

PSYCHOLOGICAL DEFENSE MECHANISMS: A NEW PERSPECTIVE

Brad Bowins

Approaching psychological defense mechanisms from the perspective of an evolved strategy, it is proposed that there are two basic templates—dissociation and cognitive distortions. Frequently conceived of as pathological, these psychological phenomena actually constitute overlapping spectrums with milder manifestations being common and highly functional, and more severe variants less common and typically dysfunctional. Dissociation provides the capacity to adaptively detach from disturbing emotional states, and cognitive distortions place a positive ego-enhancing spin on experience. Most of the classical defense mechanisms described in the psychoanalytic literature represent a form of cognitive distortion with some containing strong elements of dissociation.

KEY WORDS: defense mechanisms; dissociation; cognitive distortion; psychosis; emotions; antisocial behavior.

INTRODUCTION

Psychological defense mechanisms represent a crucial component of our capacity to maintain emotional homeostasis. Without them the conscious mind would be much more vulnerable to negatively charged emotional input, such as that pertaining to anxiety and sadness. Fear and anxiety occur within the context of threat and danger (Eley & Stevenson, 2000; Finlay-Jones & Brown, 1981; Mathews & Klug, 1993; Rapee, 1997; Shaver et al., 1987). Loss is the most common circumstance producing sadness and depression (Beck 1991; Eley & Stevenson, 2000; Finlay-Jones & Brown, 1981; Konner, 1982; Shaver et al., 1987; Shrout et al., 1989). Fear/anxiety, sadness, and other emotions arise from unconscious and conscious cognitive activating appraisals (Clore & Ortony, 2000; Izard, 1992; Lazarus, 1984, 1991). Intelligence, unquestionably one of the cornerstones of human evolution, amplifies emotions by providing more extensive and intensive unconscious and conscious activating appraisals. The amplification of emo-

Address correspondence to Brad Bowins, M.D., 2200 Yonge Street, Suite 1700, Toronto, Ontario, Canada M4S 2C6; e-mail: brad.bowins@bellnet.ca.

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tions resulting from these more elaborate activating appraisals largely accounts for why we have been described as the most emotional of all creatures (Hebb, 1949). Intelligence also facilitates repetitive thinking about circumstances contributing to the emotional responses we experience, thereby perpetuating feeling states in a temporal dimension. For example, repetitively thinking about the possibility of being laid off from a valued job will promote an ongoing threat and loss narrative producing more anxiety and sadness over time.

By amplifying fear/anxiety and sadness, intelligence plays a role in the initiation of anxiety disorders and depression. The impairment of sleep, appetite, concentration, energy level, sexual desire, and motivation inherent in clinical anxiety and depression greatly diminishes a person's capacity to function. Adapting to changing environmental conditions requires motivation, concentration, and problem-solving abilities that all suffer when severe adverse emotions take over. Psychological defense mechanisms serve an important function by attenuating negative emotions to maintain or restore a more healthy state of mind. Another way of looking at the matter is that the by-product of intelligence, intensified fear/anxiety and sadness/depression, has favored the evolution of psychological defense mechanisms designed to reduce the intensity, frequency, and duration of these adverse feelings states. This emotion-dampening function of defense mechanisms contributes an adaptive value beyond containing and redirecting disturbing impulses and drives. Consequently, the psychological defense system is expressed often unknowingly in each and every person much like the immune system operates without our conscious awareness (Vaillant, 1994).

Approaching the issue of psychological defense mechanisms from the perspective of an evolved strategy focuses attention on normal expressions in contrast to the common emphasis on the neurotic or pathological. Given that most evolved traits demonstrate a range of expressions, this perspective is also compatible with the concept of psychological defense mechanisms occurring in a spectrum from mild to severe. These spectrums should be based on some unifying template, as is the immune system with its strategies of humoral and cellular defenses. It is proposed that, for the most part, psychological defense mechanisms are organized into the two overlapping spectrums of dissociation and cognitive distortions. These psychological entities are frequently conceived of as pathological, but this perspective concentrates on more severe variants downplaying the much more common and functional manifestations. As will be elaborated on, most of the classical defense mechanisms, such as intellectualization, rationalization, isolation, and denial, are actually derived from the cognitive distortion, and to a somewhat lesser extent, dissociation templates.

DISSOCIATION

Freud described how dissociation can dislocate affect from ideas (Freud 1894/1964). Vaillant (1977) suggests that dissociation permits the ego to alter the internal state so that the pain of conflict seems irrelevant. Dissociation essentially provides the ability to detach from adverse emotional states. Dissociative experiences take different forms including, emotional numbing, absorption and imaginative involvement, depersonalization and derealization, amnesia, and identity fragmentation (Allen & Lofafaye, 1995; Ross, Joshi, & Currie, 1991, 1990). These forms represent progressively intense degrees of dissociation. Emotional numbing consists of diminishing or blocking feelings that can interfere with functioning. People who deal efficiently with emergency situations typically learn to diminish or block feelings of fear/anxiety and sadness, because the excessively intense emotions that often arise in this type of setting can interfere with the performance of their work.

Absorption and imaginative involvement consist of shifting attention away from an often stressful source to a more pleasing external or internal focus. Ross, who has done extensive work on dissociative experiences in the general population, lists several forms of absorption and imaginative involvement including, missing part of a conversation, remembering past events so vividly one seems to be reliving it, not sure if a remembered event happened or was a dream, absorption in a television program or a movie, so involved in a fantasy that it seemed real, able to ignore pain, staring into space, talking out loud to oneself when alone, not sure whether one has done something or only thought about it, finding evidence of having done things one cannot remember doing (Ross et al., 1991). When the source of an adverse emotion does not have to be consciously attended to, absorption can occur. In many instances, a person's imagination becomes active enhancing the pleasing and distracting aspects of the new focus. For example, instead of attending to a boring speaker, your eyes glaze over and your mind shifts to a favorite activity, such as sailing, creating a fantasy about the given event. Highway hypnosis is a common variant of this form of dissociation, whereby a driver shifts conscious attention away from a monotonous stretch of road to some thought or fantasy, but still manages to drive. Psychological pain control techniques also rely on diverting attention from the source of pain to a neutral or pleasing focus.

