

Running head: DEFENSE MECHANISMS

Can Defense Mechanisms Aid in our Differentiation
of Borderline and Antisocial Personalities?
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Abstract

Goal: The aim of the current studies was to evaluate the ability of individual defenses to differentiate Antisocial (APD) and Borderline (BPD) personalities. Because multiple defense measures were utilized, Study 1 was dedicated to evaluating the convergent validity between the measures used: Defense Style Questionnaire (DSQ), Defense-Q, and Defense Mechanism Manual (DMM). Studies 2, 3, and 4, then evaluated the ability of the defenses to differentiate APD and BPD groups. **Method:** In Study 1, participants completed all defense measures and correlations were conducted between the individual defenses. In Studies 2, 3, and 4, groups of nonclinical participants were divided into APD and BPD groups based on scores from the Personality Assessment Inventory. They also completed the DSQ (Studies 2, 3, & 4), the Defense-Q (Study 3), and/or the DMM (Study 4). The groups were then examined for differences on defenses using MANOVA and DFA analyses. **Results:** Results from Study 1 revealed no significant correlations between the measures for any of the individual defenses. In Studies 2, 3, and 4, DSQ and Defense-Q results revealed that defenses were able to differentiate the APD and BPD groups, but the DMM results did not replicate these findings. Univariate analyses showed that many defenses differed between the groups (e.g., Acting Out, Denial, and Turning Against Self), while others showed no differences (e.g., Idealization). **Conclusion:** The results were discussed in relation to previous theory and research. The findings provided support for many theoretical expectations. For example, the results supported: Kernberg (1984) who posited both groups would use primitive defenses (e.g., Splitting, Denial); Perry and Cooper (1986) who posited BPD groups would internalize negative views towards the self; and Gacono and Meloy (1988) who believed Denial was characteristic of APD. Overall, the results suggested that APD and BPD groups demonstrated differences in defense use.

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List of Abbreviations

ADP	Adaptive Defense Profile
APA	American Psychiatric Association
APD	Antisocial Personality Disorder
BPD	Borderline Personality Disorder
DMI	Defense Mechanisms Inventory
DMM	Defense Mechanism Manual
DMRS	Defense Mechanisms Rating Scale
DSM-IV-TR	Diagnostic and Statistical Manual for Mental Disorders, 4 th Edition Text Revision
DSQ	Defense Style Questionnaire
ESI	Expanded Structured Interview
LDS	Lerner Defense Scales
MMPI	Minnesota Multiphasic Personality Inventory
NPD	Narcissistic Personality Disorder
PAI	Personality Assessment Inventory
PRN	Principalization
PRO	Projection
REV	Reversal
TAO	Turning Against Others
TAS	Turning Against Self
TAT	Thematic Apperception Test

CAN DEFENSE MECHANISMS AID IN OUR DIFFERENTIATION OF BORDERLINE AND ANTISOCIAL PERSONALITIES?

Historically, defenses were studied in patients undergoing psychoanalysis (Breuer & Freud, 1893/1955; Freud, 1894/1962). From these studies an important body of literature emerged exploring the theoretical role of defense mechanisms in psychopathology (A. Freud, 1936/1986; S. Freud, 1894/1962). In more recent years, there has been a renewed interest in the empirical study of defense mechanisms and the role they play in many aspects of psychosocial functioning, including normal development and psychopathology (e.g., Hilsenroth, Hibbard, Nash, & Handler, 1993; MacGregor, Davidson, Barksdale, Black, & MacLean, 2003; Vaillant, 1990). Defenses are now included in the Diagnostic and Statistical Manual of Mental Disorders (*DSM-IV*), and are being considered as a possible axis to add in diagnosis (American Psychiatric Association, 1994/2000; Skodol & Perry, 1993). There has emerged empirical evidence supporting defense mechanisms and their role in childhood and adolescent development (Cramer, 1997; Smith & Rossman, 1986), adult social functioning (Vaillant, 1977), physical health (MacGregor et al., 2003; Vaillant, 1978), and psychopathology (Andrews, Singh, & Bond, 1993; Kipper et al., 2004). Defense mechanisms have been linked to many aspects of psychopathology and research results have indicated that defenses may be helpful in differentiating between similar mental disorders (e.g., Spinhoven & Kooiman 1997; Steiner, 1990). Personality disorders within the Cluster B category are some of the most difficult disorders to differentiate diagnostically, with literature showing overlapping criteria, high comorbidity, and little divergent validity (Becker, Grilo, Edell, & McGlashan, 2000; Conklin & Westen, 2005; Holdwick, Hilsenroth, Castlebury, & Blais, 1998). One of the highest comorbidity rates within this cluster is between Borderline Personality Disorder (BPD) and Antisocial Personality Disorder (APD; Becker et al., 2000; Zanarini et al., 2004). The goal of the current studies is to investigate the utility of defense mechanisms in differentiating BPD and APD.

HISTORY OF DEFENSE MECHANISMS THEORY

Sigmund Freud

The history of defense mechanisms can be traced back to Sigmund Freud's early studies on Hysteria (e.g., Breuer & Freud, 1893/1955). It was in these works that he mentioned various mechanisms that patients were using to defend against *psychic* conflicts¹. One of the first

¹ Psychic conflicts refers to conflicts that are occurring within the mind.

discussions of defense mechanisms occurred in Breuer and Freud's paper *On The Psychical Mechanism of Hysterical Phenomena: Preliminary Communications* (1893/1955), where the term repression was used to describe a patient who could not remember traumatic experiences in her childhood. It was not until 1894, however, in *The Neuro-Psychosis of Defence* that the term "defense" was used (1962). It was in this publication that Freud depicted a conceptualization and theory of defense mechanisms.

Structural Models. Based on Freud's experience with patients suffering from hysteria, he developed a theory of hysteria which later progressed into a comprehensive psychological theory known as psychoanalytic theory.² In this theory, the mind is seen as a dynamic entity which has numerous structures operating both together and in conflict with each other (Brenner, 1974). Freud outlined various models which explained how these structures functioned in relation to each other. The first model was the topographical model (Freud, 1915/1957). This model separated mental functioning into three systems based on how consciously accessible they each were. These systems included: the Unconscious, which is composed of instinctual impulses³ not consciously accessible; the Preconscious, which contains unconscious mental functions which are easily accessible to the conscious; and the Conscious, which includes mental functions that a person is aware of at any given moment (Boesky, 1995; Brenner, 1974, Freud, 1915/1957).

Because Freud considered the topographic model to be limited, he added another model into psychoanalytic theory. This theoretical system, known as the tripartite model, was introduced by Freud as a complete theory in 1923 and explained mental functioning in terms of three components: The id, ego, and superego (1961; Boesky, 1995). It was through this model that defense theory evolved. The first component, the id, is composed of unconscious instinctual drives (Freud, 1923/1961; Boesky, 1995). In Freud's later works, he posited that sex and aggression were the two major drives (Arlow, 1996). These drives are primitive and self-centered, and because of this primitive nature, they demand immediate gratification (Frosch, 1990). The ultimate goal of the id is to obtain pleasure. In contrast to the id, which contains instincts, the ego contains reasoning and common sense (Freud, 1923/1961). The ego is considered both unconscious and conscious with its major role being mediation (Freud,

² Although psychoanalytic theory and psychodynamic theory can be conceptualized as two separate theories within psychology, for simplicity the terms will be used interchangeably throughout the document.

³ Instinctual impulses refers to impulses or desires that originate from within the unconscious Id structure (see below for a description of the Id).

1923/1961). The ego's role of mediation leads to the monitoring of what impulses, ideas, or experiences are allowed into consciousness (Freud, 1923/1961). When the id expresses a desire that is unacceptable, the ego will act to place boundaries and mediate to what extent the impulse will be gratified. This leads us to the final system within this model, which is the superego. The superego was originally termed "ego ideal" due to its representation of the moral and idealizing functions of the psyche (Boesky, 1995; Freud, 1923/1961). Freud posited that the morals of the superego are based on punitive forces derived from the parents which become incorporated into one's conscience (Frosch, 1990). This leads to a structure which represents ethical and moral laws that are based on their parental ideals (Freud, 1923/1961). Conflicts between the superego and other systems (e.g., id) can evoke negative emotions, such as guilt and anxiety (Frosch, 1990). It is through these negative experiences that defense mechanisms develop.

Defense Mechanisms. The tripartite model is important to understand the origin of defense mechanism theory. As described above, the ego's major role is of mediation, both between the id drives, as well as between internal and external reality. As the id creates impulses for gratification, the ego is what judges whether the gratification of the impulse will pose danger to the self. If risk of danger is great, the ego will provide a defensive operation to minimize the id's impulse. These operations are referred to as defense mechanisms (Brenner, 1974). In addition, Freud outlined that defense mechanisms also occur when one's ego is faced with an experience or situation that is threatening to the self and as such protects the self through a defensive operation (e.g., repressing a traumatic event; Freud, 1895/1962). According to psychoanalytic theory, most mental or behavioural expressions that a psychoanalyst witnesses in a patient are not true forms of the id or superego, but instead, are modified by defenses on the part of the ego.

Although various terms and models were used to discuss defensive operations (e.g., repression), it was not until Freud's 1894 paper titled *Neuro-Psychosis of Defence* that he organized his work into a comprehensive theory (1962). In this paper, he reviewed multiple clinical cases of hysteria and conceptualized them through a theory of defense (1894/1962). For example, he came to understand some patients' illnesses as being a "defence hysteria" whereby they experienced a traumatic event which lead to a repression of the experience (Freud, 1894/1962, p. 47). Hysterical symptoms in these circumstances were considered a result of the idea and affect attached to the trauma separating, and the idea being forced out of awareness.

Because the affect is so strong and is detached from the idea, however, it is transformed into a somatic symptom, which he called conversion (Freud, 1894/1962). Freud further explained that for individuals without hysteria, other defense mechanisms can occur as a result of traumatic situations or threatening impulses. These included displacement, whereby the remaining affect from trauma will transfer onto another object, such as in a phobia, and lastly “hallucinatory confusion”, whereby the ego rejects the threatening idea or situation and behaves as though it never occurred (Freud, 1894/1962). He posited that it was through the neurosis of defense that psychoanalysts could explain a variety of psychological states in individuals, both those who are psychologically healthy and those who are psychologically ill (Freud, 1894/1962).

Anna Freud

Freud continued to expand on his ideas (e.g., 1894/1962; 1923/1961) and even argued that defense theory was the cornerstone of psychoanalytic theory. It was not until Anna Freud published *The Ego and the Mechanisms of Defense* in 1936, however, that all of Freud’s ideas were brought together into one work (1986). In this work, Anna Freud elaborated on Freud’s original writings conceptualizing defense mechanisms in relation to patient phenomena in psychoanalysis. She offered five circumstances in which the ego utilizes defense mechanisms. The first is known as *superego anxiety* and requires the ego to mediate between the id and the superego. In these cases, the id desires gratification of an impulse (i.e., sexual or aggressive desire) which the superego prohibits. The ego mediates this conflict by obeying the superego and therefore defending against anxiety that would arise if id gratification occurred (A. Freud, 1936/1986). The second situation is known as *objective anxiety*. In this circumstance, the ego defends against anxiety which is aroused from the external world, such as following a traumatic event. The third circumstance is considered *strength of instincts* where an id impulse is too great or overly excessive and as such the ego will attempt to reduce the resulting emotion (e.g., anxiety) through defensive operations. Lastly, Anna Freud stated that defense mechanisms are employed by the ego when two or more id impulses are in conflict with each other and also defenses are employed when painful affect occurs.

Another important component of defense theory that Anna Freud brought forward in her work was the idea of multiple defense mechanisms. She posited that when a psychic conflict occurs, the ego can choose between multiple defense mechanisms to employ, depending on the specific conflict (A. Freud, 1936/1986). In the *Ego and Mechanisms of Defense* she describes 10

defense mechanisms that had been previously and frequently discussed by Sigmund Freud and other theorists. These included Regression, Repression, Reaction Formation, Isolation, Undoing, Projection, Introjection, Turning Against the Self, Reversal, and Sublimation (displacement of instinctual aims; A. Freud, 1936/86). She also included other defenses which had emerged through her study of patients and other psychoanalysts' cases (e.g., Denial, Fantasy, Displacement, Identification with the Aggressor, Altruism). She maintained that everyone uses these defense mechanisms and that they each function to reduce anxiety resulting from intrapsychic conflict (1936/1986).

Together Anna and Sigmund Freud laid the foundation for defense mechanism theory. It is based on these works that most modern researchers and clinicians currently conceptualize defense mechanisms.

CURRENT CONCEPTUALIZATION AND ASSESSMENT OF DEFENSE MECHANISMS

Conceptualization

Before examining the empirical literature on defense mechanisms and their association to various psychosocial variables, it is important to discuss the current conceptualization of defenses. Although S. and A. Freud began the theory with their major works, it has undergone some conceptual changes since their original publications (see Cooper, 1998). Some of these changes will be reviewed in the following sections. Although the major components of S. and A. Freud's theories have been maintained, some differences in theoretical positions can be seen when discussing specific definitional criteria, various theories on the maturity of defenses, and how best to measure defenses.

Definition of Defense Mechanisms

The current conceptualization of defense mechanisms is still predominantly based on the writings of Sigmund and Anna Freud (A. Freud, 1936/1986; S. Freud, 1894/1962). Although subsequent authors have expanded on the existing theory, it was not until Cramer and Davidson (1998) in a special issue of the *Journal of Personality* on defense mechanisms that personality researchers saw a revival of defense mechanism theory and research. Most modern psychodynamic authors define defense mechanisms as unconscious mental operations that function to defend against excessive anxiety (e.g., Cramer, 1998b; Paulhus, Fridhandler, & Hayes, 1997; Vaillant, 1994). One of the most important modifications to defense theory is that, unlike Freud's original conceptualization of defenses as solely a mediation against conflicts or

impulses, current writers see defenses as acting both as protectors against unconscious feelings and also as cognitive and relational behaviours that protect the self (Cooper, 1998). Additionally, some contemporary authors refer to defense mechanisms as regulating mechanisms which protect the self from painful emotions and assess these mechanisms from additional theoretical perspectives (e.g., information-processing; Paulhus et al., 1997)⁴. Within psychodynamic theory, despite the developments in the field and the minor variations across theorists, the current definition of defense mechanisms has not changed considerably since Freud's original conceptualization.

According to Davidson and MacGregor (1998) and Cramer (1998b), there are six definitional criteria for defense mechanisms. First, they operate in the unconscious. According to this criterion, although defensive behaviours may be apparent to the person, there is no "conscious effort" to behave in that way. Second, defense mechanisms are elicited from or in response to psychic threat. As such, defenses are considered a response to unconscious anxiety or a conflict that threatens the person's ego. Third, through the use of defenses there is a reduction in anxiety arising from the conflict or threat. Fourth, defenses demonstrate stability and are dispositional personality characteristics. Fifth, defenses vary on a continuum of adaptation. For example, some defenses are considered to be more mature or adaptive (e.g., Sublimation, Humour) while others are considered less mature or adaptive (e.g., Psychotic Denial, Dissociation). The sixth criterion is that defense mechanisms are distinguishable from each other. Thus, each individual will use various defense mechanisms, all of which have their own history and function.

Currently, there is no consensus as to the number of possible defenses that a person can use. Anna Freud discussed 10 defense mechanisms in *Ego and Mechanisms of Defense*, but since that time there has been a great expansion on the number of defenses. Vaillant includes 18 defenses in his hierarchy, while the *DSM-IV-TR* includes a list of 31 defenses in the Defensive Functioning Scale (APA, 2000; Vaillant, 1977). Furthermore, various individuals and assessment methods may have different numbers and definitions of defense. See Table 1 for a list of

⁴ These additional theoretical perspectives on psychological defense are beyond the scope of the current paper and interested readers are referred to Paulhus and colleagues (1997) for a review of additional theoretical perspectives and research on psychological defense (e.g., cognitive, information-processing).

defenses and definitions from two current measures⁵. Despite these differences, the role of defenses is seen as the same across measures. Defense mechanisms work to alter internal psychological states (e.g., emotions, thoughts). Although they do not alter external reality, they often alter one's perception of reality (Cramer, 2006). According to Ihilevich and Gleser (1995), defenses act to alter meaning or significance of perceived threats, create the perception of control over perceived threats, reduce or eliminate the experience of conscious anxiety, and thus, protect and enhance the self.

Role of Defense Mechanisms in Lifespan Development

As Cramer explains in her most recent book, *Protecting the Self: Defense Mechanisms in Action*, infants and children encounter numerous experiences which result in feelings of weakness, pain, or incapability (e.g., falling after attempting to walk, experiencing hunger without being able to provide the self nourishment; 2006). Despite all the falls, lost friendships, and unsuccessful life paths, “children survive - not unscathed, but not destroyed” (p 4, Cramer, 2006). Cramer argues that it is out of these numerous experiences over the course of one's life that defense mechanisms are developed to help protect the self.

As previously discussed, Freud believed that anxiety arises from id impulses that are considered unacceptable to the superego and ego. As such, it is the ego which mediates these conflicting desires and acts to oppose the impulses through mechanisms of defenses (Brenner, 1974). In Freud's later writings, he discussed defense origins from a more developmental perspective stating that as one goes through development they acquire a higher stage of psychological development and as such use more prominently a more complex defensive function (1915/1957). Despite Sigmund Freud's arguments, Anna Freud later argues that this type of classification is not consistent with clinical experience (1936/1986). She explains that young children are witnessed using some defenses considered to be associated with more mature development while other defenses, which are thought to be associated with any age including childhood and adolescence (e.g., Turning Against the Self), are rarely seen in childhood. While criticizing attempts to classify defenses by chronological age, Anna Freud even goes so far as to state “it will probably be best to abandon the attempt to classify them” (p. 53).

⁵ The definitions from the *DSM-IV-TR* and the Defense-Q are presented in Table 1. The *DSM-IV-TR* definitions are chosen as they represent an amalgamation of the definitions of many theorists (e.g., Vaillant, Perry) and the Defense-Q definitions are chosen as this measure is used in the current research project. Together, these two sets of definitions provide a good demonstration of the similarities and differences in the number of defenses and definitions of defenses between measures.

Despite some criticism of chronological or developmental classification, Cramer has focused on reviving this theoretical position (1991; 2006). She explains that the development of defenses begins early in life with an infant's biological instincts to protect the self. This is often done through innate reflexive behaviours, such as shielding one's face to prevent being hit by an object or spitting up food that tastes foul. Cramer points out that these types of reflexes are biological, as they are based on instincts to protect the self. It is these reflexive behaviours that are the basis for the later development of defense mechanisms. Although defenses are not innate, it is in the child's capacity to use means to protect the self that is innate. This developmental approach to understanding defenses is based on two key assumptions. The first is that specific defense mechanisms will emerge at different points in development. For example, those defenses which are cognitively simple will emerge earlier in life than those requiring more cognitive complexity. The second key assumption is that each defense has its own developmental history. Thus, each defense mechanism is believed to develop from an innate motor reflex. Defenses are more complex than these motor reflexes, however, as their development requires the internalization and transformation of the motor behaviour into a more ideational, psychological form. It is this ideational form that is the defense mechanism emerging. Beginning with primitive, cognitively simple defenses, through the lifespan these defenses develop into more complex defense mechanisms.

The Maturity of Defense Mechanisms

The first published organization of defenses into a continuum of adaptiveness or maturity was written by Semrad in 1967. In this hierarchy, Semrad organized defenses into three categories: narcissistic, affective, and neurotic, with the neurotic level defenses (e.g., dissociation, repression) being the most adaptive. Semrad was the first to propose the organization of individual defenses into categories or styles. In this type of organization, defenses that are thought to be similar to each other or occur frequently together, are categorized into an overarching style. These styles or categories are then organized into a hierarchy of adaptiveness or maturity.⁶ Since Semrad's original hierarchy, there have developed many continua or hierarchies of defense maturity (e.g., Vaillant, 1977; Cramer, 1991). Cramer, for

⁶ In earlier works, the terms adaptive/maladaptive and mature/immature were used to depict separate theoretical understandings of defense mechanisms. However, in more recent years, the terms have become synonymous to many researchers and as such the terms adaptive and mature, as well as maladaptive and immature, will be used interchangeably throughout this document.

example, includes three individual defenses in her theoretical model of defense maturity. Cramer's model is derived from a developmental perspective which proposes that each defense will emerge as the predominant defense at a specific developmental period in childhood and adolescence (Cramer, 2006). Denial is the simplest defense and believed to be the most prominent among very young children. In later childhood, the use of Denial will decrease and the slightly more complex defense of Projection will predominate. By late adolescence, Identification is thought to be the most prominent defense. It is important to note that in her theory, at all ages each defense is present, but it is the specific defense which predominates during a developmental period that changes. The defense that occurs in later adolescence, Identification, is considered to be more mature than those that are predominant prior to it.

Although many theorists agree with the notion that some defenses are more mature than others, there are various ways that a hierarchy of defenses has been conceptualized. Cramer's theory is seen as slightly different from hierarchical models and is considered a developmental model which is based on a chronological timeline of maturity (Cramer, 1991). Traditional hierarchical models differ in that they propose a theory of defense where specific defenses are seen as more adaptive or maladaptive based on how they are able to adaptively manage the anxiety or conflict (Cramer, 1991). These hierarchies are often developed in relation to psychopathology. Semrad's original hierarchy is organized in this fashion. Narcissistic defenses, which are comprised of Denial, Projection, and Distortion, are considered more maladaptive than the affective and neurotic defense styles (1967). In these hierarchies, groups of defenses that share similar features or are associated with common psychopathology, are organized into clusters or styles.

To further complicate the maturity hierarchies, some more recent models have combined the developmental continuum and hierarchical models by forming a developmental hierarchy. For example, Vaillant (1977; 1994) has developed a hierarchy of defenses that is founded both in maturity of defense based on age and in the adaptiveness of defense based on psychopathology. This integration of level of defense of pathology is based on Semrad's 1967 hierarchy of defenses. In Vaillant's model, levels of defense ranged from the lowest level which includes "psychotic" defenses upwards to the highest level which includes "mature" defenses. It is this new integration of developmental maturity and adaptiveness models on which many more recent hierarchies are theoretically and empirically based (e.g., MacGregor, Davidson, Rowan, et al.,

2003; Andrews, Pollock & Stewart, 1989).

Although there are multiple hierarchies of defenses that have slightly different ordering⁷, the common theme among these theories is that more immature defenses are considered to be less adaptive and/or belong to earlier years of life and the more mature defenses are considered more adaptive and/or belonging to later, more mature years of life (Cramer, 1991).

The Assessment of Defense Mechanisms

As discussed above, there have developed various debates among defense theorists regarding different aspects of defense theory. One area of debate centers on how best to assess defenses. For example, for those theorists that argue defenses are intrapsychic processes and not relational phenomena, there exist arguments against self-report measures and for observational and projective measures, while others argue for the ability to assess defenses through self-report (Bond, Gardener, Christian & Sigal, 1983; Cooper, 1998; Davidson & MacGregor, 1998). In the following sections, the most common methods of assessing defenses will be presented along with the strengths and criticisms of each.

Self-report Measures

Self-report measures of defense mechanisms refer to assessment inventories which ask individuals to report on their own thoughts, feelings, and behaviours that are considered representations of various defense mechanisms (Cramer, 1991). One major advantage of these methods of assessing defenses is that they provide an objective measurement without researcher bias. In addition, self-report inventories allow timely collection of large samples of data. One major criticism of self-report defense mechanism questionnaires, however, is that individuals are asked to report on their own unconscious behaviour (Bond et al., 1983; Davidson & MacGregor, 1998; Shedler, Mayman, & Manis, 1993). Because self report requires an awareness of thoughts, feelings, and behaviours, these measures are less likely to accurately assess defenses in those who do not have a high degree of self-awareness and especially in those who are using defenses that further hinder their ability to evaluate their own behaviours (e.g., Denial; Davidson & MacGregor, 1998; Shedler et al., 1993). To resolve this difficulty in self report measures of defenses, the majority of measures are developed with items that theoretically measure the conscious derivatives or various manifestations of defense mechanisms, instead of asking an individual to report directly on their unconscious behaviour (Bond, 2004; Cramer, 1991).

⁷ See *Table 2* for a comparison of three defense hierarchies.

The most frequently used self-report measure of defense mechanisms is the Defense Style Questionnaire (DSQ), which was developed by Bond and colleagues to overcome the confusion and inconsistencies in how researchers defined and measured defense mechanisms (1983). Bond and colleagues (1983) initially aimed to develop a questionnaire that measured defense mechanisms without subjective judgment, but they acknowledged that the end result was a questionnaire that “taps possible conscious derivatives of defense mechanisms” (p. 333). They stated that although the derivatives measured are not direct measurements of defenses, the behaviours or thoughts measured were related to them. Therefore, the measure taps the conscious indicators of a defense mechanism in action instead of the unconscious ego mechanism. The measures assess individual defenses as well as defense styles. Since the development of the DSQ, there have been many studies examining the factor structure, reliability, and validity of the DSQ (e.g., Andrews et al., 1989; Bond et al., 1983; Bond et al., 1989). Overall, results have shown good reliability and validity for the defense styles measured by the DSQ and poor to adequate reliability and validity for individual defenses.⁸

Observer Report Measures

Because of the many criticisms of self-report measures (e.g., participants reporting on unconscious mechanisms), some researchers have focused on creating objective observational measures of defense mechanisms (Davidson & MacGregor, 1998). At the same time, because defenses are unconscious phenomena, the assessment must allow some inference (Perry & Kardos, 1995). As Freud argued in his 1894 paper *The Neuropsychosis of Defense*, although ego defenses are not directly observable, an observer can infer the presence of them by their resulting expressions (e.g., thoughts, feelings, behaviours). Beginning in the mid-1960's, researchers tried to balance the subjectivity of assessing defenses and the need for an objective measure by creating measures that are able to objectively identify expressions of defenses and also to guide the observer in using inference (Perry & Ianni, 1998; Perry & Kardos, 1995).

