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A COMPARISON OF ATTACHMENT-RELATED DEFENSES AND
EGO DEFENSE MECHANISMS

A Dissertation Presented for the
Doctor of Philosophy
Degree
The University of Tennessee, Knoxville

Elaine Marie Rivas
December 2009

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DEDICATION

This dissertation is dedicated to my mother, Minerva Rivas, who taught me the meaning of love; to my father, John Rivas, for inspiring my thirst for knowledge; and to my beloved friends Anna Tverskoy and Anita Chan, who challenged me to explore beyond the safe haven of home and to dream larger dreams.

ACKNOWLEDGEMENTS

I would like to thank the friends, family members and mentors who helped me to complete my graduate degree. I would especially like to express my appreciation to my advisor and committee chair, Dr. Len Handler, for taking me into his lab and shepherding me through the challenges of the last few years of training. I would like to thank the rest of my committee, Dr. John Lounsbury, Dr. Jacob Levy, and Dr. Sandra Twardosz for their time, effort and patience throughout the dissertation process. I also would like to express my gratitude to Dr. Malcolm West for his generosity in coding the Adult Attachment Projective narratives, and Drs. Betty Martin and Paul Hoffman for their generosity with the dataset, without which this study would not be possible.

I would also like to thank Dr. Ken Levy for encouraging me to apply to graduate school and Dr. Jenny Macfie for giving me my start at UT. I would also like to give a warm-hearted thanks to my friends from my graduate program for their support through graduate school, especially the members of my cohort—Nikki Frousakis, Rebecca Furr-Webb, Eric Peters, Lee Dixon, Lorrie Ness, and Guy Edlis. I also gladly and humbly thank my family and friends for their patience and unflagging encouragement during these six years. Lastly, I would like to make a warm-hearted expression of gratitude to the clinical supervisors and mentors I had throughout my graduate training who taught me, inspired me, and fostered my growth as a clinician and as a person in the world.

ABSTRACT

The concept of ego defense mechanisms has been a central component of psychoanalytic theory since Freud and the repeated subject of psychoanalytic research. Attachment theory, originally formulated by John Bowlby as a radical revision of psychoanalytic views regarding the fundamental forces that drive our behavior, includes the concept of defensive processes, but so far these attachment-related defenses have not yet been the subject of research. The current study utilized attachment-related defense ratings adapted from the Adult Attachment Projective (AAP) and more traditionally defined ego defense mechanisms as measured by the Defense Mechanism Manual (DMM) in a sample of 90 college students to address whether a functional relationship exists between these conceptually different views of defense. Age and gender were also examined as potential covariates. Bivariate correlations between attachment related defense variables and ego defense variables indicated there was a medium-sized relationship between overall attachment-defense and overall ego-defense use. Hierarchical multiple regression analysis was conducted to examine which individual attachment defense variables and ego defense variables most contributed to this relationship, while controlling for age. The attachment defenses of Cognitive Disconnection and Segregated Systems and the ego defense mechanisms of Denial and Identification were found to account for most of the variance. Moderation analysis indicated there were no significant interactions between pairings of individual defense variables. No gender differences were found for any of the variables. Implications of these findings for future research regarding attachment-related defenses are discussed.

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I. Introduction

Defense mechanisms—the mental “self-deceptions” that distort our perceptions of ourselves and the world—comprise an array of mental maneuvers that are united by their automatic, unconscious nature and their dual purpose of protecting self-image and managing painful affect. Defenses such as denial (in which information is kept hidden from awareness), projection (in which thoughts and feelings from the self are attributed to others) and displacement (in which taboo feelings towards another are re-directed to a safer target) have been among the fundamental beliefs of psychoanalytic thinking since Freud, who spoke of defense mechanisms as reducing anxiety caused by intrapsychic conflict related to primal pleasure-seeking drives. Despite some revisions and shifts in emphasis in psychoanalytic theory since its inception, the concepts of defense mechanism and defensive processing continue to be reflected in modern psychoanalytic theory and research.

More recently, attachment theory, originally formulated by John Bowlby (1969, 1973, 1980, 1988) as a radical departure from traditional psychoanalytic views, has offered an evolutionary-based vision of the human psyche which places experiences in close relationships at the center of human emotional functioning and perceptions about the self and others. Over the last several decades, attachment theory has sparked an extensive body of research regarding the characterological differences between adults who differ in terms of their patterns of attachment (for a review see Cassidy & Shaver, 1999; Feeney & Noller, 1996; Mikulincer & Shaver, 2007). However, the literature on attachment has focused almost exclusively on overall secure and insecure categories of attachment. Although Bowlby incorporated ideas of defensive processing into his theory,

attachment theorists have only recently begun to apply the concept of attachment-related defenses to the understanding of attachment patterns. Attachment researchers have not yet examined attachment-related defenses as an independent construct separate from classification, nor have they directly examined how these attachment-related defenses compare to other forms of defense.

Both the psychoanalytic and attachment traditions view defenses as rooted in early life experiences and as utilized throughout the lifespan to help regulate affect as well as views of self and environment. Is there a common point of reference between these traditions? The current study compares both theoretical viewpoints, and uses empirical methods to investigate the functional overlap of these two versions of defense as observed in a college sample.

Ego, Defense, and the Psychoanalytic Tradition

Historically, the concept of defense mechanisms can be traced to Sigmund Freud, who first introduced the concept in his 1894 paper “Neuro-psychoses of Defense.” In that paper Freud described his observations of patients who underwent various mental maneuvers outside of awareness in order to defend the mind against an “unbearable idea together with its associated affect” (1894/1959, p. 72). In this and other early papers (1896, 1915), Freud primarily discussed defenses as a contributor to psychopathology.

As Freud’s ideas evolved over the course of his career, he repeatedly drew upon the concept of unconscious defense as one of the means by which the mind continued to operate in the face of potentially overwhelming threats of anxiety. When Freud (1923) introduced his tripartite model of the mind, in which he described the psyche as divided

into the id, ego, and superego, defensive processes were described as functions of the interaction between these structures. The id was the part of the unconscious mind that comprised the instinctual drives (libido and aggression) and functioned by the “pleasure principle,” seeking immediate gratification of momentary wants and desires. The ego was largely conscious and the site of rational thought and sense of self and followed the “reality principle,” taking into account the given constrictions in the environment that would allow or not allow for gratification of the drives. The superego was the site of moral consciousness and enforced societal rules of behavior through censorship, punishment, and inducement of guilt. Of the three parts of the mind, it was the ego that functioned as the mediator between the other two forces which were often in conflict. Defenses were seen as a tool of the ego to minimize the anxiety and distress caused by the unconscious conflicts between the id and superego. According to Freud, anxiety and distress were present, but kept outside of awareness by defenses, and at times channeled into other avenues of symptoms or behaviors.

Although Sigmund Freud was the first to describe defense mechanisms, it was his daughter, Anna Freud, who first systematized and integrated Sigmund Freud’s observations into a comprehensive conceptualization of ego defense mechanisms (Hentschel, Smith, Draguns & Ehlers, 2004; Willick, 1995). In 1936, with the publication of her landmark treatise, *The Ego and the Mechanisms of Defense*, Anna Freud both organized the study of defenses by summarizing and delineating the differences between the various defenses discussed by her father, but also broadened their applicability. While S. Freud focused on the links between defense use and psychopathology, A. Freud argued for their potentially adaptive as well as maladaptive

roles in functioning. She also fostered a shift in analytic technique by encouraging analysts to examine ego functioning and defenses in the course of analytic treatment in addition to analyzing and uncovering the id impulses that S. Freud focused on as the underlying forces of intrapsychic conflict. Anna Freud subsequently made the role of ego, and defense mechanisms, more central in psychoanalysis (Willick, 1995).

Psychoanalytic theory has undergone several revisions in ideology and focus since S. Freud's drive theory, most notably from the object relations and intersubjective movements which brought a more interpersonal rather than intrapsychic conceptualization of the mind and of psychopathology (Cooper, 1998). However, despite the revisions of theory over time and the continued diversity of emphases between psychoanalytic camps, the concept of automatic, self-protective mental maneuvers that occur outside of awareness has remained an integral feature of the psychoanalytic perspective; and one that, over time, has gained empirical support.

Modern Theory and Research of Ego Defense Mechanisms

In contemporary psychoanalytic theory, "ego" is considered to be a useful metaphor that encapsulates a host of related abilities and executive processing functions involving cognition and affect, including information processing, reality testing, memory, and perception (Beosky, 1995). The prominent psychoanalytic researcher, George Vaillant, describes the ego as "the integrated brain" which bridges the emotional limbic system with the executive functioning of the frontal cortex, and which "conveys the mind's capacity to integrate inner and outer reality, to blend past and present, and to synthesize ideas with feelings" (1993, p. 7). The ego is considered to be related to, but

separate from, the concept of the “self” which is thought of more narrowly as the possessor of subjective experience, thoughts and feelings (ibid). “Ego functioning” is a term used in modern psychoanalytic theory and research to describe the capacities of mental and emotional functioning considered to be related to overall mental health.

