative cognitive self-structures and negative affective structures.

Maintenance of Depression

Thus far, comments about cognitive vulnerability and the causes of depression have been aimed largely at the onset of the depressed state. Onset, however, is not the only aspect of causality (Ingram et al., 1998); depressed people tend to stay depressed for a period of time, and thus the factors that maintain this state may be as, or even more important than, onset. After all, if people encountered the onset of depression only to have it lift a day or two later, then depression would not constitute the disabling disorder that it is. Next consider the implications for maintenance of the cognitive factors that have been discussed.

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External Information Processing: The Tyrannical Self-Schema. The cognitive maintenance process is reminiscent of ideas presented in an article by Greenwald (1980) entitled "The Totalitarian Ego: Fabrication and Revision of Personal History." Greenwald reviewed numerous studies suggesting that, through information-processing biases such as selective attention, people have a tendency to revise their personal history in order to psychologically protect themselves; they "rewrite" their experiences to make themselves feel better. Greenwald labeled this behavior totalitarian because of the psychological similarity to totalitarian societies that maintain control through the manipulation of information; for example, history books are rewritten to serve certain views. But another aspect of totalitarian societies might be more metaphorically germane for depressed people; totalitarian societies maintain control not only through rewriting history, but also through oppression and tyranny. It is in this sense that depressed people might be seen as operating under the constraints of a totalitarian ego (or perhaps a "tyrannical" self-schema). Such a schema does not serve to psychologically protect individuals, but rather "oppresses" them through information processing that provides full access to self-degrading, negative, and pessimistic data. Structuring the self, the future, and the worldview in a negative fashion (e.g., Beck's negative cognitive triad) is one manner in which depression is maintained.

Top-Down/Bottom-Up Information Processing. The maintenance of depression may also be seen in the context of an overreliance on top-down information processing. It has been recognized for some time that information processing can stem from the top-down, indicating the influence of cognitive structures on the data to be processed, or alternatively, from the bottom-up, which suggests that information processing is directed from the data available (e.g., Norman, 1986). Healthy individuals most likely employ a combination or balance of top-down and bottom-up information processing. That is, healthy people employ schemas to help structure and order information processing, but they are also responsive to the data that are available, which in turn influences the operation and content of schemas (see Neisser, 1967). Depressed individuals, on the other hand, are more likely to disregard the information available. Such "cognitive intransigence" (Ingram, 1990) is particularly problematic when the cognitive structures are so dysfunctional in nature. Therefore, one way to view the cognitive maintenance of depression (and vulnerability to depression) is not only via the operation and content of cognitive self-structures, but in terms of deviations from the normal balance between top-down and bottom-up processing; depression maintenance may be the result of an overabundance of top-down processing to the relative exclusion of bottom-up processing.

Final Pathways: The Cognitive-Interpersonal Link in Depression and Vulnerability

In the cognitive vulnerability processes described, interpersonal events play several key roles. For instance, during key developmental periods, distressful interpersonal events involving key attachment figures activate innate negative affective structures, lead to the development of negative cognitive self-structures, and correspondingly begin the process of developing connections between these cognitive and affective structures. In addition, once these vulnerability structures are in place, distressful interpersonal events serve as the triggering agents for the activation of depressive cognitive processes.

Although it has been acknowledged that interpersonal events play a pivotal role as potent triggers for the activation of proximal vulnerability, there has been no comment on the broader relation between cognitive and interpersonal functioning in depression vulnerability. Although there are any number of psychological models of vulnerability to depression, including interpersonal models, we propose that cognitive factors serve as the final common pathway to depression, at least for depression that is primarily psychologically mediated as opposed to that which is primarily biologically mediated (e.g., bipolar depression) (see also Ingram et al., 1998). That is, although numerous psychological factors are related to the onset and maintenance of depression, we contend that these all operate via cognitive processes. Like Akiskal's (1979; Akiskal & McKinney, 1973, 1975) examination of depression from a neuroanatomical level of analysis (the diencephalon as the final neuroanatomical pathway), by final common pathway we suggest that cognitive factors mediate all other psychological vulnerability processes, including interpersonal processes.