One example of an observational measure is the Defense Mechanism Rating Scales (DMRS). The DMRS was originally developed in 1981 as a tool to aid clinicians in identifying and labeling patient defense mechanisms. Initially 22 defense mechanisms were chosen to represent two of Vaillant's defense styles (immature and neurotic) and by the 4th edition, there

⁸ For a review of this literature, see the *Measures* section within Study 1 of the current research document or Cramer (2006).

were an additional eight defenses to represent the added mature defense level (Perry & Kardos, 1995). For the most recent revision (5th edition), the authors consulted with many defense researchers (e.g., Vaillant, Bond) to yield an instrument assessing 27 defense mechanisms and 7 defense styles and has become the most commonly used observer report measure of defense mechanisms (Cramer, 2006; Perry, 1990; Perry & Kardos, 1995). The DMRS is organized around a hierarchy of defenses based on adaptiveness (Perry & Kardos, 1995). Defenses are divided into seven defense levels: mature, obsessional, neurotic, minor image-distorting, disavowal, major-image-distorting, and action (from most to least adaptive). Inter-rater reliability and construct validity for the measure has been shown to be adequate to good for the defense styles and poor to adequate for individual defenses.⁹

Another observational assessment technique of assessing defenses is to use a q-sort methodology. The Defense-Q is a recently developed measure that uses this method. It was also developed in an attempt to provide an additional observer-report measure of defenses that was comprehensive and easy-to-use with short standardized interviews (Davidson & MacGregor, 1996). Coders assess 25 defense mechanisms which were chosen based on Vaillant's hierarchy of defenses, as well as others used in the research literature, and those included in the 3rd edition of the *DSM* (APA, 1980; Vaillant, 1977). The defenses measured are assessed in a q-sort ranking system which provides an idiographic view of an individual's defense. Few studies have evaluated the reliability and validity of the Defense-Q, but the results from these studies have shown inter-rater reliability to be adequate (MacGregor & Olson, 2005) and construct validity to be good (MacGregor & Olson, 2005)¹⁰.

These observational measures have many strengths including that they allow for some inferences by the experienced coders, which allows for the assessment of unconscious material. One of the major criticisms of this approach, however, is the labour required to observationally code defenses. As a result, it is difficult to obtain large sample sizes (Davidson & MacGregor, 1998). Finally, another limitation is achieving adequate to good inter-rater reliability between coders. Inter-rater reliability is often shown to be good for defense styles or computed single scores from the measure. However, when evaluating inter-rater reliability of individual defenses,

⁹ Please refer to Perry et al., 1993 & Perry & Henry, 1995 for a review of reliability and validity findings.

¹⁰ See the *Measures* section under Study 1 for further description of the Defense-Q, as well as a more detailed summary of the reliability and validity findings.

the values are often lower¹¹. Overall, however, these measures have shown to provide adequate reliability and validity for research.

Projective Measures

Projective methods of assessing defenses allow participants to respond to stimuli that are ambiguous with a nonrestricted or open format. This approach is thought to be consistent with psychoanalytic theory which encourages free open-ended response formats to allow unconscious material to evidence itself (Cramer, 1991; MacGregor & Olson, 2005). This open-ended format is a strength of this method of defense assessment. Two major criticisms of projective methods are the time and labour involved with both collecting and coding defenses, as well as experimental bias in the assessment of defenses.

The Defense Mechanism Manual (DMM) is one of the most common projective measures used in empirical research to assess defenses (Cramer, 1991). It was developed based on considerations regarding from what material is best to elicit and code defenses. Cramer stated that defense mechanisms are processes that can be expressed through various content and therefore the assessment should allow open-ended responses where an individual could not rely on previously learned stereotypical responses (Cramer, 1991). Cramer also argued that defenses are better assessed from complex and larger samples of verbal behaviour than from single word responses. Lastly, there must be some objective means for observers to decide whether a defense had been used or not (Cramer, 1991). Based on these arguments, Cramer believed that the best method to assess defenses was from projective material, specifically the Thematic Apperception Test (TAT; Murray, 1943). Cramer developed the DMM as an objective tool to assess three defense mechanisms from the narrative stories that participants tell in response to the TAT cards. The defenses assessed were Denial, Projection, and Identification. Although only three defense scores are yielded, each scale is comprised of seven subscales which include several other defenses (Cramer, 2006). For example, the Denial measure includes other defenses, such as Reaction Formation, Repression and Fantasy. The reliability and validity of the DMM have been shown to be good.¹²

Overall, there are three methods to assessing defenses. Depending on the type of data available and the time available to code it, each measure shows strengths and limitations to

¹¹ See Perry & Henry (1995) or the *Measures* section under Study 1 in the current document for reviews of the reliability and validity findings.

¹² See the *Method* section under Study 1 for a brief summary of the findings or Cramer (2006).

assessing defenses. For example, for collecting a large sample, self-report measures may be preferred. Because of the various limitations of each measure, it has been recommended to use more than one method of assessing defenses for research studies (Davidson & MacGregor, 1998).

EMPIRICAL EXAMINATION OF DEFENSE MECHANISMS IN LIFESPAN DEVELOPMENT

Before examining the associations between defense mechanisms and various psychological symptoms and disorders, it is important to first consider defense mechanisms that arise in normal functioning. Freud originally developed a theory of defense mechanisms from his time spent with patients exhibiting symptoms of mental illness (Breuer & Freud, 1893/1955; Freud, 1894/1962). Prior to 1930, in most of his works, Freud discussed defense mechanisms as being pathological. He and Anna Freud later acknowledged that defense mechanisms can be found to function in all individuals (1936/1986). In the major work *The Ego and the Mechanisms of Defense*, Anna Freud stated that defense mechanisms are necessary for normal development. Defenses may only become pathological if they are used too rigidly, or at age-inappropriate times (A. Freud, 1936/1986). Since that time, most psychoanalytic theorists and researchers argue that defense mechanisms are used by everyone, but do have the potential to be pathological based on the frequency, rigidity, age appropriateness, and negative consequences on the self (Cooper, 1998; Cramer, 1998b; Davidson & MacGregor, 1998). Thus, although defense mechanisms are often structured into hierarchies of adaptiveness which may indicate that some defenses are typically more adaptive than others, any defense can be used in an adaptive or maladaptive manner. For example, the use of Denial, Projection, and Identification is thought to be adaptive in childhood as they aid in reality testing, emotional functioning, and identity formation (Cramer, 1991, A. Freud, 1936). Rigid use of Denial, however, is associated with psychopathology (e.g., Cramer, 1999). In the following sections, a review of the empirical findings evaluating defenses in normal functioning will be provided.

Maturity of Defenses (Chronological and Hierarchical Organization)

To further strengthen the theoretical model of the maturity or adaptiveness of defense mechanisms, numerous empirical investigations have shown support for the continuum and hierarchical models. For example, in support of Cramer's proposed age continuum model, research has shown that the defense Denial is more characteristic of earlier childhood than of

later childhood and adolescence (Smith & Rossman, 1986) and that the use of Projection and Identification increases in later childhood (Cramer, 1997). In adolescence, the use of Denial and Projection decreases as the use of Identification continues to increase into early adulthood (Porcerelli, Thomas, Hibbard, & Cogan, 1998).

Adaptiveness hierarchies have also been validated in the literature. For example, Vaillant (1985) evaluated his hierarchy of defenses using a sample of inner-city youth. He followed them over the course of 35 years to assess longitudinally the adaptiveness of their defenses and how they related to other childhood variables and adulthood outcomes. Results indicated that those men who had the most mature defense styles were those that were psychosocially healthiest, by having lower ratings on measures of psychopathology, earning greater incomes, and having a higher likelihood of experiencing more healthy relationships. In contrast, the men with higher ratings on the immature defense style were more likely to be unemployed and have higher ratings of psychopathology. In this large, longitudinal study, Vaillant even addressed the criticism that mature defense use could be a result of a middle class socialization. He stated that all participants came from an inner-city neighborhood and results showed that social class was not associated with defense maturity in childhood.

Levit (1993) also examined changes in defense use between age groups. His results showed no significant results. Because of the findings, he suggested that ego development was a better method of assessing maturity than age. Following this suggestion, Evans and Seaman (2000) divided adolescents into groups of mature and immature users of defenses. They then examined differences between the two groups on developmental level by assessing various domains of self-concept (e.g., scholastic ability, interpersonal relationships). Results showed that mature adolescents used more mature defense mechanisms.

To further support theoretical propositions about defense maturity, many studies have examined the relation between defense mechanisms and age. As already described above, research has shown support for Cramer's theoretical model of defense maturity with results showing that Denial is most characteristic in early childhood, Projection in mid-childhood, and Identification in adolescence (Smith & Rossman, 1986; Cramer, 1997; Porcerelli et al., 1998). Other measures have also assessed defense use at different ages. In an earlier study, Cramer (1979) examined whether there were differences in defense use between a group of young and older adolescents. Results showed that there were differences between males and females at each

age group, but that there was no significant difference in defenses between the two groups. In a more recent study, Tuulio-Henriksson, Poikolainen, Aalto-Setälä, and Lonnqvist (1997) examined defenses with the DSQ in a group of adolescents (age 16) and a group of young adults (age 21). Results demonstrated that adults used significantly more mature defenses and less immature defenses compared to the adolescents. Using various measures of defenses (e.g., DSQ-36, DMI), further support has accumulated demonstrating that an increase in age is associated with a decrease in immature defense use and an increase in mature defense use (Andrews et al., 1993; Diehl, Copley, & Labouvie-Vief, 1996; Whitty, 2003)

Despite the accumulating evidence of age differences in defense use, it is longitudinal studies that are truly able to examine whether or not defense use changes with age. Vaillant (1990, 1993) examined a group of college men from age 20 to age 35 or more. He found that use of immature defenses decreased with age. Thus far, there are no other longitudinal studies that examine changes in defense usage into later adulthood.

In more recent years, research results have supported a hierarchy of defenses. That is, research has shown that more adaptive defenses are associated with psychological health and psychosocial functioning, and more maladaptive defenses associated with poor psychosocial functioning (e.g., Erickson, Feldman, & Steiner, 1997; MacGregor et al., 2003).

Defenses and Psychosocial Functioning

Theoretically, adaptive defenses are associated with better psychosocial functioning when compared to maladaptive defenses (Vaillant, 1985). Based on this hypothesis many research studies have empirically examined whether there exists a relation between defense mechanisms and various aspects of psychosocial functioning (e.g., Erickson et al., 1997; MacGregor et al., 2003; Vaillant, 1977; Vaillant, 1978). For example, Vaillant examined defense mechanisms in a small group of males and found that those with more mature defenses are more likely to be rated higher in adult adjustment, to have an income over \$20,000, to have a rich friendship pattern, to be happily married, to have less hospitalizations, to have fewer sick days, and to judge their own health as “excellent” (1977). These results have been further empirically examined in a number of studies. For example, results have demonstrated that individuals with more adaptive defense use are more likely to have better physical health and psychological adjustment (Vaillant, 1978). Individuals with more mature defenses have lower blood pressure (MacGregor, Davidson, Barksdale, et al., 2003) and have decreased physician health care costs (MacGregor, Davidson,

Rowan, et al., 2003). In a study examining male heart patients and the use of denial following heart attacks (Croog, Shapiro, & Levine, 1971), results showed that patients who used Denial were less likely to comply with physician recommendations regarding cessation of smoking and date of return to work. There were no significant differences in other physician recommendations (e.g., advice about resting, weight control).

There also are a number of studies that demonstrated an association between adaptive defense use and other measures of psychological adjustment. Individuals who used more maladaptive defense mechanisms were more likely to be rated lower on psychological adjustment, observed empathy, and competence and were rated higher on hostility, depression, and alcohol use (Davidson et al., 2004; Erickson et al., 1996). Furthermore, maladaptive defense use in adolescence has been associated with poorer psychological functioning in early adulthood (Tullio-Henriksson et al., 1997).

Overall, empirical findings have supported the theoretical models predicting defense hierarchies. Results have shown that defense mechanism use often changes with age and that more maladaptive defenses are associated with poor psychosocial outcomes.

Sex Differences in Defense Use

Sex differences in the use of defenses were not discussed from a theoretical perspective in the major works on defense mechanisms. At times, however, some authors did mention some expected differences. For example, Freud mentioned that Turning Against the Self is a defense that is more characteristic of women than of men (Freud, 1933/1964). Over 40 years later, after finding sex differences in defenses in a sample of adolescents, Cramer explained the differences stating that in adolescence males externalize conflicts while females internalize conflicts (1979). In this study, which used the DMI to assess defenses, Cramer's results showed that males used Turning Against Others (TAO) and Projection (PRO) more than females, while females used Turning against the Self (TAS) and Principalization (PRN) more than males. There were no sex differences in the use of Reversal. In 1993, Levit replicated this finding showing that males scored higher on TAO and PRO than females and females scored higher on PRN and TAS. Diehl and colleagues (1990) were unable to replicate all of these findings in a similar study. The only significant result was that females scored higher on TAS compared to males.

Sex differences have been found with other measures of defenses. For example, Feldman and colleagues (1996) examined defenses using the DSQ in a sample of adolescents. They found

that females scored higher on Regression, Somatization, Reaction Formation, and Altruism compared to males, while males scored higher on Repression and Suppression compared to females. They explained the results according to cultural factors, stating that for females “hostile impulses” are reversed into positive feelings and dealt with through helping others, while intrapsychic stress is converted into physical symptoms. They argued these responses are more culturally acceptable for females than males. For males, it is more culturally acceptable to repress and suppress feelings as males are stereotypically unemotional.

Tuulio-Henriksson and colleagues also found similar results in a study using the DSQ (1997). They examined sex differences in defense use in adolescents and young adults and found that both samples evidenced sex differences. Women scored higher on the neurotic defense style compared to men. Within this defense style, women scored higher on Altruism, Idealization, Reaction Formation than men, but there was no difference in the use of Undoing.

Overall, research results have shown some evidence of sex differences in defense use. There is evidence that women may use internalizing defenses more (e.g., TAS) or defenses which lead to a transformation of the impulse (e.g., Reaction Formation), while there is some support that men may use externalizing defenses more (e.g., TAO).

THEORETICAL AND EMPIRICAL ROLE OF DEFENSE MECHANISMS IN THE DEVELOPMENT OF PSYCHOPATHOLOGY

Defenses and Clinical Disorders

As evidenced by the inclusion of the Defensive Functioning Scale in the DSM, there has been an increased recognition of the importance of defense mechanisms in the mental health field (APA, 2000; Skodol & Perry, 1993). Although psychodynamic theory has long argued for psychopathology to be conceptualized through ego defenses, it will not be until a greater body of empirical support has developed that a broader number of practitioners, researchers, and theorists will take notice. In this regard, since defense mechanisms first entered the *DSM-III-R*, research linking defenses with specific psychological disorders has flourished (e.g., Cramer, 1999; Spinhoven & Kooiman, 1997; Steiner, 1990). These empirical results have supported that defenses play a role in psychopathology as posited by psychodynamic theory.

Theoretical Role of Defense Mechanisms in the Development of Clinical Disorders

The concept of defense mechanisms originated from Freud's writings on hysteria. In his paper with Breuer, he explained the development of hysteria symptoms through the use of Repression (Breuer & Freud, 1893/1955). Although mentioned, it was not until one year later in *Neuro-Psychosis of Defence* that Freud presented a discussion on how various illnesses could be explained through defenses (1894/1962). He explained hysteria through the use of Repression whereby an individual protects themselves from a traumatic experience by omitting the experience from awareness. Following the Repression of the experience, there is lingering affect which transforms into a somatic symptom, which he called conversion. Although the somatic symptom has developed, the defense has succeeded in keeping the traumatic experience from awareness and thus protected the self from this trauma.

Freud also explained other illnesses, such as anxiety disorders, based on defense mechanisms. He explained anxiety responses as a biological response to a fearful situation that generalizes beyond the specific situation (1926/1959). For example, a child who is confronted with not being able to find their primary caregiver will experience an automatic phenomenon that indicates to the body there is potential danger. This signal of anxiety lets the self know to avoid the danger. The differentiation between disorders comes from the specific defense utilized by the ego to reduce the anxiety. That is, if the anxiety arousing situation does not dissipate, the ego will activate a defense mechanism to reduce the conflict or anxiety and thus protect the self from the threatening situation. For example, a person who has a fear of a specific object (e.g., father) that they are unable to manage, the fear may be transferred onto another object (e.g., horses). This transferred fear may result in the development of a phobia of horses (Freud, 1894/1962; 1926/1959). Similarly, a person who develops anxiety surrounding staying clean may omit the affect and begin to symbolically undo any uncleanness when they experience anxiety. Through rigid Undoing actions, such as repetitively washing their hands, they may develop a type of "obsessional neurosis" or what we refer to now as obsessive compulsive disorder (Freud, 1826/1959).

Freud's position on the relation between defenses and specific illnesses was later compiled into Anna Freud's, *The Ego and the Mechanisms of Defense* (1936/1986). After discussing the links between some defenses and symptoms, she also considered the question of what determines the ego's choice of defense. She stated that there does not seem to be a

conclusive argument as to why in each situation a specific defense would be chosen, but that possibly a specific defense may be better able to alleviate a specific affect. For example, Repression may be better at mediating sexual impulses compared to other defenses. A. Freud also stated, elaborating on comments previously made by Freud, that some defenses will be associated with the level of ego development that a person has achieved. For example, the defense Sublimation is considered to require a later stage of development, compared to the defenses of Regression and Turning Against the Self (TAS; A. Freud, 1936/1986). To date, there still exists no conclusive theory explaining why the ego chooses specific defenses. Nonetheless, psychoanalytic theorists have documented and elaborated on the link between specific defenses and disorders, and in recent years empirical examinations have followed.

Empirical Evidence for the Role of Defense Mechanisms in Clinical Disorders

Based on the hierarchical organization of defenses according to psychopathology and general ego functioning, it is not surprising that much empirical support has developed in the last few decades showing that psychiatric patients use more maladaptive defenses than nonpatients (Andrews et al., 1993; Bond & Vaillant, 1986; Kipper et al., 2004). Research has also evaluated defense mechanisms and differences between groups of patients with specific disorders and control groups exhibiting no clinical symptoms. Results have shown differences in defense use between many groups, including suicidal and nonsuicidal adolescents (Apter et al., 1997), depressed patients and healthy controls (Akkerman, Lewin, Carr, & Vaughan, 1999), and anxious and non-anxious adults (Andrews et al., 1993). A growing body of literature is developing trying to examine and understand differences between other disorders.

One field of research is the body of literature evaluating differences in defenses between depressive and anxiety disorders. For example, research results have shown that those with panic disorders score higher on Neurotic defenses than individual with dysthymia, while individuals with dysthymia have shown higher scores on Narcissistic, Disavowal and Action level defenses (Bloch et al., 1993; Spinhoven & Kooiman 1997). In addition, these studies showed that those with panic disorder have also scored higher on Idealization and lower on Isolation, Devaluation, Projection, Passive Aggression, Hypochondriasis, Acting Out and Projective Identification compared to those with dysthymia.

Another area where this research is growing is the study of defenses and eating disorders. Research has evaluated differences in both defense styles and individual defenses between

individuals with anorexia and those with bulimia (Sullivan et al., 1994; Steiner, 1990). Some research results have shown no significant differences in defense styles between those with anorexia and those with bulimia (e.g., Steiger, Van der Feen, Goldstein, and Leichner, 1989; Sullivan, Bulik, Hall, Weltzin, & Kaye, 1994), whereas others have found significant differences (e.g., Steiner, 1990; Tordjman, Zittoun, Ferrari, Flament, & Jeammet, 1997). In one study, bulimic patients were found to have higher scores on maladaptive defenses compared to anorexia patients (Steiner, 1990). In other studies that examined individual defenses, one study found anorexia patients used Passive Aggression, Devaluation, and Isolation more than bulimic patients (Tordjman et al., 1997). In contrast to this finding with Isolation, another study found that bulimic patients used Isolation more than anorexia patients (Hansson, Johnson, and Sorbis (1988). In addition, they found that anorexia patients used Repression less than bulimia patients. Currently there are mixed results from this body literature with some showing support for differences in defense styles while others showing no differences between groups.

Overall, research has shown some support for the theoretical argument that clinical disorders will be associated with specific defenses. Currently, research on defense styles has not been as consistent, whereas, research on individual defense differences has been more promising. This is consistent with Anna Freud's theoretical arguments that a specific defense will be characteristic of an emerging disorder. Because some research studies have found opposing results, more research is still needed to further evaluate the theoretical proposition that specific defenses are associated with specific disorders.

Defenses and Personality Psychopathology

As with clinical disorders, a body of literature has developed theoretically discussing the link between defenses and personality disorders (e.g., Gacono & Meloy, 1988; Kernberg, 1984). With the growing criticisms of the categorical diagnoses of personality disorders in the *DSM-IV-TR*¹³, dimensional models have become an area of exploration for diagnosing personality disorders (e.g., Five Factor Model; Widiger, 1993). Within psychoanalytic theory, personality disorders have been conceptualized on a dimensional model which includes the assessment of defense mechanisms (Kernberg, 1984). From the theoretical works, a body of literature has developed evaluating defenses and their relation to personality psychopathology (e.g., Cramer,

¹³ For the most recent discussion and critique of the categorical and dimensional models of assessing personality, see the Special Issue of the Journal of Personality Assessment (Volume 89, Issue 1; 2007).

1999; Hilsenroth et al., 1992).

Theoretical Role of Defense Mechanisms in Personality Psychopathology

Anna Freud first mentioned a link between personality and defense mechanisms when she explained character traits by “permanent defense phenomena” (1936/1986; p. 33). Unlike clinical disorders where symptoms are the product of defenses mediating underlying conflict, she described permanent personality traits as “residues of very vigorous defensive processes in the past, which have become dissociated from their original situations...” (p. 33). A defense utilized to relieve a conflict that becomes too intense or rigid can develop into a permanent defense which leads into a permanent character trait. As elaborated on in recent years, the use of a particular defense or defensive style can make a major contribution to individual differences in personality (Vaillant, 1992). If that permanent personality trait leads to negative consequences, it can be considered pathological.

Since A. Freud’s writings, one of the greatest psychoanalytic contributions to the understanding of personality was Kernberg’s writings on personality organization (1984). Kernberg conceptualizes personality function on a continuum from the most healthy organization, neurotic, to the least healthy, psychotic, organization. In between these two ends of the continuum is a borderline organization. To assess the type of organization into which a person fits, their level of identity integration, defensive functioning, and capacity to reality test are assessed (1984). Individuals who fit the neurotic personality organization have an integrated self identity, more mature defense mechanisms, and maintained reality testing. On the opposite end of the continuum, an individual who fits into the psychotic organization has no integrated self identity, uses primitive defenses (e.g., Projective Identification, Denial), and has lessened capacity to reality test. For individuals in the borderline personality organization, they lack an integrated identity of the self, rely on primitive defenses, but have the capacity to reality test.

The current DSM classifies personality pathology into ten personality disorders that can be organized into three clusters. These three clusters are Cluster A (odd or eccentric disorders, such as Schizoid Personality Disorder), Cluster B (dramatic, emotional, or erratic disorders, such as BPD and APD), and Cluster C (anxious or fearful disorders, such as Avoidant Personality Disorder). Some researchers have discussed the association between the clusters and defenses. For example, Vaillant (1994) presents groups of defenses that are more strongly associated with each personality cluster. He argues that individuals with Cluster A personality disorders display a

more eccentric personality and demonstrate more use of Projection and Fantasy, whereas individuals with Cluster B personality disorders display more emotional and/or dramatic behaviours and demonstrate a greater use of Acting Out, Splitting, Devaluation, and Dissociation. Finally, Cluster C personality disorders, which are associated with more anxiety or fear, are thought to use Passive Aggression and Hypochondriasis.

According to Kernberg's theory on personality organization, Cluster B personality disorders belong to the borderline organization of personality and therefore all individuals with a Cluster B diagnosis will display primitive defenses (Cramer, 1991). However, Cramer (1991) argues that the four disorders within the same organization may manifest themselves and their defense use slightly differently. For example, a person who has a histrionic personality may be oriented toward fulfilling the needs of others, whereas a person with a narcissistic personality may be oriented toward meeting self goals (Millon, 1996). Their defense use may look slightly different with Histrionic Personality Disorder associated with Neurotic Denial and Dissociation, as there is often a stage-like presence and/or borrowed identity displayed. Whereas Narcissistic Personality Disorder is associated with Rationalization and Fantasy as they justify selfish behaviours well and may have fantasized ideas (Cramer, 1999). These individuals have a tendency to rely more rigidly on a specific defense, so much so that it becomes "permanent defense phenomena" as A. Freud originally stated.

Anna Freud's writings regarding personality trait development and Kernberg's theory on personality organization and primitive defenses have become major theoretical contributions to psychoanalytic personality theory. Other theorists have made hypotheses as to how defenses may differ between disorders (e.g., Cramer, 1999), but these theories have not been further elaborated why a specific defense leads to various personality disorders. Despite this gap in the literature, research studies have begun empirically evaluating both the theoretical propositions and whether any defenses are associated to each personality disorder. The aim of these studies is not only to aid in the understanding and assessment of the personality disorders, but more importantly to gather conceptual information to aid in the treatment of individuals with these disorders.

Empirical Evidence for the Role of Defense Mechanisms in Personality Psychopathology

The body of literature evaluating defenses and their association to personality disorders is growing (e.g., Cramer, 1999; Gacono, Meloy, & Berg, 1992; Lingiardi et al., 1999). Some results have shown support for the theoretical hypotheses of Kernberg, Vaillant and others. For

example, research results have shown that individuals with personality disorders or personality disorder traits score higher on immature defenses and defense styles assessed by the DMM, DMRS, and the DSQ (Cramer, 1999; Lingardi and colleagues, 1999; Sinha & Watson, 1999). Results have also supported predictions of individual defenses and their associations to personality disorders. For example, Lingardi and colleagues (1999) found that Cluster B personality disorders were associated with Acting Out and Splitting from the DMRS, as Vaillant predicted. There were many correlations found, however, that were not predicted by previous theorists. For example, Vaillant predicted that Cluster B personality disorders would be correlated with Devaluation, but results showed that Obsessive Compulsive Personality Disorder (Cluster C) was correlated with Devaluation instead. In addition, Histrionic Personality Disorder was correlated with the mature defense Affiliation and Avoidant and Dependent Personality Disorders were correlated with the mature defense Self-assertion. Hilsenroth and colleagues (1992) also examined differences in primitive defense mechanisms between Cluster C personality disorders and some Cluster B disorders (narcissistic and borderline). Their results showed that those with Cluster C personality disorders scored lower than at least one of the Cluster B personality disorders for all of the primitive defense mechanisms (Splitting, Devaluation, Idealization, Denial, Projective Identification).