Absorption and imaginative involvement is an extremely common form of dissociation, utilized by almost everyone (Ross et al., 1990, 1991). Ross assessed dissociative experiences in a stratified sample of 1,055 Winnipeg, Manitoba, residents, using the Dissociative Experiences Scale (DES; Ross et al., 1990, 1991). The DES is a 28-item self-report instrument with a test-

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retest reliability of .84 and demonstrated validity and reliability (Ross et al., 1991). It assesses a range of dissociative experiences found in both clinical and nonclinical populations. Generally, he found that 12.8% of the population scored above 20, 8.4% above 25, and 5.0% above 30, with a score of 30 or above being associated with a high likelihood of Dissociative Identity Disorder, formerly referred to as Multiple Personality Disorder (Ross et al., 1990). Results were also reported more specifically as those experiencing the dissociative state on some occasions and also 30% of the time or more. Examples include, with the first number listing the percentage experiencing it on some occasions and the second those experiencing it 30% of the time or more: missing part of a conversation—83, 29; remembering past events so vividly one seems to be reliving it—60.4, 19.2; not sure if a remembered event happened or was a dream—54.6, 12.5; absorption in a television program or a movie—63.9, 24.2; so involved in a fantasy that it seemed real—44.5, 10.9; able to ignore pain—74.7, 33.4; staring into space—62.6, 25.7; talking out loud to oneself when alone—55.6, 17.7; not sure whether one has done something or only thought about it—73.1, 24.7; finding evidence of having done things one cannot remember doing—58.4, 14.3 (Ross et al., 1991). Clearly, most of these dissociative experiences are extremely common, with the majority of people familiar with them at least at some point. Furthermore, there is nothing inherently pathological about these experiences, even when displayed at high levels, and people displaying them are well adjusted (Kihlstrom, Glisky, & Angiulo, 1994). It has also been found that those who score high on fantasy proneness tend to have a positive response bias (Merckelbach, Rassin, & Muris, 2000).

Depersonalization and derealization involve a disconnection with some aspect of experience: in the former one's own identity, and in the latter the surrounding environment. Different forms of depersonalization and derealization, with the first number listing the percentage experiencing it on some occasions and the second those experiencing it 30% of the time or more, include: not recognizing one's reflection in a mirror—13.6, 1.2; other people and objects do not seem real—26.3, 4.1; feeling as though one's body is not one's own—22.7, 3.6; hearing voices inside one's head—26, 7.3; looking at the world through a fog—26.3, 4.0 (Ross et al., 1991). Supporting the relative commonality of these more intense forms of dissociation, it has been found that up to 46% of college students experience depersonalization (Simeon et al., 1997). Amnesia is more extreme, consisting of a complete detachment of memory and cognitive processes from an emotionally disturbing event. Surprisingly, even this type of dissociative experience is not all that rare. Different forms of amnesic states, with the first number listing the percentage experiencing it on some occasions and the second those experiencing it 30% of the time or more include: finding oneself in a

place but unaware of how one got there—18.8, 2; finding oneself dressed in clothes one cannot remember putting on—14.6, 1.4; finding unfamiliar things among one's belongings—22.1, 4.1; not recognizing friends or a family member—25.8, 4.6 (Ross et al., 1991). The most extensive form of dissociation, identity fragmentation, occurs within the context of severe physical and sexual abuse. Personality fragments into different states, some of which typically remain sheltered from the damaging effects of the trauma. Identity fragmentation is present in Dissociative Identity Disorder. Although this condition is quite rare, the substrate is widely distributed in the population based on the finding that 11.8% of people have felt "almost as if they were two different people" more than 30% of the time (Ross et al., 1991).

Dissociative states commonly occur in response to acute stress, as is evident in the results of a study exploring dissociation in general infantry and Special Forces soldiers in response to survival training (Morgan et al., 2001). The nineteen-day survival training involved semistarvation, sleep deprivation, lack of control over personal hygiene, and external control over movement, social contact, and communication. The researchers applied the Clinician-Administered Dissociative States Scale to assess dissociative symptoms before and after training. Dissociative symptoms increased substantially from before to after training. The overall percentages for the more commonly reported dissociative symptoms are listed with the first number indicating the percentage experiencing it after stress and the second number the percentage experiencing it before stress: things seemed to take much longer than you would have expected—92, 24; things seemed very real, as if there were a special sense of clarity—66, 24; things happened that you were unable to account for later—59, 19; things seemed unreal, as if in a dream—63, 24; you spaced out or lost track of what was going on—69, 31; you had a feeling of separation from what was happening, as if you were watching a movie or a play or as if you were an automaton—51, 19. On a number of the symptoms, Special Forces personnel experienced less dissociation, likely because their training and experiences inoculated them against stress (Morgan et al., 2001). Interestingly, "fearing for one's life" based on an interpretation of past trauma significantly influenced the degree to which the soldiers experienced dissociative symptoms before and after training (Morgan et al., 2001). Fearing for one's life greatly adds to the level of stress, particularly during trying events such as survival training. The resulting amplified stress level likely provides the motivation for increased dissociation. While the results of this study might be interpreted to show that dissociative problems are more common than we think, it is much more reasonable to conclude that the diverse forms of dissociation represent an adaptive response to stress, given the psychological and physi-

cal health of the subjects and the commonality of their dissociative experiences.

The high prevalence of various dissociative states, particularly milder ones, among generally healthy people supports the hypothesis that it is one of the major classes of psychological defense. Additional support comes from the finding that spontaneous dissociative experiences are independent of all major socioeconomic conditions—other than age—including income, education, employment status, household size, importance of religion, and place of birth (Ross et al., 1990). Given that these various factors do not have any impact on dissociative experiences, it appears that endogenous and not psychosocial factors primarily account for dissociation, as should be the case for an innate psychological defense. Regarding age, the tendency to have dissociative experiences declines as one gets older and levels off about the fourth decade (Ross et al., 1990, 1991). Among young undergraduate students who score higher on the DES, the induction of dissociative symptoms is easily achieved in the laboratory using pulsed photo and audio stimulation (Leonard, Telch, and Harrington, 1999). These results suggest that the ability to dissociate is greatest earlier in life and declines as cognitive flexibility diminishes, which supports the position that the ability is genetically based and expressed at a neural level. Compared to other defenses, dissociation is unique in that it can be invoked voluntarily, such as by meditation (Vaillant, 1977). This unique characteristic is also consistent with the position that dissociation is a distinct class of psychological defense mechanism. In a mild to moderate form, dissociation is generally adaptive, enabling us to cope with a vast array of stressors. More extreme expressions, like those seen in Dissociative Identity Disorder, are typically not adaptive given the ongoing impairment in functioning. However, under severe stress such as torture or sexual abuse, at least a brief activation of severe forms of dissociation like amnesia can be highly adaptive.

