

HANDBOOK OF PERSONALITY PSYCHOLOGY

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(1997)



ACADEMIC PRESS

SAN DIEGO LONDON BOSTON NEW YORK SYDNEY TOKYO TORONTO

PSYCHOLOGICAL DEFENSE

CONTEMPORARY THEORY AND RESEARCH

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With some trepidation, we tackle the monumental task of reviewing the contemporary literature on psychological defense. The task is particularly daunting because (a) the literature is vast and scattered, (b) the empirical basis of the topics varies dramatically, and (c) many psychologists remain skeptical of the very notion of defense, often because of a general distrust of things psychoanalytic. For these reasons, we have given priority to claims with empirical support and to work conducted since the last handbook chapter on this topic (Eriksen & Pierce, 1968).

In its broadest sense, *psychological defense* refers to the process of regulating painful emotions such as anxiety, depression, and loss of self-esteem. *Defense mechanisms* are usually defined more narrowly as mental processes that operate unconsciously to reduce some painful emotion. In the classical sense, the latter have been further restricted to threats aroused by the individual's thoughts and wishes, particularly psychological conflict over issues of sex and aggression.

Our decision to address the larger topic of psychological defense is less a virtue than a necessity given that the term "defense mechanism" has been used so

widely and liberally as to cover virtually all forms of psychological defense. For example, some influential theorists have argued for the inclusion of *conscious* mechanisms. Others have called for an expansion to cases where external realities (e.g., physical danger) are the source of threat.

In contrast to relaxing the traditional definition, some theorists have proposed further restrictions. Some, for example, favor restricting defense mechanisms to operations with maladaptive outcomes. Others have responded that the effectiveness of a defense cannot be determined prior to its use or independent of the context. Still others argue that certain defenses are a priori adaptive. Another proposed restriction requires intentionality of reducing distress as a necessary condition. This restriction is rejected, in turn, by theorists with a mechanistic, information-processing view of defense. Unfortunately, we cannot offer a solution to this lack of definitional consensus. Instead, we will refer to the broad topic of this paper as psychological defense while reminding the reader at times of the stricter classical definition of defense mechanisms.

We have organized the literature into digestible chunks by grouping together all the authors who share a conceptual framework (e.g., Vaillant, Bond, Perry, Cooper). We cannot hope to do justice to each writer's work. At best, we can hope to provide a theoretical overview of each approach, a sampling of relevant research, and references to any reviews. The chapter will culminate with an attempt to link the common theoretical strands.

I. CONTEMPORARY PSYCHOANALYSIS

Although the concept of a defense mechanism originated with Sigmund Freud, his daughter Anna Freud (1936) was particularly influential in establishing the processes and distinctiveness of various defenses. Modern psychoanalytic writers have continued to dissect the concept of defense (S. H. Cooper, 1989; Gero, 1951; Schafer, 1968, 1976; Wallerstein, 1983). Only a handful, however, have had a significant impact on the psychoanalytic view of defense. One of these is Otto Kernberg (1976, 1984), who was strongly influenced in this regard by the "object relations" theory of Melanie Klein. Kernberg has defined a new diagnostic category, the "borderline personality organization," which differs from normal and neurotic organizations by virtue of its dependence on a particular variety of defense, namely, "splitting" and related defenses. These defenses, he argues, operate not by limiting awareness of offending wishes or ideas but by "dissociating them in consciousness." In other words, people with such personality organizations do experience their unacceptable or intolerable thoughts and feelings, unlike people with a neurotic organization who repress these mental contents. The essence of defensive activity in the "borderline" personality is recalling the tumultuous experiences almost as they had befallen someone else, blaming them on "bad" aspects of self or on irredeemably "bad" others, neither of which are felt to have substantial connections with the "good" self and others.

Renewed interest in psychoanalytic defense has led, somewhat ironically, to the rehabilitation of Freud's competitor, Pierre Janet (e.g., Bowers & Meichenbaum, 1984; C. Perry & Laurence, 1984). Janet saw defense as a constriction of consciousness rather than a shunting to the unconscious. A failure to integrate certain experiences within the personality was said to induce detached psychological automatisms. Although considerably less elaborate, Janet's view of defense provides a conception that is eminently compatible with modern information-processing theories.

Note, in conclusion, that many psychoanalysts eschew the notion of discrete defense mechanisms operating for limited periods of duration. Instead, they argue that defense is ubiquitous and pervasive: virtually every mental act involves a trade-off of anxiety and awareness. Some analysts go further to argue against any standard set of "defense mechanisms"; instead, any mental process or capacity can be used toward defensive ends (Brenner, 1982).

This view plays down the idea that some individuals are more defensive than others: instead, individuals differ in their *style* of defense. Indeed, this defensive style is so broad ranging that it represents a fundamental component of character. In recent times, this view has been well articulated by David Shapiro (1965, 1981).

Given space limitations, we cannot elaborate on these issues; we can only refer the reader to some key volumes. For discussion of other defenses and more elaborate discussions of theoretical issues, we recommend S. H. Cooper (1989), Erdelyi (1985, 1990), Sjoback (1973), and Wallerstein (1983). We also recommend Kline (1972) and Fisher and Greenberg (1977) for more extensive treatment and reviews of early research on defenses.

II. REPRESSION

In many ways, repression represents the flagship in the psychoanalytic fleet of defense mechanisms. Freud considered it so central that he labeled it the cornerstone of psychoanalysis. Subsequent analysts viewed repression as, if not a cornerstone, at least the prototype of defense mechanisms because it incorporated such central elements as emotional conflict, unconscious motivation, signal anxiety, and long-term unaccounted-for distress.

Here, our simple working definition of repression is the shunting of distressing emotions into the unconscious. Although inaccessible, the repressed emotion can create chronic distress.

In their handbook chapter on psychological defense, Eriksen and Pierce (1968) provided a thorough review of the early research. Those studies sought to show that memories associated with threat or distress were more difficult to recall. The studies that did show such effects, however, were later interpreted as interference effects due to stress, not repression. A particularly scathing review by Holmes (1974) virtually brought a halt to this era of research.