There have been many hypotheses regarding expected associations between defenses and personality disorders. Some of these hypotheses have been supported, while many have not. The majority of research that has evaluated defense mechanisms and their association to personality disorders has focused primarily on BPD. Below, the theoretical and empirical bodies of literature that have examined these associations and the associations to APD will be discussed.

THEORETICAL AND EMPIRICAL ROLE OF DEFENSE MECHANISMS IN DIFFERENTIATING BPD AND APD

Defense Mechanisms and BPD

Borderline Personality Disorder

From a psychoanalytic perspective, BPD can be conceptualized according to the personality organization model developed by Kernberg (1984) which posits that personality functioning can be assessed on a continuum. According to Kernberg's theory, what differentiates individuals with BPD from those without is the lack of an integrated identity of self, primary use of primitive defense mechanisms, and maintained reality testing. Individuals who lack an

integrated identity of the self have a poor concept of self and of significant others (Kernberg, 1984). They often see people in multiple contradictory representations and therefore describe others with contradictory statements. These characteristics are reflected in their relationships which are often unstable due to these distorted perceptions. Individuals who are characterized with a borderline personality organization primarily use primitive defense mechanisms. The primitive defenses act to protect the ego by separating contradictory experiences of others and themselves. This allows the contradictory perceptions to be kept separate and anxiety relating to conflicts is prevented (Kernberg, 1984). Although the defenses act to prevent anxiety, Kernberg (1984) argues that they also weaken the ego due to the lack of identity integration. Therefore, over time, their adaptive effectiveness is reduced and in turn this may lead to rigid use of the defenses. Lastly, although there is an alteration in perceptions due to the defenses being used, there is still maintained reality testing in individuals with a borderline personality organization.

In the *DSM-IV-TR*, BPD is conceptualized as a categorical disorder that involves specific behavioural symptoms. Currently in the *DSM-IV-TR*, BPD is described as a personality disorder characterized by persistent patterns of instability in interpersonal relationships, emotions, and identity (APA, 2000). These individuals often make efforts to avoid real or perceived abandonment, which can be displayed in unbalanced emotional reactions and interpersonal relationships, impulsivity, and suicidal behaviours. The *DSM-IV-TR* category of BPD falls within the borderline personality organization in Kernberg's model. Therefore, these two conceptualizations share many of the same features. The main difference, however, is where the emphasis is placed in terms of prominent features with the psychoanalytic perspective focusing on psychodynamics and the DSM model focusing on behavioural symptoms.

Theoretical Role of Defense Mechanisms in BPD

As described above, in an individual with borderline pathology, defense mechanisms act to separate conflicting experiences of the self and significant others (Kernberg, 1985). According to Kernberg (1985) this is achieved through specific defenses, such as Splitting, primitive Idealization, primitive Projection (Projective Identification), Denial, Omnipotence, and Devaluation¹⁴. One of the most characteristic defenses believed to be used by an individual with BPD is Splitting, as evidenced in its inclusion as a criterion for diagnosis (i.e., *a pattern of unstable and intense interpersonal relationships characterized by alternating between extremes*

¹⁴ Refer to *Table 1* for definitions of the defense mechanisms.

of idealization and devaluation; APA, 2000). The most common manifestation of Splitting is through the compartmentalizing of significant others into ‘all good’ (idealizing) and ‘all bad’ (devaluing) without the ability to integrate the two extremes. Because individuals with BPD lack the ability to integrate their own identity, as well as that of others, Splitting protects the ego from experiencing any conflict associated with this lack of identity integration. Because Splitting involves the alternation of Idealization and Devaluation, these two defenses are also characteristic of individuals with BPD.

Another characteristic defense of BPD is the primitive form of Projection, Projective Identification. Kernberg states that this defense is often seen in the therapeutic interview by the patient accusing the interviewer of a reaction that the patient induced himself (Kernberg, 1984). For example, a patient may be acting very cold and derogatory with the interviewer, eliciting a defensive response from the interviewer. The patient then accuses the interviewer of being sadistic with this behaviour. This defense acts to protect the ego, by not allowing the self to acknowledge that a conflict or negative affect comes from within and instead the affect is attributed to another person or object.

Denial is another defense characteristic of BPD, especially manifested through a lack of anxiety regarding a serious or potentially serious threat in the individual’s life (Kernberg, 1984). Through this lack of awareness, an individual will not be aware of any negative consequences or negative emotions. Therefore, the self only acknowledges the positive consequences of any action, thus contributing to the maintenance of behaviours with negative consequences (e.g., self harming behaviours, impulsivity).

Lastly, Omnipotence is often witnessed in individuals with a borderline organization. This defense is often seen in conjunction with Splitting where an individual will present themselves as grandiose and simultaneously rate others as inferior. Omnipotence protects the self by providing this false sense of superiority.

All of these primitive defenses are believed to be characteristic of borderline personality organization and of BPD. Kernberg (1984) developed his theory of defenses and personality based on his clinical work, but since his original writings, empirical investigations have examined whether these primitive defenses, as well as others, are associated with BPD.

Empirical Evidence of the Role of Defense Mechanisms in BPD

Research has attempted to provide empirical support for the theoretical links between defenses and BPD (e.g., Bond, 1990; Bond, Paris, & Zweig-Frank, 1994). Results of empirical research have shown that primitive defenses are associated with BPD (e.g., Greene, 1996). One of the first empirical studies to examine the relation between BPD and defenses was completed by Perry and Cooper in 1986. Their sample consisted of a small group of in- and outpatients with BPD (n=10). Participants were administered diagnostic and psychodynamic oriented interviews to assess diagnosis and defense mechanisms. Twenty-two defense mechanisms were rated through observer report¹⁵, which were organized into five defense styles. Results showed that Action¹⁶ and Borderline¹⁷ defense styles were correlated with BPD (.26 and .36 respectively).

Four years later, Bond published an article entitled *Are "Borderline Defenses" Specific for Borderline Personality Disorder* (1990). In this study, he reported data on defenses in two clinical samples comprised of both inpatients and outpatients. Defense mechanisms were measured using the DSQ in the first study and the DSQ and the DMRS in the second study. In both of these studies, the results showed no significant difference in the Image-distorting defense style measured by the DSQ between BPD and other personality disorders or between BPD and the patient sample generally. However, the DMRS Image-distorting¹⁸ and Immature¹⁹ defense styles were higher in the BPD group compared to both groups. Bond provided some explanations for the findings. For example, he suggested the possibility that raters were biased by their expectations that individuals with BPD would display Image-distorting defenses, that the two contexts of assessment (self-report versus video-recorded interview) could elicit different defenses, or lastly, that the two measures are assessing different behaviours within their image-distorting styles. Another reported limitation of this study was the diagnosis of BPD. Bond stated that a BPD diagnosis is different from Kernberg's borderline personality organization which includes many other personality disorder diagnoses. One possibility is that the expected Image-Distorting defense style may be more characteristic of borderline personality organization and

¹⁵ The sample was rated on defense mechanisms according to an earlier version of the later published DMRS.

¹⁶ The defenses Acting out, Passive aggression, and Hypochondriasis are included within the Action defense style.

¹⁷ The defenses Splitting (of self and others), and Projective identification are included within the Borderline defense style.

¹⁸ The defenses Splitting (of self and others), Projective Identification, Devaluation, Idealization, and Omnipotence are included within the Image-Distorting defense style.

¹⁹ The defenses Acting Out, Hypochondriasis, and Passive Aggression were included within the Immature defense style.

that the results do not show this difference because many of the other personality disorders also fall within this organization (paranoid, schizoid, narcissistic, etc).

Bond, Paris, and Zweig-Frank (1994) further tested the association between defenses and BPD by examining differences on DSQ defense styles²⁰ between a BPD patient group and a nonBPD patient group. The results showed that BPD patients used Maladaptive and Image-Distorting defense styles more and the Adaptive defense style less than the nonBPD group.

In another study, Paris, Zweig-Frank, Bond, and Guzder (1996) compared defense styles as measured by the 88-item DSQ in patients with BPD to patients with other personality disorders. Results revealed significant findings with BPD having higher scores on Maladaptive and Image-Distorting defense styles.

Research examining the Rorschach's ability to aid in differentiating BPD from other personality disorders has also produced significant findings. For example, in 1990 Berg compared a BPD group to a Narcissistic Personality Disorder (NPD) group on many measures of Kernberg's personality organization, including defense mechanisms. Results showed that the BPD group scored higher on Splitting and lower on Grandiosity than the NPD group.

To further examine whether defense use is different between BPD and other disorders, Hilsenroth, Hibbard, Nash, & Handler (1993) compared defense mechanisms between BPD, NPD and Cluster C personality disorders. Defense mechanisms were assessed using the Lerner Defense Scales (LDS) and analyses were conducted comparing defense use in each group. The results showed significant differences between BPD and the Cluster C personality disorders on all defenses (Splitting, Devaluation, Idealization, Denial, Projective Identification) with scores higher in the BPD group. Results also showed significantly higher scores on Splitting and Projective Identification for the BPD group compared to the NPD group.

In 1999, Blais, Hilsenroth, Fowler, and Conboy examined the association between Rorschach scales and the *DSM-IV* BPD criteria. Pearson correlations were conducted between the total BPD score and three defenses separately. Results showed that Splitting and Devaluation were significantly correlated with BPD, but that Projective Identification was not.

In summary, the literature examining the association between BPD and specific defense mechanisms has provided some support for the theoretical perspective of Kernberg. For example, most research results have shown that BPD is associated with the primitive defenses, Splitting,

²⁰ The 88-item DSQ was used in this study.

Devaluation, Idealization, Denial, and Projective Identification (Berg, 1990; Hilsenroth et al., 1993). Other results, however, have shown inconsistent findings, such as no significant association between BPD and Projective Identification (Blais et al., 1999). In addition, some results have shown Image-distorting, Borderline, Action, and Immature defense styles to be associated with BPD (e.g., Bond et al., 1994) while some results have shown no significant association (e.g., Bond, 1990). One explanation for these findings could be the sample size. For example, Bond (1990) who found no significant difference between a BPD group and nonBPD group on Image-Distorting and Maladaptive defenses had a sample size of less than 20, whereas Bond and colleagues (1994) who found a significant difference had a sample size greater than 70 for each group. Because of the limited number of research findings, further research is needed to draw conclusions regarding the association between defenses and BPD and the role different measures of defenses may play in the findings.

Defense Mechanisms and APD

Antisocial Personality Disorder

According to psychodynamic theory, APD can be conceptualized within Kernberg's personality organization model. In this model, APD is also within the borderline personality organization (Kernberg, 1996; Perry & Cooper, 1986). As such, individuals with APD present with identity diffusion, primitive defenses, and maintained reality testing (Kernberg, 1996). Because the ego's defenses are primitive, APD is characterized by significant superego deterioration. This results in decreased guidance in terms of moral and ethical behaviour. There is greater antisocial behaviour combined with a lack of the capacity for feelings of guilt or concern for others, as well as an inability to identify with ethical or moral values (Kernberg, 1996).

The description of APD within the dimensional model of psychodynamic theory is quite similar to that included in the *DSM-IV-TR*. This categorical model describes APD as a pervasive pattern of both disregarding and violating the rights of others (APA, 2000). Criteria for the diagnosis include a lack of conformity to social norms and the law, manipulation or deceit, impulsivity, aggressiveness, disregard for the safety of others, irresponsibility and a lack of remorse. As with BPD, the main differences between the *DSM-IV-TR* and Kernberg in their conceptualization of the disorders lie within the characteristics that are emphasized within each perspective. For example, the *DSM-IV-TR* focuses on behavioural symptoms, while Kernberg

focuses on a more structural evaluation of the underlying psychodynamics of the group.

Theoretical Role of Defense Mechanisms in APD

APD is considered within the borderline personality organization proposed by Kernberg (1984). Therefore, primitive defense mechanisms will be characteristic of individuals with APD. These include Splitting, Projective Identification, Denial, Omnipotence, primitive Idealization and Devaluation. Omnipotence is very characteristic of APD as there is often a grandiose concept of the self. Gacono and Meloy (1988) further elaborate on the grandiose self stating that it often leads to the use of Splitting because there is a split between the unrealistic representations of the self (omnipotence/grandiosity) and the devalued representations of self, including feelings of worthlessness and emptiness.²¹ In addition, individuals with APD will devalue other individuals. The use of Splitting, Omnipotence, and Devaluation all work together to protect the self from experiencing negative affect because the self is seen as superior while others are seen as inferior. In addition, any time a conflict between the views may arise, the ego will utilize Splitting to keep the views of the self and others compartmentalized and therefore prevent the conflict from evidencing.

Kernberg also describes Denial as very characteristic of APD (Kernberg, 1996). He states that this is important for individuals with APD because the Denial works to keep feelings of guilt and concern from awareness. Gacono and Meloy (1988) state that Denial stops the individuals from experiencing the negative feelings (e.g., guilt) that may arise from any of the behaviours that may have a negative consequence on another object or person. Gacono and Meloy (1988) add to this conceptualization by stating that as an individual with APD becomes more developmentally advanced, this function will be achieved through the use of Rationalization. Conscious elaborations and distorted explanations will be used to keep these feelings out of awareness. The authors also state that Acting Out behaviours are used in conjunction with these more cognitive defenses to prevent the experience of the negative emotions. Lastly, Gacono and Meloy (1988) discuss the use of Dissociation in individuals with APD. They state that Dissociation is used because a protective mechanisms of these individuals is to essentially “shut off” any part of their thinking, feelings, or awareness of the environment that may threaten their ego.

²¹ The authors are referring to psychopathy more so than APD in this article when discussing defenses. They conceptualize APD and psychopathy similarly, but Gacono (1990) argues that APD should have less focus on criminal behaviour and include more psychodynamic and cognitive elements.

This constellation of defenses prevents an individual with APD from experiencing their natural state of inner emptiness and worthlessness. It is only when these defenses begin to fail that this state will begin to be evident and it is at this time that an individual with APD will begin acting out through aggressive and/or criminal acts to reduce the experience of these negative feelings (Gacono & Meloy, 1988).

Empirical Evidence of the Role of Defense Mechanisms in APD

In 1990, Gacono published one of the first articles evaluating the defensive functioning of patients with APD. Defenses were assessed with the Lerner Defense Scale in 33 male patients with APD. These patients were divided into high and low psychopathy groups based on scores on the Psychopathy Checklist (PCL), which resulted in 14 patients in the high group and 19 in the low group. The results showed no significant differences between the two groups on defenses. Although there were no differences, Gacono notes that all of the patients had a diagnosis of APD and they displayed high rates of Splitting, Projective Identification, and Devaluation²². These findings are thought to be consistent with Kernberg's model as both groups would fall within the borderline personality organization.

Leichsenring, Kunst, & Hoyer (2003) examined the association between aspects of borderline personality organization (e.g., defensive functioning) and APD traits in a nonclinical sample. Defense mechanisms were measured by the Primitive Defense Mechanisms and Object Relations Scale²³ within the Borderline Personality Inventory (BPI) and correlations were conducted between this scale and the Antisocial Personality Questionnaire (APQ). All of the scales from the APQ (e.g., low self esteem, paranoid suspicion, deviance) were correlated with the primitive defense mechanism scale.

Chabrol and Leichsenring (2006) further examined the association between borderline personality organization and psychopathic traits by investigating the association between the scales on the BPI and the Callousness and Impulsivity/Conduct Problems scales from the Levenson Self-Report Psychopathy Scale (LSRP) in a sample of high school students. Pearson correlations revealed significant correlations between the LSRP scales and the primitive defense mechanism scale from the BPI.

Despite very few research studies evaluating the association between defenses and APD,

²² The authors present no statistical analyses demonstrating this finding.

²³ Includes the assessment of primitive defenses from Kernberg's model (e.g., Splitting, Devaluation, Projective Identification).

all of the findings have shown that APD is associated with primitive defense mechanisms. These results have supported Kernberg's hypotheses that APD is within the borderline personality organization and that this group is characterized by predominantly primitive defense use.

Differentiating BPD and APD Based on Defense Mechanisms

Since the introduction of personality disorders into the *DSM-III*, there have been many criticisms of the diagnoses, especially of those disorders within the Cluster B (e.g., Herkov, & Blashfield, 1995; Holdwick, Hilsenroth, Castlebury, & Blais, 1998; Widiger, 1993). One of the major criticisms raised is the comorbidity between the Cluster B personality disorders due to their overlapping criteria and thus poor discriminant validity (Blais & Norman, 1997). BPD has shown to have one of the highest comorbidity rates with other personality disorders and when patients meet criteria for two or more personality disorders, clinicians use the diagnosis of BPD more frequently than other disorders (Herkov & Blashfield, 1995). In 2000, Becker, Grilo, Edell, & McGlashan evaluated the comorbidity of BPD with other personality disorders and found a significant comorbidity rate between BPD and APD. Zanarini and colleagues (2004) also found that within the cluster B disorders, APD had the highest comorbidity rate with BPD.

In addition to the accumulating discussions of differential diagnosis difficulties based on empirical literature, the psychodynamic literature has also presented theoretical reasons for the difficulties in distinguishing BPD and APD. As reviewed by Perry and Cooper (1986), according to Kernberg's model, both APD and BPD share underlying psychodynamics which includes intact reality testing, a lack of identity integration, and primitive defenses. As such, they will evidence difficulties in interpersonal relationships, have altered perceptions of the environment, and will use maladaptive means to cope. Their personality functioning is quite similar.

Despite these similarities, many argue differences between APD and BPD. For example, Perry and Cooper (1986) argue that these two groups differ in their expression of their underlying dynamics. BPD is expressed through interpersonal dependency and APD is expressed through antisocial behaviours, such as stealing. Similarly, the *DSM-IV-TR* provides aid to clinicians in differentiating between these disorders. Both disorders are characterized by manipulative behaviour; however, in APD, the goal is to establish and gain material goods, power, or control, while in BPD it is towards interpersonal relationships and gaining concern of others. Another differentiation that Gacono and colleagues (1992) have made is between the direction of aggression. These authors argue that aggression is characteristic of both BPD and

APD, but that in APD it is directed towards others, while in BPD, aggression is directed towards the self.

Overall, there still remains much similarity between the diagnoses of BPD and APD, as listed in the *DSM-IV-TR*. Despite these similarities, many argue the distinctness of the disorders. Furthermore, even though Kernberg argues for similar defensive profiles of each patient group, some authors have argued for theoretical differences between BPD and APD in their defense use (e.g., Perry & Cooper, 1986).

Theoretical Differences in Defense Use Between BPD and APD

Both APD and BPD are included in Kernberg's borderline personality organization, and as such Kernberg argues that both of these disorders are characterized by primitive defenses²⁴. Because many argue that within the borderline personality organization, BPD is more severe than APD, some have hypothesized that BPD would be associated with higher levels of these primitive defenses (Cramer, 1999). Perry and Cooper (1986) have added to the theory positing that within the borderline personality organization, there may exist two dimensions of primitive defenses. The first dimension, associated with BPD, would include Splitting of self, Splitting of others, and Projective Identification. These defenses would be associated with BPD because they lead to more interpersonal instability and dependency. The second dimension, associated with APD, would include Omnipotence, primitive Idealization, and Devaluation. These defenses are thought to be associated with APD because they act to protect the self from low self-esteem and feelings of anger.

Gacono and colleagues (1992) show slight differences in their perspective of whether some of these defenses will be seen more strongly associated with one of the disorders. Unlike the view of Perry and Cooper (1986), they argue that Devaluation will be associated with both APD and BPD. However, they state that the type of Devaluation will differ between the two groups. In BPD, the self is viewed as damaged which is a result from a Devaluation of the self, where as in APD, the Devaluation is directed towards others which results in increasing the view of the self as grandiose.

In the literature, there have developed some theoretical arguments on differences in defense use between APD and BPD. Despite the small body of theory, empirical studies have

²⁴ The defenses are listed and described in the *Theoretical Role of Defenses in BPD* section as well as the *Theoretical Role of Defenses in APD* section. Also see *Table 1* where definitions are provided.

began examining whether there are differences in defense use between APD and BPD groups.

Empirical Differences in Defense Use between BPD and APD

The first study that empirically evaluated the role of defenses in BPD also examined defenses in APD (Perry & Cooper, 1986). Because theoretically BPD and APD both fall within Kernberg's borderline personality organization, the authors investigated whether there would be any differences between the two disorders on the primitive defenses hypothesized by Kernberg. As described previously, Perry and Cooper (1986) argued that there exists two dimensions within the primitive defenses and each would be associated with one disorder. They evaluated 22 defenses through an observational coding method in 81 patients²⁵. A factor analyses was conducted with the 8 primitive defenses and, as predicted, two factors emerged. The first factor, "Borderline defenses", included Splitting of the Self, Splitting of Others, and Projective identification, and the second factor, "Narcissistic defenses"²⁶, included Omnipotence, primitive Idealization, and Devaluation. Denial was also included on this second factor, which was not hypothesized. In the second analysis, the authors then developed summary scales which included all 22 defenses assessed, divided into 5 scales: the Disavowal²⁷, Action²⁸, Borderline, Narcissistic, and Obsessional²⁹ summary scales. They correlated each scale with the BPD and APD diagnoses³⁰ and with BPD and APD scales which consisted of the number of DSM-III criteria met by each participant. Their sample consisted of 27 participants (10 BPD and 8 APD). Results demonstrated BPD diagnosis to be significantly correlated with Action defenses and the BPD scale to be correlated with Action and Borderline scales. APD diagnosis was correlated with the Narcissistic scale, while the APD scale was not significantly correlated with any defense scales. To further evaluate whether defenses were able to differentiate BPD and APD, Perry and Cooper (1986) conducted a canonical discriminant function analysis. Despite the significant correlations, the discriminant function analysis was not significant. Overall, the authors concluded that defenses provide another method of differentiating the disorders, as clusters of defenses were associated with each. They argued that the findings pose a different way of conceptualizing Kernberg's primitive defenses, stating that the defenses possibly do not

²⁵ Using a scoring method similar to DMRS.

²⁶ Currently referred to as *Minor Image-Distorting* defense style in the DMRS.

²⁷ Included Neurotic denial, Projection, Bland denial, and Rationalization.

²⁸ Included Acting out, Hypochondriasis, and Passive Aggression.

²⁹ Included Undoing, Isolation, and Intellectualization.

³⁰ Correlated with a diagnostic scale that ranged from no diagnosis to definitive diagnosis.

comprise a common structure, but are two separate dimensions.

In 1992, Gacono, Meloy and Berg investigated the objection relations, defensive operations, and affective states in NPD, BPD, and APD. They examined the results of previous studies which had explored differences in defenses using the LDS. One-way ANOVAs were conducted to compare each defense among the groups. There was no significant difference between the BPD group (n = 18) and the APD group (n = 21)³¹, although there existed a trend in which BPD was higher on primitive Idealization than APD. The authors concluded that their results support Kernberg's concept of borderline personality organization since the APD, BPD, and NPD groups were very similar in their defensive functioning.

Berman and McCann (1995) examined the relation between defense mechanisms and Cluster B personality disorders in a group of psychiatric in- and out-patients. Defenses were measured using the DMI. Pearson correlations were conducted to evaluate the relation between each defense and personality disorder scales. Results showed that APD was correlated with Turning Against Others, Projection, and Principalization, and BPD was correlated with Principalization, Turning against Self, and Reversal. The authors concluded that there was support for the theoretical hypotheses that APD is associated with externalizing behaviours and BPD with internalizing behaviours. The finding that APD was correlated with Turning Against Others and BPD was correlated with Turning Against Self was consistent with these hypotheses.

Cramer (1999) also evaluated defense mechanism differences in the Cluster B personality disorders using the DMM. The participants in the study were a nonclinical sample rated high on personality disorder traits³². Both correlation and regression analyses were completed to assess the relation between defenses and personality. Correlation results showed that Denial was correlated with both BPD and APD, Projection with APD, and Identification was not correlated with either³³. Stepwise hierarchical regression analysis showed that Immature Denial was the only predictor of BPD and Projection was the only predictor of APD. Cramer concluded that there was support of the theoretical argument that BPD is the lowest level (most severe)

³¹ Although this study, as well as others following, may have evaluated differences between various groups, the only results reported are those evaluated for APD and BPD.

³² To establish that a participant scored high on a personality disorder, two rating processes occurred. First, participants were rated on a Q-sort assessing personality. Second, a group of clinicians developed prototypical q-sorts for each personality disorder. Once these were complete, each participant's actual q-sort that was rated high for one disorder was then correlated with the prototypical q-sort for that disorder. If the correlation was high, the participant was included in the sample.

³³ Only reported results for APD and BPD groups.

personality disorder as it was associated with the most immature defense, Denial. APD, which is thought to be slightly less severe than BPD, was most characteristic of the defense Projection, which is slightly less immature than Denial.

Finally, Lingiardi and colleagues (1999) also evaluated the relation between personality disorders and defenses. Fifty outpatients were assessed dimensionally for the presence of personality disorder symptoms by a structured interview and assessed for defense mechanisms with the DMRS. Correlation analyses were conducted to examine the relation between defenses and personality disorder. APD was associated with Intellectualization, Projection, and Acting Out, while BPD was correlated with Acting Out. The authors concluded that despite the small sample size, the results provided some support for theory and previous findings. For example, the correlation between Projection and APD is theoretically consistent as Projection may account for some characteristics of individuals with APD, such as their aggression, and irritability. The correlation between Intellectualization and APD was not expected theoretically, but the authors explained this finding stating that individuals with APD using this defense to minimize the importance of the event by generalizing the event to be common to many people.

In conclusion, research results have shown that many defenses are associated with both BPD and APD. For example, both of these disorders are associated with the Action³⁴ defense style. They are also both associated with Acting Out, Denial, and Principalization. APD has also been associated with the Narcissistic defense style and Intellectualization, Turning Against Others, and Projection. BPD has been associated with the Borderline defense style, TAS, and Reversal. However, the two research studies that compared the two groups has shown only one significant difference, which was that Idealization was higher in the BPD group.