In terms of defense mechanisms, modern psychodynamic theorists and researchers have continued in the tradition of Anna Freud, viewing defense mechanisms as essential elements of adaptive ego-functioning and self-concept formation (Hentschel et al., 2004; Vaillant, 1992a, 2000; Cramer, 1991, 2006). Vaillant (1993) described defense mechanisms as “regulatory self-deceptions” that function like the ego’s version of the body’s immune system, protecting the mind from vulnerabilities to potentially overwhelming negative emotional states, the way white blood cells act to stave off infections.

This view of defense mechanisms as normative and adaptive also implies that the adaptiveness of defense use is relative to the context (Cramer, 1991, 2006; Vaillant, 1993; Willick, 1995). In situations in which a person has no control over a difficult situation, use of a defense mechanism would serve to alleviate the anxiety and distress that could distract from problem-solving. However, when faced with a situation in which real-world solutions exist, utilizing defense mechanisms could be detrimental to functioning, distorting an individual’s perception to the point of ignoring a threat that could pose harm unless concrete actions are taken to deal with the situation. Medical researchers have examined defense use in relation to treatment adherence for such physical conditions as diabetes and weight loss in an effort to identify more effective

ways for physicians to talk with defensive patients regarding behavioral changes (Vaillant, 1993).

Theory and research into defense mechanisms has been fractured and uneven due to difficulties in forming consensus over the exact boundaries, definitions, and organization of specific defense mechanisms. Various lists, typologies and organizing schemes have been attempted, including organizations based on identifying the source of perceived threat (A. Freud, 1936/1966), the type of reaction made to the threat (Verwoerdt, 1972), and the “direction” of the action of the defense (Ihilevich & Gleser, 1991). However, despite this historical fractionalization, one of the main points of consensus among contemporary psychoanalytic theorists and researchers has been the organization of defense mechanisms along the lines of developmental hierarchies from “primitive” or “immature” defenses to more “complex” or “mature” defenses. The most immature defenses, such as “primitive denial” (which is the mental equivalent of not visually perceiving something directly in one’s field of vision) function via distorting reality. In contrast, the most mature defenses (such as humor) are the most cognitively complex and aid us in flexibly integrating reality into meaningful experiences. Longitudinal research on defense usage and cross-sectional investigations of associations with mental health status have lent support to the categorization of these defenses along developmentally-based hierarchical lines (Cramer, 1991, 2005, 2006; Cramer & Block, 1998; Cramer & Tracy, 2005; Vaillant, 1992a; Vaillant et al., 1986).

Defense Mechanism Manual

One of the most prominent and prolific contemporary researchers on defense mechanisms is Phebe Cramer (1991, 2006). Cramer took a different approach to studying ego defenses, assuming the “developmental” nature of defense mechanisms not only applied to the mature or immature ego functioning of the person using the defense, but also described the life course of defense use itself, as part of normative cognitive development in childhood and adolescence. Cramer proposed that the Piagetian (1952) stages of cognitive development implied the existence of developmental periods during childhood and adolescence for which certain defense mechanisms would be more prominent than others. As a child passed through these stages of increasing cognitive complexity, the use of certain defenses would increase, while use of more simple, immature forms of defense would typically decline. She points out, however, that although the use of immature forms of defense decline, they still remain part of an individual’s repertoire. At any given point in an individual’s developmental history, he/she has access to currently predominating as well as previous forms of defense.

To research this theory, Phebe Cramer developed a scoring system called the Defense Mechanism Manual (DMM; Cramer, 2000) to identify and classify defense mechanisms in narratives derived from story-telling projective tests such as the Thematic Apperception Test (TAT; Murray, 1943) and the Children’s Apperception Test (CAT). Cramer identified three major defensive categories—Denial¹, Projection, and Identification, which encapsulated several variations of defense according to core

¹ Throughout this document, references to Cramer’s categories of defense, Denial, Projection and Identification, will be initially capitalized.

defensive themes. Each of the three defensive categories required different degrees of ego complexity and represented a different developmental period. Denial was the most immature of the three defenses and reflective of the cognitive capacities of early childhood. Projection was moderately immature and reflective of the cognitive abilities of older children and early adolescence. And Identification was relatively mature and reflective of the improved cognitive capacities of late adolescence and early adulthood compared to earlier developmental periods. Cramer drew on psychoanalytic theory to further conceptualize each defensive category as having developmental roots in the sensorimotor reflexes of infancy.

According to Cramer, Denial described mental maneuvers that were based on wholesale negation of reality, which could involve such phenomena as a person literally blocking out, withdrawing from, or misperceiving outward events or internal experiences. As explained by Cramer: “Denial is a simple defense, accomplished by the single operation of negating a thought, feeling, or perception, as in ‘It didn’t happen’” (2006, p. 23). The essence of Denial was distorting or “not seeing” reality, which Cramer proposed was developmentally rooted to the earliest of self-protective sensorimotor reflexes—the ability of the infant to close its eyes to shut off stimulation from the outside world. Denial was thought to be the defense predominantly used in young childhood.

Projection encompassed mental maneuvers which involve misattribution of hostile or otherwise threatening feelings, attitudes and impulses to other people or the outside world. While still an immature defense, Projection is considered more cognitively complex than Denial, since it requires that the ego has the capacity to unconsciously differentiate the self from the outside world, as well as uphold a moral

judgment about what is acceptable and what is not. Cramer proposed that the progenitor of this defense was the infant's reflex to "spit out" noxious food or unwanted objects placed in its mouth. Projection was thought to become the predominant form of defense in early adolescence.

The category of Identification was tied to the ideas of self, identity and affiliation and thus required increased cognitive complexity to achieve. According to Cramer: "Identification is the process of taking on as one's own (internalizing) the attitudes, beliefs, values, or behaviors of another, so as to protect oneself from feelings of weakness or helplessness" (2006, p. 23). An example would be when a person tries to copy the tone of voice, words and gestures of an authority figure to get through a difficult situation. Cramer conceptually linked Identification to the infant reflex to take in food and other good things by mouth (i.e., incorporation). Cramer points out that use of the defense of Identification involves evoking internalized representations of other people, and not only reduces anxiety but bolsters the sense of self without distorting reality. It is the defense most frequently used during late adolescence, during the period of identity formation.

Cramer's research with child and adolescent populations lent empirical support to the developmental sequence of these defenses in human development (Cramer, 1987, 1991, 1997, 1998; Cramer & Gaul, 1998; Smith & Rossman, 1986). She found that use of denial normatively peaks in early childhood at approximately age 3, then slowly declines in use, while use of projection slowly increases until peaking at age 10 before declining, while identification emerges later in middle childhood and does not peak until adolescence. Therefore, Cramer's categorization of defenses follows a hierarchy from

Immature (Denial) to Moderately Mature (Projection) to Mature (Identification), as based on observable developmental sequences.

The DMM has shown adequate interrater reliability in studies involving children, adolescents, adults and psychiatric patients (Cramer, 1991, 1997, 1998; Cramer & Block, 1998; Hibbard, Farmer, Wells, Difillipo, Barry, Korman, & Sloan, 1994; Porcerelli et al., 1998). It has exhibited validity through concordance with observational studies of children (Cramer, 1987, 1997; Dollinger & Cramer, 1990). DMM validity was also supported by research involving psychiatric patients in which study results were in line with theory (Cramer, Blatt & Ford, 1988). Also, experimental manipulation produced expected changes in defense mechanism use, showing increases in age-appropriate defense use in stressful situations (Cramer, 1991, 1998; Cramer & Gaul, 1988; Sandstrom & Cramer, 2003).

Since its repeated validation of studies with children, the DMM has also been utilized with samples of adults to assess defensive functioning. Studies utilizing the DMM in adult populations indicate that these defensive categories can be found in all ages even if they are not found to the same frequency as in child populations (Cramer 2006). Use of Denial decreases following adolescence, but Denial continues to be found in normal adult cohorts. Identification, while characteristic of late adolescence, also continues to be found in adult samples. In college samples, Identification has traditionally been the most frequently used of the three defenses, followed by Projection, and lastly by Denial. There is some evidence, however, that Identification may decline in later adulthood, as identity becomes solidified (Cramer, 2006; Hibbard et al., 2000). Also, adult samples from the general population have shown higher rates of Projection relative

to Identification (Cramer & Kelly, 2004), and one longitudinal study comparing rates of DMM defense of college students at both freshman and senior year showed a general decline in Identification over this time, with Projection rated as the most-used defense at senior year (Cramer, 1998).