Recently, however, the topic of repression has attracted renewed attention under the label "repressed memories." Unfortunately, the documentation of this

phenomenon consists primarily of unsystematic reports by therapists. The critiques leveled by experimental psychologists (e.g., Loftus, 1993) have centered around two pieces of evidence. First, laboratory research demonstrates unequivocally that emotional events are better recalled than nonemotional events. Second, when untrue suggestions are implanted in experimental subjects, they may be recalled with a certainty equal to that of true memories. Not surprisingly, many observers concluded that so-called "repressed memories" were, in fact, false memories implanted in the minds of their clients by certain "true believer" therapists (Ofshe & Watters, 1994).

In support of the scattered reports by therapists, however, are some recent prospective studies. For example, Williams (1994) interviewed 129 women with previously documented histories of sexual victimization in childhood. A large proportion of the women (38%) did not recall the abuse that had been reported 17 years earlier.

The problem with such studies for our purposes, is that they only address the question of whether these events can be forgotten, not whether they are *repressed*. To substantiate the latter, it must be shown that the memories can be recovered, thereby demonstrating that they were present in some form all along. Note that the harmful effects of child sexual abuse are not at issue; the issue is whether those children who forget the trauma are still distressed because a repressed conflict remains to fester. Until such studies are forthcoming, this topic will surely remain controversial.

III. DENIAL

Although overlapping with other defenses, denial refers primarily to defense against painful aspects of external reality (e.g., Goldberger, 1983). It is usually considered a primitive defense, both in the sense of developing early and in the sense of crudeness and simplicity (A. Freud, 1936). Nonetheless, detailed analysis by Breznitz (1983) and Spence (1983) has distinguished seven kinds of denial varying in subtlety and stage of analysis.

Recent theoretical treatments include several dealing with the denial of death (Becker, 1973; Kubler-Ross, 1969; Lifton, 1968; see also terror management in the next paragraph). Other comprehensive theoretical treatments of denial include those by Moore and Rubinfine (1969), Sjoback (1973), and Dorpat (1985).

Empirical treatments include those by Breznitz (1983) and Spence (1983). The most comprehensive experimental treatment is that by Greenberg, Pyszczynski, and Solomon (1986) on what they term "terror management (TM)." Based on the ideas of Ernest Becker (1973), the theme is that awareness of one's mortality creates the potential for overwhelming terror. This pervasive force is said to mold cultural beliefs to provide philosophies or religions that preclude the terror. In general these beliefs require (a) a means whereby individuals can escape their fate, for example, "If I behave morally, I will have everlasting life," and (b) a sense that one is satisfying the requirements for escape, that is, being a good person. The latter

involves preserving one's self-esteem. In short, maintaining high self-esteem preserves one's death-exempt status thereby precluding the terror of certain death.

The authors have conducted a series of experiments to validate TM theory (Greenberg, 1986; Rosenblatt, Greenberg, Solomon, Pyszczynski, & Lyon, 1989). One robust finding is that exposing subjects to symbols of death increases their tendency to affirm cultural beliefs. The theory was also supported by Paulhus and Levitt (1987), who found that distracting subjects with death-related words increased their tendency to claim socially desirable traits. An extension of TM theory appeared recently (Pyszczynski et al., in press).

IV. SELF-DECEPTION

The term *self-deception* has been used in at least three distinguishable ways. In one usage, self-deception is a distinct form of defense in which the individual shows moral weakness in disavowing some unpleasant truth (e.g., Eagle, 1988; Fingarette, 1969; Sarbin, 1988). In another usage, self-deception is not a type of defense, but a state of affairs inherent in defense mechanisms: it is a motivated unawareness of one of two conflicting representations of the same target (Paulhus, 1988; Sackeim & Gur, 1978). Finally, self-deception is also used as a generic term to cover misperceptions about oneself (e.g., Gilbert & Cooper, 1985; Goleman, 1986).

Although often claimed to be paradoxical (Gergen, 1985; Sartre, 1943/1956), the notion of self-deception has commanded increased attention in recent years. This interest may be traced to a few seminal works. In philosophy, the first full-fledged treatise was published in 1969 by Herbert Fingarette. In sociobiology, a commentary by Trivers (1976) was followed quickly by more thorough treatments by Lockard (1978) and Alexander (1979).

In psychology, earlier empirical work by Frenkel-Brunswik (1939) and Murphy (1975) preceded the first rigorous experiment by Gur and Sackeim (1979). Increasing confidence in the scientific merit of this enterprise is evidenced by the recent spate of empirical reports on the subject (e.g., Gur & Sackeim, 1979; Jamner & Schwartz, 1987; Monts, Zurcher, & Nydegger, 1977; Paulhus, 1984; Quattrone & Tversky, 1984; Sackeim & Gur, 1978, 1979). Finally, books with "self-deception" in the title have begun to appear (Goleman, 1986; Lockard & Paulhus, 1988; Martin, 1985; Murphy, 1975; Sloan, 1987).

In the most general sense of false self-beliefs, the concept of self-deception has been applied in human ethology as well as social, clinical, and personality psychology. In ethology, for example, evidence for the adaptive value of limited self-knowledge in lower organisms implies an evolutionary basis for human self-deception (Alexander, 1979; D. T. Campbell, 1983; Lockard, 1978; Trivers, 1985). In social psychology, too, self-deception has sometimes been defined as a lack of awareness of internal psychological processes (e.g., Wilson, 1985).

Increasingly, self-deception is being applied more selectively in the sense of motivated unawareness. Among social psychologists, an increasing interest in motivated biases and distortions has legitimized the study of formerly taboo concepts such as self-deception (e.g., Gilbert & Cooper, 1985; Krebs, Denton, & Higgins, 1988; Snyder, 1985). Information-processing theories have also been brought to bear on self-deception (Greenwald, 1988; Paulhus & Suedfeld, 1988; Sackeim, 1988). In clinical psychology and psychiatry, the concept of self-deception has been widely applied (Dorpat, 1985; Eagle, 1988; Sackeim, 1983; Schafer, 1976).

