



Seven Pillars of Defense Mechanism Theory

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Abstract

Defense mechanisms are cognitive processes that function to protect the individual from excessive anxiety or other negative emotions. They also protect the person from loss of self-esteem and, in the extreme, the loss of self-integration. Although past critics questioned the existence of defense mechanisms, recent research has supported seven basic tenets regarding defenses. These include: (1) defenses function outside of awareness; (2) there is a chronology of defense development; (3) defenses are present in the normal personality; (4) defense use increases under conditions of stress; (5) defense use reduces the conscious experience of negative emotions; (6) defense function is connected to the autonomic nervous system; (7) excessive use of defenses is associated with psychopathology. Research supporting the seven pillars of defense mechanism theory is described in this essay.

The idea that we may do, or say things without knowing just why we do so is not difficult for most people to understand. But the assertion that unconscious mental processes are responsible for this behavior has, for many years, been less tenable. Only recently have academic psychologists begun to study, and then to validate, the existence of unconscious mental processes (e.g., Dijksterhuis & Nordgren, 2006; Kihlstrom, 1987).

Among these unconscious processes are a group of mental operations referred to as defense mechanisms. These differ in the particular ways in which they function, but they all serve the same purpose – namely, to protect the individual from experiencing excessive anxiety and to protect the self and self-esteem. Different from conscious coping strategies, these mechanisms operate at an unconscious level, so that the individual is unaware of how they function.

It was Sigmund Freud (1896/1966) who initially discovered the connection between psychopathology and the defense mechanism of repression. As in Freud's later writings (1915/1957, 1923/1961) we understand today that the use of defense mechanisms is also part of normal, everyday functioning. Used within limits, defenses aid us to manage stress, disappointment, and strong negative emotions. Only when used excessively are defenses likely to be linked with psychopathology. After the initial discovery of repression, additional defense mechanisms were identified (e.g., denial, projection, displacement, and rationalization). In fact, some 44 different defenses have

been described (Bibring, Dwyer, Huntington, & Valenstein, 1961). Two of the most currently used methods to assess defense use include some 20 different scales (Andrews, Singh, & Bond, 1993; Perry, 1990). Of course, one person does not use all of these defenses, and not all defenses are used by all people. In addition, it is convenient to group individual defenses into clusters. This grouping may be based on the relative maturity or immaturity of the defense, where maturity is determined both by theoretical and clinical considerations (Perry, 1990; Vaillant, 1977; *DSM-IV-TR*), or the grouping may be based on developmental considerations and the complexity of cognitive operations involved in the defense (Cramer, 1991a, 2006).

Despite both clinical and research evidence to support the existence of defenses, there are some skeptics who question the existence of such unconscious mechanisms, and others who do not doubt the existence of defenses but rather question their unconscious status (Erdelyi, 2001; Newman, 2001). In the remainder of this essay, I present seven basic tenets, or Pillars, of defense mechanism theory. Then, for each Pillar, I provide empirical research evidence that supports the Pillar.

In reporting this evidence, I rely heavily on my own research from the past 20 years. This research makes use of a reliable and valid method to code defense use from narrative material, such as stories told to a standard set of pictures. (For a full description of the method and research findings, see Cramer, 1991a, 2006.) Research carried out by other investigators has relied on the coding of clinical interviews (Perry, 1990; Vaillant, 1977), on self-report questionnaires (e.g., Andrews et al., 1993), or, occasionally, on experimental designs in which some defense-based attitude or judgment is measured (e.g., Maner et al., 2005; Newman, Duff, & Baumeister, 1997; Schimel, Greenberg, & Martens, 2003). Again, a full description of these methods and research results may be found in Cramer (2006). Note that if research results support the Pillar, this is evidence not only for the theory, but also for the validity of the measure.

Pillar I. Defense mechanisms are cognitive operations that operate outside of awareness

In this essay, I focus on three defense mechanisms that differ in the complexity of the cognitive operations on which they are based and thus differ in developmental maturity. Denial is the least complex of the three. At base, denial is accomplished by attaching a negative marker (e.g., 'no', 'not') to a perception, thoughts or feeling. In this way, thought or feelings that would be upsetting, if accurately perceived, are ignored or misrepresented. Examples of the ways in which denial may occur are provided in Table 1.