Attachment Theory

Attachment theory was formulated by the British child psychiatrist and trained psychoanalyst John Bowlby (1969, 1973, 1980, 1988) in the mid-20th century as a radical revision of psychoanalytic beliefs. Having observed the detrimental effects of children being separated from their parents during WWII and the family-based difficulties faced by his child clients, Bowlby took issue with the then-popular Kleinian view that children's psychological distresses were due to fantasized intrapsychic conflicts rather than lived experiences. He set out to examine and explain the fierce bonds ("attachments") he witnessed between children and their parents, and the dramatic detrimental effects separation and loss had on children's developing personalities.

In contrast to Freud who constructed his theories of childhood based on retrospective accounts from patients, Bowlby developed his theory based his theory of childhood based on observations of children interacting with their mothers. He strove to incorporate elements from various scientific disciplines into his theory including ethology, information processing, cognitive psychology and control theory, and utilized both empirical research and clinical case examples to support his arguments. As Bowlby described his reformulation: "the new paradigm is enabled to dispense with many abstract

concepts, including those of psychic energy and drive, and to forge links with cognitive psychology” (1980, p. 38).

Bowlby was influenced by ethologists Konrad Lorenz and Robert Hinde to view human behavior through the lens of animal instinctual behavior, causing him to reinterpret the infant’s bond to his/her caregiver as a complex instinct known as a *behavioral system*. According to ethological principles, a behavioral system is “goal-directed” in that it can incorporate complex sequences of behaviors that are set in motion to achieve an end-purpose. Instincts in behavioral systems can be flexibly determined in reaction to the situation at hand, but are still carried out to achieve the end-goal. The goal of the attachment behavioral system, the end-goal of attachment was for the infant or young child to maintain physical proximity to the caregiver, which in turn helped ensure the young’s survival.

The attachment system was thought to develop during the first year of life as the infant becomes selective toward its primary caretaker and wary of strangers. Bowlby considered the attachment behavioral system as a homeostatic system which operates similarly to the body’s temperature control system, such that it functions at all times and without notice when conditions fall within certain limits, but is subject to strain and system failure when they fall outside those limits. The attachment system was always “on,” operating at a low level in times of peace, keeping the infant seeking close proximity to his/her primary caregiver (the “attachment figure”) and “checking in” as he/she played and “explored” their environment. However, during times of emotional distress, the attachment system is thought to be “activated” for the infant, such that he/she actively seeks the caregiver for comfort and close physical contact through behaviors like

crying and reaching for the caretaker. The caretaker picking up and holding the infant (i.e., attaining maximal proximity to the attachment figure) then acts as a calming factor for the infant, who is able to eventually regain emotional equilibrium through this continued contact with the attachment figure.

While the attachment system was theorized to be active at all times for infants, motivating them to maintain proximity to their attachment figures, the observable behaviors of infants whose attachment systems were activated differed according to the caregiving patterns of the attachment figure. Naturalistic home observations of infants and their caregivers during the first year of life, as well as laboratory observation data from attachment researcher Mary Ainsworth's landmark Strange Situation paradigm (Ainsworth, Blehar, Waters & Wall, 1978), in which 12-18 month old infants are repeatedly briefly separated from their caregivers and observed for how they react to being reunited with them, yielded three infant attachment classifications: 1) Secure attachment, 2) Avoidant attachment, 3) Ambivalent attachment.

Secure infants were easier to calm down when upset and tended to engage more in happy, explorative play, and they tended to have mothers who were sufficiently responsive towards their needs for comfort when distressed and playful engagement when they were relaxed. Avoidant infants minimized contact with their mothers and did not outwardly show distress, and tended to have mothers who were aloof or distant in their interactions with their infants and did not warmly comfort them when the infants were upset. Anxious infants became easily upset, could not be comforted easily and were excessively proximity-seeking, and they tended to have mothers who were inconsistently responsive or were not attuned to the infant's signals for comfort, engagement, or

disengagement. A fourth attachment category was later discovered by researchers, labeled Disorganized, which was comprised of infants who behaved in a frightened, confused, or disoriented manner when seeking comfort from caregivers (Main & Solomon, 1990). Many of the mothers were found to have behaved in ways which were frightening to the child, such as engaging in physical abuse or engaging in frightened or dissociative behavior in the child's presence (Busch & Liberman, 2007; Lyons-Ruth & Jacobvitz, 1999; Solomon & George, 1999; van IJzendoorn, Schuengel & Bakermans-Kranenburg, 1999). This classification scheme for infants utilizing the Strange Situation procedure has been repeatedly validated across samples and cultures, and has been found to be separate from temperament (Vaughn & Bost, 1999).

One of the main tenets of Bowlby's theory is that the attachment system, as an instinctual behavioral system, is still present and active throughout the lifespan, motivating us to seek out, and invest in, close relationships. Also, the expression of attachment system activation in adulthood becomes more abstract as adults' cognitive complexity allows attachment to move beyond the behavioral proximity-seeking of infancy and "moves to the level of representations" (Main, Kaplan & Cassidy, 1985). Thus, rather than necessarily seeking proximity to attachment figures, adults can simply evoke mental representations of attachment figures in order to be comforted in times of distress.

Bowlby described the mechanism of attachment system functioning in adulthood through the concept of the Internal Working Model (IWM). Bowlby hypothesized that the accumulated experiences with attachment figures over time became formulated into the IWM—a complex cognitive-emotional schema for attachment relationships. The

IWM was thought to encapsulate: 1) the expectations regarding the capacity, willingness and availability of caregivers to meet attachment needs (often described in attachment literature as “positive or negative views of others”), 2) the internalized sense of self as either worthy or unworthy of receiving care from others (often described in attachment literature as “positive or negative view of self”), and 3) generalized attitudes regarding attachment-related needs for closeness and nurturant care. Bowlby conceptualized the IWM as having the capacity to continually be revised in light of new experiences. However, he stressed the potential lasting impact of early life experiences with attachment figures as the foundation upon which the rest of the relational scheme is built. The IWM was therefore theorized by Bowlby to be the means by which early experiences with caregivers are carried into adulthood and generalized across situations, influencing how one perceives close relationships, the level of comfort one has with intimacy and caregiving, and how one copes with distress.

Attachment-related Defense

In the third volume of his Attachment trilogy (1980), Bowlby described attachment-related “defensive processes” that influence the activation of the attachment system. Eschewing Freudian conceptualizations of defense, Bowlby drew from information-processing models to theorize that attachment-related defense took the form of “defensive exclusion” of attachment-related information. This model was based on the information processing concept of “selective exclusion,” which describes a multi-layered perceptual filtering process in which only a fraction of the available environmental stimuli taken in for processing is selectively allowed to enter conscious perception. In

Bowlby's view, defensive exclusion occurred when attachment-related information was kept out of awareness to prevent the painful affect associated with attachment system activation when no perceived comfort from attachment figures (real or representational) were available.

Bowlby described two forms of defensive exclusion: 1) *perceptual exclusion* of attachment-related material, which led to the "deactivation" of the attachment system, and 2) *preconscious exclusion* of attachment-related information, which led to "cognitive disconnection" of the attachment system from information-processing centers.

Perceptual exclusion described when attachment-related stimuli (such as experiences of hurt, loss or perceived rejection) were screened out to become perceptual background noise. In this way, the attachment system was prevented from becoming activated in response to attachment-related stimuli. Bowlby described this lessened attachment-related reactivity as a "deactivation" of the attachment system. Chronic attachment system deactivation was thought to lead to a characterological style of "compulsive self-reliance" in which close relationships and emotional vulnerability were shunned in favor of solitary, achievement-oriented activities. Preconscious exclusion, on the other hand, allowed attachment-related stimuli to pass the perceptual threshold, thus allowing the attachment system to become activated and eliciting an emotional reaction. However through the process of cognitive disconnection, the person is kept unaware of the "the interpersonal situation that is eliciting" the reaction, and may instead fall prey to the following cognitive errors (Bowlby, 1980):

1. He may mistakenly identify some other person (or situation) as the one who (which) is eliciting his responses

2. He may divert his responses away from someone who is in some degree responsible for arousing them and towards some irrelevant figure, including himself
3. He may dwell so insistently on the details of his own reactions and sufferings that he has no time to consider what the interpersonal situation responsible for his reactions may really be” (p. 65, numbering added).

In such cases, individuals could become highly emotionally distressed or become confused when the attachment system is activated. Bowlby hypothesized that these individuals over time tend to fall into personality patterns of either compulsive caregiving or anxious attachment.

Lastly, Bowlby talked about a severe form of defensive exclusion called a “segregated system” in which experiences related to attachment-related trauma are segmented away from conscious awareness but continue to exert an active but unconscious influence on thoughts, feelings and behaviors. If attachment-related stimuli trigger this segregated material to enter into consciousness, it is thought to induce intense affect and “disorganized and dysfunctional” cognitions and behaviors (Bowlby, 1980, p. 346). As further elaborated by later attachment researchers, a segregated system could be seen as a “complete failure of the attachment system” (George & West, 2004).