An interesting variant of dissociation might constitute one of the primary features of antisocial behavior—emotional detachment. Although some researchers believe that there is an actual defect in sociopaths, the evidence is compelling that it represents an adaptive trait providing an enhanced ability to acquire resources through deceit (Harpending & Sobus, 1987; Lalumiere & Seto, 1998). Factor analyses of the Psychopathy Checklist—Revised, the primary scale for assessing sociopathic behavior, has revealed two main dimensions, emotional detachment and antisocial behavior (Patrick, Cuthbert, & Lang, 1994). The emotional detachment factor includes emotional and interpersonal items, such as superficial charm, grandiosity, lying and manipulateness, affective shallowness, and the absence of remorse or empathy. Emotional detachment from, and indifference to, the feelings and welfare of others is a hallmark of the condition (Intrator et al.,

1997). Sociopathy has also been described as a “mask of sanity,” in which language and conceptual reasoning are intact but are dissociated from affect (Patrick et al. 1994). Dissociation as one of the classical defense mechanisms involving an actual separation of mental processes is only secondary to acting-out as a defensive style demonstrated by sociopaths (Vaillant, 1994). Given the resource enhancing nature of antisocial behavior derived from cheating and also coping with violent settings where having the ability to hurt others and kill without remorse is adaptive, a special form of dissociation could have developed from the general dissociative template. The sociopathic variant of dissociation consists of emotional detachment and diminished responsiveness to emotional stimuli. With the presence of the additional factor—antisocial behavior—the sociopath can manipulate others to better his or her position in terms of resource acquisition.

COGNITIVE DISTORTIONS

This class of psychological defense mechanism in effect places a sugar coating on events, making an individual’s experience of the world more palatable. It refers to the tendency of people to place a self-enhancing spin on experience and alter the perception of unfavorable events in a positive way to lessen the impact. Distortion in this context is equivalent to an alteration, modification, or transformation. The tendency to distort experience cognitively in a manner that is positive and enhancing to the self is extremely common (Alloy & Abramson, 1979; Beck & Clark, 1997; Lewinsohn et al., 1980; Taylor & Brown, 1988; Vaillant 1994). In an impressive four experiment study, Alloy and Abramson separated subjects into depressed and nondepressed based on the respondents’ scores on the Beck Depression Inventory. They applied a type of task that enabled response–outcome contingencies to be varied and assessed perceptions of control. Nondepressed subjects demonstrated an “illusion of control” when the outcome was not entirely clear based on the response (noncontingent condition) and when the outcome was positive. The noncontingency result is understandable in that a clear linkage between response and outcome (contingent condition) makes it more difficult for people to alter their perception of the situation. Noncontingency applies to most situations in the real world where many factors typically intervene between a response and outcome, thereby limiting the degree of contingency. In the case of positive outcomes, it is self-enhancing to believe that you have more control than what actually exists. When outcomes were negative (e.g., losing money) nondepressed subjects showed an “illusion of no control,” which is self-enhancing under adverse conditions (Alloy & Abramson, 1979). Alloy and

Abramson concluded that nondepressives show a self-enhancing attributional style involving cognitive illusions.

The tendency to cognitively distort experience in a self-enhancing fashion and see the world through rose-colored glasses is evident in other phenomena, such as how we are naturally inclined to be excessively optimistic about the future to counter the drudgery and pain of our current existence (Tiger, 1979). We also tend to remember the past in a selective way, favoring the positive experiences. For example, nondepressed students underestimate the frequency of negative feedback in their recall (Nelson & Craighead, 1977). From all this it follows that mental health can be conceptualized not as the absence of cognitive bias but the presence of a skewed positivity bias (Beck, 1991; Beck & Clark, 1997). Beck states that the greatest explanatory power is provided by a model stipulating that (a) the nondepressed cognitive organization has a positive bias, (b) as it shifts toward depression, the cognitive bias is neutralized, (c) as depression develops, a negative bias occurs. Not surprisingly, people experiencing mild to moderate depression tend to perceive reality more realistically (Lewinsohn et al., 1980). This finding suggests that the ability to favorably distort their experience of reality has declined, leaving them even more susceptible to depression. For example, while nondepressed people show illusions of control and no control depending on the circumstance, depressives assess their degree of control more realistically, perceiving less control for positive outcomes and more for negative outcomes (Alloy & Abramson, 1979). This “depressive realism” seems to extend to experimentally induced moods; bad moods result in more accurate contingency assessments than elated moods (Schwarz, 1986). Dreamers lie on the other side of the spectrum, continually engaging in favorable cognitive distortions of experience to make life more palatable. They effectively have one life for themselves and one for their dreams.

Most of the classical psychological defense mechanisms commonly referred to in the psychoanalytic literature can be subsumed under cognitive distortions (Steiner, Araujo, & Koopman, 2001). Sigmund Freud and his daughter, Anna Freud, outlined most of these defenses and identified five of their important properties: defenses are a major means of managing conflict and disturbing affect; defenses are relatively unconscious; they are discrete from one another; although they are the hallmark of major psychiatric syndromes, they are reversible; defenses are adaptive as well as pathological (Vaillant, 1994). Our perception of self, objects, ideas, and feelings related to both external and internal reality is altered by defense mechanisms (Vaillant, 1994). Based largely on the work of Vaillant, psychological defenses are commonly divided into mature, intermediate/neurotic, and immature (Trijsburg et al., 2000; Vaillant, 1977, 1994; Wastell, 1999). This classification is based partly on the general adaptive value of the defense

and partly on the stage of life when the defense is most likely to be expressed (Vaillant, 1977). For example, acting-out is common in adolescence, whereas more mature defenses are most frequently encountered in middle-age.

Mature defenses, including humor, sublimation, anticipation, altruism, and suppression, represent well-orchestrated composites of less mature defenses (Kaplan, Saddock, & Grebb, 1994; Vaillant, 1977, 1994). These mature defenses involve relatively minor cognitive distortions, largely consisting of an attenuation of unwelcome experience (Steiner et al., 2001). Humor alters the content of a potentially disturbing scenario so that it becomes lighter and more tolerable. Sublimation transforms disturbing impulses and feelings by channeling them into acceptable pursuits, and in the process modifies awareness of negative states. Anticipation shifts attention away from current experience to prepare for some perceived outcome. Altruism involves giving to others what you would actually like to receive, allowing personal needs to be satisfied vicariously, and can entail the not always realistic assumption that if you help someone or something then you will receive assistance yourself. Suppression reduces the focus on disturbing intrapsychic states, shifting attention away from them while maintaining some awareness.