A second defense, projection, is cognitively more complex. It functions by removing disturbing thoughts or feelings from the person and placing, or attributing them to someone or something else. Cognitively, the use of projection requires the ability to differentiate between internal and external

Table 1 Defense mechanism manual scoring categories: denial, projection, identification†

Denial

- (1) Omission of major characters or objects
Example: Failure to refer to the girl in the foreground (TAT card 2).
- (2) Misperception
Example: Referring to the girl as a boy (TAT card 2).
- (3) Reversal
Example: 'He had been very strong, but then he got weak'.
- (4) Statements of negation
Example: 'Although he was up high, he never fell down'.
- (5) Denial of reality
Example: 'It was all make believe'.
- (6) Overly maximizing the positive or minimizing the negative
Example: 'It is the most beautiful in the world'.
- (7) Unexpected goodness, optimism, positiveness, or gentleness
Example: 'He was a murderer but then decides to save people'

Projection

- (1) Attribution of hostile feelings or intentions, or other normatively unusual feelings or intentions, to a character
Example: 'Maybe he's angry (unexplained)'.
- (2) Additions of ominous people, animals, objects, or qualities
Example: 'That's a dangerous toy'.
- (3) Magical or autistic thinking
Example: 'Those rifles are feeling sorry'.
- (4) Concern for protection from external threat
Example: 'He is hiding there so he can kidnap him'
- (5) Apprehensiveness of death, injury or assault
Example: 'It looks like his father has just died'.
- (6) Themes of pursuit, entrapment and escape
Example: 'He gets trapped in the cave, but then he gets out'.
- (7) Bizarre story or theme
Example: 'This is a saw ... he sawed his desk in half'.

Identification

- (1) Emulation of skills
Example: 'Maybe if I could be as great a violinist as my father'.
 - (2) Emulation of characteristics, qualities, or attitudes
Example: 'He tries to be as honest as Abe Lincoln'.
 - (3) Regulation of motives or behavior
Example: 'His father sent him to his room because he was bad'.
 - (4) Self-esteem through affiliation
Example: 'He felt good because he had a friend'.
 - (5) Work; delay of gratification
Example: 'He practiced all his life'.
 - (6) Role differentiation
Examples: mention of specific adult roles, such as 'teacher' 'sailor', 'farmer', 'priest', 'soldier', 'scientist', etc.
 - (7) Moralism
Example: 'He told the truth. Honesty pays'.
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†A more complete version of the coding system appears in Cramer (1991a) and at www.williams.edu/Psychology/Faculty/Cramer/cramer.html.

stimuli, and the development of internal standards by which certain thoughts and feelings are judged unacceptable. Examples of this defense are also provided in Table 1.

A third defense, identification, differs from the other two in that, rather than attempting to change reality, the defense involves a change in the self, so as to become more like some admired person or group. This change enhances the person's sense of belonging and of security. The increased cognitive complexity of this defense is seen in the requirement to be able to differentiate between self and other, to differentiate among many 'others', to form enduring mental representations of those others, and to take as one's own certain qualities of others that serve to provide a sense of security and self-esteem, while rejecting those that do not (Cramer, 1987). Examples are provided in Table 1.

Alternative descriptions of the cognitive operations on which defenses are based have been provided by Elkind (1976) and by Chandler, Paget, and Koch (1978). Although these theories differ in the operations described, there is agreement that the least complex, least mature operations underlie the defense of denial, and that projection is based on more complex (mature) operations. Identification has not been included in these analyses.

By defining defense mechanisms as cognitive operations that occur outside of awareness, Pillar I avoids a controversial issue – namely, that defense mechanisms are unconscious mental processes. Despite the general, although recent acceptance in academic psychology that unconscious mental processes do exist, it has been argued that defenses need not be unconscious (e.g., Erdelyi, 2001; Newman, 2001). Support for Pillar I is based on its corollary: if the function of a defense mechanism is available to conscious thought – i.e., is in awareness – the defense will be less effective and so will be given up.

There is research evidence that children, as they mature, develop an understanding of how different defenses function. Whereas 5 and 6 year olds have little understanding of Denial, 8 year olds show greater understanding. In turn, Projection is better understood by 11 year olds than by 8 year olds, although many 11 year olds have difficulty understanding Projection, and none of the 5 or 6 year olds in these studies understood this defense (Chandler et al., 1978; Dollinger & McGuire, 1981; Whiteman, 1967).

These earlier findings regarding defense understanding showed an interesting parallel between the ages at which defenses are understood and the age at which there is a decline in the use of these defenses (see Pillar II). Could it be that defense use and defense understanding are linked? Could it be that once a child understands how a defense mechanism works, she/he abandons the use of that defense because it no longer serves its function?

A study of 120 children was designed to test this possibility. One group, approximately age 7, was chosen because previous research had demonstrated that this was the age at which many children shift from using the defense of Denial to using Projection. The second group was approximately age 10, a time at which many children have replaced Denial with the use of Projection.

In the first phase of this study, children told their own stories that were then coded for defense use. We also took a measure of their IQ. Two weeks later, we presented the same children with four short stories that we had created. In each story, the protagonist displays the use of a defense – either Denial or Projection. For example, one story described a child who had been rejected by a playmate; the rejected child then says to his mother: ‘I don’t care; I didn’t really want to play with him.’