PROPOSED RESEARCH STUDIES

Summary of Research Findings

Research results have demonstrated many defenses are associated with both BPD and APD.³⁵ For example, BPD has been shown to be associated with Splitting, Devaluation, Idealization, Denial, Projective Identification, and Grandiosity. It has also been positively associated with the Immature³⁶ and Image-Distorting³⁷ defense styles, and negatively associated

³⁴ Also referred to as Immature or Maladaptive style.

³⁵ See *Table 3* for a list of each study examining the relation between defenses and BPD and/or APD and a summary of the method and findings for each.

³⁶ The Action level of defense is synonymous with Immature defense style.

with the Mature defense style. APD has been shown to be associated with primitive defense mechanisms Splitting, Devaluation, Idealization, Denial, Projective Identification, and Grandiosity and positively associated with the Narcissistic defense style. Most studies have examined correlations between the personality disorders and defenses, but to date, only Gacono and colleagues (1992) and Perry and Cooper (1986) have statistically examined whether there were defense use differences between the groups. Gacono and colleagues (1992) re-examined previous studies for differences using ANOVA analyses and Perry and Cooper (1986) conducted a discriminant function analyses in a sample of patients. The only difference was that the BPD group had higher scores on primitive Idealization in Gacono and colleagues (1992) study.

Despite the many nonsignificant findings, it is important to note that both analyses contained small samples sizes with 10 and 8 in the BPD and APD groups respectively in Perry and Cooper's (1986) study, and 21 and 18 in the BPD and APD groups respectively in Gacono and colleagues (1992) study. In addition, the measures used restricted some analyses. For example, Perry & Cooper (1986) only compared the groups on 5 defense styles, instead of evaluating individual defenses. This is in contrast to some authors who have argued that differences in defense use will be seen on individual defenses (e.g., Gacono et al., 1992). Lastly, in Gacono and colleagues' (1992) paper, they acknowledge a limitation to their study stating that the examination of defenses using the LDS requires human responses on the Rorschach and that in their sample "too few scores were produced to analyze these indices meaningfully" (p. 41).

Finally, a criticism of interpreting the results from many of the research papers is that various measures have been used to evaluate defenses and personality disorders. As such, the findings that are in the literature are often difficult to compare to each other. For example, in the DMM, Denial is treated as more of a defense style and includes other defenses such as Reaction Formation and Repression. This makes comparisons with results assessing Denial as an individual defense, such as in the DSQ, difficult. Inclusion of different defenses in styles and in measures, as well as differences in defense definitions, makes defense findings difficult to compare. Given the limited number of research studies, as well as the many limitations to the previous findings, the aim of the current research studies are to ameliorate some of the previous difficulties by both replicating and extending the previous research.

³⁷ The Borderline level of defense is synonymous with Immature defense style.

Goal of Current Studies

The aim of the current research project was to replicate and expand previous literature evaluating differences in defense use between BPD and APD. Because one limitation of previous studies is that defense measures often differ in their conceptualizations and definitions of defenses, thus making comparisons difficult, the current studies used three methods of assessing defenses when examining the hypotheses. Since there are many strengths and criticisms of the various types of defense assessment, a measure from each type of assessment will be used (i.e., self-report, observer-report, projective).

Because of the assessment differences among the three measures, one study was dedicated to examining the convergent validity among measures. This study on convergent validity was the first study whereby the defenses from the DSQ, Defense-Q, and DMM were correlated to assess whether the defense scales from each measure were indeed assessing the same constructs. This will allow for a discussion of the similarities and differences between the defense constructs from each measure that may influence the interpretation of each of the following studies.

To assess the differences in defense mechanisms between the APD and BPD groups, three studies were conducted. In the first study (Study 2), defenses were assessed using a self-report measure, the DSQ. In the next study (Study 3), both the DSQ and an observer-report measure (Defense-Q) were used to assess defenses in the sample. Using both measures allows replication of the Study 1 and expansion of the study using another method of assessment. Finally, in study 4, the DSQ and the projective measure, the DMM, were used to assess defenses. In each of the studies, defense differences were examined between APD and BPD groups. To address the previous limitations of small sample size, a self-report measure was used in the Studies 2, 3, and 4 to assess personality traits in a large sample. The Personality Assessment Inventory (PAI) was chosen based on its good validity and reliability indices³⁸ as well as its demonstrated validity at assessing BPD in nonclinical samples (Boone, 1998; Kurtz, Morey, & Tomarken, 1993; Trull, 1995).

³⁸ See *PAI* section under *Method* for further elaboration on the validity properties of the PAI at identifying BPD and APD.

Research Questions and Hypotheses

Based on the theoretical arguments and empirical findings, it is expected that both BPD and APD will be characteristic of high scores on primitive defense mechanisms: Splitting, Devaluation, Idealization, Denial, Projective Identification, and Omnipotence/Grandiosity³⁹. Based on theoretical expectations and empirical findings, some specific hypotheses regarding differences on some of these defenses were made:

1. Based on the empirical findings that Splitting is associated with BPD and the theoretical arguments by Perry & Cooper (1986) that Splitting will be more characteristic of borderline defenses, it is expected that Splitting will be higher for the BPD group than the APD group.

2. Perry and Cooper (1986) argued that Devaluation would be evident in both BPD and APD, but that the direction of the Devaluation may differ between the groups. BPD will be characterized by a Devaluation of the self, whereas APD will be characterized by Devaluation of others. This hypothesis will be evaluated in Study 3 with the Defense-Q, but not with the DSQ or DMM⁴⁰. Because the Defense-Q separates these two types of Devaluations into two defenses, Devaluation⁴¹ and Turning Against the Self (TAS), it is expected that the BPD group will be higher on TAS and the APD group will be higher on Devaluation. The externalizing behaviour that is considered characteristic of APD can also be examined through the defense of Turning Against Others (TAO). Previous research has found TAO to be characteristic of APD, while TAS is characteristic of BPD (Berman & McCann, 1995). As such, it is also hypothesized that APD will score higher on TAO than BPD.

3. Based on theoretical propositions that Idealization is more associated with BPD and empirical findings which showed Idealization to be more characteristic of BPD than APD, it is expected that Idealization will be more characteristic of BPD than APD in the current study.

4. Perry and Cooper (1986) and Gacono and colleagues (1992) hypothesized that Omnipotence is more characteristic of APD than BPD. Based on these arguments, this

³⁹ Omnipotence and Grandiosity are two defenses which share similar definitions. The choice of either term depends on the measure being discussed.

⁴⁰ The DSQ-72 assesses Devaluation, but this Devaluation includes both a self and an other component and therefore this hypothesis can not be tested. The DMM does not include Devaluation.

⁴¹ The Defense-Q includes the Devaluation of others in its definition and does not allow for a Devaluation of the self. This, instead, is assessed by Turning Against the Self.

hypothesis will be examined in Study 3 with the Defense-Q only⁴². Omnipotence is captured within the defense, Grandiosity, in the Defense-Q.

5. Projective Identification is considered the most primitive form of the defense Projection. Projection (including Projective Identification) has been theoretically and empirically linked to both BPD and APD. However, some argue that Projection will be utilized more in BPD because BPD is considered the lowest level or most primitive of the two disorders (Cramer, 1999). In addition, Perry and Cooper (1986) hypothesized that primitive Projection (Projective Identification) would be more characteristic of BPD. Empirical research has found that Projection is correlated with both BPD and APD and some research has shown that Projection is characteristic of APD and not BPD (e.g., Berman & McCann, 1995; Cramer, 1999). These two studies used the DMI and DMM to examine Projection. In the current study, the difference in the use of Projection between the APD and BPD groups will be further examined using the DSQ, Defense-Q, and DMM.⁴³

6. Perry and Cooper (1986) did not believe Denial to be related to Borderline defenses or of Narcissistic defenses used by individuals with APD. However, their results found that Denial clustered with the Narcissistic defenses which were correlated with an APD scale. Cramer (1999), on the other hand, found that Denial significantly predicted APD, but not BPD. However, Denial was correlated with both APD and BPD. As such, the difference in Denial use between APD and BPD will be further examined in the current studies.

In addition to the research questions and hypotheses made in regard to the primitive defenses discussed by Kernberg, other researchers have also theoretically and/or empirically linked additional defenses to APD and BPD:

7. Gacono and Meloy (1988) stated that in individuals with APD, as they become more developmentally advanced, Rationalization will be evident. As such, it is hypothesized that Rationalization will be more characteristic of APD than BPD.

8. Lingardi and colleagues (1999) found that Intellectualization was correlated with APD but not BPD. It is hypothesized that this finding will be replicated using the Defense-Q.

9. Many research findings have found BPD associated with Action or Maladaptive defense styles (e.g., Perry & Cooper, 1986; Bond, 1990) which include the defenses Acting Out,

⁴² Omnipotence is not assessed by the DSQ or the DMM.

⁴³ The defense measures chosen in this study do not assess Projective Identification and as such it will not be assessed in the current studies.

Hypochondriasis, and Passive Aggression. Only one study has examined the association between APD and action defenses (Perry & Cooper, 1986) and they found no significant correlation. In the current study, the differences between these two disorders on two of the three defenses, Acting Out and Passive Aggression⁴⁴, will be examined. Based on these previous results, it is expected that Acting Out and Passive Aggression will be more characteristic of BPD than APD.

STUDY 1

Method

Participants

Fifty-six participants were recruited from a large Canadian university. Eighty-one percent of the total sample was female and 90% were Caucasian. The mean age of the sample was 19.4 with a range of 18 to 21 years.

Measures

Defense Style Questionnaire (DSQ). The DSQ is a 72-item self-report questionnaire which assesses the use of 20 defense mechanisms, which are divided into three defense styles: Mature, Neurotic, and Immature (Andrews et al., 1989; Andrews et al., 1993; Bond et al., 1983). The Mature defense style includes those defenses which are considered healthy and associated with good coping. The Immature defense style includes defenses which are considered the least healthy and indicate a person's inability to deal with a threatening impulse or situation. The Neurotic defense style includes those defenses which fall inbetween these two styles. When completing the DSQ, participants indicate their agreement with 72 items on a scale of 1 to 9 with 1 indicating no agreement and 9 indicating strong agreement.

Since the development of the DSQ, there have been many studies examining the factor structure, reliability, and validity of the DSQ (e.g., Andrews et al., 1989; Bond et al., 1983; Bond et al., 1989). Based on their original factor analyses, Bond and colleagues (1983) clustered 24 defense mechanisms into four defense styles: maladaptive, image-distorting, self-sacrificing, and adaptive. Since that original study, several versions of the DSQ have been used in research studies, ranging from an 88 item questionnaire assessing the original 4 defense styles to a 36 item questionnaire assessing three defense styles: Immature, Neurotic, and Mature⁴⁵

Research evaluating the DSQ has shown support for the reliability and validity of the

⁴⁴ Hypochondriasis is not assessed by any of the measures used in these studies

⁴⁵ Interested readers are referred to Andrews and colleagues (1993) for a comparison between various versions of the DSQ.

defense styles in each DSQ version (e.g., Bond et al., 1989; Andrews et al., 1989; Andrews et al., 1993). For example, test-retest reliability values for the 88-item DSQ ranged from .68 to .73 for each defense style (Bond et al., 1989). Test-retest reliability has also been reported on the 72- and 40-item DSQ, with values within the ranges of .68 to .86 and .75 to .85 respectively (Andrews et al., 1993). Internal consistency has also been reported for the 72- and 40-item DSQ with alpha coefficients ranging from .59 to .89 and .58 to .80 respectively (Andrews et al., 1993). Overall, reliability for the defense styles has been shown to range from adequate to good.

When examining the reliability of individual defenses, results indicate the strongest support for the 72-item and 40-item DSQ (Cramer, 1991). Alpha coefficients from the 72-item DSQ range from .07 for Suppression to .82 for Projection⁴⁶ and alpha coefficients from the 40-item DSQ range from -.01 for Devaluation to .89 for Fantasy (Andrews et al., 1993). Test-retest correlations range from .27 for Suppression to .85 for Displacement⁴⁷ and from .38 for Suppression to .80 for Displacement in the 72- and 40-item DSQ (Andrews et al., 1993). Reliability for the individual defense styles has ranged from poor to good.

The various DSQ versions have also been examined for construct validity. Convergent validity of the 88-item version was evaluated by correlating the defense styles with other measures of ego development, such as Loewinger's Ego Development (Bond et al., 1983). Results showed significant correlations with all scales in the expected direction. For example, the Maladaptive defense style was negatively correlated with ego development (-.42) and the Adaptive defense style was positively correlated with ego development (.19). The Maladaptive defense style has also shown to be negatively correlated with the Health-Sickness Rating Scale (-.23), which is a measure of physical health with higher scores indicating greater health (Bond et al., 1989). In addition, the DSQ defense styles also have correlations with another measure of defense mechanisms, the DMRS, in the expected directions. For example, the Maladaptive, Image-distorting, and Self-sacrificing defense styles were positively correlated with the DMRS Immature defenses (.36, .32, and .23 respectively; Bond et al., 1989).

Concurrent validity of the 88- and 40-item DSQs has also been examined by evaluating whether there were differences in defense styles and individual defenses between individuals

⁴⁶ The DSQ -72 alpha coefficients for the defenses used in the current study were .10 (Denial), .38 (Idealization), .36 (Splitting), .56 (Passive Aggression), .68 (Acting Out), and .82 (Projection). The alpha coefficient for Rationalization was not provided because this scale contains only one item.

⁴⁷ The DSQ -72 test-retest correlations for the defenses used in the current study were .48 (Denial), .72 (Splitting), .75 (Acting Out), .72 (Passive Aggression), .75 (Idealization), .76 (Rationalization), and .82 (Projection).

with clinical disorders and healthy controls (Andrews et al., 1993; Bond et al., 1986). Bond and colleagues (1986) compared defense styles between a group of patients with Axis I and II disorders and a group of healthy controls. Results indicated that the healthy controls used the Mature defense style more often than the patient group. Andrews and colleagues (1993) performed discriminant function analyses to examine whether there were differences in defense styles between groups of anxiety disorder patients and healthy controls. Results showed that all the defense styles were able to differentiate anxiety patients from healthy controls.

Andrews and colleagues (1993) also examined the ability of individual defenses to discriminate between the anxiety disorder groups and healthy controls. Their results showed that many defenses that were theoretically expected to differentiate the two groups were significantly different. For example, Displacement and Projection are both theoretically expected to be elevated in patients with anxiety disorders and the results showed that both these defenses were higher in the anxiety group compared to the healthy controls.

Overall, the various versions of the DSQ have shown adequate to good internal consistency and test-retest reliability of the defense styles. Individual defenses have shown poor to adequate scores for reliability, with internal consistency for some defenses showing quite low scores (e.g., Anticipation, Suppression, Pseudo-altruism). Research evaluating construct validity has shown good scores on convergent and concurrent validity for both defense styles and individual defenses.

Expanded Structured Interviewed (ESI) for Defense Mechanisms Ratings. The ESI is a twelve to fifteen minute structured interview which is designed to elicit information related to stress, anxiety and coping. The interview is also designed to assess emotional reactions and behavioural responses across a variety of commonly experienced stressors. For example, participants are asked questions regarding stress at school and work and how they react in certain stressful situations. The ESI is based on a type A structured interview (used to assess hostility, competitiveness, time urgency, etc.) adapted for use with university populations, as well as modified to assess defense use, anger expression, and emotional expression (Hall, Davidson, MacGregor, & MacLean, 1998). It is designed to be a slightly stressful interview that elicits defensive and coping behaviours. For example, the pace of the interview begins slowly, but quickens throughout the middle. During this middle portion, the interviewer engages in strategies to elicit mild stress (e.g., participants responses are cut short periodically, questions are

repeated). At the end, the interviewer returns to a relaxed pace. The participants are debriefed after the interview and provided with more information regarding the nature of the interview. The ESI has been used before in empirical research assessing defenses (e.g., MacGregor et al., 2003). The interview is videotaped providing defense coders with a sample of responses and behaviours from which they can assess defense mechanisms using the Defense-Q.

Defense-Q. The Defense-Q is an observational measure that is used to assess the relative use of 25 defense mechanisms (MacGregor & Davidson, 1998; MacGregor, Olson, Presniak & Davidson, 2008). It is a q-sort instrument that is based on a system of rank ordering. Each defense is represented by one card with 25 cards in total. The defense coders sort the cards into seven piles indicating those defenses which are most uncharacteristic (1 card), quite uncharacteristic (2 cards), somewhat uncharacteristic (5 cards), neither uncharacteristic nor characteristic (9 cards), somewhat characteristic (5 cards), quite characteristic (2 cards), and most characteristic (1 card: see Appendix A for Defense-Q scoring sheet). The resulting profile of defense use provides a semi-normal distribution that represents a participant's pattern of defense use, including the most to the least used defense. Each defense mechanism is coded from the available information which is extracted from the ESI video recorded interview. The Defense-Q allows for the examination of specific defense use, such as both adaptive (e.g., Sublimation) and maladaptive (e.g., Dissociation) defenses, as well as provides a profile of defense use.

The defense profile of each participant will be compared to a prototypical Adaptive Defense Profile (ADP) that represents a theoretically adaptive profile of defense use adapted from previous authors' writings (e.g., Freud, 1894/1962, A. Freud, 1936/1986, Vaillant, 1977). The ADP was constructed by Davidson, MacGregor, Johnson and Woody (2003) and was based on the ranking of all 25 defenses from least to most adaptive based on empirical literature (Davidson et al., 2003). Using a within-subject correlation, the similarity of each person's score to the ADP is calculated providing an ADP Similarity Score. This score ranges from -1 to +1 representing the degree of similarity to the ADP and thus indicating the degree of adaptiveness of each individual's pattern of defense use (MacGregor, Davidson, Rowan, et al., 2003).

There are currently few studies published evaluating reliability and validity of the Defense-Q. The results from the original reliability study show that inter-rater reliability for the individual defenses indicated by Cronbach's alpha ranged from .28 for Undoing to .92 for

Humour with a mean of .73. In a second reliability study, inter-rater reliability was calculated between three coders using intraclass correlations and ranged between .32 for Psychotic Denial and .91 for Pseudoaltruism with a mean of .69 (MacGregor & Olson, 2005). In addition, MacGregor and Olson (2005) calculated reliability of defense profiles by comparing one coder's profile to the remaining two coders. Results ranged from .87 to .88. Overall, the results suggest that inter-rater reliability is good for defense profiles and adequate for individual defenses from the Defense-Q.

The construct validity of the Defense-Q has also been evaluated by MacGregor and Olson (2005). Convergent validity was examined by correlating the ADP Similarity Score with scores from the DSQ. The ADP Similarity Score was positively correlated with the adaptive and Self-sacrificing defense styles from the DSQ (.30 and .26 respectively) and was negatively correlated with the Maladaptive and Image Distorting scales (-.24 and -.19 respectively). In addition, MacGregor and Olson (2005) correlated the ADP Similarity scores with other measures of psychosocial functioning and found the ADP Similarity Score to be negatively correlated with depression (-.27), hostility (-.19), trait anxiety (-.21), and negative affect (-.18) and positively correlated with positive affect (.33).

Concurrent validity was also examined by comparing the ADP Similarity Score and individual defenses between a "mentally healthy" and "mentally unhealthy" group of university students⁴⁸. *T-test* results showed that the ADP Similarity score was higher for the mentally healthy group compared to the mentally unhealthy group. In addition, many adaptive defense mechanisms (e.g., Sublimation, Humour) were found to be higher in the mentally healthy group and many maladaptive defense mechanisms (e.g., Splitting, Regression) were found to be higher in the mentally unhealthy group.

Defense Mechanism Manual (DMM). The DMM (Cramer 1987, 1991) is a measure of defense mechanisms that is scored from participants' responses on The Thematic Apperception Test (TAT). Cramer developed the DMM as an objective tool to assess three defense mechanisms from the narrative stories that participants tell in response to the TAT cards. The defenses assessed are Denial, Projection, and Identification. Although only three defense scores are yielded, each scale is comprised of seven subscales which include several other defenses

⁴⁸ Participants were divided into the groups based on their scores on the 11 clinical scale of the PAI. See MacGregor and Olson (2005) for cut-off procedure.

(Cramer, 2006). For example, the assessment of Denial also includes other defenses, such as reaction formation, repression and fantasy.

Participants were given standard TAT instructions (Murray, 1943) and told stories to six TAT cards (Cards 2, 8GF, 8BM, 10, 15, and 18GF). These stories were video- or audio-recorded. Two trained coders recorded presence of three defense mechanisms (Denial, Projection, and Identification) in participant responses according to the DMM. Each defense was also rated on seven categories which represent different aspects of each defense. See *Appendix B* for a list of the categories. The scores for each defense were summed over the number of stories told by each participant and this score represents the total score for the three defenses.

The first study evaluating the reliability and validity of the DMM was published by Cramer in 1987. After developing the scoring manual, she administered the TAT to 320 participants in 4 age groups. The youngest groups included a Primary age group, ranging in age from 4 to 7 years; Intermediate group, ranging from 8 to 11 years; Early Adolescent group sampled from the ninth and tenth grades; and Late Adolescent group sampled from the eleventh and twelfth grades. Two independent raters scored all of the participants and the scores between the two raters for each age group were evaluated for interrater reliability. The interrater reliability coefficient showed good reliability for Denial (range of .81 to 1.00), and adequate for Projection (.71 to .90) and Identification (.71 and .88). To evaluate validity, Cramer conducted an analysis of variance with defense as a repeated measure examining differences in defenses between the age groups and each sex. They found that Denial was more characteristic of the Primary group compared to all other groups and Projection was more characteristic of the Intermediate and Early Adolescent group compared to the Primary group. Lastly, Identification was higher in the Late Adolescent group compared to the Intermediate group and was used less by the Primary group compared to all other groups. Taken together, Cramer concluded that the results were consistent with the theoretical developmental hierarchy of defense use in children and adolescents (1987).

In 1994, Hibbard and colleagues further examined the reliability and validity of the DMM. The TAT was administered to a group of 29 psychiatric inpatients and a group of 40 college students. One advanced undergraduate coder scored the three defenses using the DMM, and two additional undergraduate students coded a subsample of 39 transcripts to assess reliability. The scores of the three coders for the 39 transcripts were averaged and correlated.

Pearson r correlations were .56 for Denial, .87 for Projection, and .75 for Identification. Using t -test analyses, the authors also examined whether there were any differences in the percentage of defense use between the two groups. They found that the college sample had significantly higher percentage of Identification (43%) compared to the psychiatric sample (36%). Although not significant, they found a trend showing the psychiatric group had a slightly higher percentage of Denial and Projection (23% and 42%) compared to the college sample (20% and 37%). The authors concluded that the results showed support for the reliability of the defenses. Denial had the lowest reliability and the authors attributed this finding to the low scorings of Denial in the sample. Many participants score 0 on some of the cards and as such that reduces the variance and thus, diminishes the reliability. Although not all analyses reached significance, the authors conclude that the study showed support that there were differences in the defense use between the two groups which supported the hierarchy of defenses.

Hibbard and Porcerelli (1998) examined interrater reliability, concurrent and convergent validity. Interrater reliability was assessed between two coders using Pearson correlations. Reliability was found to be adequate (.74 for Denial, .86 for Projection, & .74 for Identification). To assess concurrent validity, the authors computed immature and mature defense scores from the DMM and correlated these with the DSQ mature and immature results. The results were in the predicted direction with the mature scales correlated positively (.19) and the immature scales correlating positively (.17). To assess convergent validity, the mature and immature subscales of the three defenses were correlated with scales of borderline symptomatology, narcissism and interpersonal behaviour, and the Symptom Checklist – 90 Revised. Results showed that as expected the immature denial was correlated with borderline symptoms, immature projection with narcissism. However, many expected correlations were not significant. For example, immature denial was not correlated significantly with the SCL-90-R, but mature denial was correlated (-.22). Immature projection was not correlated with the SCL-90-R and was not correlated with borderline symptoms.

Further validation of the measure has been examined by testing Cramer's hypotheses that the Denial is more characteristic of early childhood, Projection of late childhood and Identification of adolescence. Many studies have examined these hypotheses and results have shown that Denial is more characteristic of early than late childhood (Smith & Rossman, 1986), increases in the use of Projection and Identification occur in later childhood (Cramer, 1997), and

finally, Denial and Projection decrease in use from adolescence to adulthood, while the use of Identification increases (Porcerelli, Thomas, Hibbard, & Cogan, 1998). Overall, the DMM has demonstrated good reliability and validity in assessing the defense mechanisms, Denial, Projection, and Identification.

Procedure

ESI interview training. Six interviewers were trained by an experienced interviewer to deliver the ESI in a standardized manner (Hall et al., 1998). The purpose of the interview was explained to the interviewers and they were trained in proper pacing and tone of delivery of questions. After adequate training and practicing, the interviewers began conducting interviews for data collection. Weekly meetings occurred to ensure a continuation of standardized procedures.

Defense-Q coder training. Three defense coders were trained to assess defense mechanisms from the video recorded ESI's by a clinical psychologist and a clinical graduate student experienced with the Defense-Q. First, background theory about defense mechanisms was explained to the coders. Second, the coders received a manual which explained the coding process of the 25 defense mechanisms (MacGregor & Davidson, 1998). Third, coders began practicing assessing defense mechanisms from video-recorded ESI's. Once inter-rater reliability was established in these training sessions, the defense coders began assessing defense mechanisms for the current study. Weekly coding meetings were arranged to ensure the three coders remained reliable.

DMM coder training. Two defense coders were trained to assess defense mechanisms from the TAT's by a clinical psychologist and a clinical graduate student experienced with the DMM. Coders were provided the DMM manual which explained the coding process in addition to Cramer's (2006) book on defense mechanisms to learn the theoretical and empirical work that contributed to the development of the measure. Then coders began practicing assessing defense mechanisms. Once inter-rater reliability was established, the defense coders began assessing defense mechanisms for the current study. Weekly coding meetings were arranged to ensure the coders remain reliable.