To help illustrate the idea that cognitive processes serve as the pathway through which factors like interpersonal events are linked to depression, consider the hypotheses and data that have been advanced about stress-generation and depression (Hammen, 1991b). In some—perhaps many—cases, stressful interpersonal events do not simply happen to people independently of their actions. All social behavior is cognitively mediated to the extent that it must be processed and interpreted if even at very subconscious levels. Therefore, by interpreting social information, and determining behavioral responses, cognitive structures such as working models provide the template for how other's actions are viewed. Individuals thus process and interpret social information and respond "accordingly." In the case of depression vulnerability, others' behaviors, verbalizations, and nonverbal cues are processed and interpreted through the filter of the depressogenic vulnerability schema. Benign interactions have the potential to be viewed as critical, leading to an "appropriate re-

sponse." If the mark in kind, the rejection is engendered by cognitive factors.

Of course, so events that are experienced by people, cognitive structures of the person with "loser" will probably to enter a incorporated "loss" both cognitively and emotionally. Similarly even the health events are interrelated with the event, and cognitions. The cause of the absence of losses through more stress, more relation than will healthy self-correction.

The final common pathway of stressful events is cognitive processing. That cognition is back at least to the discussion of stress from this perspective may alter their ability to cope with emotionally meaningful depression causes cognitions about the psychological together. This is

This chapter has noted depression, noted its etiology, and examined its vulnerability. It also has

sponse." If the vulnerable individual responds to a perceived critical remark in kind, then interpersonal difficulties ensue as a cycle of social rejection is engendered. Hence, interpersonal stress is generated or caused by cognitive factors.

Of course, some people are in fact criticized, or do experience stressful events that are not of their own making. For vulnerable or currently depressed people, such criticisms or events, when interpreted via negative cognitive structures, will lead to exacerbated negative responses. Whereas the person with a healthy self-concept who is criticized by being called a "loser" will probably respond with some negative affect (but will be unlikely to enter a dysfunctional interpersonal cycle), the person who has incorporated "loserness" into schemas or working models will respond both cognitively and behaviorally in a very different way to such a comment. Similarly, whereas stressful events create negative emotions for even the healthiest of people, for the vulnerable person these stressful events are interpreted through a meaning system that distorts the impact of the event, and creates negative affect that fuels further dysfunctional cognitions. Therefore, the person who has been sensitized to losses because of the abandonment by a key attachment figure will interpret these losses through the lens of a negative cognitive structure that will create more stress, more negative affect, and lead to more biological dysregulation than will the person who experiences a loss but who has a relatively healthy self-concept and functional self-schema.

The final common pathway hypothesis suggests that the interpretation of stressful events, and interactions with others, are dependent on the cognitive processing functions of depressogenic cognitive structures. The idea that cognition serves as the central mediating process is not new, and goes back at least to Beck's (1967) speculations on the nature of depression. In a discussion of stress generation in depression, Hammen (1991b) summed up this perspective nicely: "Negative cognitions about themselves and events may alter their responses to circumstances or may contribute to an inability to cope with emergent situations and may also determine reactions to personally meaningful events [i.e., stress-generation]. In a sense, therefore, depression causes future depression through the mediation of stressors and cognitions about the self and circumstances" (p. 559). Hence, cognition is the psychological bond that holds the rest of the vulnerability process together. This is the essence of the final pathway hypothesis.

This chapter has reviewed several of the major cognitive theories of depression, noted the statements they make about the nature of vulnerability, and examined their ideas about the origins of this cognitive vulnerability. It also has looked at the empirical data relevant to these theories.

These data have assessed possible vulnerability factors in both adults and children, although the amount of data on children lags behind that which has been reported for adults. Although not completely uniform, the bulk of these data suggest that cognitive factors do play an important role in both the onset and maintenance of the depressed state. Moreover, the data also show that these cognitive factors develop in childhood, and are most likely the result of disrupted interaction patterns with key attachment figures such as parents (although individuals other than parents may also contribute to vulnerability). Similar types of interaction patterns may carry on throughout the vulnerable individual's life, and thus constitute an important aspect of the depression process. As important as these processes are, however, we propose that cognitive variables serve as the final common pathway to depression. That is, to have meaning to the person, interpersonal interactions or putatively stressful events must be processed through the lens of cognitive schemas, that in the case of depression-proneness are quite negative in nature; in this manner, "normal" negative events turn into depression. This idea is not new, but its time has come.

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