Our child subject was read each story and then asked to explain *why* the boy made that statement. Based on a previously developed rating system, each child was given a score for his/her degree of understanding of Denial and of Projection. Scores could range from 2 (no understanding) to 8 (full understanding). Children’s attempts to explain these stories were rated for the degree to which they understood the functioning of the defense, and their degree of understanding was then related to their own use of that defense, as previously coded from their stories. As a check, we determined that neither use nor understanding of a defense was related to IQ.

The results of the study showed that children who had greater understanding of a defense were less likely to use that defense (Cramer & Brilliant, 2001). Seven year olds who had partial or complete understanding of Denial made significantly less use of Denial than did those children who had minimal or no understanding. For the 10 year olds, there was a linear relation between the use and understanding of Projection. Children who had *no* understanding made the greatest use of Projection; those who had *more* understanding used the defense less often (see Figure 1).

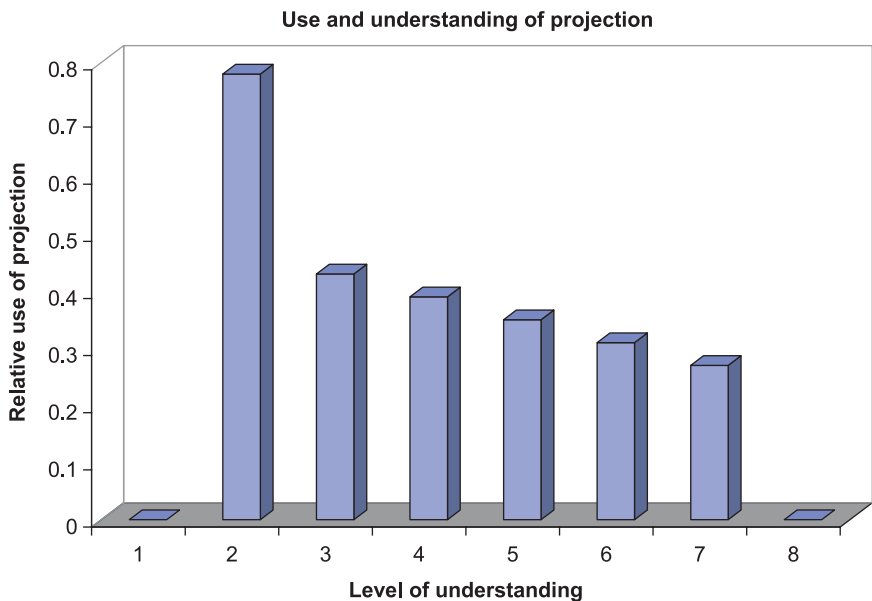


Figure 1 Use and understanding of projection.

Similar findings have been obtained with college students. Using an experimental method to study projection, awareness of use of the defense undermined its effectiveness (Newman et al., 1997). Together, the findings of these two studies support Pillar I.

Pillar II. There is a chronology of defense mechanism development

A theoretical model for the development of three defense mechanisms has been described (Cramer, 1991a, 2006). During the early years of life, Denial is the predominant defense. During middle childhood, Projection predominates, and by late adolescence Identification is predominant. Although more evidence is needed, it appears that the use of Identification may decline after adolescence. Thus, different defenses emerge into prominence at different points in development. These differences are due, in part, to the increasing cognitive complexity of the defenses, requiring increasingly complex cognitive functioning (see Chandler, Paget, & Koch, 1978; Cramer, 1991a, 2006; Elkind, 1976).

In addition, each defense has its own developmental history. Defenses do not just spring up full-blown at different points in development. Rather, each defense has its origins in infant reflexes that gradually evolve into volitional motor behavior, and then into an ideational representation of that behavior (i.e., into a defense mechanism). Some defenses develop more rapidly than others. Thus, defenses may be characterized in terms of maturity. Maturity may be defined in terms of the period of development in which the defense becomes predominant and/or by the cognitive complexity of the mental operations involved in the defense.

There is considerable empirical evidence supporting Pillar II. Beginning with a cross-sectional study of more than 300 children and adolescents living in New England, it was demonstrated that Denial was used most frequently by 5 year olds, after which its use markedly decreased and was rarely used by older children (see Figure 2). Projection was found to increase so that by age 8 and afterwards, it was used more frequently than Denial. The third defense, Identification, was found to increase more slowly, finally exceeding both Projection and Denial by late adolescence (Cramer, 1987). These findings were closely replicated by an independent research group 10 years later in a cross-sectional study of children and adolescents living in the Midwest (Porcerelli, Thomas, Hibbard, & Cogan, 1998). Further cross-sectional studies continued to confirm these developmental differences (Avery, 1985; Cramer & Brilliant, 2001; Cramer & Gaul, 1988; Raush, 1994; Sandstrom & Cramer, 2003; Silverman, 1999). Subsequently, two longitudinal studies have shown that these age-related *differences* in defense use in fact represent developmental *change* (Cramer, 1997, 2007). A further longitudinal study, using a different defense measure (the DSQ-72) found an increase in the use of mature defenses and a decrease in immature defenses between age 16 and age 21 (Tuulio-Henriksson, Poikolainen, Aalto-Setälä, & Lonnqvist, 1997).