Data Analysis

To examine the relation between the DSQ, Defense-Q, and DMM variables used in Studies 2, 3, and 4, correlation analyses (Pearson's r) were conducted. Correlations were

conducted between seven DSQ and Defense-Q defenses [Acting Out, (neurotic) Denial, Idealization, Passive Aggression, Projection, Rationalization, and Splitting], between two DSQ and DMM defenses (Denial and Projection), and between two Defense-Q and DMM defenses [(Neurotic) Denial and Projection].

Results

Testing Assumptions

Correlation analyses are parametric tests which assume a normal distribution in the data (Field, 2005). As such, the assumptions these tests require have been analyzed. These included the assumption of normally distributed data and linearity.

Normality. To examine normality, the z-scores for the skewness and kurtosis values of each variable were calculated. From the DSQ, no variables had a skewness or kurtosis z-score greater than 2.58 (significant at $p < .01$). In addition, the data were examined for outliers.

Outliers are important to look for because they can bias the mean, resulting in an inflation of the standard deviation (Field, 2005). The scores for each participant were converted to z-scores and any participant scores that were outside of a score of 3.29 were considered outliers. No outliers were found for the DSQ variables. As such, the assumption of normality was met.

When examining the normality of the Defense-Q variables, two variables were found to have skewness and/or kurtosis z-scores greater than 2.58. These were Projection ($z_{\text{skewness}} = 3.20$) and Splitting ($z_{\text{skewness}} = 4.013$ and $z_{\text{kurtosis}} = 5.62$). When examining for outliers, one outlier for Splitting was found. This outlier was removed from the data set, but doing so did not improve the skewness and kurtosis values for Splitting. To try to achieve normality, square root, log, and inverse transformations were performed on the data. None of these transformations achieved a normal distribution in the data, which is a common complication of transformations (Dunlap, Chen, & Greer, 1994). There is debate whether transforming the data is the best solution with some arguing that it increases power and r values (e.g., Dunlap et al., 1995) and others arguing that Pearson r is robust to violations of normality (e.g., Havilicek & Peterson, 1977; Norris & Aroian, 2004). Because the transformations did not result in more normally distributed data and because of the debate in the literature, the Pearson r analyses were completed despite the non-normal distribution.

Normality was also examined in the DMM data. All three variables were skewed and Projection and Identification were kurtotic. There were no outliers for any of the variables. As

described above, transformations were completed. However, one transformation did not achieve normality for all three variables. As such, the analyses were completed on the data which was not normally distributed.

Linearity. In addition to normality, the variables were also examined for linearity. As such, a scatterplot of each of the cells of the correlations was conducted. This plot was used to examine whether there was a linear relationship between the variables. For all of the cells, there was no indication of any curvilinear relationships. As such, the assumption of linearity was met.

Coder Reliability

Defense-Q. To examine the reliability among the three coders for the defenses used in the current study, intraclass correlation coefficients were calculated using a two-way random effects model. The coefficients were -.18 (Passive Aggression), .07 (TAO), .15 (Rationalization), .20 (Splitting), .42 (Intellectualization), .45 (Neurotic Denial), .50 (Devaluation), .59 (Grandiosity), .64 (Projection), .68 (TAS), and .69 (Acting Out).

DMM. To examine reliability between the two coders, intraclass correlation coefficients were calculated using a two-way random effects model. The coefficients were .82, .92, and .96 for Denial, Projection, and Identification respectively.

Correlations

Pearson r correlations were conducted between the defenses from the DSQ, Defense-Q, and DMM which were included in Studies 2, 3, and 4. Correlations were calculated between the defenses that were common between two measures. Results are reported in *Table 4*. No defense was significantly correlated between the three measures.

Based on the results of the initial correlations, which showed poor convergent validity between the three defense mechanism measures, post-hoc analyses were conducted to examine whether the defense styles from each measure, as well as the ADP similarity Score from the Defense-Q, were correlated with each other as found in previous research. Results from these correlations are presented in *Table 5*. The Defense-Q ADP Similarity Score was positively correlated with the DSQ Mature defense style ($r = .379, p = .005$). No other correlations were significant.

Lastly, the three defense mechanisms from the DMM have also been scored according to immature and mature forms (see Hibbard & Porcerelli, 1998). As such, correlations were conducted between the immature and mature forms of each defense and the defenses and defense

styles from the DSQ and Defense-Q to examine whether these scores converged. There were no significant correlations between any of the defenses or styles (see Table 6).

Study 1 Discussion

Convergent Validity Between Individual Defenses

The goal of Study 1 was to examine the convergent validity among the individual defense mechanisms from each measure used in Studies 2, 3, and 4. Correlation analyses were conducted examining the association between the defenses measured by both the DSQ and Defense-Q, which included Acting Out, (Neurotic) Denial, Idealization, Passive Aggression, Projection, Rationalization, and Splitting. The convergent validity between the DMM and the other two measures was examined for the defenses, Denial and Projection. Results from all analyses showed no significant correlations between any of the defenses.

Although previous research has evaluated the convergent validity among defense measures for defense styles, only one study has examined convergent validity of individual defense mechanisms (Bond et al., 1989). In this study, Bond and colleagues (1989) examined the associations between the defense mechanisms from the DSQ and the DMRS. Their results showed only four defenses mechanisms significantly correlating between the two measures (Neurotic Denial, Splitting, Projective Identification, and Omnipotence/devaluation). The authors discussed the three major problems in the development of defense mechanism measures, which may subsequently influence convergence among measures. These included interrater reliability, validity, and conceptual clarity

The first problem of interrater reliability, is not a feature of the self-report measures, such as the DSQ, but is characteristic of observer-report and projective measures. In the current study, the DMM showed good reliability in this sample with intraclass coefficients ranging from .82 to .96. The Defense-Q, however, showed very poor interrater reliability for many of the defense mechanisms. For example, the coefficients were -.18 for Passive Aggression, .07 for TAO and .15 for Rationalization. The highest coefficient only reached a value of .69, which was for Acting Out. Therefore, most of the defense mechanisms' reliability coefficients were poor with some reaching the lower end of the adequate range. Given the low reliability, it is likely that the error among coders decreased the probability of achieving significant correlations between the defenses.

Although poor, the reliability values found in the current study are consistent with previous studies which have found reliability between coders for individual defenses to show adequate to poor results. For example, studies examining the reliability of the individual defenses in the DMRS have shown poor values. Perry and Cooper (1986) found that the median defense reliability was .36 with a range of .11 to .59⁴⁹ and a few years later, Bond and colleagues (1989) found a median reliability of .41 with a range of .04 to .80.⁵⁰ Compared to the DMRS, the Defense-Q has shown higher interrater reliability with alpha coefficients for individual defenses ranging from .28 to .92 with a mean of .73.⁵¹ Because of the poor inter-rater reliability, there exists substantial measurement error in the analyses conducted.

A second problem that Bond and colleagues (1989) indicate in defense assessment is validity. As discussed above, convergent validity between observer-report measures is confounded by the problem of inter-rater reliability. In addition, the convergent validity between different defense assessment methods (e.g., self-report vs. observational) is reduced by the varying context in which the defenses are assessed. Situational factors are a variable influencing many psychological tests, but for defense mechanism assessment context is an especially difficult factor due to the unconscious nature of the construct. For example, self-report requires an individual to answer questions via paper and pencil methods and report on behaviours that are unconscious, whereas observational and projective methods require an individual to be placed in a slightly stressful interview context and have others assess the person's unconscious processes and behaviours. The varied testing environments influence the amount of stress an individual is experiencing which may in turn affect the defenses used as well as the degree to which a defense may present itself. Furthermore, the behaviours a person self-reports may be quite different from the behaviours and processes that an objective coder observes or infers (Cramer, 1999). Therefore, the number, types, and severity of defenses may vary depending on the context of the testing situation.

Finally, Bond states that the third issue plaguing defense measures is conceptual clarity (Bond et al., 1989). Because many measures have different definitions for defenses, it leads to increased measurement differences when assessing defenses. For example, the DSQ's

⁴⁹ These values are not provided in Perry and Cooper's 1986 paper, but are later provided in Bond and colleagues' 1989 paper.

⁵⁰ In both of these papers, the alpha coefficients for specific defenses are not provided.

⁵¹ The alpha coefficients for the defenses used in the current study were .90 (Acting Out), .76 (Rationalization), .75 (Projection), .75 (Idealization), .73 (Neurotic Denial), .62 (Passive Aggression), and .42 (Splitting).

assessment of Devaluation includes the attribution of exaggerated negative qualities to the self and others, whereas the Defense-Q's definition of Devaluation includes only the attribution of exaggerated negative qualities to a nonself object. This difference in the operationalization leads to the assessment of slightly different behaviours which may explain why some individual defenses do not converge. The DMM also has many differences in the way defenses are operationalized compared to other measures. For example, in the assessment of Denial, Cramer includes aspects of other defenses, such as Reaction Formation and Undoing (Cramer, 1991). Therefore the score derived from the measure is not a 'pure' score for Denial, relative to how other measures define this defense. The Defense-Q goes beyond the assessment of a general Denial, and even separates it further into two levels of Denial; Psychotic Denial and Neurotic Denial. Once again, these differences lead to problems in convergent validity among measures. The problem of conceptual clarity was discussed in detail by George Vaillant in his book chapter *The Need for a Uniform Nomenclature for Defenses* (1992). Vaillant argued that until a consensually agreed upon nomenclature is developed, it will remain difficult for the acceptance of defense mechanisms both clinically and empirically. Vaillant discussed the first attempt to include defense mechanisms in the *DSM-III* whereby the committee of experts could not agree on the number of defenses to include, as well as the specific definitions for each defense. Because of this, the first attempt was abandoned. Seven years later, there was more agreement between individuals and as such defense mechanisms were placed in the *DSM-III-R* (1987; Skodol & Perry, 1993). Despite this advance in the field, he still believed that there were many differences between researchers in the way defenses were conceptualized. One of the problems he discussed is the difficulty of having "mutually exclusive definitions". He argued that because defenses are unconscious processes and can not be directly observed, but rather are observed indirectly through the distortions and symptoms a person presents (or derivatives), this makes it difficult to develop mutually exclusive definitions. Furthermore, defenses are more a process than an entity, which further complicates the measurement. Despite these difficulties, Vaillant argued that a consensual nomenclature and mutually exclusive definitions need to be agreed upon. Without these clear definitions, clinical recognition and empirical research are greatly impeded and even impossible. Vaillant ends the chapter presenting an attempt at a list of common defenses demonstrating the commonalities and differences between some definitions of defenses between measures, hoping to improve the agreement between researchers on the

number of and definitions of defenses (1992). One year later, Skodol and Perry published an article entitled *Should an axis for defense mechanisms be included in the DSM-IV?* where they presented the committee on defense mechanisms' agreed-upon proposed axis for defense mechanisms which was later published in the DSM-IV (1993; APA, 1994).

In sum, the current study found no significant correlations between the individual defenses from the three measures. This finding is consistent with one previous study that found very few correlations for individual defenses between the DSQ and DMRS. Conceptual, contextual, and inter-rater reliability issues exist in the development and use of defense mechanism assessments tools, especially for the assessment of individual defense mechanisms.

Convergent Validity Between Defense Styles

Because results from the original analyses showed no significant correlations between individual defenses, the convergent validity was examined among the defense styles from each measure. These analyses were chosen because previous research findings have shown convergence among measures for summary scores, including defense styles, and thus would aid in distinguishing whether the original findings were due to lack of convergence of individual defenses or lack of validity in the current sample (Bond et al., 1989). The results of these additional analyses showed a significant positive correlation between the Mature Defense Style from the 72-item DSQ and the ADP Similarity Score from the Defense-Q. No other correlations were significant.

The convergent validity between the DSQ and Defense-Q has been found in previous studies. For example, MacGregor and Olson (2005) also found a significant positive correlation between the Adaptive defense style and the ADP Similarity Score ($r = .30$). Although the Adaptive and Mature defense styles from the 88- and 72- item DSQs have some differences in the items which make up the scales, they generally measure the same set of adaptive defenses. In their study, MacGregor and Olson (2005) also found the ADP Similarity Score to be negatively correlated with the Maladaptive defense style from the 88-item DSQ ($r = -.24$), which was not replicated in the current study with the Immature defense style from the 72-item DSQ. As with the Mature and Adaptive styles, we would expect the Immature and Maladaptive scales to have similar associations to the ADP Similarity Score given that they are both assessing the maladaptive level of one's defense use. The current study had a smaller sample size ($N = 56$) compared to MacGregor and Olson's (2005) study who achieved a very large sample size of 232

participants. It is likely that with a larger sample, a significant association may have been found.

The association of the ADP Similarity Score and the DMM was also examined in the current study. The results showed no correlation between these two measures, neither when examining the DMM original scoring method (i.e., Denial, Projection, and Identification scores), or with the DMM aggregate scores (i.e., immature and mature forms of each defense). This study was the first to examine the convergent validity between these two measures. Given that Cramer designed the DMM to measure three levels of defenses, with Denial being the most immature and Identification being the most mature, it would have been expected to see the ADP Similarity Score correlate positively with Identification and negatively with Denial. There were no significant findings however. One reason for this could be the effects from conducting parametric analyses on data that is not normally distributed. There is a debate in the literature as to whether conducting these analyses increases the chance of a Type II error or whether correlation analyses are robust to the assumption of normality (e.g., Dunlap et al., 1995; Havilicek & Peterson, 1977). As such, it is difficult to conclude what the implications of the nonparametric data were on the current analyses. Another suggested reason for increased error is the reliance on good inter-rater reliability for both measures. The DMM showed good reliability, but the Defense-Q showed poor inter-rater reliability which would increase measurement error and may have reduced the chance of finding significant results. However, despite the low inter-rater reliability for individual defenses, the ADP Similarity Score has been shown to have good inter-rater reliability ($r = .77$; Davidson et al., 2004). This is consistent with most observer report measures who show poor reliability for individual defenses, but adequate for summary scales (e.g., DMRS, Perry & Cooper, 1986). Finally, another possible reason for the lack of association between the two measures could be conceptual differences in their development. Cramer created the DMM as a tool to assess the developmental maturity of children and adolescents (Cramer, 1991). Each of the three defenses is seen as a developmental level comprised of many behaviours and multiple defenses. For example, Cramer states that Denial is a very early defense seen in young children and is visible through the use of Denial, as well as Reaction Formation and Undoing. Projection is seen in later childhood and Identification in adolescence (Cramer, 1991). The Defense-Q was developed to assess defenses in adults and is based on a hierarchical theory of defenses. Due to these differences, it is possible that the two measures are not converging because their conception is based on slightly different theory and targeting different populations.

In sum, the current study found one significant positive correlation between the DSQ's Mature defense style and the Defense-Q's ADP Similarity Score. No other correlations between defense styles were significant. The DMM did not significantly correlate with any other styles. Some additional explanations for these results include the conceptual and theoretical differences in the development of each measure, as well as the impact of low reliabilities for some of the scales.

Conclusion and Implications for Research

In the current study, the convergent validity was examined between the individual defense mechanisms and defense styles among the DSQ, Defense-Q, and DMM. No correlations were significant between the individual defense mechanisms and only one correlation was significant between the defense styles (i.e., ADP Similarity Score positively correlated with the DSQ Mature defense style). The results of the study may have been influenced by measurement issues, such as low inter-rater reliability for the Defense-Q individual defenses and significantly skewed and kurtotic variables for the DMM. Theoretical and methodological issues may have also affected the findings, including conceptual differences between the measures, as well as the effect testing situation has on the ability to measure defenses, especially between the different methods of assessing defenses (i.e., self-report, observer-report, vs. projective). Together, these issues create difficulties in assessing convergent validity among various defense measures and therefore may have affected the results of the current study.

Given all the difficulties in assessing individual defense mechanism, and the problems of inter-rater reliability and lack of convergent validity, one is led to question the construct of defense mechanisms and the subsequent ability to research this construct empirically. First, let us examine the construct of defense mechanisms. Looking back at the historical development of defense mechanisms, it is evident that the number of defenses, as well as definitions of each defense, has frequently changed throughout time. Freud first discussed defense mechanisms as one defense, Repression, and then later argued the existence of multiple defense mechanisms (1894/1962). Freud remained ambivalent about the number of defenses, but Anna Freud later compiled and published a list and definitions of ten defense mechanisms (1936/86). In more recent years, we see similar patterns with some researchers focusing on very few defense mechanisms (e.g., Cramer) and others focusing on larger lists of defenses (e.g., Bond, Perry, Vaillant). Even with those that focus on larger numbers of defenses, we have seen changes in the

number of defenses within a single measure. For example, Bond's original 88-item DSQ which included 24 defenses has been revised into 72- and 40-item DSQ's which include 20 defenses (Andrews et al., 1993). These changes have been a result of both measurement issues, as well as conceptual issues. Since the inclusion of defense mechanism definitions and the Defensive Functioning Scale in the *DSM* (APA, 2000), as well as some researchers (e.g., Vaillant) making attempts at achieving uniformity (Vaillant, 1992), there is more acceptance of common defense definitions and many measures are being revised to reflect the definitions (e.g., Defense-Q). Therefore, despite a long history of differences in defense definitions between measures, there have been recent attempts at achieving common definitions and thus, this will likely influence and improve convergence among measures in future years.

The second question is whether researchers can empirically evaluate these constructs when there is so much variability between measures. Despite the findings in both the current study and in previous studies of problems in inter-rater reliability and convergent validity for individual defenses, previous research has shown support for other aspects of reliability and validity. For example, the DSQ has shown good test-retest reliability with all individual defenses showing reliability values greater than .60 except for Denial (.48) and Suppression (.27; Andrews et al., 1993). Test-retest reliability for the DMM, however, has shown lower reliability with values ranging from .26 to .47 (Cramer, 1991). When dividing the sample into groups by grade, Cramer found that the reliability for Denial which is the most characteristic defense at this time, was higher (.46) while the other two defenses' reliability was lower at this grade (.24 for each). At grade 6, Cramer found that the reliability for Projection and Identification was higher (.30 and .41 respectively) compared to .07 for Denial. She suggested that when a defense is characteristic of a group, it is easier to achieve better reliability compared to when the defense is not characteristic. Despite the low values, she concluded that there was some support for reliability of the scales.

In addition to reliability, defense measures have shown good criterion validity. For example, the DSQ has shown that the adaptive defense mechanisms are associated with nonpatient samples, while the maladaptive defenses are associated with patient samples (Bond et al., 1983). To further look at individual defenses, research findings have also shown that individual defenses have often correlated with theoretically expected mental disorders. For example, one defense mechanism considered characteristic of anxiety is Displacement, which

has been shown to be empirically associated with anxiety disorders (e.g., Andrews et al., 1993). Another example is the theoretical association between depression and Turning Against Self, which has been supported empirically as well (e.g., Kwon, 1999). Therefore, empirical findings are showing evidence of reliability and validity of defense mechanisms, despite the problems related to convergent validity and inter-rater reliability.

The problem of convergent validity can not be ignored, however, even if other aspects of validity have support. The lack of convergent validity provides evidence that the individual defenses within each measure are likely assessing different derivatives of the same construct. As discussed above, some measures are adapting their conceptual definitions which may improve convergent validity in future research and reduce this problem. However, given the contextual differences between the types of assessments used for each measure, it is possible and probable that there will continue to be some problems in convergent validity. For example, a self-report measure is asking an individual to report on conscious derivatives of unconscious mechanisms. This may be especially difficult for some defenses, such as Denial, where a person is asked to acknowledge they are not aware of something. This difficulty is evidenced in the lower internal consistency and test-retest reliability seen for Denial in self-report measures (alpha coefficient = .10 and test-retest $r = .48$; Andrews et al., 1993). Whereas in an observer-report measure we might be better able to capture this behaviour. For example, in the Defense-Q an observer may witness a person not acknowledging particular circumstances or consequences in their life. The inter-rater reliability for Neurotic Denial was .45 in the current study and .73 in previous studies (Davidson & MacGregor, 1996). Cramer (1999) argues that it is “logically inconsistent” to have a person self-report on their unconscious defenses and expect that report to be associated with an observer or projective assessment of defense mechanisms. She states that it is theoretically expected that these attempts to establish convergent validity between the various assessment methods will likely be unsuccessful and she recommends establishing validity through alternate methods (e.g., concurrent validity).

The ability of each method of assessment to reliably assess their defenses is largely affected by the specific derivative of the defense it is assessing. Because of these differences as well as the complicated nature of defense mechanism assessment, it is important for researchers to use more than one method of assessing defenses. By doing so, this will allow for diverse assessment and will likely capture the most thorough results. Because of this complicated issue,

the following studies followed a multi-method assessment of defenses. In Study 2, a self-report measure was used to assess defenses (DSQ) and then in Study 3, the DSQ and an observer-report measure (Defense-Q) were used. Finally, in the last study (Study 4), the DSQ and a projective measure (DMM) were used to assess defenses.

STUDY 2

Method

Participants

Six hundred and seventy four participants were recruited from a Canadian university. Participants from this sample were selected based on whether they met criteria to be included in either of the two groups. Participants who met criteria for the BPD group had a t-score of 70 or greater on the BOR scale of the PAI and a t-score of less than 70 on the ANT scale. Participants who met criteria for the APD group had a t-score of 70 or greater on the ANT scale and a t-score of less than 70 on the BOR scale. Participants who had scores greater than 70 on both the ANT and BOR scales were not included in the study. Thirty-seven participants were included in the BPD group and 38 in the APD group. As described under *Results*, one outlier was removed from the study, therefore resulting in a final sample of 37 in the APD group. Sixty percent of the total sample was female and 93.7% was Caucasian. The mean age of the sample was 19.8 with a range of 18 to 33 years. Many of the participants in each group had elevations on other clinical scales on the PAI. The most common concurrent elevations in the BPD group were on the Suicide (46%) and Depression scales (51%) and in the APD group the most common elevations were on the Alcohol (35%) and Aggression (14%) scales.

Measures

PAI (Morey, 1991). The PAI is a measure of mental health and personality functioning (Morey, 2003). It was developed with a theoretically informed approach that emphasized construct validation. The measure assesses four validity scales, 11 clinical scales, five treatment scales, and two interpersonal scales. The two clinical scales, Borderline Features (BOR) and Antisocial Features (ANT), were used in the current studies. In the following paragraphs the development of the PAI and the BOR and ANT scales will be discussed specifically, followed by the research findings on the validity and reliability of the PAI.

To develop the BOR and ANT scales, a review of both historical and contemporary literature was completed, and key components were chosen from the concepts for which items

were developed. This theoretical construct validation approach was chosen over a pure empirical approach (e.g., criterion-keying or factor analysis) so that the assessment could be evaluated within a theoretical context (Morey, 2003). In the final developmental stages of the measure, Morey used both conceptual and empirical means in choosing items. Morey aimed to choose items that would meet guidelines for both content and discriminant validity (Morey, 2003). Content validity was achieved through developing scales that sampled the important elements of the constructs intended to be measured. It was intended to provide both breadth and depth in its coverage and Morey aimed to not have any elements of constructs measured by only one item. Discriminant validity was also an important factor considered in the development of the PAI. Morey states that one major threat to the discriminability of test scales is test bias, where a test measures a factor, such as a demographic variable, instead of the intended construct itself. For example, although antisocial behaviour is higher in males than females, a scale of antisocial behaviour should show greater correlations with other measures of antisocial behaviour than with sex (Morey, 2003). To reduce test bias, every item in the PAI was reviewed by a panel consisting of many professionals and nonprofessionals, as well as men and women from many cultural backgrounds. Morey's (2003) goal was to have this panel identify any items that may reflect other factors (e.g., culture) instead of the constructs intended to be measured. In addition, Morey psychometrically evaluated the item properties for any relations that were confounded by demographics. For example, if crying was related to depression in women, but not men, then an item assessing crying was eliminated.

The reliability of the PAI has been assessed in many samples. In Morey's original studies, internal consistency was demonstrated to be good with median alpha coefficients for the full scales of .81, .82, and .86 in the census, college, and clinical samples respectively. The values for the BOR scale were .87, .86, and .91 respectively and the values for the ANT scale were .84, .86, and .86 respectively. Morey also presented test-retest reliability correlations. In the community sample these correlations ranged from .29 for the Inconsistency scale to .94 for the Alcohol Problems scale, with a reliability value of .90 for both the BOR and ANT scales. In the college sample, the reliability ranged from .32 for the Inconsistency scale to .90 for the Alcohol problems scale, with values of .82 and .87 for the BOR and ANT scale respectively. Test-retest reliability was not assessed for the clinical sample. Boyle and Lennon (1994) also examined test-retest reliability and internal consistency. He found test-retest reliability to be adequate (.70

median coefficient) with the reliability values of .73 and .63 for the BOR and ANT scales respectively. Internal consistency was shown to be adequate (.80 median coefficient) with the BOR (.88) and ANT (.84) scales showing good internal consistency.

Finally, the validity of the PAI has also been examined. To assess the construct validity, Morey examined the correlations between the scales of the PAI and many other measures of psychosocial functioning (Morey, 1991). For example, the validity of the BOR and ANT scales was assessed by correlating them with the Minnesota Multiphasic Personality Inventory (MMPI), NEO Personality Inventory, Bell Object Relations Inventory, and the Hare Self-Report Psychopathy. Results showed the expected direction of correlations. Specifically, the BOR scale correlated positively with the subscales from the Bell Object Relations Inventory, Neuroticism, the Borderline scale from the MMPI and the ANT scale correlated positively with the Antisocial scale of the MMPI, and the Hare Self-Report Psychopathy.

Research has also evaluated the specific construct validity of the BOR and ANT scales. Kurtz and colleagues (1993) examined the concurrent validity of three self-report measures at assessing BPD. They conducted correlation analyses between an undergraduate samples' scores on the PAI, MMPI Personality Disorders Scales, and the Bell Object Relations Inventory. Correlations among measures were analyzed to examine convergent validity. Results showed that the BOR scale correlated significantly with the borderline scales from the other measures and that the BOR scale demonstrated higher correlations with the borderline scales (e.g., .63 with the MMPI Borderline scale) compared to other traits measured by those measures (e.g., antisocial (.51) and paranoid (.45) scales of the MMPI). Trull (1995) also examined the validity of the BOR scale of the PAI. Convergent validity was assessed by conducting ANOVAs comparing individuals high on the BOR scale to those low on the BOR scale on many psychosocial variables (e.g., mood, five factors, coping, general psychopathology symptoms). As expected, results showed that the borderline group scored higher on these measures, including depressive symptoms, neuroticism, interpersonal sensitivity, anxiety, hostility, and global severity index.