Intermediate/neurotic defenses, such as intellectualization, rationalization, repression, isolation, reaction formation, and displacement are expressed by everyone, particularly during difficult periods of life (Freud, 1915/1949; Kaplan et al., 1994; Vaillant 1977, 1994; Weinberger, 1990). These intermediate/neurotic defenses involve a greater degree of cognitive distortion than the mature ones and frequently represent an attempt to cope with significant internally or externally generated stress. Intellectualization largely transforms events into a nonemotional experience through the overuse of conscious thought processes. Rationalization makes unacceptable attitudes, beliefs, and behaviors more palatable by providing a socially acceptable meaning. Repression involves the expulsion or withholding of a distressing idea from consciousness while allowing affect to remain, thereby attenuating conscious realization of what object or situation is related to the affect. Isolation, however, spares the idea but modifies awareness of affect. Reaction formation transforms an unacceptable impulse into its opposite. For example, instead of accepting a desire to have sex with multiple partners, you preach the virtues of celibacy. Displacement shifts affect and the focus of attention from an object that is unacceptable to a safer one. Dissociation is usually included in the neurotic defenses, but its definition in this regard is restricted to a severe form involving a breakdown of psychological functions and a drastic modification of one's own character (Trijsburg et al., 2000; Vaillant, 1977).

Immature defenses involve the most extreme cognitive distortions and can actually impair reality testing at times. They are most commonly encountered when there is severe stress and in personality disorders, such as projection with Paranoid Personality Disorder (Alexander, 1948; Vaillant, 1994). Immature psychological defense mechanisms include: splitting, idealization and devaluation, projection, hypochondriasis and somatization, undoing, acting-out, schizoid fantasy, and denial (Kaplan et al., 1994; Vaillant, 1994; Weinberger, 1990). Splitting consists of the division of external objects, namely people, into all good and all bad, with shifts of an object from one extreme to the other. Idealization and devaluation endow all good and all bad objects with great power, resulting in the former being seen as ideal and the latter devalued. Projection alters experience such that it is believed that unacceptable impulses and attitudes arise not from the self but from an outside object. Hence, aggressive urges are perceived and reacted to as coming from someone else when they are really your own. Projection, reaction formation, and altruism are all related (Vaillant, 1977). The cognitive distortion inherent in each of these three defenses serves to diminish responsibility and acceptance of impulses, affect, and ideas. Hypochondriasis transforms reproach toward others into self-reproach and complaints of illness. Likewise, with somatization, psychic derivatives are converted into bodily symptoms. Undoing entails a symbolic negating of an unacceptable behavior by acting in reverse. Acting-out translates disturbing impulses into action so fast that the person escapes feeling or thinking. Schizoid fantasy involves a person retreating into a fantasy world and avoiding intimacy. More moderate degrees of fantasy transform a disturbing reality into something more pleasant. Denial often entirely negates awareness of some disturbing aspect of experience. However, when denial only involves an isolation of affect it is significantly more adaptive than when a near-psychotic distortion of reality transpires (Steiner et al., 2001).

Even though the classification of psychological defense mechanisms into mature, intermediate/neurotic, and immature is very popular, Trijsburg et al. (2000) suggest that it might be more appropriate to conceive of them in terms of a hierarchy from least to most mature. These researchers had experienced psychoanalysts rate the maturity level of psychological defense mechanisms and applied various statistical analyses to the data including factor analysis. They found more support for a unidimensional representation from least to most mature—splitting, dissociation, autistic fantasy, somatization, acting-out, projection, devaluation, denial, passive-aggressive behavior, idealization, isolation, undoing, reaction formation, displacement, repression, rationalization, suppression, altruism, humor, anticipation, and sublimation. They stressed that dissociation was rated toward the immature

end of the spectrum because of the definition applied—a breakdown of functioning.

The spectrum of classical defense mechanisms from least to most mature can also be conceptualized as from most to least in terms of cognitive distortions. In other words, there is an inverse relationship between the level of defense maturity and the extent of cognitive distortion. For example, a defense toward the immature end of the spectrum, such as schizoid fantasy, involves a much greater cognitive distortion than one at the mature end of the spectrum, like humor. In general, the greater the degree of cognitive distortion, the less adaptive the defense, largely because more extensive cognitive distortions progressively reduce conscious awareness and, consequently, limit efforts to improve adverse states. Immature defenses also make the unreal seem too real, and hence are less reality adequate (Vailant, 1977). However, under high stress situations, including the self-generated disturbances seen in personality disorders and severe mental illness generally, more extreme defenses play an important role in safeguarding the self. For example, intolerable aggressive urges are seen as coming from others through the use of projection. The stress-distortion linkage can be conceptualized as follows: The greater the internally or externally generated stress, the more extensive the cognitive distortion to compensate. Low stress only requires the milder cognitive distortions inherent in mature defenses, more significant stress necessitates intermediate defenses for most people, and extreme stress often requires at least a brief activation of the immature defenses to provide a sufficient compensatory cognitive distortion. Supporting the position that the classical defense mechanisms are adaptive is the finding that they are independent of socioeconomic status variables, suggesting that they are more related to innate processes (Vailant, 1994).

Many of the classical defense mechanisms serve to modulate conscious awareness of undesirable unconscious elements. It has been proposed that a defensive conscious system-repressive barrier evolved through natural selection in order to safeguard conscious system functioning, which can be fragile and highly vulnerable to distraction and disruption, particularly from emotionally charged impingements (Langs, 1996). Examples of specific classical defenses that significantly modulate conscious awareness of unconscious states, ordered from least to most mature (most to least in terms of cognitive distortion), are denial, projection, reaction formation, repression, isolation, suppression, and sublimation. Denial can entirely negate conscious awareness of an unacceptable intrapsychic state. Projection facilitates the perception that disturbing impulses and ideas arise from outside the self. Reaction formation greatly reduces the conscious perception of

unacceptable impulses by transforming them into their opposite. Repression either expels or withholds some idea from consciousness, while isolation excludes disturbing affect. Suppression temporarily shifts conscious attention away from negatively charged intrapsychic states while maintaining some awareness. Sublimation modifies awareness of negative states by altering the expression of disturbing impulses.