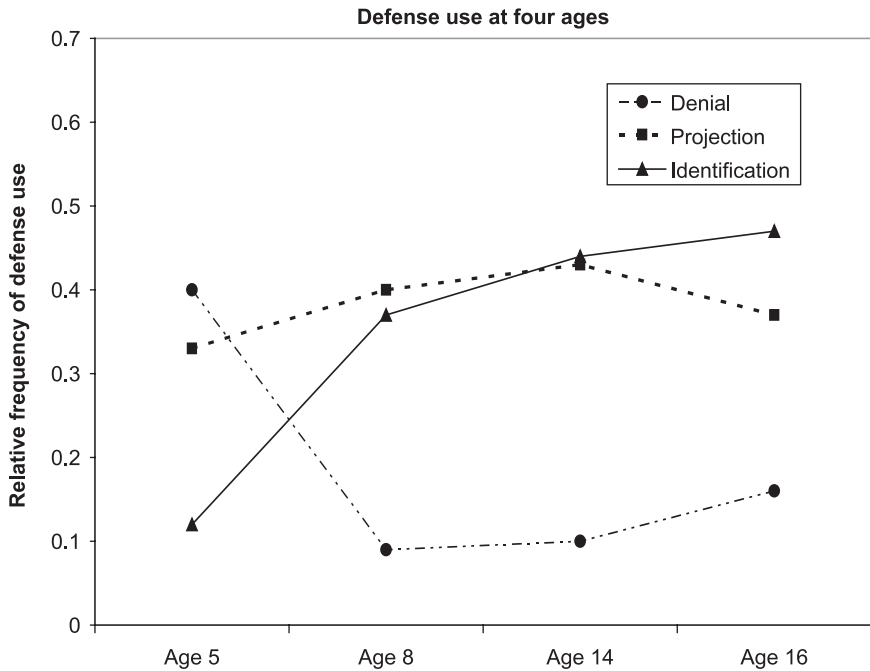


Figure 2 Defense use at four ages.

Thus, both cross-sectional and longitudinal data support Pillar II.

Pillar III. Defenses are part of normal, everyday functioning. The use of mature defenses will support successful functioning: the use of immature defenses will be related to less successful functioning

There is extensive research literature based on college students and community samples demonstrating the relation between defense use and personality functioning. Consistently, the use of mature defenses is found to be associated with positive personality characteristics, such as empathy, higher self-esteem, an internal locus of control, competence, self-confidence, outgoingness, and a secure attachment style. In contrast, the use of immature defenses is associated with indications of difficulty, such as irresponsibility, self-centeredness, unclear ‘fuzzy’ thinking, and anxiety (e.g., Cramer, 2002a,b; Cramer & Tracy, 2005; Davidson, McGregor, Johnson, Woody, & Chaplin, 2004; Hibbard et al., 2000; Romans, Martin, Morris, & Herbison, 1999; Whitty, 2003). Furthermore, use of mature defenses by young adults has predicted multiple indications of later positive adjustment, whereas immature defense use was related to later problems (Vaillant, 1993).

IQ and defense use have not been found to be related in children and young adolescents (Cramer & Brilliant, 2001; Hart & Chmiel, 1992).

However, there is evidence that a relation exists in adulthood, such that IQ level moderates the nature of the relation between defenses and personality. For individuals in the low average range of intelligence (IQ approximately 106), the use of less mature defenses, such as Denial and Projection, has been found to predict better personality functioning. For example, in a study of young adults from the community (Cramer, 1999a), those who were of lower IQ *and* who made strong use of Denial were found to function at higher levels of ego development (Loevinger, 1976). In contrast, for higher IQ individuals, the use of Denial predicted lower ego levels. (See also Cramer 2003, 2004 for similar findings.) When there is a 'match' between the intellectual level of the individual and the level of defense complexity, psychological functioning is enhanced. A 'mismatch' interferes with adaptive functioning (Koch, Chandler, Harder, & Paget, 1982). Thus, for individuals with lower IQs, even immature defenses appear to contribute to positive personality development.