Walters and Geyer (2004) evaluated the construct validity of the PAI in a forensic sample. Correlations were conducted between nine scales on the PAI with the Psychological Inventory of Criminal Thinking Styles. Results showed significant correlations between all of the thinking scales and the ANT scale from the PAI. A lack of significant correlations between the

other 8 PAI scales (e.g., Somatization, Anxiety, Depression) and most of the thinking scales provided support for discriminant validity of the measure. Walters, Duncan, and Geyer (2003) also examined the convergent validity of the ANT scale by correlating it with the Psychopathy Checklist-Revised (PCL-R). The ANT scale correlated with the PCL-R total scales, as well as with the Factor 1 (affective and interpersonal features) and Factor 2 (behavioural features) scales. However, the correlation was nearly twice as high for the Factor 2 than Factor 1.

Overall, the PAI has shown adequate to good reliability and validity in both nonclinical and clinical samples. The BOR and ANT scales have shown good internal consistency and good construct validity.

Defense Style Questionnaire (DSQ). The DSQ, as described in Study 1, was used.

Procedure

Participants were asked to complete the PAI and DSQ. Some participants only completed one of the measures, rather than completing both. Four hundred and sixty participants completed both the PAI and DSQ. Participants were divided into two groups based on their scores on the PAI, as described under *Participants*. Those participants who met criteria for the APD and BPD groups were included in the analyses.

Data Analysis

The goal of the study was to evaluate whether BPD and APD can be differentiated based on defense mechanisms. To evaluate this question, a discriminant function analysis (DFA) is the preferred statistical analysis. However, Field (2005) states that to first evaluate whether there are any statistical differences between groups on the dependent variables, one can first conduct a Multivariate Analysis of Variance (MANOVA). Once results reveal a significant difference on the dependent variables, to further understand the data a DFA can be used. Therefore, a MANOVA was conducted evaluating the differences between the BPD and APD on the following defense mechanisms: Splitting, Projection, Idealization, Denial, Rationalization, Acting Out, and Passive Aggression. Following this analysis, a DFA was conducted to further interpret whether the included defense mechanisms are able to differentiate between the BPD and APD groups.

Lastly, many participants who did not meet criteria for one of the experimental groups had completed the PAI and DSQ (460). As such, correlation analyses were completed in this

larger sample between the ANT and BOR scales of the PAI and the individual defenses used in this study to further examine the relation between the scales and defenses.

Results

Testing Assumptions

Both the MANOVA and DFA analyses are parametric tests which assume a normal distribution in the data (Field, 2005). As such, the assumptions of normally distributed data, homogeneity of variance, and multicollinearity have been analyzed.

Normality. To examine normality, the z-scores for the skewness and kurtosis values of each dependent variable were calculated. One variable, Projection, had both a skewness and kurtosis z-score greater than 2.58 ($Z_{\text{skewness}} = 3.89$ and $Z_{\text{kurtosis}} = 5.49$) indicating that the variable was both significantly skewed and kurtotic. In addition, the data were examined for outliers. The scores for each participant were converted to z-scores and any participant scores that were outside of a score of 3.29 were considered outliers. One outlier was detected which had a Projection z-score of 3.95. This outlier was removed from the data set. Skewness and Kurtosis were re-evaluated for Projection and the z-scores were no longer significant. As such, the data was normally distributed.

Homogeneity of variance-covariance matrix (Box's M Test). Because the sample size of the two groups was equal and there were no longer any outliers, the Box's M Test was robust to the assumption of homogeneity of variance. The Box's M test was not significant, $F(28, 18064.029) = .960, p = .524$, and therefore, this assumption was met.

Multicollinearity. Multicollinearity occurs when there is a strong correlation between two or more predictors. To examine whether the data are multicollinear, one can examine the determinant of the correlation matrix. For multicollinearity to be a problem the determinant would be below .00001 (Field, 2005). The log of the determinant from the correlation matrix was -1.1149, indicating that the assumption has been met.

MANOVA Results

The means and standard deviations for each defense mechanism are presented in *Table 7*. Results of the Wilks' Lambda multivariate test indicates that there was a significant difference between the APD and BPD on defense mechanisms, $F(7, 66) = 5.236, p < .001$. This effect accounted for 35.7% (η^2) of the variance with an observed power of .996.

To further analyze the data, the univariate analyses were examined. It was hypothesized that Splitting, Idealization, Acting Out, and Passive Aggression would be higher in the BPD group and that Rationalization would be higher in the APD group. Consistent with the hypotheses, results revealed that Acting Out ($p = .001$) and Passive Aggression ($p < .001$) were significantly higher in the BPD group compared to the APD group. There were no significant differences for Splitting, Idealization, or Rationalization. In addition, Denial and Projection were compared between the two groups, but there were no specific hypotheses made. Results revealed significant differences between the groups on Denial ($p = .008$) and Projection ($p = .005$). Denial was significantly higher in the APD group and Projection was higher in the BPD group. All of the results remained significant following a Holm adjustment (see *Table 7*). Passive Aggression accounted for the highest amount of variance ($\omega^2 = 14.3\%$) followed by Acting Out (12.7%), Projection (9.0%), and Denial (7.98%). The observed power ranged from .766 (Denial) to .950 (Passive Aggression).

DFA Results

One discriminant function was calculated, $\chi^2(7) = 30.258, p < .001$ which significantly separated the APD and BPD group. The classification procedure for the sample of 74 participants showed that overall 79.7 % were classified correctly, compared to 50% who would be by chance. The classification rates were similar for the BPD and APD groups with 81.1% and 78.4% being correctly classified, respectively. The stability of the classification was checked through a cross-validation. The overall classification rate was 64.9% with similar classification rates for each group (62.2% for BPD and 67.6% for APD).

Correlation Results

Correlations were conducted between the BOR and ANT personality scales of the PAI and each of the defenses in the previous analyses. Four hundred and sixty participants completed both the PAI and the DSQ and therefore 460 participants were included in these analyses. Results indicated five defenses were positively correlated with the BOR scale. These included Acting Out ($r = .514, p < .001$), Passive Aggressive ($r = .459, p < .001$), Projection ($r = .495, p < .001$), and Splitting ($r = .296, p < .001$). Six defenses were positively correlated with the ANT scale. These were Acting Out ($r = .339, p < .001$), Denial $r = .220, p < .001$), Passive Aggression ($r = .286, p < .001$), Projection ($r = .342, p < .001$), Rationalization ($r = .207, p < .001$), and

Splitting ($r = .235, p < .001$). One defense, Idealization, was negatively correlated with the ANT scale, $r = -.117, p = .012$.

Study 2 Discussion

The goal of the current study was to examine whether seven defenses from the DSQ could significantly differentiate a sample of university students high on APD traits and a sample high on BPD traits. First, a MANOVA was conducted to examine whether the seven defenses significantly separated the two groups. The MANOVA was followed by univariate analyses to examine which defenses significantly separated the groups. Second, a DFA was conducted to further explore the ability of defense mechanisms to differentiate the two groups by examining what percentage of the participants could be correctly classified by defenses. Finally, because a large number of participants completed the DSQ and PAI who did not meet inclusion criteria for one of the personality groups, correlation analyses were conducted exploring the association between each defense and the ANT and BOR scales from the PAI for all of these participants. Together, the data from these analyses were used to explore the hypotheses.

Can Defenses Separate the APD and BPD Groups?

The MANOVA and DFA multivariate analyses revealed that the APD and BPD groups were significantly separated by the seven defenses as a group. No previous study has completed a MANOVA analysis to examine whether a group of defenses differed between APD and BPD groups. One study has previously examined whether APD and BPD groups could be separated by a DFA analyses. Perry and Cooper (1989) performed a DFA to determine whether five summary scales of defenses from the DMRS could discriminate among APD and BPD groups, as well as a Bipolar II group. The DFA revealed no significant results. The authors concluded that the utility of one defense measure to discriminate among disorders that are closely related is limited. The results of the current study, however, indicate that one defense measure is able to discriminate between APD and BPD groups. Perry and Cooper's (1989) results were likely affected by the small sample size with ten, eight, and nine participants in the BPD, APD, and Bipolar II groups respectively. This small sample size with five dependent variables does not achieve adequate power for the analysis.⁵² The current study's sample included 37 participants in each group, which provided the analyses with adequate power. These significant results indicated that 79.7 % were classified correctly and 64.9% were cross-validated. The classification rates

⁵² see Stevens (2007) for a brief review of power calculations.

were similar for both groups. The results of the MANOVA and DFA analyses are an extension in the literature indicating that defenses can be utilized to differentiate between APD and BPD groups.

Specific Defenses and their ability to Separate the APD and BPD Groups

Defenses Characteristic of BPD. It was hypothesized that Splitting, Idealization, Acting Out, and Passive Aggression would be higher in the BPD group compared to the APD group. The correlation analyses revealed that Splitting, Acting Out, and Passive Aggression were correlated with the BOR scale, but the MANOVA's post-hoc analyses showed that only Acting Out and Passive Aggression significantly differed between the BPD and APD groups. As hypothesized, both these defenses were higher in the BPD group. Previous research has found that BPD was associated with the Maladaptive defense style (e.g., Bond, 1990; Bond et al., 1994), which included Acting Out and Passive Aggression. In addition, Lingiardi and colleagues (1999) found that Acting Out was correlated with BPD, but they did not find any significant correlations between Passive Aggression and any Cluster B personality disorder. This was the first study to examine and find that the individual defenses, Acting Out and Passive Aggression, were significantly higher in a BPD group compared to the APD group.

In addition to the hypothesized results, this study found that Projection was significantly higher in the BPD group compared to the APD group. Lingiardi and colleagues (1999) and Berman and McCann (1995) both found that Projection was correlated with APD, but not with BPD. In addition, Cramer (1999) found that Projection, as measured by the DMM, was correlated with APD, but not with BPD and that Projection was a significant predictor of APD, but not BPD. Despite these empirical results, many have argued that theoretically Projection and its more primitive form, Projective Identification, would be more characteristic of BPD compared to APD because BPD is a lower level disorder compared to APD (e.g., Perry & Cooper, 1986). The results revealed that Projection was correlated with both APD and BPD, but the univariate analysis revealed that Projection was significantly higher in the BPD group compared to the APD group. Therefore, in this study the result was consistent with theoretical expectations, but not with previous empirical results.

The results of the correlation analyses also demonstrated that Splitting was correlated with the BOR scale. This is consistent with previous theory and previous research which has demonstrated the association between Splitting and BPD (e.g., Berg, 1990; Blais et al., 1999).

The results of this study, however, did not support the hypothesis that Splitting would be higher in the BPD group compared to the APD group. Although no studies have compared the means of Splitting between these two groups, many research studies have shown the association between Splitting and BPD and one study has shown Splitting to be not significantly associated with APD (Perry & Cooper, 1986). In the current study, Splitting was positively associated with both the BOR and ANT scales, indicating that in this sample, Splitting was characteristic of both BPD and APD. Explanations for these findings will be explored in detail in the General Discussion.

Finally, Idealization was hypothesized to be more characteristic of BPD than APD. The results of the univariate ANOVA's did not support the hypothesis, indicating there was no difference in Idealization between the two groups. Furthermore, Idealization was not significantly correlated with BPD. This is inconsistent with previous research results which have shown this association (e.g., Hilsenroth et al., 1993). However, there are some studies which have also found no association between Idealization and BPD (e.g., Lingardi et al., 1999).

In conclusion, results from the current study support the hypotheses that Acting Out and Passive Aggression were higher in the BPD group compared to the APD group. Furthermore, although Splitting was not higher in the BPD group, as expected, it was correlated with the BOR scale. Idealization, however, was not associated with the BOR scale. Finally, Projection was shown to be both correlated with the BOR scale and to be higher in the BPD group compared to the APD group. Together, these results show some support for the hypothesized relations between defenses and BPD. Explanations for these findings will be discussed in detail in the General Discussion.

Defenses Characteristic of APD. It was hypothesized that Rationalization would be higher in the APD group. Rationalization was correlated with the ANT scale, but was not significantly higher in the APD group compared to the BPD group. Gacono and Meloy (1988) postulated that as an individual with APD becomes more developmentally advanced, they will utilize Denial less and Rationalization more. Perry and Cooper (1988) included Rationalization in the Disavowal defense style which they found to have a trend towards correlating with Antisocial symptoms, therefore indicating possible support for the hypothesis. Lingardi and colleagues (1999), however, did not find any significant correlation between Rationalization and APD or BPD. The current study revealed mixed results, as Rationalization was correlated with the ANT scale, but was not significantly higher in the APD group compared to the BPD group.

Although no hypothesis was made regarding Denial, Denial was both correlated with the ANT scale and was higher in the APD group. Theory has postulated that Denial is a defense characteristic of both APD and BPD (e.g., Kernberg, 1984). Consistent with theory, Cramer (1999) found that Denial from the DMM was correlated with BPD and APD. However, Perry & Cooper (1986) found that the “Disavowal” defense style, which was composed of Denial, as well as Projection and Rationalization, showed a trend towards correlating with Antisocial symptoms in a group of clinical patients and was not correlated with a APD diagnosis, a BPD diagnosis, or BPD symptoms. The finding in the current study that Denial was correlated with the ANT scale and was higher in the APD group, is consistent with Perry & Cooper’s (1986) findings.

In addition, the correlation analyses revealed that Acting Out, Passive Aggression, Projection, and Splitting were positively correlated with the ANT scale, and Idealization was negatively correlated with the ANT scale. It was expected that Acting Out, Passive Aggression, Splitting, and Idealization would be higher in the BPD group. Acting Out and Splitting demonstrated this finding, but the correlation analyses revealed that these defenses were also associated with the ANT scale. In addition, Splitting, which was not higher in the BPD group as expected, also demonstrated significant correlations with both the APD and BPD scales. Projection, in which no hypothesis was made, demonstrated correlations to both scales, but showed a higher score in the BPD group compared to the APD group. The results of these analyses demonstrate some support for Kernberg’s theory which posits that all of these defenses are characteristic of a borderline personality organization in which both APD and BPD fall within (1984). Another interesting finding was the negative correlation between Idealization and the ANT scale. It was expected that Idealization would be associated with BPD, but this correlation was not found. Because Idealization is not a defense expected to be associated with APD, it was consistent with expectations that the ANT scale was negatively associated with Idealization.

In sum, the expectation that Rationalization would be significantly higher in the APD group was not supported in the current study. Rationalization was, however, correlated with the ANT scale. Denial was both correlated with the ANT scale and was higher in the APD group compared to the BPD group. In addition, all of the seven defenses were significantly correlated with APD. Together, this information indicates some support for Kernberg’s theory that APD falls within a borderline personality organization as it relies on borderline-level defenses.

Implications and explanations for the results will be discussed in detail in the General Discussion.

Conclusion

Taken together, the results of the study show support for some hypotheses regarding individual defenses being more characteristic of one disorder over the other. For example, as expected, Acting Out and Passive Aggression scores were higher in the BPD group. Some hypotheses were not supported, however, such as the expectation that Splitting would be higher in the BPD group and Rationalization would be higher in the APD group. Furthermore, the results of the correlation analyses support Kernberg's theory which posits that both of the disorders are in the borderline personality organization and therefore demonstrate use of similar level defenses. Even with the high number of correlations, however, the MANOVA and DFA results demonstrate that defenses can be used to differentiate APD and BPD groups.

Strengths and Limitations. The current study has extended the literature by providing some support for theoretical expectations that BPD and APD can be differentiated by defenses. Only one previous study has examined a similar hypothesis, where Perry and Cooper (1986) evaluated, through a DFA analysis, whether defense styles could be used to differentiate among APD, BPD, and Bipolar II. Their study revealed no significant findings, but was limited by a very small sample size. One strength of the current study was that its sample size was large enough to achieve adequate power and detect significant differences. Furthermore, the use of participants' data who did not meet criteria for one of the groups allowed additional analyses to be run.

Despite the current study's results which supported some of the hypotheses, some hypotheses were not supported. For example, Splitting was expected to be higher in the BPD group, but results demonstrated that Splitting correlated with both scales and did not differ between groups. One reason for this null finding could be related to the measurement and sample issues discussed in the Study 1 Discussion. One limitation of the current study is that it is a non-clinical sample and therefore the high utilization of maladaptive defenses, such as Splitting, that would be expected in a clinical sample, may not be evident in a sample of students who are high on BPD traits. A further limitation of the current study is that defenses were assessed with only one measure, which was a self-report measure. As discussed in Study 1, there are limitations to each method of assessing defenses and as such it is recommended to utilize more than one

assessment method. In Study 3, the DSQ will be used again along with an observer-report measure, the Defense-Q. Together, these methods will be evaluated to examine whether defenses can aid in the differentiation of APD and BPD groups.

STUDY 3

Method

Participants

Fifteen hundred and thirty nine participants were recruited from a Canadian university. Participants initially completed the PAI to identify those that met criteria for the study's groups (see Study 2 description of criteria). Participants who met criteria for the study were asked to return to complete the DSQ and ESI. Ninety-three participants returned, providing 56 and 37 in the APD and BPD groups respectively. As discussed below, three outliers were removed resulting in samples sizes of 54 and 36. In addition, one of the participants left a couple questions blank on their DSQ and as such only 35 participants were used in the DSQ analyses. In this sample, 66.1% were female and 93.9% were Caucasian. The mean age of the sample was 19.48 with a range of 18 to 26 years. Many of the participants in each group had elevations on other clinical scales on the PAI. The most common concurrent elevations in the BPD group were on the Suicide (28%) and Depression scales (36%) and in the APD group the most common elevations were on the Alcohol (37%) and Drug (32%) scales.

Measures

PAI. The PAI, as described in Study 2, was used in this study to assess personality disorder traits.

DSQ. The DSQ, as described in Study 1, was used.

ESI for Defense Mechanisms Ratings. The ESI, as described in Study 1, was used.

Defense-Q. The Defense-Q, as described in Study 1, was used.

Procedure

Overall Procedure. Participants completed the PAI in the initial meeting. Those that met criteria for the study were then called back to complete the DSQ and ESI. From the video-recorded ESI, coders assessed defense mechanisms according to the Defense-Q.

Data Analysis

DSQ. In order to replicate the findings in Study 2, a MANOVA and DFA analyses was conducted with the same defenses.

Defense-Q. A MANOVA was conducted with the following variables entered as the dependent variables: Splitting, Devaluation, Idealization, TAS, TAO, Grandiosity, Projection, Denial, Rationalization, Intellectualization, Acting Out, and Passive Aggression. Following this, a DFA analyses was conducted to examine whether defense mechanisms were able to differentiate between the BPD and APD groups.

Results

Testing Assumptions

DSQ. As in Study 1 and 2, the z-scores for the skewness and kurtosis values of each dependent variable were calculated. There were no skewness or kurtosis z-scores greater than 2.58. In addition, there were no outliers. As such, the data was normally distributed. To evaluate the homogeneity of variance, the Box's M test was evaluated. The Box's M test was not significant, $F(28, 22140.046) = .909, p = .603$, and therefore, this assumption was met. Lastly, the log of the determinant from the correlation matrix was -1.6832, indicating that the assumption of multicollinearity was met. As such, all of the assumptions required for the MANOVA and DFA analyses were met for the DSQ defenses.

Defense-Q. Many of the Defense-Q variables were significantly skewed (Acting Out, Intellectualization, Passive Aggression) and kurtotic (Idealization, Passive Aggression, Projection). In addition, there were outliers on variables Projection, Passive Aggression and Idealization. Once the three outliers were removed, the variables still did not meet the assumption of normality. Square root, log, and inverse transformations were completed, but did not result in the data meeting the normality assumption. The assumption of homogeneity of the variance-covariance matrices was not violated as indicated by Box's M test, $F(78, 17946.185) = .898, p = .729$. Lastly, the log of the determinant was -2.51323 and therefore there was no violation of the assumption of multicollinearity. Even though the data were not normally distributed, the MANOVA and DFA analyses are robust to this assumption when the sample size is large and the assumptions of homogeneity and multicollinearity are not violated. As such, the data analyses were completed on the data despite their violations of normality.

DSQ Results

MANOVA Results. The means and standard deviations for each defense mechanism are presented in *Table 8*. Results of the Wilks' Lambda multivariate test indicates that there was a

significant difference between the APD and BPD on defense mechanisms, $F(7, 81.000) = 3.047$, $p = .010$. This effect accounted for 20.8% (η^2) of the variance with an observed power of .922.

To further analyze the data, the univariate analyses were examined. It was hypothesized that Splitting, Idealization, Acting Out, and Passive Aggression would be higher in the BPD group and that Rationalization would be higher in the APD group. Consistent with the hypotheses, results revealed that Acting Out ($p = .004$) and Passive Aggression ($p = .001$) were higher in the BPD group compared to the APD group. These results remained significant following Holm adjustments. Passive Aggression accounted for 12% (ω^2) of the variance and Acting Out accounted for 9.3% with observed powers of .926 and .838, respectively.

There were no significant differences between the groups for Splitting, Idealization, and Rationalization. In addition, Denial and Projection was compared between the two groups with no specific hypotheses made. Results showed no significant differences between the groups for these defense mechanisms.

DFA Results. One discriminant function was calculated, $\chi^2(7) = 19.518$, $p = .007$ which significantly separated the APD and BPD group. The classification procedure for the sample of 89 participants revealed that 71.9 % were classified correctly. The classification rates were 48.6% for the BPD group and 87.0% for the APD group compared to 39.3% and 60.7% which would have been correctly classified by chance. The stability of the classification was checked through a cross-validation. The total classification rate was 67.4% with a classification rate of 45.7% in the BPD group and 81.5% in the APD group.

Defense-Q Results

Coder Reliability. To examine the reliability among the three coders for the defenses used in the current study, intraclass correlation coefficients were calculated using a two-way random effects model. The coefficients were .27 (Splitting), .33 (Projection), .41 (Idealization), .56 (Devaluation) .60 (TAO), .61 (Rationalization), .62 (TAS), .64 (Passive Aggression), .64 (Neurotic Denial), .65 (Acting Out), .73 (Intellectualization), and .74 (Grandiosity).

MANOVA Results. The means and standard deviations for each defense mechanism are presented in *Table 9*. Results of the Wilks' Lambda multivariate test indicates that there was a significant difference between the APD and BPD on defense mechanisms, $F(12, 77) = 3.199$, $p = .001$. This effect accounted for 33.3% of the variance with an observed power of .989.

To further analyze the data, the univariate analyses were examined. It was hypothesized that Splitting, Idealization, TAS, Acting Out and Passive Aggression would be higher in the BPD group. Consistent with the hypotheses, results revealed that TAS ($p = .007$) was higher in the BPD group. Splitting, Idealization, Acting Out, and Passive Aggression were not significantly higher in the BPD group compared to the APD group. It was also hypothesized that Devaluation, TAO, Grandiosity, Rationalization, and Intellectualization would be higher in the APD group. Results revealed that Devaluation ($p = .011$) and Grandiosity ($p = .016$) were significantly higher in the APD group. However, these results did not remain significant following Holm adjustments. Lastly, Denial and Projection were examined but no hypotheses were made. Results showed that Neurotic Denial ($p = .040$) was higher in the APD group and Projection ($p = .042$) was higher in the BPD group. These results were no longer significant after Holm adjustments. TAS accounted for the highest amount of variance (partial $\omega^2 = 6.8\%$) followed by Devaluation (6.0%), Grandiosity (5.2%), Neurotic Denial (3.6%), and Projection (3.5%). The power ranged from .553 for Projection to .778 for TAS.

DFA Results. One discriminant function was calculated, $\chi^2(12) = 33.168, p < .001$ which significantly separated the APD and BPD group. The classification procedure for the sample of 90 participants showed that 78.9 % were classified correctly. The classification rates were higher for the APD group (85.2%) compared to the BPD group (69.4%) compared to 60% and 40% which would occur by chance. The stability of the classification was checked through a cross-validation. The classification rate was 71.1% with the classification rate higher in the APD group (75.9%) compared to the BPD group (63.9%).

Study 3 Discussion

The goal of the current study was to evaluate whether defense mechanisms, as measured by a self-report and an observer-report measure, could differentiate between a university sample high on APD traits and a university sample high on BPD traits. MANOVA and DFA analyses were completed separately for each measure. Univariate analyses were also completed to evaluate specific hypotheses regarding differences between groups for each defense mechanism in the analysis.

Can Defenses Separate the APD and BPD Groups?

The MANOVA and DFA analyses revealed that the seven defenses from the DSQ and the twelve defenses from the Defense-Q were able to separate the APD and BPD groups. The

results are consistent with the results from Study 2, which indicated that the DSQ was able to separate groups. Furthermore, the current study's results have extended the results from Study 2 by demonstrating that the two groups were able to be significantly separated using an observer-report measure. Perry and Cooper (1986) previously examined whether APD, BPD, and Bipolar II groups were able to be separated with an observer-report measure, the DMRS, and found no significant results. As described in the Study 2 Discussion, this study had a very small sample size which likely reduced its ability to achieve significant separation between the groups.

The DFA analyses in the current study demonstrated that the DSQ defenses successfully classified 71.9% of the participants and the Defense-Q correctly classified 78.9% of the participants. In both of these analyses, however, the APD group was classified at a higher rate compared to the BPD group (e.g., 87% compared to 48.6% and 85.2% compared to 69.4% for the DSQ and Defense-Q respectively). One of the reasons for this classification differential could be the larger sample size in the APD group. The APD group contains 60% of the sample, therefore increasing the probability of classifying participants into this group. The DSQ and Defense-Q classified the BPD group at similar rates, but the APD group was classified at a much lower rate with the DSQ. This differential was not seen in Study 2 with the DSQ classification rates. One notable difference between the two results is that in Study 2 the univariate results revealed that BPD and APD scored higher on more specific defenses, compared to only two defenses in the current study which were higher for BPD. Because no defenses were significantly higher for the APD, this likely reduced the discriminant function from classifying at a higher rate.