Another very common form of cognitive distortion is a positive attributional bias, whereby unfavorable events are attributed to external, unstable, and specific factors, and good events are attributed to internal, stable, and global factors (Cohen et al., 1989), for example, attributing personal errors to bad luck on the given day, and increasing company profits to your own skills and effort, respectively. On a short-term basis, attributions operate retrospectively primarily to rationalize the past (Evans, 1989). These positive attributional biases can make life vastly more comfortable and rewarding than negative attributional biases and go a long way to defend a person from sadness and depression (Cohen et al., 1989). Specific religious ideologies can also be seen as providing more comfortable attributions for disturbing occurrences. For example, he passed away because God had a purpose for him. Religious ideologies seem to entail a cognitive distortion of the otherwise cold and bleak answers to questions such as: Do we go anywhere after we die? Where do we go? What is the purpose of existence? Species lacking the intellectual capacity to ponder such disturbing issues have no need to create comforting religious ideologies. Humans, on the other hand, are forced to face these disturbing existential issues. Despite diverse specific beliefs, all religions effectively distort what might be a much harsher reality, providing more palatable answers to profound existential questions. Not surprisingly, it is virtually impossible to find a religion that fails to address these issues in a positive fashion, because any such religion would likely fail to recruit converts. Irrespective of their specific religious affiliation, people the world over prefer to err on the side of belief regarding whether or not there is an afterlife, and those who do so seem to gain a significant measure of protection from excessive sadness/depression and anxiety/fear. Not surprisingly, it has been found that those who are religious tend to be happier than people who are nonreligious (Diener & Lucas, 2000).

Cognitive distortions represent a spectrum from mild to severe. For example, the classical defense mechanisms range from minimal to extensive (mature to immature) in terms of the degree of cognitive distortion involved. Mild cognitive distortions enable people to slightly alter their perceptions of various experiences by placing a positive, self-enhancing spin on them so that they are less negative and threatening. Moderate versions produce excessive fantasy involvement, magical thinking, and overvalued ideas. Examples of magical thinking include superstitious thoughts, a belief in for-

tune-telling and horoscopes, and acceptance of mystical modes of healing. Interestingly, the popularity of a given healing art is typically related to its level of mysticism. Herbal remedies and homeopathic treatments have gained in popularity as mainstream medicine has been demystified through extensive media coverage. Once the public becomes familiar with the newer treatments, their appeal will likely decline, and some alternative form of intervention is bound to gain in popularity. This phenomenon occurs because mystical treatments provide us with an opportunity to engage in appealing cognitive distortions and believe in something all-powerful.

Paranormal experiences can also be classified as magical thinking, although they have strong elements of dissociation. Ross and Joshi (1992) administered the Dissociative Disorders Interview Schedule (DDIS) to a random sample of 502 adults in the general population of Winnipeg. The DDIS includes 16 questions regarding specific types of supernatural experiences. The results of their study are quite amazing because they show how common these experiences truly are. They compared some of their results to a 1990 Gallup Poll survey. The prevalence of a belief in mental telepathy was 15.6% compared to 25% in the Gallup Poll survey. Precognitive dreams were experienced by 17.8% of the people surveyed. Perceived contact with ghosts occurred with 5.2% of their sample (9.0% in the Gallup Poll), and contact with any other type of spirit by 4.4% of their subjects. Knowledge of past lives was believed to exist for 4.0% of the sample, compared to 8.0% of the Gallup Poll sample. The prevalence of *deja vu* was highest at 54.6%, with 56% of the Gallup Poll survey respondents also experiencing it (Ross & Joshi 1992). The researchers point out that paranormal experiences are not necessarily pathological in nature, often being deliberately cultivated by psychologically healthy, high functioning individuals. Their results, which seem to underestimate the prevalence of paranormal experiences based on the Gallup Poll results, underscore how common and potentially beneficial even such extensive cognitive distortions can be.

Overvalued ideas are similar to delusions—fixed, false beliefs that are rigidly adhered to despite contradictory evidence—in that they represent cognitive distortions. The difference resides in how firmly an individual adheres to the idea; delusions are steadfastly maintained, whereas overvalued ideas can be altered with sufficient influence. An overvalued idea such as, “The people who run companies will never give a person like me a chance,” shifts responsibility for failure away from the self to a vague group of company heads, thereby defending against emotional pain associated with an unsuccessful job search. As an overvalued idea, it might well be changed following a frank discussion with a sympathetic manager. Overvalued ideas and the various other moderate forms of cognitive distortion are much more common than what many people think. Surprisingly, the

purely logical and rational mind is more myth than reality. Due to embarrassment, many people keep irrational thoughts and experiences to themselves and create an illusion of rational thought and behavior in compliance with what is believed to be socially acceptable.

More extensive cognitive distortions than those mentioned cross the border into the realm of actual psychosis. Psychotic thought can be present in a variety of conditions, such as depressive and manic episodes, Brief Psychotic Disorder, and schizophrenic spectrum disorders (Delusional Disorder, Schizotypal Personality Disorder, and Schizophrenia). Psychotic thought might actually represent an extreme version of the cognitive distortion form of psychological defense. The central feature of all psychotic states is impaired reality testing, meaning that assessments of reality are grossly distorted. Delusions and bizarre ideation are common. Interestingly, despite the impaired reality testing, the actual content of delusions has a certain rational meaning in that it is consistent with persons' views of themselves reflecting global self-esteem and self-regard (Bowins & Shugar, 1998). Sensory disturbances, namely hallucinations, appear to arise from independent processes, and hence the content does not convey the same meaning (Bowins & Shugar, 1998). In psychotic states, cognitive distortions are frequently so extensive that they can lose their positive defensive qualities and increase stress. For example, although a delusion that aliens are intent on killing you does enhance a feeling of self-worth in one sense, the fear it generates outweighs the advantage in most cases. However, there can certainly be very comforting fantasy and ego-syntonic aspects to even extreme delusions, leading a person to want to maintain the experience (Bowins & Shugar, 1998). This occurrence is one factor behind the common rejection of antipsychotic medication.

Extreme cognitive distortions, like those involved in psychotic states, can be frightening, depressing, and promote dysfunctional behavior. More mild to moderate cognitive distortions are disturbing when they take a negative slant. For example, people with low-grade and chronic depression tend to distort experience in a negative direction by perceiving excessive losing states, and those with generalized anxiety make reality out to be more dangerous than what it is by perceiving too many sources of threat (Beck, 1991; Beck, & Clark 1997). The cognitive distortions actually tend to be self-debasing rather than self-enhancing in the case of depressive disorders. In effect, it is like the illness captures the psychological defense mechanism at a certain point, and the cognitive distortions shift from being positive to negative. This process is in many ways similar to how autoimmune conditions in a fashion gain control of the immune system, resulting in the application of this major biological defense against the physical self.