Although Bowlby emphasizes the role of defensive processes in his third volume of attachment (1980), attachment researchers have largely ignored this aspect of the theory. Recently, however, a projective test, the Adult Attachment Projective (AAP; George, West & Patten, 2002) was developed which includes a scoring system to detect attachment-related defenses in projective stories.

Adult Attachment Projective

The Adult Attachment Projective (George, West & Patten, 2002), developed by Carol George and her colleagues, involves a projective story-telling paradigm similar to the TAT and utilizes a complex narrative coding system to assess the resulting stories for mental representations regarding attachment. For the AAP, a subject is instructed to tell a story in response to 8 simple line drawings (neutrally depicted without discernible facial expressions), 7 of which depict ambiguous scenes designed to evoke attachment-related themes of hurt, abuse, separation, and loss. One card, for example, depicts a child standing in the corner of a room with hands palm out in front of its body, but with the head facing away. Subjects are asked to make up a story about the picture including what led up to the scene, what the characters are thinking and feeling, and what will happen afterwards.

The AAP scoring system was largely based on that of the Adult Attachment Interview (AAI; George, Kaplan & Main, 1984; Main, Goldwyn & Hesse, 2002) which is generally considered the “gold standard” adult attachment measures due to the high concordance found between parents’ AAI adult attachment classifications and their infants’ classifications as measured in the Strange Situation (van IJzendoorn, 1995). The AAI is a one-hour semi-structured interview which includes standard questions about the interviewee’s childhood attachment-related experiences, including requests for adjectives to describe the overall relationship with primary caregivers, requests to produce specific memories to support these descriptions, and requests to describe childhood memories surrounding times of hurt, sickness, loss and trauma. The AAI is thought to activate the attachment system by “surprising the unconscious” by requiring the subject to

simultaneously access childhood memories, summarize and evaluate childhood relationships with caregivers, as well as maintain the boundaries of the interview process (Main et al., 2002).

The AAI yields 4 major classifications corresponding to infant Strange Situation classifications: 1) Autonomous (corresponding to infant Secure attachment), 2) Dismissing (corresponding to Avoidant infant attachment), 3) Preoccupied (corresponding to the Anxious infant classification), 4) Unresolved for Trauma or Loss (corresponding to Disorganized infant attachment). Individuals are classified into one of these four categories largely based on the coherency, consistency, and cognitive flexibility throughout the interview process. Dismissing adults tend to minimize accounts of attachment-related distress, describe attachment relationships in overly glowing terms which they do not sufficiently support with memories, and tend to be overly succinct in their descriptions of attachment relationships. Preoccupied adults either tend to maximize accounts of attachment-related distress through overly-long, angry descriptions of early attachment experiences, or to incoherently wander away from the topic of discussion in a confused manner. Individuals who are rated as Unresolved lose coherency through lapses of reasoning, specifically when discussing accounts of Trauma or Loss, such as suddenly shifting from answering the interviewer's question to directly speaking to a deceased loved one as if he/she were in the room.

Similar to the AAI, AAP stories are transcribed and coded for narrative style and coherency, but in contrast with the AAI, the AAP system also places a strong and unique emphasis on coding attachment-related defenses. The AAP defensive functioning scale rates the three attachment-related defense processes initially described by Bowlby (1980):

1. *Deactivation*, which described dismissing, devaluing, or excluding attachment themes
2. *Cognitive Disconnection*, which described ambivalence or preoccupation regarding attachment themes, and
3. *Segregated Systems*, complete block of specific material due to threats of overwhelming the attachment-protective system, indicated by themes of helplessness, fear, or disorientation.

The AAP utilizes defensive functioning, as well as the other scale scores to determine placement in one of four adult attachment categories that correspond to the four AAI classifications. These attachment categories are conceptually identical to the AAI categories in terms of the coherency dimension; however the AAP adds the explanatory dimension of defensive functioning to the conceptualization of each category. In terms of defenses, Autonomous (i.e., Secure) attachment classification is associated with narratives that are relatively free from attachment-related defense use; Dismissing attachment is associated with predominant use of the defense of Deactivation; Preoccupied attachment is associated with predominant use of Cognitive Disconnection; and Unresolved is associated with the presence of Segregated Systems markers that are not subsequently addressed and cognitively-emotionally contained (“resolved”) in the narrative. Initial reliability and validity studies for the AAP have shown excellent concordance rates between AAP and AAI classifications, showing 92% agreement between the four AAI classifications and their corresponding AAP classifications, $k=.89$, $p = .000$, $N=122$ (George et al., 2003).

As the AAP offers the first scoring system specifically based on Bowlby's definitions of defensive processing, its defense scoring system would be critical to the examination of attachment-related defense use.

Comparing Ego Defenses and Attachment-Related Defenses

Both attachment-related defense and ego defenses are proposed to operate at a subconscious level and function to reduce anxiety, as well as being hypothesized to be rooted in early developmental experiences. Despite these similarities, there are some inherent differences in the views of anxiety and defense expressed in them. Ego defenses are conceptualized as protective self-deceptions to prevent anxiety and depression stemming from loss of self-esteem, or from tension caused by internal conflicts regarding internalized standards. Attachment theory, on the other hand, focuses exclusively on anxiety and distress that arises from the activation of the attachment system due to threats of hurt, loss, or abandonment.

This raises a number of questions: Are these two types of defense related? How much functional overlap exists between these concepts? Can all instances of anxiety truly be traced to, or at least tangentially evoke, threats of loss? In other words, can you have ego defense processes occur without evoking attachment defenses, and vice-versa?

In investigating the potential overlap between these types of defense, the DMM and the AAP defense scoring system seem ideal choices for comparison due to their methodological similarities, as well as their theory-driven operational definitions of defense. However, this scoring system represents only one subscale of the entire AAP

scoring system that has not yet been independently validated as a separate measure. This study would therefore potentially serve as a partial validity test of this measure.

Prior research comparing the DMM and the AAP has shown that insecure attachment status (i.e., placement in the Dismissing, Preoccupied or Unresolved attachment categories) is significantly related to higher rates of the immature defenses of Denial and Projection as measured by Cramer's DMM (Hoffman, 2006). However, no existing studies have directly compared DMM defenses with attachment-related defenses.

In comparing Bowlby's conceptualizations of Deactivation, Cognitive Disconnection, and Segregated Systems alongside Cramer's conceptualizations of Denial, Projection and Identification, some of these defensive processes appear on the surface to be more related than others. For instance, Deactivation was hypothesized as a form of perceptual exclusion in which attachment-related material is not admitted into consciousness. This seems somewhat akin to the perceptual blocking that occurs with the immature defense of Denial. Likewise, Bowlby's conceptualization of Cognitive Disconnection describes a defensive process which fosters the misattribution of attachment system activation to an ulterior source in the outside world. This seems to have a conceptual link with Cramer's category of Projection, which describes the misattribution of thoughts and feelings to an outside source.

Questions to be Addressed

This study attempts to address what relationship exists between attachment defenses and more traditionally defined ego defenses, by comparing subjects' use of attachment-related defense (utilizing the AAP) to their ego defense use (utilizing the DMM). Such an exploratory study would: 1) explore the relationship between degree of

usage of attachment defense and degree of usage of ego defense, 2) investigate the potential relationships between specific attachment-related defenses and specific types of ego defense, and 3) help inform the question of discriminant validity for attachment-related defenses from more general types of ego defense. Due to some prior studies showing differences in DMM defense use based on age and gender (Cramer, 1991, 1997, 2002, 2006), these demographic variables will also be considered as potential covariates.

The study seeks to address the following questions:

1. Are overall levels of attachment-related defense (Cognitive Disconnection, Deactivation, and Segregated Systems) related to the overall use of ego defense (Denial, Projection, and Identification)?
2. Are Cognitive Disconnection, Deactivation, and Segregated Systems individually related to Denial, Projection, and Identification? Based on conceptual similarities, both Deactivation and Denial and Cognitive Disconnection and Projection are hypothesized to be related.
3. Do gender and age affect the associative strength between variables?

II. Method

Archived data from research previously approved by The University of Tennessee's Institutional Review Board (IRB) was utilized to address the study aims. A Certification for Exemption from IRB Review for Research Involving Human Subjects ("Form A") was submitted and approved by the University of Tennessee IRB permitting use of the archived data for the purposes of the current study. The original data collection procedures, as well as scoring methods used to generate data for the current study are described below.