Specific Defenses and Their Ability to Separate the APD and BPD Groups

Defenses Characteristic of BPD. It was hypothesized that Acting Out and Passive Aggression would be higher in the BPD group compared to the APD group. Results from the DSQ analyses revealed that these defenses were higher in the BPD group. However, results from the Defense-Q analyses revealed no differences between the two groups on Acting Out or Passive Aggression. The results from the DSQ were consistent with the results from Study 2. Study 1, which examined the convergent validity between the measures, demonstrated that these defenses between the Defense-Q and DSQ were not correlated. Therefore, it is possible that the derivatives of Acting Out and Passive Aggression as measured by the DSQ are able to

differentiate the two groups, whereas the behaviours measured by the Defense-Q are not. Further examination of these measure differences will be explored in the General Discussion.

It was also hypothesized that Splitting and Idealization would be higher in the BPD group compared to the APD group. Results from both the DSQ and Defense-Q analyses revealed no significant differences. This is consistent with the results of Study 2, and as previously discussed, is inconsistent with the expectations based on previous research (e.g., Berg, 1990; Blais et al., 1999; Hilsenroth et al., 1993; Perry & Cooper, 1986).

Perry and Cooper (1986) argued that one difference between those with BPD compared to those with APD is the direction of which they will attribute negative qualities; to the self or to others. They posited that those with BPD would turn the negative qualities towards themselves and as such it was hypothesized that TAS would be higher in the BPD group compared to the APD group. This result was significant showing support that TAS may be higher in BPD. Berman and McCann (1995) have shown that BPD was associated with TAS and that APD was not, but no previous study has compared means between these groups.

Finally, there was no hypothesis made regarding Projection, but results revealed that Projection was significantly higher in the BPD group for the Defense-Q analyses. However, this result did not remain significant following the Holm adjustment. Furthermore, the DSQ analysis did not reveal any significant result for Projection. The DSQ results were inconsistent with the results of Study 2 which demonstrated that Projection was higher in the BPD group compared to the APD group. Explanations for these results will be discussed in the General Discussion.

In conclusion, the results of the current study showed partial support for some of the hypotheses. For example, as expected Acting Out and Passive Aggression, as measured by the DSQ), and TAS, as measured by the Defense-Q, were higher in the BPD group compared to the APD group. These results and further explanations for the findings will be explored in detail in the General Discussion.

Defenses Characteristic of APD. It was hypothesized that Devaluation and Grandiosity, as measured by the Defense-Q, would be higher in the APD group compared to the BPD group. The results of the current study supported these hypotheses, although the findings were no longer significant following Holm adjustments. Perry and Cooper (1986) argued that individuals with APD traits would be more likely to externalize their thoughts and feelings, as well as blame others. As such, it was expected that both Devaluation and TAO would be higher in the APD

group compared to the BPD group. Previous research has found TAO to be characteristic of APD (Berman & McCann, 1995), but the results of the current study showed no differences in TAO between the groups. The results did show, however, that the APD group was higher on Devaluation compared to the BPD group, although this finding was not significant following the Holm adjustments. Perry and Cooper (1986), as well as Gacono and colleagues (1992), also hypothesized that Omnipotence/Grandiosity would be more characteristic of APD than BPD. The results of the current study supported this hypothesis, but once again the finding was not significant following a Holm adjustment. The implications for these results will be discussed in detail in the General Discussion.

There was no hypothesis for Neurotic Denial, but results from the Defense-Q showed that Neurotic Denial was higher in the APD group, although following Holm adjustments, this result was not significant. Furthermore, Denial from the DSQ demonstrated no significant difference between groups. Kernberg (1984) argued that Denial was characteristic of both APD and BPD and the results of Study 2 supported this argument by showing that Denial was correlated with both the ANT and BOR scale. However, the MANOVA analysis revealed that Denial was higher in the APD group compared to the BPD group. This result was not replicated in the current study with the DSQ, but was replicated with the Defense-Q's Neurotic Denial. The Defense-Q results were consistent with previous findings from Perry and Cooper (1986). These inconsistent results will be explored further in the General Discussion.

Finally, it was hypothesized that Rationalization and Intellectualization would be higher in the APD group. The results showed no significant differences between the two groups for these defenses. The results for Rationalization were consistent with the results from Study 2 and inconsistent to the expectations of Gacono and Meloy (1988). The results for Intellectualization were inconsistent with previous findings that showed Intellectualization to be correlated with APD but not BPD.

In sum, results from the current study showed some slight support for the hypotheses. For example, as expected Devaluation and Grandiosity were higher in the APD group compared to the BPD group. However, results were no longer significant following Holm corrections. Explanations and implications for the results will be examined in detail in the General Discussion.

Conclusion

The current study revealed support for some of the hypotheses. As expected, results from the DSQ revealed that Acting Out and Passive Aggression were higher in the BPD group and results from the Defense-Q revealed that TAS was higher in the BPD group and Devaluation and Grandiosity were higher in the APD group. The DSQ results, however, were not replicated with the Defense-Q and many Defense-Q results did not remain significant following Holm adjustments. As such, the results show only slight support for the hypotheses.

Strengths and limitations. The current study has extended the literature by providing some support for theoretical expectations that BPD and APD can be differentiated by defenses. Furthermore, the study used both self-report and observer-report methods of assessing defenses and indicated that both of these methods can differentiate the two groups. The size of the samples in the current study was a strength to the study, since previous research has often utilized very small samples (e.g., Perry & Cooper, 1986). In addition, because of differences between the methods of assessing defenses, another strength was that the current study utilized both a self-report and observer-report measure to test its hypotheses.

Although the current study had many strengths, there were also some sample and measurement issues which likely contributed to some of the inconsistent and null findings. One limitation previously described in Study 2 was the use of a nonclinical sample, which may have reduced the chance of finding significant results. One measurement issue was, as discussed in Study 1, the conceptual differences in the measures' conceptualization for each defense mechanism. In the current study, some results showed that a defense was higher in one group for one measure, but that the result was not replicated with the other measure. For example, Acting Out was higher in the BPD group compared to the APD group but only Acting Out as measured by the DSQ. In Study 1, the issue of different measures assessing different derivatives of a defense was discussed. The findings in the current study suggest that possibly the DSQ and Defense-Q are assessing different derivatives of defenses, such as Acting Out, and possibly one derivative is more associated with BPD than the other. Because of these differences, it was suggested by the author that researchers use multi-method assessment approaches when assessing defense mechanisms. The current study utilized this approach by using a self-report and observer-report measure. This approach will be continued in Study 4 where a self-report will be utilized again, as well as a projective measure.

STUDY 4

Method

Participants

Eight hundred and forty-one participants were recruited from a Canadian university. Participants initially completed the PAI to identify those that met criteria for the study's groups (see Study 2 description of criteria). Participants who met criteria for the study were asked to return to complete the DSQ and TAT. Fifty-one participants returned, providing 26 and 25 in the APD and BPD groups respectively. In this sample, 62.3% were female and the mean age was 21.20 with a range of 18 to 42 years. Many of the participants in groups had elevations on other clinical scales on the PAI. The most common concurrent elevations in the BPD group were on the Suicide (36%) and Depression scales (56%) and the most common elevations in the APD group were on the Alcohol (23%) and Drug (31%) scales.

Measures

PAI. The PAI, as described in Study 2, was used in this study to assess personality disorder traits.

DSQ. The DSQ, as described in Study 1, was again used.

DMM. The DMM, as described in Study 1, was used.

Procedure

Participants were recruited from a Canadian university. Participants were first screened for the presence or absence of high traits of BPD or APD by completing the PAI. Those who met criteria for the groups were called back to complete the DSQ and the TAT for the DMM assessment of defenses.

Data Analysis

DSQ. In order to replicate the findings in Study 2 and 3, a MANOVA and DFA analyses were conducted with the same predictor variables.

DMM. A MANOVA and DFA analyses were conducted with Denial, Projection, and Identification as predictor variables.

Results

Testing Assumptions.

DSQ. To examine normality, the z-scores for the skewness and kurtosis values of each dependent variable were calculated. There were no skewness or kurtosis z-scores greater than

2.58. In addition, there were no outliers. As such, the data was normally distributed. To evaluate the homogeneity of variance, the Box's M test was evaluated. The Box's M test was not significant, $F(28, 8337.820) = .770, p = .801$, and therefore, this assumption was met. Lastly, the log of the determinant from the correlation matrix was -2.12519 , indicating that the assumption of multicollinearity was met. As such, all of the assumptions required for the MANOVA and DFA analyses were met for the DSQ defenses.

DMM. Projection and Denial were both significantly skewed ($z_{\text{skewness}} = 3.67$ and 3.58 respectively). There were no outliers for any of the variables. Square root transformations were completed, which resulted in both variables meeting the assumption of normality.

The assumption of homogeneity of the variance-covariance matrices was examined in both the transformed and non-transformed data. The assumption was not violated in the transformed data, as indicated by Box's M test, $F(6, 18767.603) = 1.269, p = .268$, but was violated in the non-transformed data, $F(6, 18767.603) = 2.106, p = .049$. Lastly, the log of the determinant is $-.57797$ and -5.0871 in the non-transformed and transformed data sets respectively. -2.51323 and therefore there was no violation of the assumption of multicollinearity.

Because of the violation of assumptions with the data, MANOVA and DFA analyses were conducted on both the non-transformed and transformed data sets. The analyses produced similar results in both data sets and as such the non-transformed results will be interpreted (for ease of interpretation).

DSQ Results

MANOVA Results. The means and standard deviations for each defense mechanism are presented in *Table 10*. Results of the Wilks' Lambda multivariate test indicated that there was a significant difference between the APD and BPD on defense mechanisms, $F(7,43) = 4.890, p < .001$. This effect accounted for 44.3% (η^2) of the variance with an observed power of .990.

To further analyze the data, the univariate analyses were examined. It was hypothesized that Splitting, Idealization, Acting Out, and Passive Aggression would be higher in the BPD group and that Rationalization would be higher in the APD group. Rationalization was significantly higher in the APD group compared to the BPD group ($p = .010$), however, this result did not remain significant following Holm adjustments. There were no significant differences for Splitting, Idealization, Acting Out, or Passive Aggression. Although no specific

hypotheses made, results also showed a significant difference between the APD and BPD groups on Denial ($p < .001$), which was higher in the APD group. This result remained significant following a Holm adjustment. Denial accounted for 21.2% (ω^2) of the variance and Rationalization accounted for 10.9% with observed powers of .964 and .750, respectively.

DFA Results. One discriminant function was calculated, $\chi^2(7) = 26.644$, $p < .001$, which significantly separated the APD and BPD groups. The classification procedure for the sample of 51 participants showed that 76.5 % were classified correctly. The classification rates were 73.1% for the BPD group and 80.0% for the APD group compared to 51% and 49% which would have been correctly classified by chance. The stability of the classification was checked through a cross-validation. The total classification rate was 72.5% with a classification rate of 69.2% in the BPD group and 76.0% in the APD group.

DMM Results

Coder Reliability. To examine the reliability among the two coders for the defenses used in the current study, intraclass correlation coefficients were calculated using a two-way random effects model. The coefficients were .73 (Denial), .86 (Projection), and .88 (Identification).

MANOVA Results. The means and standard deviations for each defense mechanism are presented in *Table 11*. Results of the Wilks' Lambda multivariate test indicated that there was no significant difference between the APD and BPD on defense mechanisms, $F(3, 49) = .468$, $p = .706$. The observed power of this analysis was .138.

DFA Results. The analysis revealed no significant discriminant function, $\chi^2(3) = 1.40$, $p = .706$, that significantly separated the APD and BPD group. Although there was no significant discrimination between the two groups, the classification procedure for the sample of 51 participants showed that 58.5 % were classified into the correct group. The classification rates were higher for the BPD group (66.7%) compared to the APD group (50.0%) compared to 51% and 49% which would occur by chance. The stability of the classification was checked through a cross-validation, which demonstrated a 47.2% classification rate.

Study 4 Discussion

The goal of the current study was to examine whether defense mechanisms could significantly differentiate between a sample of university students high on APD traits and a sample high on BPD traits. The study utilized both a self-report and a projective measure to assess defenses. MANOVA and DFA analyses were conducted for both measures.

Can Defenses Separate the APD and BPD Groups?

The MANOVA and DFA multivariate analyses revealed that the APD and BPD groups were significantly separated by the seven defenses from the DSQ. This finding is consistent with the findings from the previous two studies. The results from the DMM, however, indicated that the three defenses from this measure were not able to significantly separate the two groups. As discussed previously, one previous study found that APD and BPD groups could not be separated by defenses from the DMRS in a DFA analysis (Perry & Cooper, 1986). One possible theoretical reason for the null findings with the DMM could be the developmental influence in the creation of the measure. The DMM was created to assess defensive level on a developmental continuum (Cramer, 1991). For example, Denial is characteristic of early childhood, Projection of later childhood, and Identification of adolescence. The measure has been used to assess differences in adult samples, such as between patient and healthy control samples (e.g., Cramer, 2006; Hibbard et al., 1994). However, the measure has not been utilized to assess differences between very similar disorders. The relation between the defenses and some disorders (e.g., Cramer, 1999) has been evaluated, but the groups' means have not been compared for the DMM defenses. Furthermore, Kernberg (1984) argues that APD and BPD are both within the borderline personality organization and as such their ego functioning is more similar than different. Cramer's DMM, which is based on developmental theory and not on theory of individual defenses or a hierarchy of defense theory, may be tapping into level of ego functioning more than it is tapping into individual defense mechanism differences. Based on this level of ego functioning theory, Cramer (1999) argued that Denial would be more characteristic of BPD because, although BPD and APD are both considered disorders within the Borderline Personality Organization, BPD is considered a disorder of slightly lower functioning. Consistent with her hypothesis, she found that Denial was the strongest and only significant predictor of BPD. Her results also demonstrated that Denial was a significant predictor of APD, although Projection was a stronger predictor. These analyses were regression analyses and Cramer did not conduct MANOVA or DFA analyses to examine the ability of the defenses to separate the two groups. Based on her finding that Denial was characteristic of both disorders, it suggests support for Kernberg's theory that APD and BPD fall within the borderline personality organization. It is possible that the null findings from the current study reflect the theoretical similarities between these disorders that the DMM might be capturing, instead of individual defense differences.

In contrast to the DMM, the DSQ was developed based on the theory of individual defenses. The results of the analysis were significant, indicating that the groups were able to be separated based on defenses. The results suggest that the DSQ may be better able to capture differences in defense mechanisms between psychiatric disorders. This is consistent with previous literature where there is evidence of the DSQ's ability to identify differences between disorders (e.g., Bond, 1990), and the lack of evidence of the DMM's ability to do so. The research on the DSQ, however, has focused on defense styles, whereas the current study focused on assessing individual defenses. The current results demonstrated that there were mean differences between APD and BPD groups for individual defenses. This raises an interesting question in need of further research; namely how individual defenses and their relation to a specific disorder interacts with the relation between defense styles and the disorder. Defense styles are constructed on the basis of individual defenses that are considered to be similar in terms of hierarchy, developmental levels, adaptiveness, etc., but this does not necessarily equate to different styles being able to differentiate between groups. For example, the DSQ's maladaptive defense style includes many defenses, such as Projection, Passive Aggression, Acting Out and Denial. Some research has shown that BPD groups use the Maladaptive defense style more than other personality disorder groups. This result can be misleading, however, if an individual looks at the defenses within this defense style and assumes that a BPD group will use all of these defenses more than other groups. Results of the current study, for example, have provided evidence that Denial is used more by individuals in the APD group, despite being in the Maladaptive defense style which is used more by BPD groups. This reduction of information into styles rather than individual defenses, therefore, may be of concern and lead to inaccurate conclusions when trying to differentiate between disorders. The same style, as demonstrated above, may demonstrate a relation to a particular disorder, but when examining the style at the individual defense level, the relation between disorders and defense changes. This needs to be further explored in research.

Specific Defenses and their ability to Separate the APD and BPD Groups

Defenses Characteristic of BPD. It was hypothesized that Splitting, Idealization, Acting Out, and Passive Aggression would be higher in the BPD group compared to the APD group. The results revealed no significant differences between the two groups for these defense mechanisms. These results for Splitting and Idealization were consistent with the results of the

previous two studies. In all three studies, the results revealed no significant differences between the groups for these defenses, which was inconsistent with expectations and previous findings (Berg, 1990; Blais et al., 1999; Hilsenroth et al., 1993; Perry & Cooper, 1986). These findings will be discussed in more detail in the General Discussion.

The results for Acting Out and Passive Aggression also did not support the hypotheses. These results, however, were inconsistent with the results from the previous two studies which showed Acting Out and Passive Aggression, as measured by the DSQ, to be higher in the BPD group. The findings were also inconsistent with previous literature. One reason for the null findings could be related to sample size. The sample size for each group was smaller than the previous two studies. However, the F values were very small indicating that even with a slightly larger sample, the results would have likely remained nonsignificant. Study 2 showed that Acting Out and Passive Aggression were associated with the ANT and BOR scales from the PAI. Despite the associations, results from the MANOVA analyses in Study 2 and Study 3 revealed that these defenses were higher in the BPD group.

There was no hypothesis made for Projection, and results revealed no significant differences for Projection between the BPD and APD group. This result is consistent with Study 3 and inconsistent with Study 2, which showed that the BPD group was higher on Projection than the APD group. The null findings in the current study were demonstrated with Projection as measured by both the DSQ and DMM. As previously discussed, the findings demonstrating no differences in Projection between the groups were consistent with theoretical expectations (e.g., Kernberg, 1984) and inconsistent with previous results (Lingiardi et al., 1999).

In conclusion, results from the current study did not support any of the hypotheses regarding Acting Out, Idealization, Passive Aggression and Splitting. Reasons for these null findings will be fully explored in the General Discussion.

Defenses Characteristic of APD. It was hypothesized that Rationalization would be higher in the APD group compared to the BPD group. The results of the analyses supported this expectation based on Gacono and Meloy's (1988) hypothesis, although following a Holm adjustment the result was no longer significant. In addition, although no hypothesis was made regarding Denial, results from the DSQ demonstrated that Denial was higher in the APD group compared to the BPD group. This finding was not supported with the DMM's measurement of Denial. Theory has proposed that Denial is a defense characteristic of both APD and BPD (e.g.,

Kernberg, 1984) and some research has supported this hypothesis (e.g., Cramer, 1999). However, as previously discussed, some research has suggested that Denial may be more associated with APD than BPD (Perry & Cooper, 1986). The DSQ finding in the current study is consistent with Perry & Cooper's (1986) findings. Denial, as measured by the DMM, however, was not consistent with this finding as there was no difference between the groups for this defense mechanism. Reasons for this null finding may be related to the theory behind the development of the DMM, as discussed above.

In sum, the results of the current study supported the hypothesis that Rationalization would be higher in the APD group, although this was only a trend. The results also demonstrated that Denial, as measured by the DSQ, was higher in the APD group, although this finding was not replicated with the DMM. Further explanation and exploration of these results will be discussed in detail in the General Discussion.

Conclusion

The current study demonstrated support that the APD and BPD groups were able to be differentiated by defenses. This was supported by the DSQ analyses. The results revealed support for the hypothesis that Rationalization would be higher in the APD group compared to the BPD group, but demonstrated no support of any of the other hypotheses. In addition, Denial as measured by the DSQ, was higher in the APD group. Furthermore, the results of the MANOVA and DFA analyses indicated that the DMM defenses were not able to separate the two groups. Taken together, the results suggest that the DSQ defenses provide support for the ability of defenses to differentiate the groups, but there was no support that the DMM defenses were able to do so.

Strengths and limitations. The current study has replicated the findings from Study 2 and 3 indicating that the BPD and APD groups are able to be differentiated by the defenses from the DSQ. Although the DMM showed no significant findings, the methodology of this study extended the literature by utilizing both a self-report and projective measure within the same study.

Although the study revealed some significant findings, the study was limited by some sampling and methodological issues. For example, as with the previous studies, the current sample was comprised of a nonclinical sample. In addition, conceptual differences between the DSQ and DMM may contribute to the null findings. For example, as discussed above, the DMM

is conceptualized and developed based on a developmental model and not a hierarchical individual defense model. As such, Denial is developed to assess a more immature defense style that is typical of early childhood, rather than assess the specific construct of Denial such as the DSQ. The differences in the theory contributing to the development of each measure may provide some explanation as to the significant findings for the DSQ and the null findings for the DMM. Nonetheless, this was the first study examining the ability of the DMM defense to differentiate between APD and BPD groups. Further research is needed before any conclusions can be drawn.

Next, in the General Discussion, the results from the four studies will be addressed together, linking these results to previous theory and empirical literature in more depth, as well as issues regarding the assessment of defenses in general.

GENERAL DISCUSSION

The goal of the current project was to replicate and expand previous literature evaluating differences in defense use between BPD and APD groups. One limitation of previous studies evaluating defense mechanisms has been the reliance on only one measure. Because of the theoretical and conceptual differences between methods, using one measure confines the comparisons that can be made between studies, thus limiting the conclusions that can be drawn from this research. The current studies utilized three methods of assessing defenses (i.e., self-report, observer, and projective). Because this is the first set of studies to utilize all three assessment types, one study was dedicated to evaluating the convergent validity between the measures. The results from all four studies will be discussed in detail integrating the results of the MANOVA and DFA analyses with the results and implications from the convergent validity study.

Can Defenses Differentiate Between APD and BPD Groups?

The hypotheses proposed that individual defenses would differentiate between the APD and BPD groups. Before examining the specific defenses that significantly differed between the two groups, the first question to be addressed was whether the defenses as a whole were able to separate the groups. The results from the current studies revealed that the DSQ and Defense-Q were able to separate the two groups, but that the DMM was not able to replicate this finding.

DSQ and Defense-Q Contributions

The results from the DSQ and Defense-Q were an extension of the literature. Only one study has previously examined whether defenses could separate APD and BPD groups (Perry & Cooper, 1986). This study used slightly different groups, examining whether defenses, as measured by the DMRS, could separate an APD, BPD, and Bipolar II group. The DFA was not significant and the authors suggested that the association between defenses and personality pathology, as measured by one interview, was limited. As discussed previously, the sample size was very small (10, 8 and 9 in the BPD, APD, and Bipolar II groups, respectively). As such, the lack of significant findings may have been a reflection of the lack of power in the analysis due to the small sample size rather than a lack of ability of defenses to differentiate between the groups. No other study has attempted to replicate Perry and Cooper's study with the DMRS.

The current study was the first study further evaluating the ability of defenses to differentiate APD and BPD groups. This study extended the previous study's (i.e., Perry & Cooper, 1986) methodology by having larger samples and using multiple methods of assessing defenses. The Defense-Q analyses most similarly replicated Perry and Cooper's study, as both the Defense-Q and DMRS are observer-report measures. The Defense-Q results showed significant differences between the two groups and were able to correctly classify 80% of the total sample into their respective group. This percentage was slightly higher for the APD group compared to the BPD group (85.2 % compared to 69.4%), but this difference likely reflected the larger sample size in the APD group. The DSQ extended the literature by showing that defenses measured by self-report were also able to differentiate the APD and BPD groups. Furthermore, the result was replicated in three separate samples. Across the three studies, the DSQ's ability to classify the groups correctly ranged from 72% to 80%. Taken together, these results demonstrated that both a self-report and observer report measure of defenses were able to differentiate and classify APD and BPD groups.

DMM Contribution

The results were not replicated using the DMM indicating that DMM defenses were not significantly different between the groups. As discussed in the Study 4 Discussion, the construction of the DMM was based on a developmental theory of defense levels. This is different from other defense measures, such as the DSQ and Defense-Q, which are based on a theory of pathology and individual defenses. These theoretical differences likely contributed to

the lack of convergent validity between the DMM and the other two measures. This was in contrast, however, to a previous article by Hibbard and Porcerelli (1998) who found convergent validity between the DMM and DSQ. They examined the correlations between the DSQ Mature and Immature styles with the aggregate scores from the DMM. They found a significant positive correlation between the DSQ's Mature style and the DMM's Mature score, as well as a negative correlation to the DMM's Immature style. These correlations were small (.19 and -.23), but did demonstrate support for the convergent validity. This small effect was found in a sample of 106 participants, which is almost twice the size of the current convergent validity study. It is possible that with a larger sample, their findings may have been replicated.

For the MANOVA and DFA analyses the recommended sample size for adequate power in both analyses is three participants in each cell of the design for every dependent variable (Tabachnick & Fidell, 2001). This recommendation was exceeded with 25 and 26 participants in the BPD and APD groups respectively. Therefore, power should not have been limited in the MANOVA and DFA analyses. The results still demonstrated no differences between the groups. Although the DMM has been previously utilized to assess differences between patient and non-patient groups (e.g., Cramer, 2006; Hibbard et al., 1994), the measure has not been used to assess differences between very similar disorders. The current study was the first to evaluate whether personality disorder groups could differ based on mean scores or discriminant function.

The DMM has been previously used to assess the association between disorders and defenses. For example, Cramer (1999) evaluated the association to and prediction of Cluster B personality by defenses with correlation and regression analyses. The results showed that Denial was correlated with both BPD and APD, but was only a significant predictor of BPD. Projection was correlated with and a predictor of APD. However, no analyses were completed to examine whether the defense means differed between the two groups. Because the DMM is based on the theory of developmental levels, instead of individual defenses, the results of the current study were consistent with Kernberg's (1984) personality organization theory which posits that APD and BPD are both within the borderline personality organization and as such are at similar ego functioning levels. Cramer (1999), however, argued that Denial should be more characteristic of BPD because BPD is considered a slightly lower functioning disorder than APD. Consistent with the hypothesis, Denial was the strongest and only significant predictor of BPD in her study (Cramer, 1999). The results, however, demonstrated that Denial was also correlated with APD.

As such, her results suggest that the lowest level defense, Denial, was associated with both APD and BPD. The results from her study, along with the current study, suggest support for Kernberg's theory that APD and BPD fall within the same personality organization level and that the DMM may in fact be capturing defensive level instead of individual defense differences.

In summary, the current studies provided support for the hypotheses that APD and BPD groups can be differentiated based on individual defenses. The results were significant for the DSQ and the Defense-Q, but the current study did not show support for the DMM's ability to differentiate between the two groups.