The thought changes involved in cognitive distortions, whether they are considered normal or psychotic, involve increased mental fluidity, or in other words, enhanced neural plasticity. Consistent with the position that cognitive distortions comprise an evolved class of psychological defense, there appears to be a biological substrate underlying the neural plasticity in the form of the neurotransmitter dopamine. This neurotransmitter plays a role in adaptation to novel stimuli, altering the couplings between neurons (Grace, 1993). It is also involved in responses to stress (Horger & Roth, 1996). Furthermore, certain specific receptors (D2) that bind dopamine are low in number when there is a decline in abstraction and cognitive flexibility, highlighting the role of dopamine in tasks requiring a high degree of neural plasticity (Volkow et al., 1998).

Previc (1999) asserts that there are four lines of evidence supporting the role of dopamine in cognitive flexibility or "cognitive shifting." The first is that dopaminergic mechanisms in the prefrontal cortex exert the inhibitory action on subcortical centers required for the cessation of current behavior. The second is that lesions to dopaminergic systems in rats prevent switching from one behavior to another. Third, dopaminergic levels in clinical and aging populations are highly correlated with cognitive-shifting ability, and the administration of dopaminergic agonists results in improved cognitive flexibility; removal of them or administration of dopaminergic antagonists reduces cognitive shifting ability. The final line of evidence consists of disturbances in cognitive shifting as being one of the principal intellectual deficits in dopaminergic disorders, such as Parkinsonism (Previc, 1999). Dopamine is involved in other cognitive processes that seem related to cognitive flexibility including working memory, abstract representation, temporal analysis/sequencing, and generativity (Previc, 1999).

Dopamine levels appear to influence the extent of cognitive distortion; higher dopamine levels promote more extensive cognitive distortions. In support of this hypothesis, dopamine hyperactivity in certain regions of the brain is clearly associated with psychotic symptoms (Maeda, 1994). These regions include the limbic system, which involves components of the emotional brain such as the amygdala, and higher cortical centers, namely the prefrontal cortex and temporal regions. Chemically induced psychosis primarily consisting of conceptual disorganization, unusual thought content, and perceptual alterations has been found to involve increased metabolic activity in the prefrontal cortex (Breier et al., 1997). Likewise, increased activation of the prefrontal cortex has been found in Schizotypal Personality Disorder (Siever, 1994). Therefore, the extreme cognitive distortions found in psychosis are associated with heightened activity, particularly of dopamine, in structures involved in the interpretation of sensory information and the formulation of cognitive responses.

OVERLAP OF DISSOCIATION AND COGNITIVE DISTORTIONS

If the perspective that dissociation and cognitive distortions represent our two major classes of evolved psychological defense is accurate, it follows that there would be some degree of overlap. Indeed, such overlap exists with the common absorption and imaginative involvement variant of dissociation in particular demonstrating a linkage with cognitive distortions. Both of these basic forms of psychological defense consist of modifying attention to some disturbing intrapsychic state and cognitive shifts often involving the inclusion of positive memories. Regarding the latter, pleasing memories prime imaginative and fantasy processes and help distort experience in a positive fashion. Negative stressful cognitive distortions of experience, which can be observed in psychotic states, depression, and anxiety disorders, might to some extent result from a deficient set of pleasing memories to draw on.

The absorption and imaginative involvement variant of dissociation actually seems to overlap with psychotic-like experiences (Allen & Lolafaye, 1995). In an intriguing study, Allen and Lolafaye administered two scales to women receiving treatment for trauma: the DES and the Minnesota Multiphasic Personality Inventory (MMPI), a well-established instrument testing for several psychiatric conditions. Scores on absorption and imaginative involvement items of the DES correlated positively with scores on the MMPI scale assessing psychotic states. In other words, high scores on one scale were associated with high scores on the other, suggesting that both phenomena are related. Other researchers have discovered that even fantasy proneness in college students is positively correlated to scores on the psychotic scale of the MMPI (Rhue & Lynn, 1987). This linkage between dissociation and psychosis cannot be accounted for strictly by fantasy proneness, as it has been found that the correlation between the DES and schizotypy remains significant when the contribution of fantasy proneness is removed (Merckelbach et al., 2000). The interesting finding that those who score higher on fantasy proneness have a positive response bias underscores the overlap between the two types of defense, because it suggests that these individuals place a positive spin on life consistent with the cognitive distortion defense (Merckelbach et al., 2000).

Overlapping of the two basic templates for psychological defense is also evident in how some of the classical defense mechanisms, described as cognitive distortions, display strong dissociative elements. For example, suppression provides a partial detachment from disturbing intrapsychic states. Repression and isolation separate ideation and affect, preserving in consciousness affect in the case of repression and ideation in the case of isolation. Intellectualization essentially eliminates the emotional aspects from

experience, leaving only ideation. Acting-out enables a person to express a wish or impulse without the accompanying negative affect. Denial blocks awareness of adverse components of experience and can isolate affect. Schizoid fantasy consists of a detachment from reality into a world of fantasy. Compartmentalization is another defense involving mostly dissociation but also a cognitive distortion of sorts, whereby various aspects of conscious experience is arbitrarily segmented into distinct components. For example, work-related activities are completely separate from social involvements. People engaged in extremely stressful work, such as antiterrorist activities, are often taught this defense as part of their training.

INFLUENCE OF DISSOCIATION AND COGNITIVE DISTORTIONS ON OTHER DEFENSES

From the basic psychological defense templates of dissociation and cognitive distortions arise many of our specific defenses, the exact ones expressed by a person at any given time being determined by a combination of factors including genetic endowment, modeling influences, identification and introjection, maturity level, and stress exposure. The basic templates of dissociation and cognitive distortions also appear to play a role in other phenomena, such as grief, hypomania, and obsessive-compulsive behavior, that are typically conceived of as only disturbances or disorders but actually provide a defensive function. Grief can be characterized as several things including an emotion, a psychological state associated with depression, and an entity related to mourning (Strongman, 1996). Perhaps it can best be described as a natural defense assisting us in dealing with significant losses, typically of an interpersonal nature. Elements of dissociation might play a role in that the endpoint of the grieving process—acceptance—represents an adaptive emotional detachment from the loss, given that the losing state persists but no longer adversely impacts on emotional functioning. Hypomania has been described, at least in part, as a defense against sadness and depression (French, Richards, & Scholfield, 1996). Certainly, it is the experience of many clinicians that while in a hypomanic state, a person can rebound from sadness and depression and become extremely productive. Hypomanic states entail very significant cognitive distortions involving a euphoric outlook regarding personal attributes and the possibility of success at a wide range of endeavors. Invariably, the world is seen through intensely rose-colored glasses in a fashion that is extremely ego-enhancing.