Defense mechanisms have also been demonstrated to become increasingly important with age for predicting personality *change* in adulthood (Cramer, 2003, 2004; Soldz & Vaillant, 1998; Vaillant, 1993; see also Cramer, 2006). For example, whereas defense use in early adulthood predicted two of women's Big 5 personality traits (Extraversion (E) and Conscientiousness (C)), by middle adulthood, defenses predicted change in four of the five traits (E, C, Neuroticism (N), and Agreeableness (A)). For men, defense use predicted one trait at early adulthood (A); by middle adulthood, early adult defense use predicted change in three traits (E, C, N), and by late middle age, defenses predicted further change in three of the five traits (E, A, N; Cramer, 2003). Similarly, change in adult Identity status has been predicted by early adult defense use. Notably, the defenses responsible for Big 5 trait change are different from those responsible for Identity status change (Cramer, 2004).

Thus, considerable research supports Pillar III. Mature defenses are associated with positive functioning. Immature defenses are related to maladaptive functioning, at least for higher IQ individuals. However, for lower IQ individuals, the use of these defenses may have positive results.

Pillar IV. Under conditions of stress, the use of defense mechanisms will increase

This is a central tenet of defense mechanism theory. If the function of defenses is to protect the person from excessive anxiety, undue negative affect, and/or loss of self-esteem, then exposure to a situation that increases these reactions should result in an increase in defense use.

I describe here four experimental demonstrations that support this Pillar. In each study, after the experiment was completed, participants were fully debriefed. The nature and reason for the staged experimental intervention was explained. In this way, none of the participants left the experiment

feeling upset. Full details of the studies and the debriefing are available in the original publications.

In the first study, elementary school children were initially assessed for defense use under minimally stressful conditions (Cramer & Gaul, 1988). On the basis of their defense scores, two groups, equated for defense use, were created. Two weeks later, each child was invited to play a game, the goal of which was to get a marble to roll down a runway fast enough to beat a 'standard' time. Being successful at this task allowed the child to place their name on an 'Honor Board'; lack of success meant no name on the board. By design, the children in one of the pre-equated groups were told they were successful; the other group was told they had not beaten the standard time. A preliminary study had determined that this experience of lack of success induced negative affect in children of this age. Immediately after the success or lack of success experience, the children again told stories, and these were coded for defense use.

The results showed that children in the lack of success group increased their use of Denial and Projection; the negative affect aroused by the experimental intervention increased the use of these defenses. In contrast, children in the success group increased their use of Identification. Apparently, the experience of success contributed to the use of a more mature defense.

A second study with fourth grade girls created stress by using a staged rejection situation (Sandstrom & Cramer, 2003). Prior to this experience, the girls had been rated by their classmates to determine who was well liked and who not well liked. On the basis of these socio-metric nominations, four groups of girls were selected for further study: Popular, Average, Rejected, and Neglected. Subsequently, each girl participated in a laboratory session in which, after telling a set of stories, they were led to believe that they would meet and play with another girl. However, after some communicating via a video hook-up, the presumed playmate announced that she didn't want to play with the participant. Immediately following this rejection experience, the participant told additional stories.

We had hypothesized that girls who had prior experience of being Rejected or Neglected by peers would be most affected by this staged rejection, whereas girls who were used to being accepted by peers (the Popular and Average girls) would be less affected. In turn, this greater upset should lead to greater defense use by the Rejected and Neglected girls.

The results confirmed these predictions. Based on the girls' self-report during the study, those in the Rejected and Neglected socio-metric statuses showed a greater increase in negative affect following rejection; in turn, they showed a greater use of Denial and Projection, compared with the Accepted girls. Most important, a mediation model demonstrated that for the non-accepted girls, their initial socio-metric status predicted the degree of negative affect increase, which in turn predicted the degree of defense use; for the Accepted girls, the three variables were unrelated.

Similar results have been found with older participants. A third study was carried out with college students (Cramer, 1991b). Baseline defense use was established from four stories told prior to an experimental intervention designed to increase stress. After the fourth story, for half of the participants, the experimenter began to harshly criticize the quality of the stories told, and she admonished the participant to try harder. This criticism continued for the next four attempts at story-telling. For the other half of the participants, the eight stories were told without criticism.

As might be expected, a manipulation check showed that the criticized students experienced increased negative effect – both anger and anxiety – over the course of the experiment. They also showed a significant increase in the use of the defenses of Projection and Identification, as compared to their non-criticized peers. Thus, an increase in negative effect resulted in an increase in defense use.

In the fourth study (Cramer, 1998), after telling an initial set of stories, college students were asked to complete the Bem Sex Role Inventory. The experimenter then left the room, presumably to score the inventory, and then returned with the participant's 'score' for sex-role orientation. After stressing the validity of this widely used measure, half of the men and half of the women students were told they had a highly feminine orientation; the other half were told they had a highly masculine orientation. Participants were then encouraged to discuss the finding, and to explain it, if they could. A subsequent manipulation check indicated that cross-sex feedback aroused negative affect. Following this, more stories were told and subsequently coded for defense use.