Participants

102 undergraduate students attending an introductory course in psychology at the University of Tennessee, Knoxville agreed to participate in exchange for extra credit in their course. Of these participants, 10 had missing data which disqualified them from further analysis. Following the removal of two outliers from the dataset, a total of 90 participants were utilized for all analyses. Of these 90 participants, 63 (70% of sample) were female and 27 (30%) were male with an age range from 18 to 35 and a mean age of 21. Ethnically, 80 (89%) identified as Caucasian, 7 (8%) as African-American, and 3 (3%) as Asian-American. All participants were treated in accordance with the "Ethical Principles of Psychologists and Code of Conduct" (American Psychological Association, 2002). During the original data collection, The University of Tennessee's IRB waived written informed consent as there was no identifying information collected and no foreseeable risk to the participants.

Materials

The Adult Attachment Projective (AAP) developed by Carol George (George et al., 1999; George, West & Pattem, 2002) utilizes a projective story-telling paradigm in order to assess attachment style and attachment-related defenses as part of its narrative analysis. A subject is instructed to “tell a story” in response to each of 7 line drawings depicting human characters in ambiguous situations designed to evoke attachment-related themes such as hurt, abuse, and loss. For example, in one of the cards, a child is portrayed lying in a bed with their arms stretched out towards an adult female figure sitting at the foot of the bed with no apparent gesture being portrayed by the woman towards the child. In another card, a female is portrayed sitting on a bench alone with her knees drawn up and her head hung low in front of her, as if she was in distress. In another, a solitary male figure is portrayed by a gravestone. The stories that are told are transcribed and later coded for several variables including overall narrative coherency (how concise, complete, and readily understandable the stories are), the presence of personal agency and interpersonal connectedness, and markers of attachment-related defense. For this study, only the defensive variables were utilized in analyses.

The AAP coding system for attachment-related defensive processes is based on Bowlby’s initial conceptualizations of deactivation, cognitive disconnection, and segregated systems (George et al., 2002). Both content markers (such as mentioning certain empirically-derived indicator words), and process markers (such as a storyline moving away from discussing attachment themes), contribute to defensive ratings. Although the specific coding rules are restricted to those individuals who have undergone a rigorous two-week training course with certified expert coders, the following are

general descriptions of AAP defense markers as detailed by George and West (2004) and examples of process and content markers adapted from George, West and Pettem (2002):

1. *Cognitive Disconnection*. The participant shows evidence of continued preoccupation by attachment through anger, uncertainty, or ambivalence regarding feelings, thoughts or events in telling the story, or as portrayed in story themes. Process markers include alternating between two distinct storylines, portraying diametrically opposing themes, or not finishing thoughts in telling the story. Content markers include using words and phrases such as “I don’t know”, “confused”, “angry”, “fight”, and “withdraw.” (George et al., 2002, pp. 69-79).
2. *Deactivation*. The participant shows evidence of minimizing, devaluing, or dismissing attachment-related distress, or attachment needs in general in the stories. Process markers include avoiding attachment-related themes altogether in the story, portraying themes of rejection of attachment needs, or emphasizing achievement, success, personal strength, authority, normalcy, or stereotyped social roles. Content markers include using words such as “strong”, “responsibility,” “wrong”, “normal”, and “discipline” (George et al., 2002, pp. 58-68).
3. *Segregated Systems*. The participant shows evidence of becoming dysregulated or overwhelmed by attachment-related trauma in telling the stories through inclusion of themes of danger, fear, helplessness, failed protection, or abandonment. Process markers include the participant relaying their own personal traumatic history instead of telling a story when faced with

the stimulus, or having a character act in a dissociative manner such as speak to a character who is dead. Content markers include use of words or phrases such as “scared”, “alone”, “trapped”, “abandoned”, “out of control” and “dead” (George et al., 2002, pp. 85-92).

For the purposes of the current study, the AAP stories were coded exclusively for attachment-related defensive markers. Each instance of attachment related defense used in a story was scored a “1” and tallied for each story with no upper limit. For example, three uses of the word “sleep” in a story would contribute 3 points toward the Deactivation score. The scores for each attachment-related defense were then totaled across the 7 scoreable stories for a participant, yielding a summary score for each of the three defenses: Denial, Projection, and Identification. These three attachment defense ratings were then summed to comprise an overall score for attachment defense use (“Total AAP”) for each participant.

Phebe Cramer’s Defense Mechanism Manual (DMM; 1991, 2000) was utilized to code narratives from cards 1, 2, 3BM, 4 and 13MF of the Thematic Apperception Test (TAT). The DMM yields scores for the three categories of Denial, Projection and Identification, with category comprised of 7 subcategories. The DMM has shown good reliability and validity for the three categories of ego defense (Denial, Projection, and Identification) (Cramer, 1991). The following are a list of the subcategories comprising each defensive category, along with a brief description and associated example as provided by the manual (Cramer 2000):

1. Denial

- a. *Omission of major characters or objects.* The participant does not mention items in the TAT card that the majority of individuals mention. For example, not making reference to the boy (the only character depicted) in Card 1 (p. 4).
- b. *Misperception.* The participant misidentifies an object depicted in a TAT card that the majority of individuals correctly identify. For example, identifying the boy in Card 1 as a girl, or the object in front of him as a book rather than a violin (p. 6).
- c. *Reversal.* The participant's story involves a character which undergoes a radical transformation from one characteristic to a polar opposite. For example, a character changes gender in the course of the story, or comes back to life from the dead (p. 7).
- d. *Negation.* The participant specifies a character "does not" do an untoward action, such as stating that a character "does not kill" another character. The participant can also specify he "does not know" details about the story regarding potentially disturbing experiences, such as specifying not knowing whether a character lives or dies, or stating he/she cannot identify part of the picture (p. 8).
- e. *Denial of reality.* The participant avoids acknowledging disturbing content in stories by portraying characters using sleeping, daydreaming, or fainting to avoid unpleasant circumstances, stating the characters look away from something, or using phrases such as "it was

all make-believe”. The participant could also describe situations that blatantly disregard the bounds of reality, such as describing a scene in which a statue is climbing a rope (p. 9-10).

- f. *Overly maximizing the positive or minimizing the negative.* The participant grossly exaggerates or underestimates certain attributes, such as stating a character is “the most beautiful in the world” (p. 11).
- g. *Unexpected goodness, optimism, positiveness, gentleness.* The participant portrays a character as undergoing a radical, unexplained, and unsupported change for the better, or as being unphased in the face of danger or disappointment. For example, “He has always failed, but he knows that he will be successful in the end” (p. 11).

2. Projection

- a. *Attribution of hostile feelings or intentions (or other normatively unusual feelings or intentions) to a character.* The participant attributes negative feelings to a character (or a character attributes negative feelings to another character) without satisfactory evidence to base the assessment. For example, stating a character “looks angry” without ascribing an explanation for it. (p. 14)
- b. *Addition of ominous people, animals, objects, or qualities.* A participant includes scary or threatening elements to the story, such as discussion of weapons, blood, illness, or nightmares, or describes characters or objects in the story as “broken” or “falling apart” (pp. 15-16).

- c. *Magical or circumstantial thinking.* The participant describes inanimate objects as having thoughts and feelings, or portrays characters as having magical powers or unusual control over other characters. The participant could also show evidence of hyperalertness to unveiling special clues or meanings. For example, commenting on the task of telling the story, “There’s probably a trick to this” (p. 17).
- d. *Concern for protection from external threat.* The participant mentions shields, armors, walls, masks or other protective barriers in the story, or explicitly stating that “others are against” a character. A participant can also make unprompted self-justifying comments regarding the story, for example: “I say it is a gun because it looks like the one we had at home” (p. 18).
- e. *Apprehensiveness of death, injury or assault.* The participant tells a story including occurrences of death, physical harm, or unjustified punishment. For example, “He got slapped around.” (p. 19)
- f. *Themes of pursuit, entrapment and escape.* The participant describes a character as hunting, tracking trapping, or imprisoning another character, or portrays themes of escape. For example, “There was a fire and he’s escaping out the window” (p. 20).
- g. *Bizarre or very unusual story or theme.* The participant tells a story with a highly unusual plot incorporating negative themes or twists, or unusual punishment. For example, “He ate a big piece of wood and got all bloated and blew up” (p. 22).

3. Identification

- a. *Emulation of skills.* The participant portrays a character imitating or attempting to attain the skills that another character possesses. For example, “He wants to do it like his teacher does” (p. 24).
- b. *Emulation of characteristics, qualities, or attitudes.* The participant portrays a character as similar to, or trying to taking on the qualities of, another character. For example, “He gets the giant’s muscles and now he’s a giant” (pp. 24-25).
- c. *Regulation of motives or behavior.* The participant describes a character proscribing control, influence, prohibitions or enforcing social mores on another character, and/or a character actively rebelling against such control. For example, “His mother made him take violin lessons but he doesn’t want to so he played hooky” (p. 25). The participant or a portrayed character can also engage in self-criticism. For example, “It isn’t a very good story” (p. 26).
- d. *Self-esteem through affiliation.* The participant describes a character attaining, or desiring to attain, success or satisfaction through association with peers or a social group. For example, “He has happy that he had a friend” (p. 27).
- e. *Work/delay of gratification.* The participant incorporates story themes of working, striving, waiting and planning as a means of attaining goals. For example, “He has to study really hard.” (p. 28)

- f. *Role differentiation.* The participant refers to characters in the story in specific professions or official social roles that are not clearly portrayed in the picture. For example, specifying that a character is a “wife”, “queen”, or “gymnast” (p. 29).
- g. *Moralism.* The participant’s story has a moral lesson learned, themes of good triumphing over evil, or justified punishment exacted by societal authority figure. For example, “ He robbed a bank... the police will get him... he will be in jail” (p. 31).