While more severe obsessive-compulsive behavior is almost always dysfunctional, there can be a certain defensive quality to less-intense forms. For example, a clinician who is somewhat compulsive regarding notetaking will usually fair much better in the event of a lawsuit or an audit by a

licensing organization. Elements of both dissociation and cognitive distortions are involved in obsessive-compulsive behavior. Regarding dissociation, the focus on compulsive routines, such as hoarding or excessive cleaning, effectively serves to disconnect a person from most emotional states. Cognitive distortions frequently characterize the content of obsessions. For example, the belief that washing repetitively will prevent contamination represents a distortion of the more accurate perspective that washing plays some role in reducing the risk of contracting an infectious agent. Several of the classical defense mechanisms providing a cognitive distortion function and in some cases a dissociative capacity, such as isolation and intellectualization, also contribute to obsessive-compulsive states (Vaillant, 1977). Supporting the position that milder obsessive-compulsive behavior serves a defensive function, compulsive ritualistic behavior has been found to maintain tension at a manageable level (Rachman & Hodgson, 1980). Furthermore, milder obsessions are relatively common, and a catastrophic misinterpretation is probably required to transform them into clinically relevant obsessions (Rachman, 1998). Although they are largely independent, the grieving process, hypomania, and obsessive-compulsive behavior derive some of their defensive capacity from the dissociation and cognitive distortion templates.

PSYCHOLOGICAL DEFENSE MECHANISMS AND MIND-ALTERING SUBSTANCE USE

The tendency to use psychoactive substances to achieve altered states of consciousness is so universal that it is said to be a basic human motive (Galanter, 1976; McPeake, Kennedy, and Gordon, 1991). Several substances, such as alcohol, marijuana, cocaine, and ecstasy, are widely consumed in our society, and the use of psychoactive substances developed from wild plants is common in more traditional societies (Cawte, 1985). For example, the betel nut is chewed by an estimated 200 million people from East Africa across India and South East Asia, including the Philippines and Indonesia, and throughout Melanesia; kava is drunk in much of Polynesia; coca leaves are chewed in the Andes; and a powerful form of tobacco was smoked by aboriginals of North America and Australia (Cawte, 1985). Maté, a mild narcotic from the *Ilex paraguayensis* tree, is drunk throughout Patagonia. These mind-altering substances generally seem to induce dissociation and cognitively distort experience in a positive way, effects that likely play a major role in the basic human motive to use such agents. Marijuana, for example, has significant dissociative properties, enabling a person to “tune-out” the world and achieve a sense of detachment from the social group (Galanter, 1976; Leonard et al., 1999). Cannabis users also

commonly experience depersonalization (Melges et al., 1970; Szymanski, 1981). Alcohol induces dissociative states, such as by numbing emotional pain, intensifying absorption and imaginative involvement, and triggering blackouts that represent a form of amnesia (Good, 1989; Mintzer & Griffiths, 2002). Alcohol can also distort perceptions of the self and the surrounding world, enabling a person to feel more powerful and capable. As one patient mentioned, "I could feel like superman every night," helping him compensate for deep-seated insecurities.

The mind-altering substances consumed in more traditional societies tend to induce a limited detachment from adverse states and a mild feeling of elation or euphoria, effects roughly corresponding to dissociation and cognitive distortions, respectively (Cawte, 1985). Specifically, betel nut induces a sense of euphoria and well-being and can create an effect experienced as the presence of a different being (Cawte, 1985). Kava numbs the senses, produces a feeling of unreality, and users often stare off into space thinking private thoughts (Cawte, 1985). Coca leaves, as well as betel nut, are frequently chewed to help a person cope with adverse mental and physical states, such as fatigue and hunger, by reducing or eliminating these feelings and inducing a sense of well-being (Cawte, 1985). For the most part, these mind-altering substances are consumed in a fairly limited way and consciousness is preserved enabling a person to function, but abuse does occur quite frequently and perhaps more so as modern society encroaches and traditional ways of consuming these substance, such as the kava-drinking circle, break down.

The widespread abuse of alcohol, marijuana, and other mind-altering substances in modern industrial society might in part occur because the attentional focus demands, required by at least the work sector, counter our natural defensive tendencies to dissociate and cognitively distort experience. Although these defenses help foster mental health, they are not compatible with the intense exertion and accuracy that are very much expected and rewarded in most settings. With the production demands made on employees, plus numerous e-mails, faxes, telephone calls, memos, and the like to contend with, both on and off the job, a nearly constant focus on reality is required. People who proceed through life somewhat detached, engaged in fantasy and distorting experiences, simply do not fit into the global economy. In settings that are relatively untouched by the modern world, such as isolated Micronesian out-islands, people are usually more able to indulge in absorption/fantasy involvement and cognitive distortions while performing the tasks necessary for survival. For example, while out fishing on the reef all day, a person might become absorbed in pleasing fantasies until a tug on the line indicates that a fish has taken the bait.

Somewhat countering the utopian ideal is the reality that social pressures

in these small close-knit societies can be a great source of stress, even more so at times than in modern industrial cities where anonymity is feasible. These social pressures often require that attentional processes be directed toward interpersonal interactions, thereby limiting the degree to which a person can tune out. However, overall there does appear to be more time and opportunity to adaptively dissociate and engage in pleasing cognitive distortions in these societies.

IMPLICATIONS FOR TREATMENT

Treatment implications encompass both managing defenses encountered in a clinical setting and promoting adaptive forms of dissociation and cognitive distortions. Regarding existing defenses, clinicians need to assess the value of the defense and intensity level, keeping in mind that mild to moderate manifestations of dissociation and cognitive distortions are generally more adaptive, and certainly so when it comes to longer term expressions. Even if an instance of a given defense is quite severe, such as amnesia for abuse, it is important to assess the effectiveness of the defense and a person's capacity to function without it. In this instance, if the defense for the most part effectively blocks painful recall and there is poor ego strength, then it might be best to defer treating it away until such time as the person's ego strength improves with therapy. Prematurely treating away defenses can leave a person feeling vulnerable and place considerable strain on the therapeutic relationship.