As expected, students who had been given cross-sex feedback (e.g., a male told he had a feminine orientation) showed an increase in defense use. Although prior to the experimental manipulation the four experimental groups (Male/Female Sex x Masculine/Feminine feedback) did not differ in defense use, after the stress-inducing feedback, the men and women who had been given cross-sex feedback showed an increase in the use of Identification – the defense especially related to issues of identity.

Several other studies that used bogus personality test feedback to create a threat to self-esteem have demonstrated an increase in defense mechanism use, and this increase was greater if the importance of the threatened trait was central to the person's own self-representation (Grzegolowska-Klarkowska & Zolnierczk, 1988, 1990; Schimel et al., 2003).

Together, these seven experimental studies provide strong support for Pillar IV: Stress increases the use of defense mechanisms.

Pillar V. Defense use under conditions of stress will reduce the conscious experience of anxiety or other negative affect

This tenet is at the heart of defense mechanism theory: the purpose of defenses is to reduce negative emotionality. There are several sources of evidence that support this Pillar.

One example comes from a study of early adolescent boys who, following a lightning strike while playing soccer, had one of their peers killed, and several others knocked to the ground (Dollinger & Cramer, 1990). Shortly after this, the boys were interviewed by a child clinical psychologist, and they told stories to two lightning-related pictures. On the basis of the clinical interview, the boys were rated for degree of psychological upset. Independently, the stories were coded for defense use. The results indicated that the boys who were using more defenses at that time – especially the age-appropriate defense of Projection plus the mature defense of Identification – manifest less upset than the boys with less use of defenses. Close in time to the traumatic event, defense use was protecting the boys from psychological upset.

In a second study, children ages 9–18 who were living under the stress of sibling infection and parent death from HIV were found to use Denial twice as frequently as would be expected from normative data (Silverman, 1999). Yet, their scores on the self-report Achenbach scales for evidence of pathology (CBCL: Achenbach & Edelbrock, 1983) generally did not differ from those of a normative control group and for some scales were actually lower. Furthermore, within the stressed group, the greater the use of Denial, the lower the scores on the self-report CBCL Anxious/Depressed scale. It seems likely that the increased defense use was protecting these children from recognizing problems.

A third study with 9-year-old boys and girls related their defense use to scores on the CBCL and to Harter's measures of Self-perceived Competence (Harter, 1982). Whereas strong use of the immature defense of Denial was related to parent-reported indications of psychopathology, at the same time, children who used Denial were less likely to perceive themselves as low in Competence. Apparently, although children who use an immature defense manifest symptoms of psychological problems, their strong use of the defense successfully shields them from awareness of upset, thus protecting their sense of personal competence (Sandstrom & Cramer, 2003).

Studies with adults have also demonstrated this relation between defense use and less psychological upset. In one, adult women were shown explicitly sexual images, which produced an increase in skin conductance level (SCL), which was then followed by an increased use of defenses. However, those women who showed the greatest increase in defense use (of which they were unaware) self-reported the lowest levels of anxiety. Again, the use of defenses protected them from experiencing anxiety, although the increased SCL demonstrated autonomic arousal (Tang, 2002).

Finally, in a study in which college students' self-esteem was threatened, the use of the defense of Projection increased. This increase was followed by unacceptable thoughts being removed from conscious awareness. Thus, the use of the defense improved the students' conscious opinion of themselves, thereby protecting self-esteem (Schimel et al., 2003).

These findings support Pillar V: the use of defenses will protect the individual from experiencing negative emotions. In conjunction with the findings from the previously cited studies (Pillar IV), these results suggest that increased stress leads to increased defense use, which in turn lessens the conscious experience of anxiety and psychological upset.

Pillar VI. The use of defenses will be related to other non-volitional, non-conscious processes that are associated with emotional arousal

Although the use of defense mechanisms reduces the conscious experience of anxiety or other negative emotions (Pillar V), the physiological concomitants of negative affect, such as increased blood pressure or changes in skin conductance, may continue to exist. In this case, we should expect to find a relation between stress-induced defense use and activation of the autonomic nervous system.

When this condition becomes chronic – i.e., continual strong use of defenses accompanying physiological arousal – physical illness may result (Alexander, 1939; Pennebaker, Barger, & Tiebout, 1989).