The term, self-deception, has also been applied to a series of personality measures. Sackeim and Gur (1978) originally developed self-report measures of both self- and other deception. The former, labeled the Self-Deception Questionnaire, comprised accusations about threatening but common beliefs and feelings (e.g., "Have you ever worried that you might be a homosexual?"). Respondents giving a high number of extreme denials are scored as self-deceptive. These two scales were refined and validated to form Paulhus's (1984) Balanced Inventory of Desirable Responding (BIDR). In the most recent version of the BIDR, self-deception has been partitioned into enhancement and denial (Paulhus & Reid, 1991). Research using the BIDR has confirmed that the first component of social desirability variance found in self-reports is best interpreted as self-deceptive enhancement (e.g., Paulhus, 1984, 1986, 1991).

Many of the writings on this topic share a common theme—that self-deception is a normal and generally positive force in human behavior. The claimed benefits vary from perpetuating the genetic structure of the individual, to improving the individual's ability to deceive others, to minimizing interference with self-preserving behaviors, and to contributing to the psychological health, stability, and performance of the individual as well as society as a whole (Lockard & Paulhus, 1988).

V. TRAIT AND TYPE APPROACHES

The tendency to use defenses is often considered to be a continuous individual difference variable within the normal range of personality.¹ This concept underlies such measures as the Marlowe-Crowne scale (for a review, see Crowne, 1979), the MMPI K-scale (for a review, see Paulhus, 1991), and the Self-Deception Questionnaire (reviewed above).

A select few warrant special attention here because they have a psychoanalytic flavor in combination with a high level of empirical scrutiny. Normal individuals are measured on a single trait or type (combination of traits) and studied intensively.

A. Byrne

Although not fully consistent with the psychoanalytic meaning of repression, Byrne (1961) used the term *repressive style* to describe the trait-like tendency to defend

¹ In the realm of questionnaire research, such general tendencies are often called response styles (for a review, see Paulhus, 1991).

against threats. To measure this style, Byrne developed the widely used Repression-Sensitization (R-S) scale. Items on this scale reflect a clear theoretical assumption: Individuals reporting no anxiety must have a repressive cognitive style, that is, a tendency to minimize the existence or potency of threats, whereas those reporting excess distress must have a sensitizing cognitive style. Thus Byrne postulated a bipolar trait wherein both poles represent defensive styles and the midpoint represents good adjustment. After examining the accumulated evidence, however, Bell and Byrne (1978) concluded that pathology could be present in any of these three groups.

Originally a conceptually driven 156-item scale (Byrne, 1961), the final R-S was winnowed down to a 127-item version using part-whole correlations (Byrne, Barry, & Nelson, 1963). The ensuing flood of published research using the scale suggests a widespread acceptance of the notion of individual differences in defensiveness (see review by Bell & Byrne, 1978).

Among the most cited studies using the R-S scale is that conducted by M. S. Schwartz, Krupp, and Byrne (1971). They followed up the medical status of 50,000 patients who had completed the R-S scale. One striking finding was that repressors suffered primarily from organic problems whereas sensitizers suffered from psychological problems.

Nonetheless, a number of the later approaches to defense (discussed below) begin with a criticism of Byrne's approach. One major target was Byrne's theoretical assumption that defenses are trait-like, that is, cross-situational and inflexible (e.g., Haan, 1965; Lazarus & Folkman, 1984). The major criticism of the R-S scale itself has been its conceptual similarity and embarrassingly high correlation with measures of anxiety (Gleser & Ihilevich, 1969; Golin, Herron, & Lakota, & Reineck, 1967). The resulting paradox was that the same subjects diagnosed as repressors on the R-S were diagnosed as truly low-anxious (i.e., well-adjusted) on standard anxiety scales.

B. Weinberger and Schwartz

Weinberger and Schwartz and their colleagues have tackled the problematic confounding of the R-S scale with anxiety measures. Beginning with D. A. Weinberger, Schwartz, and Davidson (1979), they explained that measures based on self-reported distress were incapable of distinguishing repressors from the truly low-anxious. The problem is that some subjects (truly low-anxious) *accurately* report low anxiety; others (repressors) *defensively* disavow their anxiety.

Instead, following Boor and Schill (1967), Weinberger and associates developed a typology measure of repressive style and supported its validity with both experimental and correlational studies (for a review, see D. A. Weinberger, 1990). Repressors were one of four groups identified by crossing a self-report measure of trait anxiety (e.g., the Taylor Manifest Anxiety Scale) with a measure of defensiveness, the Marlowe-Crowne Social Desirability Scale (Crowne & Marlowe, 1964). Among low-defensives, both high- and low-anxious subjects are

taken at their word. The low anxiety scores of subjects scoring high on defensiveness (repressors), however, are assumed to result from their avoidance of distressing knowledge about themselves, including knowledge of their levels of anxiety. The fourth group—high-defensive/high-anxious—are rare and, therefore, ignored (see Davis, 1990, p. 391).

New data as well as reinterpretation of previous studies have supported the validity of the typology index of repressive style. For example, D. A. Weinberger et al. (1979) found repressors to be higher than low-anxious subjects on six behavioral and physiological measures of anxiety, despite the fact that the repressors scored lower on the self-report anxiety measure. Asendorpf and Scherer (1983) replicated and extended these findings. Newton and Contrada (1992) also replicated the same verbal-autonomic response dissociation for repressors but only in a public-evaluation situation.

Other behaviors of repressors indicating a fundamental sensitivity to negative affect include avoidance of negative implications of new information, greater performance impairments under stress, and less empathy (reported in D. A. Weinberger, 1990). Weinberger offers several possible explanations for this pattern, including selective attention, altered construal of environmental and somatic cues, and attributional biases. Although D. A. Weinberger (1990) emphasized repressors' performance impairments under stress, their tendency to avoid processing sources of negative affect might actually benefit performance in certain tasks (Bonanno, Davis, Singer, & Schwartz, 1991).