According to the DMM coding system, each instance of a subcategory of defense used in a story is scored a “1” with no upper limit. For example, three instances of misperception in a story would contribute three points to the total Denial score for that story. The scores for each defense are then totaled across all stories, yielding a summary score for each participant for Denial, Projection, and Identification. These defense scores are then summed into a total defense score (“Total DMM”) representing total use of ego defense.

Following administration of the AAP and TAT, a brief questionnaire was given to each participant assessing demographic characteristics including age, ethnicity and gender.

Procedure

The data collection procedures were originally carried out between 2003 and 2004 in accordance with The University of Tennessee IRB. 102 undergraduate students attending an introductory course in psychology at the

University of Tennessee gave informed consent to participate in the study in exchange for extra credit. These students were administered the complete set of eight AAP cards (7 scoreable cards and one neutral warm-up card), followed by cards 1, 2, 3BM, 4 and 13MF of the TAT. All tests were administered by trained advanced graduate research assistants who transcribed participants' AAP and TAT stories verbatim, in line with standard administration procedures for both measures. The demographics questionnaire was administered following the AAP and TAT. The full procedure took place in one session and lasted approximately one to two hours. Following testing, study participants were informed about the purpose of the study and encouraged to ask questions regarding the nature of the study.

The AAP transcripts were subsequently coded by one of the co-authors of the measure² and a certified expert in the coding system. Utilizing a certified coder is in line with standard research practice for utilizing this measure due to the rigorous training process required to learn the coding system (a two-week intensive training course plus year-long reliability process). Since the AAP transcripts were scored by a certified expert in the coding system, interrater reliability determinations were not applicable.

The TAT transcripts were scored by two advanced graduate research assistants according to the DMM coding system after attaining interrater reliability on this measure based on a randomly selected subset of 20 protocols from the study sample. Both graduate students learned the DMM through self-study, as it is designed to be used without specialized training.

² Malcolm West, Ph.D.

III. Results

Inter-rater reliability rates for the two graduate student raters on the DMM variables are summarized in Table 1. The two-way mixed intra-class correlation coefficients indicate that reliability between the two raters on a subset of 20 protocols was found to be in the excellent range.

Descriptive statistics for the original sample ($N = 92$) indicate that Cognitive Disconnection was found to be the most frequent attachment-related defense utilized in this sample ($M = 12.75$, $SD = 7.10$), followed by Deactivation ($M = 7.57$, $SD = 5.51$) and Segregated Systems ($M = 4.82$, $SD = 3.84$). Among ego defenses, Identification was most frequently utilized ($M = 5.00$, $SD = 2.92$), followed by Projection ($M = 3.14$, $SD = 2.55$) and lastly Denial ($M = 2.87$, $SD = 2.06$). Figure 1 depicts the relative rates of individual attachment defenses compared with overall attachment defense use, while Figure 2 depicts similar percent distributions for individual ego defenses. Descriptive statistics for all attachment defense variables, ego defense variables and age for the

Table 1: Intra-class Correlation Coefficients for Interrater Reliability of DMM variables

Variable	Reliability Rate	<i>p</i>
Denial	.86	.00
Projection	.84	.00
Identification	.84	.00

Note. 2 raters, $N = 20$.

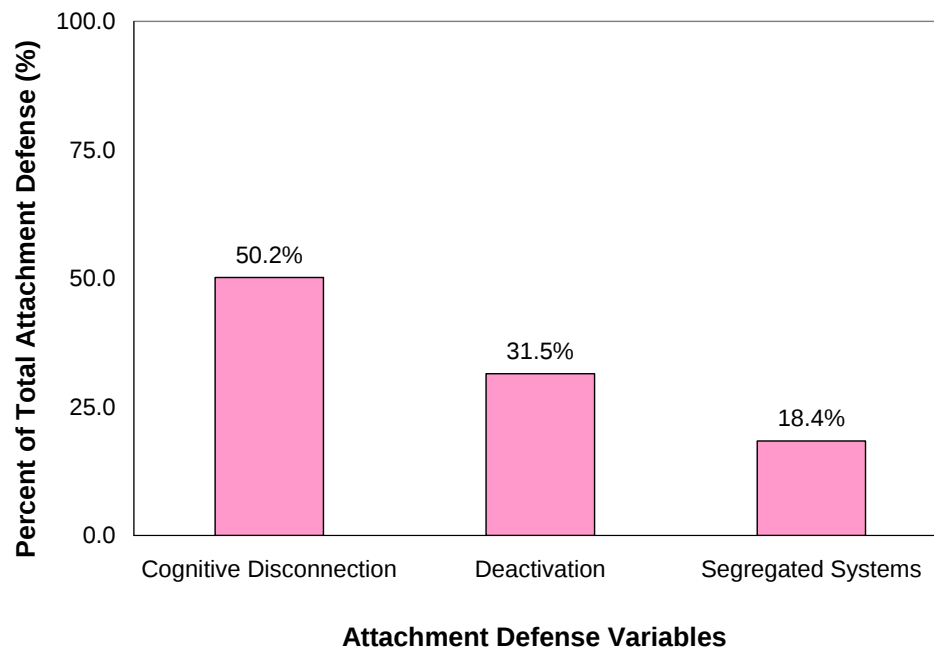


Figure 1. Relative rates of attachment variables in sample (N = 92).

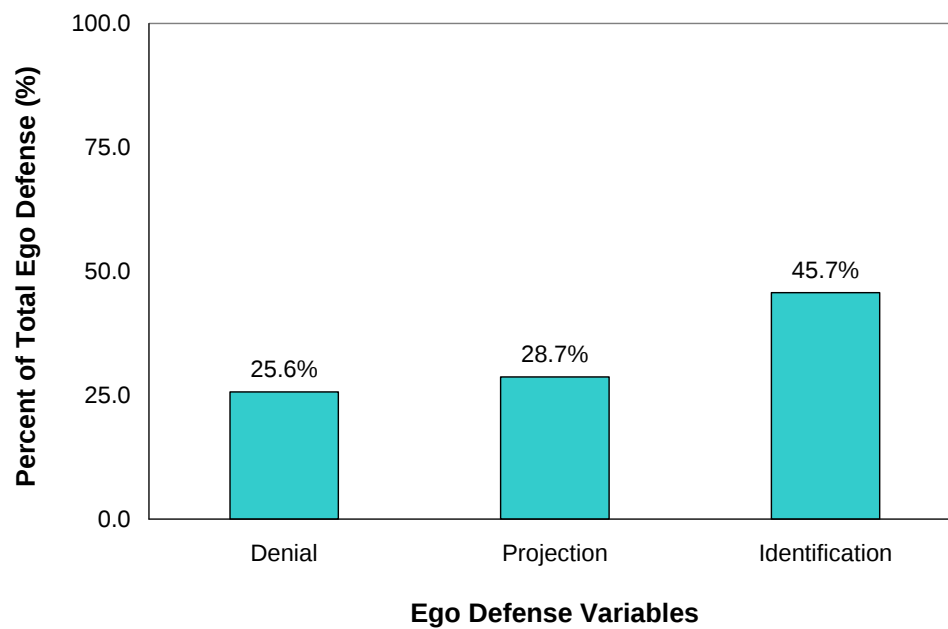


Figure 2. Relative rates of ego defense variables in sample (N = 92).

original sample of 92 participants are listed in Table 2.

Prior to statistical analysis, the data were examined to determine whether they met criteria for parametric statistical analysis. All of the defense variables, aside from Identification and Total DMM, were positively skewed, as frequently occurs for data based on counts (Cohen, Cohen, West & Aiken, 2003). The distribution of age was also positively skewed due to overrepresentation of 18- and 19-year-old participants in this college sample. Square root transformations³ on all AAP and DMM data, as well as age data, were conducted and outliers of more than 3 standard deviations on the attachment or ego defense variables were then removed, resulting in a final N size of 90 participants. The data transformations and removal of outliers brought skewness and kurtosis within acceptable range for each variable (see Table 2) with the exception of age, which continued to have elevated skewness and kurtosis. It was decided to retain these data points for analysis, and to interpret any effects of age with caution. Visual inspection of P-P and Q-Q plots and norm-fitted histogram charts of each variable confirmed the normality of the remaining transformed distributions. The square root transformed data were utilized for all subsequent analyses. The means and standard deviations of the transformed variables are included in Table 2.