Even when cognitive distortions are in the psychotic realm, many patients will fight to maintain their beliefs and resent a clinician who is too aggressive in countering those beliefs. Considering that their beliefs are often consistent with their self-esteem and self-regard, and provide a defensive value during the stress of their illness, it is not surprising that they are somewhat reluctant to give up their distorted perspective (Bowins & Shugar, 1998). Allowing these severe cognitive distortions to fade with treatment is more conducive to a solid therapeutic relationship. When cognitive distortions take a very negative slant, such as with Dysthymia and Generalized Anxiety Disorder, it naturally makes sense to counter the distortions while keeping in mind that some beliefs might still have an adaptive value. For example, a belief that no one really can win in this brutal world takes the responsibility for success off the given individual: it's not my fault I can't succeed, it's the way the world is. Removing this defense too quickly might well usher in the depressing realization that the individual is really to blame for the lack of success.

If we accept that dissociation and cognitive distortions are generally adaptive, at least in a mild to moderate form, it follows that encouraging

certain expressions of these basic types of psychological defense can be advantageous to patients suffering from disturbing intrapsychic states including depression and anxiety. Dissociation can be applied consciously to diminish the impact of negative stress. Compartmentalization is one such strategy enabling a person to place different sets of experience in separate psychological spaces so that problems in one area of life do not impact significantly on other areas. The workspace can then be kept clear of marital difficulties, helping to maintain better mental health and functioning while at work. Mental imagery can help a person strengthen the compartments. Work might be imagined as a room with a lock that is opened at the start of the day and closed at the end to isolate it from other areas of life. Distraction is another very useful strategy that gives a person some detachment from negative thoughts and associated feelings. It is particularly useful when a person finds that addressing and countering negative beliefs does not really work very well.

Perhaps the most useful and applicable form of dissociation for good mental health is absorption and imaginative involvement. Encouraging a person to develop activities and hobbies that they can become absorbed in and imagine positive outcomes with is extremely helpful in shifting from a negative to a positive focus, generating positive emotions such as interest and happiness in the process. Even absorbing oneself in a pleasant book or playing video games represents adaptive absorption and imaginative involvement. Of course, if a person becomes too absorbed in the more pleasing focus and neglects life issues leading to a marked deterioration in their overall situation, as some people do with online games, the adaptive value diminishes significantly. Related to dissociative absorption is the concept of "flow," which refers to a state of becoming totally engrossed in an activity to the point of forgetting about daily concerns, losing track of time, and acting as if nothing but the present matters (Salovey et al., 2000). A flow state helps people detach from undesirable thoughts and feelings, and facilitates success in achieving desired goals.

Meditation, exercise, and yoga are physical activities that all foster some degree of dissociation. Meditation entails a focus on a neutral or pleasing stimulus facilitating an emotional detachment from disturbing intrapsychic states and the external events contributing to them. Exercise and active yoga involve a concentrated focus on physical activities that shifts attention from other areas, resulting in some degree of psychological detachment. The endogenous opioids released during these aerobic activities likely enhance the dissociative state. Even less focused activities, such as long walks, can help a person mentally detach from their concerns and drift into more pleasing thoughts.

Cognitive distortions can be learned and practiced to return a person to

what is a more natural way of coping with stress. It is best conceptualized as placing a positive self-enhancing spin on events. Some people assume that reality has to be perceived accurately all the time, but in more cases than not, completely objective reality is elusive and this type of focus tends to facilitate more negative perceptions, the so-called depressive realism (Alloy & Abramson, 1979). An acceptance that there is no advantage, at least in terms of mental health, in always perceiving things realistically, opens the way to allowing positive cognitive distortions. For example, instead of "I've never been physically coordinated so I won't be able to learn to ski," thinking, "With the right help I can do that," shifts the perspective and ensuing emotional reaction from pessimistic and downbeat to hopeful and upbeat. A very specific form of cognitive distortion that can be worked on is attributions for events. Depressive type attributions emphasizing internal, stable, and global reasons for negative events, and external, unstable, and specific for positive events can be reversed. Hence, any success is seen as being due to personal attributes that will persist and generalize. For example, making a relationship last longer than previous ones might have to do with the circumstances and the partner, but by seeing it as due to your own efforts can make you feel much better about yourself.

Regarding the classical psychological defense mechanisms, many of the intermediate and immature ones occur at an entirely unconscious level and are hard to control. In addition, their adaptive value is limited to counterbalancing highly stressful circumstances. In contrast, the mature defenses can be consciously controlled, and their value is ever present when it comes to good psychological health. Humor is very healthy and can help people cope with disturbing events plus experience more happiness. For example, instead of taking an extremely boring meeting straight-up, imagining a Monty Python skit whereby a series of talking heads have been programmed to put out politically correct messages will induce a lighter state of mind. Sublimation can be applied to take negative energy and transform it into productive and rewarding endeavors. For example, taking any anger arising from the disturbing meeting and using it to come up with a proposal for constructive change in the work setting.

Taken together, a combined therapeutic strategy of refraining from treating away existing dissociation and cognitive distortions until the adaptive value is carefully assessed, and fostering adaptive forms of dissociation and positive cognitive distortions, can go a long way in helping those we treat feel better and become more resistant to negative stress. It is essentially helping them acquire or reacquire what healthy functioning individuals naturally have, as we seem built for adaptive detachment and optimism when free of conditions such as Dysthymia and Generalized Anxiety Disorder.

CONCLUSION

Psychological defense mechanisms occur in many diverse forms. As Vaillant (1977) mentions, there are as many defenses as the cataloguer has the temerity to imagine. Pathological variants comprise the more salient end of the spectrum, with the functional types not readily visible given the inevitable focus of most clinicians on illness and problem behavior. However, the more functional variants play a key role in our ability to counterbalance the emotional amplification effect of human intelligence. The psychological defense mechanisms that evolved largely in response to amplified negative emotions appear to be based on the overlapping templates of dissociation and cognitive distortions. Although certain expressions of these two defense templates can be dysfunctional, for the most part, they promote emotional health when expressed in a mild to moderate form. Even more extreme forms can be adaptive when briefly activated under severe stress. The almost universal predilection to use mind-altering substances can be accounted for, in part, by the ability of these substances to induce dissociation and cognitively distort experience in a positive way. Clinicians can help those in treatment adopt adaptive forms of these important psychological defenses to improve their mental health and in a way that reduces any reliance on mind-altering substances. Once activated, dissociation and cognitive distortion based psychological defenses provide a very crucial component of our overall capacity to maintain a stable and positive emotional state of being.

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