Further exploring the repressor's character, Davis (1987, 1990; Davis & Schwartz, 1987) found that repressors not only lack awareness of their current emotional states, but also have difficulty gaining access to emotional memories.² A series of studies has suggested that repressors have a comparable range of emotional memories but are less able to access them, particularly when the memories involve anger, fear, and self-consciousness (Davis, 1990). Less elaborate processing of emotional experiences and disruptions in "indexing" of emotional memories were proposed as explanations. In the search for consequences, G. E. Schwartz (1990) found evidence that the repressive style impairs physical health and he offers a "psychobiological" model of repressive style. Under some circumstances (e.g., conjugal bereavement), however, repressive style has actually proved beneficial for physical health (Bonanno, Keltner, Holen, & Horowitz, 1995).

A nagging psychometric problem with the typological model is the confounding created by scoring only three groups of a conceptual 2×2 table. As a result, main effects may be responsible for some findings attributed to the interaction of anxiety and defensiveness scores (e.g., Warrenburg et al., 1989). Therefore,

² This finding is consistent with Bonanno and Singer's (1990) conclusion from a literature review that repressive style is associated with a preoccupation with relatedness and intimacy.

rather than a typology based on arbitrary cutoff points, we recommend a multiple-regression approach for future research.³

Note that this emerging picture of the "repressor" construct appears to differ in two important respects from the traditional definition of repression. First, repression has traditionally been defined as avoiding awareness of impulses or other mental contents, rather than avoidance of awareness of emotions as in the present paradigm. Second, as D. A. Weinberger (1990) notes, repressive personality style has traditionally been strongly associated with "hysterical" personality traits, which are in sharp contrast with the dour, phlegmatic, excessively rational subjects in the present studies. For these reasons and others, some critics have questioned the appropriateness of the label "repressor" for such individuals (Holmes & McCaul, 1989; Vaillant, 1992).

A related typology was recently suggested by Shedler, Mayman, and Manis (1993). Instead of being crossed with a defensiveness scale, however, the adjustment self-report is crossed with adjustment ratings by clinical judges. Thus the group high in self-reported and low in clinician-reported adjustment is assumed to be defensively denying their maladjustment. Results from a series of studies confirmed that, compared to the truly adjusted group, the defensive subjects showed more defensive word associations and higher levels of physiological responsivity to stress.

Clearly, the strong suit of trait and typology measures is their ease of administration and scoring—qualities that facilitate research. Their current status, for better or for worse, is exemplified in a recent study by Turvey and Salovey (1994): They found that extant measures, despite different origins and rationales, all converged empirically on one underlying factor of trait defensiveness. Nonetheless, they remain difficult to untangle from measures of anxiety (p. 288).

VI. HAAN AND COLLEAGUES

The work of Norma Haan has had the single strongest influence on contemporary work—on both defense mechanisms and coping. Beginning with a model similar to that of Kroeber (1963), Haan (1963, 1965, 1977) defined ego actions as processes that accommodate, assimilate, and maintain organization under conflict. The processes themselves are not tied to any specific psychoanalytic content (sexual or aggressive impulses). Nor are the ego functions inherently conscious or unconscious; their operation is best described as preconscious—available to discovery, but not persistently within awareness.

³ This problem seems to be resolved within the more recent typology; rather than dividing subjects on defensiveness using the Marlowe-Crowne scale, they are divided on restraint, using a new self-report measure. Thus repressors are now defined as high restraint/low distress (D. A. Weinberger & Schwartz, 1990).

Hann and Kroeber reasoned that a taxonomy of ego actions should not be restricted to defenses involving maladaptive distortion of truth and reality, as previous work had. Instead, they proposed two independent, parallel modes of expression—coping and defense. Coping reflects purposeful, adaptive, conscious, flexible, and present-oriented behavior choices that adhere to reality and logic and are morally superior (Haan, 1985, 1986). Defenses are compelled, maladaptive, rigid, distorted, and past-oriented behaviors that distort reality. If either of these modes fail, then fragmentation may be invoked. The latter is characterized by irrationally expressed psychopathological symptoms such as ritualistic and automatic behavior, and involves clear violations of reality. Haan (1977) summarizes this triad by stating, "A person will cope if he can, defend if he must and fragment if he is forced to do so" (p. 79).

Within each of these modes of expression, the taxonomy was further subdivided into 10 generic subcategories of ego processes. For conceptual convenience, the 10 generic processes are clustered into those which are primarily cognitive, affective regulating, reflexive-introspective, and attention focusing. The choice of process and its mode of expression are dependent upon the situational demands and/or a series of life situations that predispose the individual to idiosyncratic strategies.

Haan (1965) developed a Q-sort interview technique composed of 60 items, 3 for each of 20 coping and defense ego processes. The scales can be used by clinicians to assess a client's defensive profile. Haan (1965) also developed self-report versions of the ego-process scales by administering the MMPI and CPI scales. She could then identify for each scale those items which differentiated the subjects who were rated by clinicians as highly defensive from those who were not. Although used in more than 30 studies, neither the interview or the self-report versions were ever cross validated (Morrissey, 1977).

In response to criticisms of the original scales, Joffe and Naditch developed improved versions of the ego process scales (J-N; Joffe & Naditch, 1977). The authors selected those items from the CPI and the MMPI which predicted clinicians ratings of the 20 coping and defense processes outlined by the model. Those items which correlated the highest with the criterion ego ratings were then cross validated.

Factor analyses of the defense and coping mechanisms (Haan, 1963; Joffe & Naditch, 1977) indicate that the items can be categorized into Controlled Coping, Expressive Coping, Structured Defense, and Primitive Defense scores. The Haan scale and the J-N have shown some convergent validity with the Defense Mechanisms Inventory (Gleser & Ihilevich, 1969; Vickers & Hervig, 1981). There is also evidence for the predictive validity of the J-N in families coping with seriously ill children (Kupst & Schulman, 1981; Kupst et al., 1984), and as an antecedent to seeking psychotherapy (Gurwitz, 1981).