Before examining the relationships between attachment-related defense and ego-defense, the data were examined to rule out the possibility of covariance with the demographic variables of age and gender. Independent samples t-tests were run

³ Square root transformations following an additive transformation of +1 for DMM and AAP variables to eliminate the possibility of calculation errors due to having zero in the denominator of a fractional term.

Table 2: Descriptive Statistics for Defense Variables and Age

Variable	Original Data (N = 92)				Square Root Transformed Data without Outliers (N = 90)			
	Mean	Standard Deviation	Skewness ^a	Kurtosis ^b	Mean	Standard Deviation	Skewness ^a	Kurtosis ^b
Attachment Defense								
Cognitive Disconnection	12.75	7.10	1.30	2.38	3.56	.88	.40	.39
Deactivation	7.57	5.51	3.09	16.24	2.75	.68	.21	-.21
Segregated Systems	4.82	3.84	1.10	1.86	2.26	.79	.25	-.28
Total AAP	25.13	11.44	1.26	2.76	4.93	.97	-.01	-.05
Ego Defense								
Denial	2.87	2.06	1.01	1.32	1.88	.50	.30	-.07
Projection	3.14	2.55	1.42	3.98	1.93	.57	.05	-.72
Identification	5.00	2.92	.64	.38	2.36	.60	-.09	-.15
Total DMM	11.01	4.65	.48	.70	3.37	.66	-.37	.02
Age	21.28	3.87	1.70	2.59	4.58	.39	1.62	2.39

a. Standard error of skewness was .25 for both original and transformed variables.

b. Standard error of kurtosis was .50 for both original and transformed variables.

between gender and all defense variables, indicating there were no significant differences based on gender on any of the defense variables (see Table 3).

Since age was retained as a continuous variable, Pearson r correlations were conducted between age and all defense variables to screen for potential covariance. As can be seen in Table 4, age was found to be positively correlated with the ego defense variable of Projection ($p = .05$) and showed a trending level of significance for its positive association with Total DMM. Age was therefore examined for potential covariance in all further analyses involving these variables.

To address the question of whether a relationship exists between attachment-related defense and ego-defense variables, Pearson r correlations were conducted between all AAP and DMM component variables, as well as Total AAP and Total DMM

Table 3: Independent Samples t-test for Gender and Defense Variables

Variable	t	Standard Error Difference ¹	p
Attachment Defense			
Cognitive Disconnection	-.56	.20	.58
Deactivation	.69	.16	.49
Segregated Systems	-.91	.18	.37
Total AAP	-.51	.22	.61
Ego Defense			
Denial	-.12	.12	.91
Projection	.77	.13	.44
Identification	-1.53	.14	.13
Total DMM	-.59	.15	.55

Note. $N = 90$, $df = 88$ for all analyses

Table 4: Correlations between Age and Defense Variables

Variable	<i>r</i>	<i>P</i>
Attachment Defense		
Cognitive Disconnection	.14	.20
Deactivation	.09	.38
Segregated Systems	.12	.26
Total AAP	.18	.10
Ego Defense		
Denial	.01	.89
Projection	.21	.05
Identification	.09	.38
Total DMM	.19	.08

Note. N = 90

composite scores. As can be seen from Table 5, several significant correlations were detected. Most notably for this analysis, a significant positive correlation was found between Total AAP and Total DMM, $r = .46$, $p < .01$, which is a moderate effect size based on Cohen's system (1988). This indicates that as overall use of attachment-related defense increases, overall use of ego defense increases as well.

In terms of pairings between individual attachment defense variables and individual ego defense variables, Cognitive Disconnection was found to have significant positive correlations with all ego defense variables, ranging from $r = .21$, $p < .05$ with Identification (a small effect) to $r = .39$, $p < .01$ with Denial (a medium effect). Segregated Systems was found to have a significant positive correlation with Denial, $r = .35$, $p < .01$ (a medium effect), and only trending significant relationships with

Table 5: Pearson r Correlations for Defense Variables

Variable	1	2	3	4	5	6	7	8
1. Cognitive Disconnection	--	.08	.42**	.86**	.39**	.27**	.21*	.45**
2. Deactivation	.08	--	-.11	.42**	-.18	-.10	.20†	-.00
3. Segregated Systems	.42**	-.11	--	.62**	.35**	.20†	.21†	.40**
4. Total AAP	.86**	.42**	.62**	--	.34**	.21*	.31**	.46**
5. Denial	.39**	-.18	.35**	.34**	--	.24*	.14	.64**
6. Projection	.27**	-.10	.20†	.21*	.24*	--	-.08	.56**
7. Identification	.21*	.20†	.21†	.31**	.14	-.08	--	.66**
8. Total DMM	.45**	-.00	.40**	.46**	.64**	.56**	.66**	--

Note. N = 90, ** $p < .01$; * $p < .05$, † $p < .08$

Projection and Identification. Deactivation was not significantly related to any individual ego defense variable, but was positively correlated with Identification at the level of trending significance ($r = .20, p < .08$). As would be expected, significant correlations were found between Total AAP and Total DMM and each of their respective component variables. Total DMM was found to be fairly evenly correlated with each of its component variables (ranging from $r = .56, p < .01$ for Projection to $r = .66, p < .01$ for Identification). For attachment-related defenses, there was a disproportionate level of association between individual attachment variables and the composite variable of Total AAP. Cognitive Disconnection showed the highest correlation with Total AAP ($r = .86, p < .01$) and Deactivation the lowest ($r = .42, p < .01$).

In order to further explore the relationships between all attachment variables and ego defense variables, multivariate analysis was conducted. Examining the variables in multivariate models enabled the unique contributions of each component variable to be partialled out of the relationship between overall attachment-related defense and overall ego defense while controlling for age as a potential covariate. Moderation analyses (Baron & Kenny, 1986) were also conducted to determine whether there were any interaction effects among component defense variables or between component defense variables and age. As a hypothetical example for this dataset, a moderation could potentially be found for one of the component attachment variables and age such that the attachment variable changed the nature of its relationship with overall ego defense only at higher ages. In order to statistically test for such interaction effects, variables are first converted to z-scores and then variables that one wishes to test for interactions are

multiplied together to create interaction terms that can be included as independent variables in the multivariate model.

To carry out these analyses, all data were converted to z-scores, and two 3-step hierarchical multiple linear regressions were conducted. For the first hierarchical regression, Total DMM data were entered as the dependent variable, with age entered as the first step of the regression, with the attachment-related variables of Cognitive Disconnection, Deactivation, and Segregated Systems entered simultaneously as independent variables in the second step. The third step investigated possible interaction effects between all independent variables used in the model; therefore multiplicative terms were created for each attachment variable paired with each other attachment variable, as well as each attachment variable paired with age. If any of the multiplicative terms were found to be significant, it would indicate the presence of a moderation effect.

The results of the first hierarchical multiple regression analysis are summarized in Table 6. Age did not significantly contribute with the relationship between Total DMM and attachment variables. However, the linear model including all three attachment defense variables was found to account for 24% of the variance of Total DMM, while controlling for age, $F(4, 85) = 7.92, p < .001$. According to Cohen (1988) this is a moderate effect. Both Cognitive Disconnection and Segregated Systems significantly contributed to the model. In examining the beta weights, both of these variables have positive relationships with Total DMM, with Cognitive Disconnection showing a greater degree of association than Segregated Systems. Deactivation did not significantly contribute to the relationship between attachment defense and ego defense. The third step

Table 6: Hierarchical Multiple Regression Predicting Total DMM and Moderation Analysis Controlling for Age

Step and Predictor Variable	<i>B</i>	<i>SEB</i>	<i>B</i>	R^2	ΔR^2
Step 1				.02	.02
Age	.18	.10	.19		
Step 2				.24**	.22**
Cognitive Disconnection	.33	.10	.33**		
Deactivation	-.01	.11	-.01		
Segregated Systems	.24	.10	.25*		
Step 3				.20	.00
Cognitive Disconnection x Deactivation	-.02	.14	-.01		
Cognitive Disconnection x Segregated Systems	.03	.09	.03		
Deactivation x Segregated Systems	-.00	.13	-.00		
Cognitive Disconnection x Age	-.12	.13	-.11		
Deactivation x Age	-.07	.12	-.07		
Segregated Systems x Age	-.06	.11	-.06		

Note. N = 90, ** $p < .01$; * $p < .05$, † $p < .08$

of the hierarchical regression which tested for moderations was not significant, indicating there were no interaction effects for the independent variables.