In fact, there is clear evidence for a relation between stress-induced autonomic reactivity and the use of defenses (Cramer, 2003). A group of young adults were monitored for both diastolic blood pressure (DBP) and SCL, while at the same time, they were exposed to stressful conditions, culminating in telling stories that were subsequently coded for defense use. The expected relation between amplitude of autonomic nervous system reactivity and level of defense use was found, and the relations were defense specific. Increased SCL, which is known to occur when emotional inhibition is required, was related to increased use of Denial, which functions by inhibiting troublesome thoughts or emotions. Additionally, increased DBP, which occurs when cognitive work is required, was related to increased use of Identification, a more complex defense that requires more cognitive work. In this demonstration that defense use occurs in tandem with stress-induced autonomic nervous system arousal, it is important to note that the stress conditions did increase physiological arousal, which in turn was related to increased defense use; the pre-arousal autonomic nervous system reactivity was not related to subsequent defense use. Thus, it was specifically the experience of stress that led to increased defense use.

Two additional studies have also demonstrated that stress-induced autonomic nervous system arousal – either SCL or coronary reactivity – is related to defense mechanism use (Shelder, Karliner, & Katz, 2003; Tang, 2002). That this relation between physiological reactivity and defense use is a function of stress is confirmed by further studies showing no relation under non-stress conditions. A large-scale study of more than 600 individuals from Nova Scotia (MacGregor, Davidson, Barksdale, Black, & Maclean, 2003) demonstrated that under resting, non-stressed conditions DBP was unrelated

to defense use, as found by Cramer (2003) with young adults and by Vaillant and Gerber (1996) with young and middle aged men.

These findings support Pillar VI: Defense use is linked to change in internal physiological states that are known to be indicative of stress.

Pillar VII. Excessive use of defenses, or the use of immature, age-inappropriate defenses, is associated with psychopathology

Whereas the occasional use of defense mechanisms to protect against anxiety or loss of self-esteem is adaptive, the excessive use of defenses, in which they become the characteristic, repetitive reaction to many different situations, or the use of age-inappropriate defenses, is likely to occur in conjunction with the presence of psychopathology.

There are several issues to be considered when thinking about the relation between defenses and pathology. The first is the assumption that it is the excessive use of defenses that is a feature of psychopathology, whereas moderate defense use is part of normal, everyday functioning. Second is the expectation that the use of developmentally immature defenses will be related to pathology; defenses are apt to have pathological results if they continue to be used too long after their appropriate age (Freud, 1965). A third issue is the question of causality. Does the use of certain defenses *result in* the development of pathology, or does the presence of psychopathology result in the overuse of certain defenses? Alternatively, are defenses and psychopathology intrinsically linked, such that the defense *is* the pathology, and vice versa? As yet, we do not have the longitudinal studies that would provide a clear answer to these questions.

The importance of the role of defense mechanisms for understanding psychopathology has been increasingly recognized, as seen, for example, by the inclusion of a Defense Rating Scale in the most recent edition of the standard *Diagnostic Statistical Manual (DSM-IV-TR)* used to determine the presence of psychiatric disorders. Moreover, there is extensive research demonstrating the connection between defenses and pathology, both in patient and non-patient samples.

As discussed above, when defenses are used within a moderate range, they contribute to successful adaptation. Being able to ignore (deny the existence of) distracting stimuli may help concentration, but the failure to see the danger in a threatening situation – i.e., extreme denial – is evidence of poor reality testing. Similarly, being alert and watchful in a dangerous situation is adaptive, but hyperalertness and the expectation of danger lurking at every turn in placid conditions – i.e., projection – is evidence of psychopathology. Just as magnitude of defense use exists on a continuum, the presence of psychopathology may also be thought of as dimensional (c.f., Costa, Somerfield, & McCrae, 1996; Millon, 1996), and there is considerable research showing that the two dimensions are related.

In studies of non-patient samples, the findings show that the use of immature defenses, such as Denial and Projection, are related to the presence of *DSM-IV* Cluster B Personality disorders (e.g., Borderline, Antisocial, Narcissistic, and Histrionic disorders) or to the strength of scales indicating the presence of features of these disorders. These relations have been demonstrated when the disorders are assessed by psychiatric interview (Vaillant, 1994; Vaillant & McCullough, 1998), by observation-based prototype measures (Cramer, 1999b), or by self-report personality disorder questionnaires (Hibbard & Porcerelli, 1998; Johnson, Bornstein, & Krukonis, 1992; Maffei et al., 1995; Sinha & Watson, 1999).

In some cases, it has been possible to demonstrate a relation between a specific disorder and a specific defense. Based on clinical interviews of inner-city men, the diagnosis of Narcissistic personality disorder was associated with the use of dissociation/denial – a defense that supports wishful fantasy and ignores negative information about the self. In addition, the presence of a Paranoid disorder was related to the use of projection – a defense that attributes potential harm and aggression to the external world, thus accounting for the paranoid's unwarranted fears (Vaillant, 1994).