Use of defenses, as measured by the J-N, has been shown to be positively related to Speed and Impatience subscores of Type A behavior, whereas use of coping mechanisms was positively related to Job Involvement (Vickers, Hervig, Rahe, & Rosenman, 1981). Internal locus of control is associated with the use of coping, and external locus correlated with defenses (Vickers, Conway, & Haight,

1983). Haan (1985, 1986) investigated the relations between the Haan and J-N scales and moral development. She concluded that coping strategies facilitate, while defensiveness hinders, mature moral behavior.

In sum, Haan's coping–defense–fragmentation triad represents an expansion and elaboration of the theretofore narrow focus of defense mechanisms. In addition, the associated ego-process scales represent the first comprehensive battery designed to tap defenses.⁴

VII. VAILLANT AND COLLEAGUES

George Vaillant continues to be a leader in the naturalistic study of defenses from a psychodynamic point of view (e.g., Vaillant, 1971, 1976, 1992; Vaillant, Bond, & Vaillant, 1986). His empirical work has been based primarily on three longitudinal samples from which copious data were available. His position has been that psychological defenses become clear only over long spans of time as the individual "adapts to life." Vaillant (1971) has used the term "defensive style" to refer to enduring tendencies to employ either specific mechanisms or, more often, mechanisms of a particular level of "maturity." He has taken a developmental view of defenses, describing their degree of adaptiveness and adherence to reality in terms of maturity (Vaillant, 1971) and seeking evidence that such maturity correlates with chronological age and with various measures of mental health.

Vaillant's methods, although always empirical in a broad sense, have a novelistic aspect, particularly in his early work (Vaillant, 1971). His approach relies, to a greater degree than most psychological research, on his own impressions of subjects. This has led to rich description and lucid theory, but has to some extent undermined his argument that individuals' defensive styles can be objectively identified. Nevertheless, he has demonstrated robust and theoretically important associations between maturity of defensive style and several measures of successful adaptation.

Vaillant's use of varied biographical and evaluative materials gathered longitudinally over the course of decades has permitted a direct assessment of defenses in significant life contexts. It is also possible through this method to distinguish enduring defenses from ones that recede once a particular circumstance has passed. Vaillant codes defenses by first condensing life history materials into vignettes that demonstrate a subject's techniques of managing life problems and then grouping these vignettes according to which defense they seem to represent. A pair of raters then categorizes each group of vignettes within Vaillant's theoretical hierarchy of 18 defenses, ranging from psychotic to mature (Vaillant, 1971). The raters also code the prominence of each defense in the subject's overall style.

This coding procedure does not permit an assessment of the degree to which reliable ratings can be made directly from the life historical materials, because all ratings are mediated by Vaillant's own categorization of the materials. (See

⁴ Recently, another Q-sort approach to defenses has appeared (Davidson & MacGregor, 1996).

McCullough, 1992, for a more stringent test of reliability using the same materials and defenses). Nonetheless, raters agreed in 70% of cases on the exact label assigned to a cluster. Interrater reliability of ratings of defense prominence ranged widely, from $-.01$ to $.95$. Reliability was consistently high ($.72-.84$), however, for the more critical dimension of defensive maturity (Vaillant, 1976).

Defensive maturity was found to correlate with adjustment and mental health, both cross sectionally and prospectively (Vaillant, 1992). Nevertheless, maturity of defense constitutes an independent dimension (Vaillant et al., 1986). There is some evidence that the use of mature styles increases over the course of adult development (Vaillant, 1976). Specific evidence for a causal role of defensive maturity in adult adjustment is provided by the moderating influence of childhood environment: defense maturity made a difference in adult adjustment primarily for subjects with bleak childhood environments (Vaillant et al., 1986). A related pattern has been found for social class. Correlations with Bond's Defense Style Questionnaire (DSQ) have provided some validation of the ratings of individual defenses. The DSQ is a self-report instrument in which subjects are queried about response styles related to defense (Bond, Gardner, Christian, & Sigal, 1983).

In his influential book, Vaillant (1992) reviewed theory and research in the psychoanalytic and psychiatric approach to the study of defense mechanisms. He summarized the history of these concepts in Freud's work, advocated a renewed emphasis on defenses in diagnosis and treatment planning, and surveyed several prominent nomenclatures (of which his own has been the most influential). Contributed chapters by other authors presented current research. Vaillant reviewed data from his three longitudinal samples and concluded that gender, SES, and culture do not significantly affect defensive style; however, the validity of this conclusion is limited by limitations in the method of rating defenses, as discussed previously. Finally, Vaillant presented a revised version of Haan's Q-sort as a new method of obtaining objective and statistically convenient ratings of defensive style from life historical or interview data. Reliability and validity do not yet appear adequate. (However, see Hart and Chmiel [1992] for a successful application of Vaillant's Q-sort.)

Perry, a former student of Vaillant, has, together with Cooper, studied the relation of defenses to psychiatric diagnosis and other aspects of functioning (J. C. Perry & Cooper, 1989, 1992). These authors developed the Defense Mechanisms Rating Scales (DMRS), which differ from Vaillant's in using videotaped interviews instead of extensive longitudinal materials and in providing more rigorous assessment of interrater reliability. Significant associations have been found between classes of defenses and psychological symptoms, both subjectively and objectively evaluated. Level of functioning has also shown significant associations with the defense classes (J. C. Perry & Cooper, 1989, 1992). However, associations with diagnosis have not been demonstrated in all of their studies (e.g., Bloch, Shear, Markowitz, Leon, & Perry, 1993).