For the second hierarchical regression (see Table 7), z-scores were used for all variables, and age was once again entered as the first step of the regression equation. For the second step, Total AAP was investigated as the dependent variable with the ego defense variables of Denial, Projection, and Identification as the independent variables. Multiplicative terms between independent variables were entered as the third step in the model to test for possible interaction effects.

Results of this regression analysis indicated that age did not significantly contribute to the relationship between ego defense variables and overall attachment use. However, the linear model containing the 3 ego defense variables was significant, $F(4, 85) = 6.07, p < .001$, and accounted for 19% of the variance of Total AAP. Denial and Identification both significantly contributed to the relationship. Beta weights for these variables indicate that they both have a positive relationship with Total AAP, with both variables contributing almost equally to the relationship. Projection did not significantly contribute to the model. No moderation effects were found for the various combinations of ego defense variables or any potential interaction effects between ego defense and age.

Table 7: Hierarchical Multiple Regression Predicting Total AAP and Moderation Analysis Controlling for Age

Step and Predictor Variable	<i>B</i>	<i>SEB</i>	β	R^2	ΔR^2
Step 1				.02	.02
Age	.16	.10	.18		
Step 2				.19**	.17**
Denial	.24	.09	.26*		
Projection	.14	.10	.15		
Identification	.25	.09	.27**		
Step 3				.18	.00
Denial x Projection	.13	.10	.14		
Denial x Identification	-.18	.11	-.19		
Projection x Identification	.02	.11	.02		
Denial x Age	-.08	.11	-.09		
Projection x Age	-.09	.13	-.09		
Identification x Age	-.11	.12	-.12		

Note. N = 90, ** $p < .01$; * $p < .05$, † $p < .08$

IV. Discussion

Due to the exploratory nature of this study, which is the first to use the AAP attachment defense scoring system as a separate measure, its results must be looked upon with caution. However, this study affords the opportunity to further examine some important theoretical constructs in the light of empirical evidence, as well as to comment upon the potential suitability of the AAP defense scale as an isolated measure.

Before examining the findings regarding the defenses, a few things should be noted about the distribution of variables found in this college sample. Identification was found to be the ego defense most frequently used, followed by Projection and, lastly, Denial. This is in line with previous research using DMM in college samples, which Cramer interprets as evidence of Identity being an age-appropriate defense for late adolescence and early adulthood, during which identity is still being solidified, and Denial being infrequently represented in college samples (Cramer, 1991b, 2006). Of the attachment variables, Cognitive Disconnection had the highest frequency, followed by Deactivation, and lastly Segregated Systems. The relative infrequency of Segregated Systems defense is in line with its conceptualization as an indicator of trauma sufficient to overwhelm the attachment system, which is a relatively infrequent event. Among the demographic variables, age in this sample was noted to be positively skewed due to the overrepresentation of 18- and 19- year olds in this college sample. Although the results should be treated with caution due to the skewed distribution, a significant positive association was found between age and Projection, which is in line with findings of studies using DMM, showing higher rates of Projection than the other two types of ego defense in older samples.

The results of this study provide some evidence that a relationship exists between attachment-related defenses and ego defense mechanisms. Furthermore, they cast some light on the relationships between specific pairings of defenses.

Both the correlation and regression analyses indicate that a statistically significant medium-sized positive relationship exists between overall attachment defense use and ego defense use. In other words, individuals who tend to use attachment-related defenses are also more likely to use ego defense mechanisms, and vice-versa. However, the predictive power of the combined attachment-related defense variables to explain overall ego defense use (24% variance explained) was slightly higher than the predictive power of ego defense mechanism use to predict attachment-related defense use (19% of the variance explained). Furthermore, when examining the individual contributions of the different defense variables to these positive linear relationships, Cognitive Disconnection and Segregated Systems were found to significantly contribute to the relationship with overall ego defense use, while Denial and Identification were found to significantly contribute to the positive linear relationship with overall attachment-related defense. When considered together, these regression analyses point to an overall relationship in which individuals who utilize the attachment-related defense of Cognitive Disconnection, are also somewhat more likely to use the defense of Segregated Systems, as well as the ego defenses of Denial and Identification. Gender and age were not significantly related to this relationship, and no moderation effects were found.

In examining the individual pairings of attachment-related defenses and ego defense mechanisms that were found to be significant, the highest degree of association found was between Cognitive Disconnection and Denial, followed by Segregated

Systems and Denial, then Cognitive Disconnection and Projection, and lastly Cognitive Disconnection and Identification. Each of these significant relationships was positive, indicating that higher rates on one variable were associated with higher rates on the other variable. Segregated Systems also had marginally significant positive correlations with Projection and Identification. Deactivation was not significantly related to any of the ego defenses, but did have a marginally significant positive relationship with Identification. It is possible that these marginally significant correlations would have been significant if a larger sample size had been used.

One of the most surprising findings was the lack of relationship found between Denial and Deactivation. As previously mentioned, both constructs are conceptualized as involving unconscious processes to “not see” or “not know” a piece of information that would cause distress. However, the lack of relationship found here might suggest a difference in the way this “not seeing” occurs. If Bowlby’s contention is true that Deactivation stems from a perceptual exclusion, this may indicate that the mechanism of Denial functions past this point in the information processing sequence.

The uniquely strong contributing role of Cognitive Disconnection to the overall relationship was also surprising. Cognitive Disconnection was significantly positively correlated with every other defense variable except for Deactivation. In fact, Cognitive Disconnection had slightly higher correlations with Denial and Projection, even when compared to overall attachment. At first glance, this calls into question whether Cognitive Disconnection is distinguishable from overall attachment-related defense. This may be due to the high incidence rate of this variable in the measure, which itself would likely be due to the high verbiage associated with Cognitive Disconnection

(George & West, 2004). However, an alternate possibility should be considered. Cognitive Disconnection, as conceptualized by Bowlby, and as operationalized in the AAP system, is the broadest category, and taps into two very different forms of attachment preoccupation—one form in which activation of the attachment system results in a form of mental confusion and another in which activation of the attachment system leads to angry preoccupation. Although these two variations are both tied to Bowlby's conceptualization of Cognitive Disconnection, perhaps it is too broad to be utilized in analysis as a unitary construct. Future studies should investigate the possibility of dividing Cognitive Disconnection into two separate scales.

Study Benefits and Limitations

There are several factors which limit the applicability of the findings. First, the sample used was a convenience sample of undergraduate students taking an introductory psychology course at a large southeastern state university. The study would have increased generalizability if it reflected a wider demographic population. Also, although the overall sample size is generally considered adequate for the analyses conducted, several of the correlations showed marginal significance. It is possible that a larger sample size would have allowed for a small effect to be detected. The sample size also limited the sophistication of the parametrical analyses and prevented the use of such analyses as factor analysis or canonical correlations that could have been conducted to simultaneously investigate the specific relationships between both sets of variables. Since the data that were analyzed came from an archived dataset, adjustments to the data collection procedures could not be made.

One of the benefits of utilizing the DMM and AAP for comparison is their procedural similarity. Both measures utilize projective pictures to elicit stories which are subsequently scored for instances of defense through analysis of narrative content and process in relation to defined criteria. Thus, the differences found in the variables would reflect the differences in the frequency in use of each defense.

Another general empirical benefit, which also served as a limitation to the generalizability of these particular results, was that this study is the first to utilize the AAP attachment defense scoring system as an independent measure, separate from the larger AAP coding system. While this scale is a main contributor to the determination of adult attachment classifications of the AAP, the attachment defense scoring system has not yet been validated as an independent measure. This study will serve as a partial validation of this measure.

Future Research

Although the results of this study should be considered with some caution, the results do suggest that there is common ground between attachment defense and ego defense mechanisms. As with any first-time study, additional replication with larger sample sizes would be required to lend support to the validity of the findings, especially utilizing a clinical population in addition to more normative samples. Further research regarding the overlap of attachment-related defense and ego-defense mechanisms should involve several different types of defense mechanism measures. The DMM, although well-validated through repeated use, does not represent the only operationalization of ego defenses, and perhaps does not represent the most readily applicable form of ego defense mechanisms available for comparison with attachment-related defense. Also, the

addition of measures related to overall psychological health would have given an anchor-point for the comparison between the variables.

Perhaps most importantly, this initial exploratory investigation served to open the door to the examination of attachment-related defenses as an isolated variable. Utilizing AAP-based attachment defense variables on their own, or developing a separate, independently-validated measure based upon the AAP defensive scoring system, may open the door to more wide-spread applicability of attachment-related defenses, and defensive processing in general. With further validity and reliability testing, the AAP defense scales may one day be able to be used as a stand-alone dimensional attachment measure that taps into the unconscious defensive processes of attachment. Only through repeated studies with multiple samples and a multi-method approach can we hope to utilize empirical methods to further specify the place of attachment-related defense in the wider scheme of defensive functioning.

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