In samples of clinical patients, defense use has been related to diagnosis, with mixed success. Research evidence is consistent in showing that patients differ from non-patients in their use of defense mechanisms (e.g., Bond, 1992; Bond & Vaillant, 1986; Sammallahti & Aalberg, 1995; Simeon, Guralnik, Knutelska, & Schmeidler, 2002). Patients made greater use of immature defenses and less use of mature defenses. Defense use has also been related to the presence of various psychiatric symptoms (e.g., Cramer, Blatt, & Ford, 1988; Lingardi et al., 1999; Perry & Cooper, 1992). Immature defenses are associated with a greater number of pathological symptoms, whereas more mature defenses are associated with fewer symptoms.

On the other hand, research with patients has been less successful in the attempt to differentiate among specific diagnoses on the basis of defense use (e.g., Bond, 1990; Bond & Vaillant, 1986; Bond et al., 1989; Perry & Cooper, 1992). One difficulty in the attempt to relate specific defenses with specific diagnoses is that individuals with different diagnoses may use several different defenses (i.e., no single defense is uniquely linked with a specific diagnosis).

These findings support Pillar VII. The use of immature defenses has been shown repeatedly to be related to psychopathology in both patient and non-patient groups. However, attempts to relate specific diagnoses to specific defense use have been less successful.

End notes

This essay has described seven different Pillars that support defense mechanism theory. For each of the Pillars, confirming research evidence has been provided. However, there are several areas in which more research is needed.

- First, we need more information on the life-span development and use of defenses. Ideally, this should involve longitudinal study, following the same individuals from childhood through adulthood and on into old age. Trying to assess age differences through the alternative of cross-sectional study introduces the problem of cohort differences, with the result that it is unclear if age differences in defense use are due to psychological development or to socio-historical factors.
- Second, when studying defense use and change across the adult years, there is need for an accessible non-self-report measure to assess more complex defenses, such as intellectualization, rationalization, and sublimation. The currently available method, based on individual psychiatric interviews (Perry, 1990), requires an experienced clinician to conduct the interview.
- Third, we need more studies showing how defenses impact children's lives. Research has shown that defenses are important for understanding children's reaction to stress and their behavior problems. It seems likely that defenses might also play a role in children's achievement motivation, social competence, and emotional development.
- Fourth, there is evidence for an important relation between IQ and defense use in adults. Several studies have shown that defense use serves a protective role for individuals of lower IQ. Just how this interaction works – under what circumstances, in what areas of personality functioning, with what results – are all areas open for investigation.
- Fifth, and perhaps in tandem with the IQ question, is a need for further examination of the relation between defense awareness and defense use. What happens when adults become aware of their use of a defense mechanism? Research shows that, for children, this is associated with less use of the defense. In psychotherapy, patients are helped to become aware of defense use (maladaptive cognitions), with the goal of these being abandoned or modified. Although there is some research on the effect of defense interpretation (e.g., Despland, de Roten, Despars, Stigler, & Perry, 2001; Winston, Winston, Samstage, & Muran, 1994), more is needed.
- Sixth, the important question of the nature of the relation between defenses and pathology requires further study. At issue here is the crucial question of whether the use of certain defenses results in the development of pathology, or whether the existence of pathology then leads to the use of certain defenses, or whether the relation is circular or intrinsic. Information on this question might have important implications for the locus of therapeutic intervention.
- Seventh, related to the pathology issue is the question of whether certain defenses support *positive* functioning. For example, it has been suggested that the defense of sublimation may contribute to artistic creation and scientific inventions. As yet, we have no way to scientifically investigate this possibility because we lack a method to independently assess

sublimation. In a similar vein, we have not yet discovered an ecologically valid method to assess repression, an important defense on its own, and one that underlies all the other defenses.

- Clearly, there are numerous research questions to be investigated. The increasing evidence from psychological research for the existence of unconscious mental processes, and the development in this research of methods for studying these processes, will hopefully provide an impetus for further research on defense mechanisms.

Short Biography

Phebe Cramer's research interests include the study of defense mechanisms, personal identity, and longitudinal change from childhood to old age. She has authored numerous research papers on these topics for the *Journal of Personality*, *Journal of Research in Personality*, *Journal of Personality and Social Psychology*, *Journal of Personality Assessment*, and *Journal of Nervous and Mental Disease*. In addition, she has published four books – *Word Association* (1968), *The Development of Defense Mechanisms* (1991), *Story-telling, Narrative and the Thematic Apperception Test* (1996), and *Protecting the Self: Defense Mechanisms in Action* (2006) – and serves on the Editorial Boards of three research journals. Cramer received her BA in Psychology from the University of California, Berkeley and her PhD in Clinical Psychology from New York University. She is Professor of Psychology at Williams College, Williamstown, MA.

Endnote

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