Led by Perry, a group including Vaillant, Horowitz, Fridhandler, Cooper, and Bond contributed the Defensive Functioning Scale to the latest official psychiatric diagnostic system, the DSM—IV (American Psychiatric Association, 1994, pp. 751–757). This scale—drawn mainly from Vaillant's and Perry's systems with elements

of Horowitz's—is a proposed additional “axis” of diagnosis. (The DSM—IV defines a diagnostic axis as a “domain of information that may help the clinician plan treatment and predict outcome [p. 25]”; currently, a full diagnosis requires assessment on five axes.) The Defensive Functioning Scale consists of 31 defined defenses, grouped into seven “levels” according to their mode of action and their degree of adaptiveness or maturity. As part of the diagnostic evaluation, the patient's most prominent current defenses and overall defensive level are rated. These ratings are based on the clinician's observations and his or her interpretation of the patient's history; that is, no interview protocol or operationalized rating procedure are included in the scale at this time. Although currently an optional part of diagnosis, and though its field reliability and validity are unknown, this scale represents the first officially sanctioned rating of defenses in psychiatric diagnosis and as such may ultimately have a significant impact on mental health diagnosis and treatment.

VIII. HOROWITZ AND COLLEAGUES

Mardi Horowitz and his colleagues (Horowitz, 1986; Horowitz, Markman, Stinson, Fridhandler, & Ghannam, 1990; Horowitz & Stinson, 1995) have advanced a theoretical model of defense that originated in a psychodynamic framework but gradually incorporated principles of cognitive psychology. The fundamental assumption in this model is that there exists an unconsciously operating system of “control processes” that govern what is represented in conscious awareness and determine what form this awareness takes. Following the structure of Haan's (1977) theory, several processes are posited, any one of which may have adaptive, maladaptive, or “dysregulatory” outcomes depending on the context in which it is employed.

The traditional psychoanalytic defenses are retained—29 are specifically cited (Horowitz, 1988)—but are not considered to be fundamental processes. Instead, following the distinction made by Wallerstein (1983), the traditional defenses are regarded as outcomes of more basic cognitive processes (Horowitz et al., 1990). For example, the psychoanalytic mechanism “undoing” is thought to be accomplished through the process of “sequencing ideas through switching concepts,” that is, rapidly shifting one's beliefs or point of view (Horowitz, 1988, p. 202). The traditional psychoanalytic assumptions that defense or “control” operates unconsciously for the purpose of keeping conflictual material out of awareness are retained.

In addition to this synthesis of cognitive psychology with psychoanalytic approaches, Horowitz's view of defense is distinguished by the assertion that defense can be accomplished through activation of certain person schemas (Horowitz, 1988; Horowitz et al., 1990). In this view, individuals have multiple images of self and others, as well as multiple images of typical interactions, termed “role relationship models.” One method of defense is to change the image or schema that is currently active, which in turn controls those specific aspects of self and other that are currently perceived. Aspects of this theory were drawn from the object-relations perspective, which is increasingly influential in psychoanalysis (Kernberg, 1976).

This approach originated in the study of psychological coping strategies following traumatic stress (Horowitz, 1986). Observing a regular pattern of "intrusions" and "omissions" in consciousness following trauma, Horowitz concluded that unconscious control processes must be present. Examination of videotaped psychotherapies of individuals with unresolved posttraumatic reactions revealed that therapists helped these persons to modify certain control operations, and the controls identified in this way became the basis for the developing taxonomy. Three levels of regulation were specified: regulation of mental set, regulation of person schemas, and, at the most fine-grained level, regulation of conscious representations and sequencing (Horowitz, 1988). Although the system is primarily theoretical, it is being applied in the intensive study of single subjects (Horowitz et al., 1994).

IX. ERDELYI AND COLLEAGUES

Erdelyi has offered the most sustained and detailed cognitive treatment of defense. He has proposed a broad theoretical framework subsuming the major experimental literatures on defense, namely, perceptual defense (Erdelyi, 1974) and repression effects on memory (Erdelyi & Goldberg, 1979). He argues (Erdelyi, 1985) that laboratory evidence demonstrates that "there can be selective information rejection from awareness" (p. 259), although it has not been experimentally established that this capacity is in *fact* used toward defensive ends. He has claimed further that defensive bias influences the entire sequence of information processing and that there is no reason to believe that a single mechanism is responsible for all this defensive activity. For example, perceptual defense may involve processes ranging from ocular fixation to selectivity in transfer from raw storage (e.g., iconic storage) into short-term memory.

In his more recent work (Erdelyi, 1990), he has proposed a mechanism for repression that he argues is fully consistent with Sigmund Freud's views, particularly his earlier ones. Erdelyi argues that "repression" refers to purposefully *not thinking* of a target memory (or thinking of something else), which results in the target being overtaken by "oblivescence" (or, more simply, forgetting), resulting in amnesia. He cites evidence that there are two contrary tendencies in memory, reminiscence and oblivescence/forgetting. Thinking about a memory—"rehearsing the remembered and searching for the inaccessible" (1990, p. 4)—promotes the former, and if pursued in a sustained way results in hypermnesia or greater accessibility of the memory. "Not thinking" yields the opposite results, namely, amnesia. This amnesia is not necessarily permanent, however; it is often reversible by thinking of the target memory. In other words, due to the properties of human memory, deliberate "not thinking" over time is sufficient to remove a memory from awareness. This process is potentially reversible, in keeping with therapist reports of recovery of repressed memories.

Erdelyi (1990) cites experimental findings to support this view. He compares classic findings on forgetting over time with one of his own studies (Erdelyi &

Kleinbard, 1978) showing *increasing* memory over time. This difference, he suggests, is due to thinking versus "not thinking." He also cites clinical findings with neurological amnesics that *declarative* facts may be forgotten while related *procedural* aspects of memory remain. This is consistent with Freud's contention that repressed childhood events are not remembered but are "repeated," in the form of actions and emotions.

Although psychoanalytic writers and many others (cf. Heilbrun & Pepe, 1985) have generally assumed that people are unaware of their defensive activity, Erdelyi asserts that there is nothing about repression that must be unconscious. In addition, he argues that repression need not be defensive at all. In this definition, repression is simply not thinking in order to produce amnesia, a process that may serve defensive or nondefensive ends.

Although Erdelyi focuses on repression, he offers a framework for understanding other defenses as well. This framework is based on Bartlett's view of memory as a *reconstructive* process. Such reconstructions might well be subject to defensive bias. Erdelyi (1990) provides an example of such bias. A 9-year-old girl was asked to read a brief story and then was asked to reproduce it on several successive occasions. In her early recall efforts, most of the frightening aspects of the story were absent. Such case studies, along with a few experimental studies, form the basis of Erdelyi's well-articulated theory of defense.

X. IHILEVICH AND GLESER

Goldine Gleser and David Ihilevich (1969; Ihilevich & Gleser, 1986) have developed a theory of responses to conflict and an instrument to assess them—the Defense Mechanisms Inventory (DMI). The authors proposed a two-tiered classification system to describe possible responses to threat. At the first level, they distinguished between problem-solving efforts that are directed at changing oneself and those efforts aimed at changing the surrounding context. Second, they classified all possible responses as problem-solving, coping, or defense strategies, although they admitted that they were unclear as to how these three levels interact.

Utilization of any of the three modes of response to conflict is assumed to reduce anxiety and enhance self-esteem. Problem-solving strategies (changing oneself, changing the environment) have a direct impact upon the threat. Coping strategies (assertiveness, trust, stoicism, responsibility, and hope) have an influence on the individual's mood or motivation expended upon the threat, not upon the threat itself, and are based in trust and reality. Defenses (aggression, projection, intellectualization, intrapunitive, and repressive actions) actually remove the problem from awareness or distort it, thus falsifying reality and offering an illusion of control.

Coping and defensive strategies arise only when problem-solving strategies are ineffective or inappropriate. In addition, the appropriateness and the adaptiveness of the choice of response are dependent upon the context and the individual's characteristic style.

The DMI (Ihilevich & Gleser, 1986) was designed to assess five categories of response to threat: Projection (PRO), Principalization (PRN), Turning Against Object (TAO), Turning Against Self (TAS), and Reversal (REV). Subjects respond to the 10 scenarios by selecting their most and least likely reactions, in terms of their actual behavior, affect, thoughts, and fantasy behavior. To date, the scale is the most extensively utilized self-report measure of defense mechanisms in research (Cramer, 1988; Vickers & Hervig, 1981; see Ihilevich & Gleser, 1986, for a comprehensive review). Generally, the DMI has found to have high retest and interitem reliability, but there are some problems with the conceptual status of TAO as a defense and weak validity for the PRN scale (Cramer, 1988). Concurrent validity has been shown between the DMI and the MMPI defensive scales, the Byrne Repression-Sensitization scale, Haan's Q-sort Technique, Joffe and Naditch's Ego Process scale, Schutz's Coping Operations Preference Enquiry, the Blacky Defense Preference Inquiry, and the denial subscale of the Marlowe-Crowne Social Desirability scale.

It has been suggested that the interrelationships among the five scales indicate that the DMI represents a single continuum. For example, males score higher on PRO and TAO, and TAO has been related to masculine orientation. Females score higher on TAS, which is related to feminine orientation. Assertive individuals endorsed PRN, whereas nonassertives endorsed TAO and TAS. As such, the DMI has been conceptualized as a continuum with acting-out defenses at one end and inwardly focused defenses at the other (Cramer, 1988; Juni & Yanishefsky, 1983). It has also been argued that this continuum represents an expression of aggression (TAO and PRO) at one pole, and an inhibition of aggression (REV and PRN) at the other. Clinical validity of the DMI was provided by the findings that TAO and PRO are higher in psychiatric patients, and TAS is higher in suicidal patients. Finally, the DMI scales have been linked to a promising new system of interpersonal defenses (Woike, Aronoff, Stollak, & Loraas, 1994).

XI. PERCEPT-GENETIC APPROACH

Over a period of four decades, a group of psychologists centered at Lund University in Sweden have advocated a dynamic-constructivist view of personality called *percept genesis* (PG). The theory concerns how perceptions evolve, how they are interlinked with behavior, and how they form the individual's conception of external reality. For a recent collection of studies, see Hentshel, Smith, and Draguns (1986).

Percept genesis was derived from the microgenesis work of the 1920s (e.g., Sander, 1928/1961), which presumed that unattended processes preceded conscious perception. In effect, the perception of external reality is an outcome of internal processes prone to subjective influences. Microgenesis assumes that the immediacy of percepts is in fact an illusion arising from the perceiver's focus on correct recognition of the stimulus. Analysis of the preparatory phase through repetition of brief presentations can reveal the processes leading up to recognition. PG theorists

emphasize that these processes are highly influenced by the individual's personality and experiences. Thus, percepts are deeply rooted in the perceiver's developmental history.

The PG model further suggests that perception recapitulates ontogeny; that is, perception reflects the sequence of life experiences. One cannot examine a section of the process without reference to earlier stages. "PG sees the perceptual act as a process moving from the subjective prestages to the final intersubjective meaning of the stimulus" (Smith & Westerlundh, 1980, p. 109).

Tachistoscopic methods form the basis for a number of PG tests designed to measure defenses. Two of the most widely cited tests are the Defense Mechanisms Test (DMT; Kragh, 1960) and the Meta-Contrast Technique (MCT; Kragh & Smith, 1970; Smith & Henriksson, 1956). These methods entail an examination of a subject's changing interpretations of a hero stimulus—a focally central person. Initially below perceptual threshold, the exposure time is gradually increased until the subject reaches a stable identification of the hero stimulus. Next, a threatening stimulus (e.g., a monstrous figure sneaking up) is gradually introduced to provoke anxiety. Various defensive reactions are evaluated by analyzing the subject's changing interpretations of the hero and threatening stimuli, and/or the temporal delay to correct recognition of the stimuli. Subjects often show defensive interpretations of the stimulus before the threat has been accurately identified.

Using an array of associated methodologies, the PG researchers have provided evidence for their distinctive patterns of defenses during different perceptual stages and different life stages, and in different forms of psychopathology. In Sweden, the DMT is in standard use by the military for pilot selection. The tests have also been utilized to predict soldier and attack-diver abilities, and to distinguish decorated veterans from nondecorated veterans. These techniques are also regularly applied in clinical research. One finding was that repression is the central defense mechanism in hysterics, and isolation the central strategy for compulsives. (For a review of research, see Smith & Westerlundh, 1980).

Although research with PG methodologies appears to be widespread in Scandinavian nations and growing in other European countries (e.g., Cline, 1987; C. Cooper, 1988; Hentschel & Kiessling, 1990), for some reason it is still minimal in North America.

XII. PLUTCHIK AND COLLEAGUES

Plutchik and colleagues view defenses as more accessible and changeable than the strictly unconscious process assumed by *other theoreticians* (Plutchik and Kellerman, 1980). On the basis of Plutchik's (1962; Schaefer & Plutchik, 1966) theoretical and empirical work on emotions, the defenses are said to vary in their degree of similarity to each other, show a circular configuration, and lie on a continuum of most to least primitive. The 8 basic defenses are said to derive from 8 basic emotions within an evolutionary framework.

The authors identified 16 defense processes from psychiatric and psychoanalytic literature, and assembled them in The Life Style Index. On the basis of the responses of several normal samples, extreme and ambiguous items were eliminated, and only those items that differentiated the highest scorers from the lowest scorers were retained. Clinicians' matchings of the items to the defense mechanisms provided further refinement. A comprehensive review of findings with the scale is listed in Conte and Plutchik (1995).

Clinical validity was supported by the finding that schizophrenics scored significantly higher than college students on all scales. High-self-esteem individuals score lower on regression, compensation, projection, and intellectualization, and highly anxious individuals showed a reverse pattern plus low scores on denial. Rim (1987, 1989) showed subject gender and age to be moderating factors to Plutchik's scales, and found that Extraversion was positively correlated with minimization, mapping, and reversal, but was negatively correlated with blame, whereas neuroticism was positively related to minimization and suppression.

In short, the construct validity of this set of defenses is supported in that: (1) psychiatric patients use defenses more than do normals, and (2) among normals, those who use defenses tend to have lower self-esteem. Most recently, Plutchik and colleagues have extended the model to a parallel set of eight coping variables (Plutchik & Conte, 1989).

XIII. STRESS AND COPING

Although it is difficult to draw a clear line between the literature on coping and that on defense, coping concepts place more emphasis on (a) active, conscious efforts at managing, (b) process rather than trait measurement, and (c) variability across situations. The major predecessors of current work are Haan (1963), Moos (1974), and Pearlin and Schooler (1978).

In recent years, the most active program of theory and research on coping has been that of the Berkeley Stress and Coping Project, summarized in Lazarus and Folkman (1984). The approach postulates three distinguishable stages as critical mediators of stressful person-environment relations and their immediate and long-range outcomes: primary appraisal, secondary appraisal, and coping. Through primary appraisal, the person evaluates whether he or she has anything at stake in the encounter. Secondary appraisal involves evaluating what, if anything, can be done. Finally, coping is defined as the constantly changing cognitive and behavioral efforts to manage demands that exceed the person's resources (Lazarus & Folkman, 1984). An individual may use any one of a wide variety of coping responses, depending on the situation and recent events, as well as individual coping style.

Several standardized measurement instruments arose from this research program, including the Hassles and Uplifts scale (DeLongis, Coyne, Dakof, Folkman, & Lazarus, 1982) and the Ways of Coping scale (WOC; Folkman & Lazarus, 1985).

The WOC is perhaps the best-known and most widely utilized research tool. The respondent is asked to think of a recent stressful event or is supplied with a specific example. The subject then responds by checking the applicable responses from a list composed of a broad range of cognitive strategies ("I tried to forget the whole thing") and behavioral strategies ("I got professional help") that people use to manage internal or external demands in stressful encounters. The original WOC (Folkman & Lazarus, 1980) contained 68 items in a yes/no format indicating whether the respondent had or had not used each strategy. In the revised version containing 67 items (Lazarus & Folkman, 1984), the response format was changed from yes/no to a four-point Likert scale (0, does not apply or not used; 1, used somewhat; 2, used quite a bit; 3, used a great deal). Early factor analyses of the WOC indicated two general factors: problem-focused and emotion-focused strategies (Lazarus & Folkman, 1984). More recent factor analyses have indicated eight factors: confrontive coping, distancing, self-controlling, seeking social support, accepting responsibility, escape-avoidance, planful problem solving, and positive reappraisal (Folkman, Lazarus, Dunkel-Schetter, DeLongis, & Gruen, 1986). McCrae and Costa (1986) have shown that, by changing the referent from a specific situation to "what you generally do," the WOC becomes a trait measure, linking different strategies to each of the Big Five dimensions of personality.

Studies by the Lazarus group tend to emphasize changes in strategies across situation. In a typical study, stress and coping among students were examined at three stages of a university examination (Folkman & Lazarus, 1985). Hopefulness, eagerness, worry, and fear were most common during preparation period whereas happiness, relief, disgust, and disappointment were more common after grades had been announced. During the intermediate stage, after the exam but before grades had been announced, high levels of all the above emotions were reported.

DeLongis and O'Brien (1990) have extended the model to incorporate an interpersonal factor. And the model has stimulated research by other groups. At least two other instruments have been developed that expand on the WOC scale (Carver, Scheier, & Weintraub, 1989; McCrae, 1984). Other researchers have focused on the processes underlying coping. For example, the notion of affect regulation has provided a homeostatic, hydraulic model for the process of coping with stress (e.g., G. E. Schwartz, 1977). Finally, Carver and Scheier (1981) have developed the most comprehensive process model, labeled attention/self-regulation theory.

Several independent programs of research on coping warrant brief mention here. Seymour Epstein has postulated a construct of "constructive" thinking that links all adaptive coping responses to a single global factor (Epstein & Meier, 1989). Suzanne Kobasa proposed the construct of "hardiness" to capture the psychological factors that minimize the physical health effects in those groups (e.g., executives) particularly subject to prolonged stress (Kobasa, Maddi, & Kahn, 1982). Finally, the Plutchik and Conte (1989) coping constructs were derived from Plutchik's evolutionary theory of emotion.