Specific Defenses and Their Ability to Separate the APD and BPD Groups

Based on theoretical expectations and previous empirical findings, hypotheses were made regarding the defenses expected to be higher in each personality group. MANOVA and DFA analyses were utilized to examine the ability of defenses to separate the two groups. The results are discussed in relation to the hypotheses made in the same order that they were presented in the introduction. For each defense, the hypothesis will be reviewed, followed by the contribution of the present studies to the literature, and a brief summary:

1. *Splitting*

Hypothesis. It was hypothesized that Splitting would be more characteristic of BPD than APD. Based on Kernberg's (1984) theory of personality, Splitting is characteristic of the borderline level of personality organization. Some of the key elements of this level are the lack of an integrated identity of the self and others, along with the reliance on primitive defenses. Elevated use of Splitting is considered characteristic of a borderline personality because it is part of the process that leads to a person's lack of an integrated identity. Although it is believed that both BPD and APD fall within the borderline personality organization, many have argued that Splitting is more characteristic of BPD than APD (e.g., Muller, 1992; Perry & Cooper, 1986). Furthermore, the diagnostic criteria in the *DSM-IV-TR* include one criterion that encompasses this defense; namely "a pattern of unstable and intense interpersonal relationships characterized by alternating between extremes of idealization and devaluation" (APA, 2000, p. 710). This criterion (i.e., defense) is not represented within the criteria of APD. Although an individual with BPD does not currently need to have this symptom to meet criteria for the diagnosis, some have argued that the diagnosis of BPD should be reserved for individuals who use Splitting pathologically (Muller, 1992). On the whole, there is a strong theoretical argument that Splitting

is more characteristic of BPD than APD. Empirical findings have also supported this view, demonstrating that BPD is associated with defensive levels that include Splitting (e.g., Image-Distorting Defense Style; Bond, 1990), and to Splitting specifically (e.g., Berg, 1990). Therefore, even though Splitting is thought to be associated with both disorders, it is expected to be more characteristic of BPD.

Present contribution. The results of the studies did not support the hypothesis that Splitting would be utilized more in the BPD group. The results did show, however, that Splitting was associated with BPD. The correlation analyses revealed a significant positive relation between Splitting and BPD; however, the results also revealed a positive relation between Splitting and APD. Furthermore, the results of the MANOVA and DFA revealed that Splitting scores did not differ between the BPD and APD groups on either the DSQ or Defense-Q.

Although the results of these studies did not support the hypothesis that Splitting use would be higher in the BPD than APD group, they were consistent with Kernberg's conceptualization of BPD and APD as being a part of the borderline personality organization. Only two studies have previously examined differences in Splitting between BPD and APD groups. Perry and Cooper (1986) looked at DMRS defense levels and their relations to symptoms and diagnosis. The borderline defense level (which included Splitting) was positively correlated with BPD symptoms and showed a trend toward positively correlating with BPD diagnosis. There was no significant correlation between this level and APD. Gacono and colleagues (1992) also examined defense differences between BPD and APD groups. They re-evaluated data from previous studies, including one study that assessed Splitting from the Rorschach. The authors found no significant differences between the APD and BPD groups for Splitting. The current studies were consistent with the findings of Gacono and colleagues (1992), but not with those of Perry and Cooper (1986). Perry and Cooper examined the correlation between defensive level and symptoms, however, and not between the individual defense Splitting and symptoms. Therefore, together the results have shown that borderline defenses in general are higher in BPD, but that the individual defense Splitting has not been demonstrated to be higher in BPD.

Before concluding that Splitting is not more characteristic of BPD compared to APD based on these results, measurement issues should be considered. First, although Splitting occasionally occurs over minutes or hours, it most often occurs over longer periods of days or weeks. This temporal aspect of the defense is particularly problematic for observer based defense

measures, which rely on observing behaviours to assess a person's defensive functioning. Difficulties capturing this alternating behaviour in short interviews may be reflected in the absence of the hypothesized relations in the Defense-Q, as well as the poor inter-rater reliability (.27) of Splitting. It is possible that a longer interview, such as the interview often used in DMRS research, may be better able to capture defenses like Splitting.

Self report measures, such as the DSQ, are also limited in their ability to assess Splitting. Questions frequently require participants to determine whether they view things as polar opposites. For example, they might ask a person whether or not they see others as all good or all bad (e.g., "Sometimes I think I'm an angel and other times I think I'm a devil"). This self-report can be problematic for individuals who rely heavily on Splitting because it requires them to have a self-awareness of their inability to integrate and to acknowledge both aspects in a single question. Therefore, the nature of some self-report questions may require a self-awareness of an inability to integrate that is inherently problematic for those who rely heavily on the defense.

Because of these difficulties in assessing Splitting through both self-report and observer-report, it is not surprising that there was a lack of convergent validity between the two measures for Splitting. It is possible the lack of supported hypothesis was due to these measurement issues. It is also possible the finding that Splitting was associated with both APD and BPD is a reflection of the sample characteristics, which would support Kernberg's theoretical expectations. Until the measurement issues are addressed, however, this question may remain unanswered. In regards to the current studies, it is likely that measurement issues compromised the ability to assess Splitting. Nonetheless, both forms of Splitting showed correlations with BPD and APD, suggesting that the behaviours or derivatives that are being assessed by the DSQ are, in fact, associated with both disorders.

Summary. It was expected that Splitting would be higher in the BPD group compared to the APD group. Contrary to theoretical expectations, this result was not found in the current studies. Both the ANT and BOR scales were correlated with Splitting supporting the hypotheses of Kernberg that both disorders share a borderline level of personality. Many measurement issues (e.g., construct validity, inter-rater reliability) have led to difficulties in the assessment of Splitting, however, and as such improvements are needed in the assessment of Splitting before the relation between Splitting and BPD and APD can be fully understood.

2. Devaluation, TAO, and TAS

Hypotheses. Perry and Cooper (1986) have argued that elevated use of Devaluation is evident in both BPD and APD, but that the target of the Devaluation differs between the groups. In BPD, they argue, Devaluation is directed inwards with negative self-thoughts and feelings, while in APD, Devaluation is directed outward toward others. This division of Devaluation can be captured by the Defense-Q because it identifies different defenses depending on the directionality of the Devaluation or blame. For example, TAS is directed at the self whereas Devaluation and TAO are other-focused defenses. Although Devaluation and TAO are both other-focused, TAO directs blame toward the other whereas Devaluation consists of exaggerated negative views of the other. As such, for the Defense-Q it was expected that BPD would be higher on inward directed TAS, while APD would be higher on outward directed Devaluation and TAO.

Present contribution. The results of Study 3 indicated partial support for the hypotheses. Devaluation showed a trend towards being higher in the APD group⁵³. This finding is a new result in the literature. One previous study examined the relation between the DMRS defenses and personality disorders and showed no significant correlation between Devaluation and APD (Lingiardi et al., 1999). Devaluation measured by the DMRS, however, assesses negative views directed both outwards and inwards, which may have obscured the relation hypothesized by Perry and Cooper. Additional research is needed to evaluate whether the trend in the current study is replicable in other samples.

In addition, TAS was significantly higher in the BPD group than the APD group. This result is consistent with a finding in one previous study. Berman and McCann (1995) found that BPD positively correlated with TAS, as measured by the self-report DMI. This supports the theory that posits BPD is associated with an internalization of negative thoughts, feelings, and behaviours. Together, the findings that TAS was higher in the BPD group and Devaluation was higher in the APD group support the hypothesis that in BPD aggressive impulses are directed towards the self, whereas in APD aggressive impulses are directed towards others.

Contrary to the hypothesis, TAO was not higher in the APD group. Berman and McCann (1995) previously found that TAO was positively correlated with APD and not significantly related to BPD. Study 3 did not replicate these findings. Convergent validity was not examined

⁵³ Devaluation was no longer significant following a Holm adjustment.

in the current studies for TAO, but the inter-rater reliability for TAO was adequate (.60). Therefore, it does not appear that this lack of a hypothesized relation is attributable to measurement error. Because the convergent validity was not examined, however, future research in this area would be informative. One explanation for the differences between these studies may be attributable to sample differences between the current sample (i.e., university students) and Berman and McCann's sample (i.e., psychiatric patients). The TAO characteristic in a psychiatric sample may not be as prominent in a university sample that is high on APD traits.

Another factor that could explain the differences in the studies is the measures used. The Defense-Q measures TAO as it is observed in a short interview. The DMI, on the other hand, measures self-reported TAO. Both the interview for the Defense-Q and the questions in the DMI are attempting to capture similar responses to stress. However, one major difference between the two instruments is that the DMI requires a person to choose between defensive reactions. Specifically, in the DMI a person reads a hypothetical situation and chooses what their response to that situation is most likely to be. Each response choice represents a different defense. They are only able to choose what their most likely and least likely defense is for every item. As such, the DMI requires participants to choose between TAO and other defenses, such as TAS, Principalization, etc. The results, therefore, could reflect that when forced to choose between defenses, an APD group is more likely to choose TAO. Taken together the results of this study with the current studies, the results suggest that both BPD and APD groups have general tendencies to TAO; however, when the groups are forced to choose between responses, APD individuals are more likely to choose TAO, whereas BPD individuals are more likely to choose TAS.

Summary. It was expected that TAS would be higher in the BPD group and Devaluation and TAO would be higher in the APD group. The results supported that TAS was higher in the BPD group and provided partial support that Devaluation was higher in the APD group. Contrary to expectations, TAO was not higher in the APD group. This finding may be due to sample and measurement issues, and as such, future research evaluating TAO in APD and BPD groups is needed.

3. *Idealization*

Hypothesis. It was expected that Idealization would be used more in the BPD group. Idealization is considered a defense associated with borderline personality organization

(Kernberg, 1984). Hilsenroth and colleagues (1993) showed that Idealization was used significantly more in a BPD group compared to a Cluster C personality disorder group and Gacono and colleagues (1992) found that a BPD group used Idealization significantly more compared to an APD group. Based on these findings, it was expected that the results of the DSQ and Defense-Q would show Idealization to be more characteristic of the BPD group than the APD group.

Present contribution. The results of the current studies revealed no significant differences between the two groups for Idealization. This result was consistent across the three samples with the DSQ and one sample with the Defense-Q. Furthermore, the results of Study 1 showed no significant correlation between Idealization and the BOR scale. Therefore, Idealization demonstrated no association with BPD.

These results are contrary to previous findings which showed both an association between BPD and Idealization, and also that Idealization was elevated in a BPD group compared to an APD group (e.g., Gacono et al., 1992; Hilsenroth et al., 1993). Both of the previous studies used Rorschach data to examine defenses. No study has previously used self-report or observer measures of defenses to compare Idealization between groups. One likely explanation for the result differences is the conceptualization of Idealization in the measures. Idealization can be assessed as a very primitive defense indicative of psychopathology or a healthier defense utilized to develop a healthy self-concept (Kernberg, 1984; Lerner & Van-der Keshet, 1995). It is primitive Idealization that is expected to be associated with BPD. Idealization assessed in the Rorschach studies is conceptualized as primitive Idealization. This is in contrast to the DSQ and Defense-Q which conceptualize and assess a healthier derivative of Idealization (at the neurotic defense level in the DSQ and in the *somewhat characteristic* pile of an adaptive personality profile of the Defense-Q). Therefore, the results of the current studies are likely a reflection of BPD not being associated with a healthy derivative of Idealization.

The results from Study 1 demonstrated a significant negative correlation between Idealization and APD. This result appears to be inconsistent with Kernberg's (1984) expectations regarding the role of Idealization in all personality disorders within the borderline organization. As described above, this result is likely related to the DSQ's construct of Idealization as a healthier defense. Therefore, the results suggest that APD is negatively correlated with a healthy

derivative of Idealization which supports theoretical expectations regarding the maladaptive nature of APD.

Finally, although the unconfirmed hypotheses can be explained in relation to measure-related issues, it is also important to explore any measurement issues that may have contributed to the lack of significant results. For example, the validity and reliability of Idealization was not high in the current studies. Idealization did not correlate between the DSQ and Defense-Q. Although this may be related to the previous discussion of the different methods assessing different derivatives of the defense, other evidence also questions the reliability of the Idealization construct. For example, the inter-rater reliability for Idealization in Study 3 was poor (.40) and internal consistency of the DSQ Idealization has been demonstrated to be poor (< .40; Andrews et al., 1993). The DSQ's scale is comprised of only three items and therefore alpha is likely reduced due to the small number of items, but nonetheless, the scale does not show evidence of good reliability or validity. Therefore, it is possible that the measurement issues related to Idealization reduced the ability to assess this construct adequately in the current studies.

Summary. The results of the current studies did not support the hypothesis that Idealization would be higher in the BPD group compared to the APD group. Furthermore, Idealization was not associated with the BOR scale from the PAI. The unconfirmed hypotheses are likely a reflection of the DSQ and Defense-Q assessing a healthier derivative of Idealization, instead of the primitive Idealization. Furthermore, the inter-rater reliability and convergent validity of Idealization was not adequate in the current studies and as such, likely compromised our ability to assess this defense. Therefore, the results are only able to suggest that healthy Idealization was not associated with BPD and was negatively associated with APD, but did not differ between the groups. Future research examining primitive Idealization between the groups is still needed.

4. *Grandiosity*

Hypothesis. Gacono & Meloy (1988) have posited that an important component of Splitting for an individual with APD is the alteration between Grandiose and Devalued views of the self (in addition to the alteration between Idealization and Devaluation). Through this combination of defenses the ego is protected by reducing the experience of negative affect and, instead, the self is viewed as superior. Perry and Cooper (1986) further elaborate on why within

the borderline organization APD individuals will rely more on Grandiosity compared to BPD groups. They argue that BPD personality organization is expressed through an extreme need for dependency, whereas APD is expressed through exploitative and other antisocial behaviours. APD is considered a form of a severe narcissism, whereby their Devalued view of the self is defended against through a view of the self that is more superior to others. Based on these theoretical arguments, it was hypothesized that Grandiosity would be higher in the APD group compared to the BPD group.

Present Contribution. The results of Study 3 indicated that Grandiosity was higher in the APD group, but following a Holm adjustment, this became only a trend. This trend is consistent with the results of Perry and Cooper (1986) who found that Narcissistic defenses (including Omnipotence/Grandiosity) were correlated with antisocial symptoms and showed a trend towards significantly correlating with APD diagnosis.

The result demonstrating a trend rather than a significant finding was likely related to two factors. First, conducting the MANOVA with 12 dependent variables increased the chance of a Type I error and as such, the post-hoc Holm procedure adjusted for this error. As a consequence, however, it decreased the power of the analysis and the significant effect was lost. As such, future research needs to replicate this finding to examine whether a more powerful analysis will demonstrate the same effect.

One additional explanation explaining why the result was only a trend could be that Grandiosity was not as pronounced in this sample. This nonclinical sample may not evidence the degree of Grandiosity we may expect in a clinical sample. Perry and Cooper (1986) explained that Grandiosity is heavily relied upon by APD individuals because they experience an extreme form of narcissism that involves the exploitation of others, as well as antisocial behaviours. A nonclinical sample of individuals with high APD traits may not express the degree of exploitativeness and amount of antisocial behaviours compared to a clinical sample, especially a forensic sample. As such, further investigation of this effect in clinical samples needs to be evaluated.

Summary. Grandiosity showed a trend towards being higher in the APD group. The lack of significance was likely influenced by the large number of dependent variables compared to the sample size, as well as the use of a nonclinical sample. The trend provides partial support for Gacono and Meloy's (1988) and Perry and Cooper's (1986) hypotheses that Grandiosity is a

defense linked to APD more so than BPD, but future research is needed to examine whether the trend becomes significant in additional samples (e.g., clinical forensic sample).

5. *Projection*

Hypothesis. Projective Identification is considered a very primitive defense characteristic of Kernberg's borderline personality organization (1984). Projection is a slightly less primitive form of Projective Identification, but is also considered a characteristic defense of this organization. Cramer (1999) believes that because BPD is a more primitive disorder than APD, Projection would be higher in BPD. Perry and Cooper (1986) confirm this hypothesis, agreeing that the more primitive defense would be associated with BPD. They also add that Projection is a defense which leads to more interpersonal instability and dependency and therefore provides further suggestion that it may be more characteristic of BPD. Empirical findings have not uniformly supported this hypothesis, however. Some research has shown that BPD is associated with Projection (e.g., Perry & Cooper, 1986), while other research has shown a relation between APD and Projection (Cramer, 1999). Furthermore, Berman and McCann (1995) have shown a relation between Projection and APD, but not between Projection and BPD. Taken together, this research is suggesting that Projection is associated with both disorders, but may be more strongly associated with APD than BPD, which is contrary to theoretical expectations. Because of these inconsistencies, the difference in Projection between groups was explored with no hypothesis made.

Present contribution. Projection demonstrated slight evidence of being higher in the BPD group. However, these results were not uniform across studies and measures. The DSQ results, for example, demonstrated that in Study 2, Projection was significantly higher in the BPD group. In study 3 and 4 this result was not replicated, although in Study 3 it approached significance. The Defense-Q results demonstrated a trend towards significance indicating Projection was higher in the BPD group. This result was significant, but following a Holm adjustment, became a trend. The DMM results showed no significant differences between the BPD and APD groups for Projection. Taken together, these results show only partial support that Projection was higher in the BPD group.

The evidence that Projection was higher in the BPD group is consistent with theoretical expectations, but is contrary to the previous research findings. For example, Berman and McCann (1995) and Cramer (1999) found that the Projection was associated with APD and not

BPD. The differences in results may be a reflection of the measure used. For example, the DMI (used in Berman and McCann, 1995) is a forced choice test of five defense mechanisms. As discussed previously, the test requires participants to choose between defensive behaviours. Therefore, a person can not score high on all defenses measured (Projection, TAO, TAS, Principalization, and Reversal). The results suggest that for the APD group, among the five defenses, Projection is relied upon more than others.⁵⁴ BPD, on the other hand, was associated with TAS, Principalization and Reversal, indicating the BPD individuals may use these three defenses more than Projection, but does not necessarily indicate that they do not use Projection.

Cramer's (1999) finding that Projection was associated with APD, but not BPD, was also inconsistent with expectations and previous theory. However, as previously discussed, the DMM's assessment of Denial, Projection, and Identification is more an assessment of defense level than individual defenses, ranging from immature (Denial) to mature (Identification). Therefore, the results suggest that APD was associated with a defense level that is moderately immature. The results do not provide detail regarding the specific defense, Projection.

Taken together, the results of the current study support the theoretical hypotheses that Projection is more characteristic of BPD. Although previous research appeared to show results that were inconsistent with theory, when examined in more detail it has become evident that measure-related issues have limited the interpretation of the findings. Although the current studies provided support for the hypotheses, the findings were not consistent across studies and measures. It is possible that measure-related issues also affected the current studies' ability to achieve consistent results. For example, the Defense-Q only showed a trend towards significance. The large number of dependent variables compared to sample size likely reduced the power of the analysis. In addition, the inter-rater reliability (< .40) likely increased the measurement error in the assessment of Projection. Therefore, it is possible that if greater reliability were achieved, a stronger association would have been found.

Another possible measure-related issue contributing to the inconsistent results is the difference between Projection and Projective Identification. Many hypotheses regarding the theoretical expectations that BPD would be associated with Projection were originally made regarding Projective Identification. Projection is considered a slightly higher level version of Projective Identification. The similarity, along with previous research on Projection, gave the

⁵⁴ APD was also associated with TAO and Principalization.

author reason to speculate and evaluate the differences between APD and BPD on this defense. The differences between Projection and Projective Identification in their maturity could account for some of the differences. Although both defenses are considered maladaptive, Projective Identification is considered a less effective defense at protecting the ego. Therefore, Projective Identification may be more likely to show higher levels in the BPD group. Projection still showed higher scores in the BPD group, but the inconsistencies across samples could relate to the BPD group not showing as high of scores on this defense compared to what would be expected for Projective Identification. Future research should investigate the role of both Projection and Projective Identification in BPD and APD to examine whether there are any differences in results.

Summary. Overall, the research results provide slight evidence that Projection may be higher in the BPD group. This result was not replicated across all samples and measures, which was likely attributable to measure-related issues (e.g., low inter-rater reliability for the Defense-Q, Projection vs. Projective Identification). Future research warrants investigating this finding further in a larger sample and expanding into the assessment of Projective Identification.

6. Denial

Hypothesis. Denial allows an individual to be unaware of any negative emotions or experiences, as well as any negative consequences that may result from these experiences (Kernberg, 1984). In BPD, this results in an individual who only acknowledges the positive consequences of actions, which helps maintain maladaptive behaviours, such as self-harming or impulsivity. In APD, Denial works to inhibit feelings of guilt and concern for the well-being of others. Gacono and Meloy (1988) also state that Denial helps diminish negative feelings that may arise from their antisocial behaviours. Together, theory expects Denial to be related to both disorders. Empirical results have supported this expectation. For example, Perry and Cooper (1986) found that the Disavowal defense level, which included Denial, was associated with APD; whereas Cramer (1999) found that Denial was correlated with both APD and BPD. Based on the theory and empirical findings which show no strong evidence of Denial being more characteristic of one disorder over another, no specific hypothesis was made.

Present contribution. Results from the DSQ demonstrated that Denial was consistently higher in the APD group than the BPD group in Studies 2 and 4. Study 3, however, showed no significant differences. When exploring the data in more detail, however, the means for Denial in

Study 3 were very similar to those in Study 2. Despite these similarities, the differences were not significant. Because in Study 3 the sample size was quite a bit larger for the APD group compared to the BPD group, MANOVA analyses adjust for the differences in means that may be related to the n (Tabachnick & Fidell, 2001). When this occurs, the power of the test is reduced, becoming a more conservative analysis.⁵⁵ This may have contributed to the differences not being significant.

To further support the finding that Denial was higher in the APD group, results for the Defense-Q showed a trend towards significance indicating that Denial may be higher in the APD group compared to the BPD group. In addition, it is possible that the differences in sample size between the groups also affected the significance of the test.⁵⁶ Together, the results of the DSQ and Defense-Q are consistent with Perry and Cooper's (1986) finding that disavowal defenses, including Denial, were used more by an APD group. Their study did not examine the association between disorders and Denial specifically and therefore this study was the first to demonstrate this finding.

Denial, as measured by the DMM, showed no significant differences between the two groups. The sample sizes were relatively equal in this sample, and therefore unequal sample sizes likely did not affect the analyses as in Study 3. This result is consistent with the DMM capturing defense level, rather than specific defenses. In particular, borderline level of personality organization includes both BPD and APD. Therefore, both of these disorders are expected to use similar levels of defensive functioning.

Summary. Together, the results demonstrate support that Denial, as measured by the DSQ and Defense-Q, was higher in the APD group compared to the BPD group. This result is consistent with Gacono and Meloy's (1988) hypothesis and is a new finding in the literature. The finding that the DMM Denial, which is assessing an immature defense level, was not different between groups is consistent with the expectations that BPD and APD are within the same level of personality organization.

⁵⁵ A post-hoc analysis was completed whereby participants in the APD group were randomly filtered out to create equal sample sizes (n 's = 35). MANOVA analysis was re-ran and results revealed a trend towards significance for Denial ($p = .07$).

⁵⁶ A post-hoc MANOVA analysis was completed for the Defense-Q with equal n 's. This analysis revealed Denial was greater in the APD group at $p = .01$. This would not have remained significant following a Holm adjustment.

7. Rationalization

Hypothesis. According to Gacono and Meloy (1988), Rationalization is an important defense in individuals with APD. When individuals with APD are at a lower level of ego functioning, they will Deny any negative affect or experiences. As they move to a more advanced ego functioning, they will replace this Denial with distorted explanations for their behaviours (Rationalization). Based on this theory, it was expected that Rationalization would be higher in the APD group compared to the BPD group.

Present contribution. Results of the current studies showed no significant differences between the two groups for the Defense-Q and DSQ Rationalization. There were trends in the DSQ analyses, however. In Study 2, the p value approached significance and in Study 4 the p value was significant, but following a Holm adjustment, became a trend. Therefore, these results suggest the APD group may use Rationalization more than the BPD group.

The inconsistent results for Rationalization between the groups could relate to measurement issues. For example, the DSQ assesses Rationalization with only one item. This indicates that the comparison of Rationalization between APD and BPD is actually evaluating the endorsement of one particular example of Rationalization between the groups. Relying on only one item also reduces the variance in the analysis, thereby lowering the chance of detecting a significant result. Furthermore, Andrews and colleagues (1993) have previously questioned the face validity of this Rationalization item in the 72-item DSQ. They have subsequently dropped the item in the 40-item DSQ and wrote two additional items to assess the construct. In sum, the validity of the Rationalization item used in the current studies was not satisfactory.

The Defense-Q also did not show significant differences in Rationalization between the APD and BPD groups. Rationalization in the Defense-Q showed adequate inter-rater reliability (.61) in Study 3. Although there is no evidence of poor reliability, the result was contrary to the hypothesis. Gacono and Meloy (1988) hypothesized that in higher functioning groups of APD, Rationalization would be a characteristic defense. Despite the lack of significant results, when examining the Defense-Q data qualitatively, it is evident that the mean results support their hypothesis. The mean placement of Rationalization in the q-sort was in the *somewhat characteristic* pile, indicating that defense coders considered this defense characteristic of this group. Contrary to expectations, however, they did not use Rationalization more than the BPD group. One explanation for this finding could be the frequency of Rationalization use in college

samples. It has been noted by many that college students tend to Rationalize maladaptive behaviours (e.g., cheating on tests, violence: McCabe, 1992; Pezza & Bellotti, 1995). This suggests that Rationalization use may be elevated in college samples and explains why both the APD and BPD groups both had high scores on the defense.

Summary. The current studies showed no significant differences between the APD and BPD groups for Rationalization. Measure-related and sample issues may explain the unconfirmed hypotheses. Future research is needed in non-university samples to explore whether there are any differences between the groups.

8. *Intellectualization*

Hypothesis. Intellectualization is another defense that aids in one's ability to minimize negative affect. By discussing any event or experience in abstract and generalized terms, an individual separates themselves from the affect associated with their experience. It is similar to Rationalization in that it can be used to 'explain' negative behaviours, but differs because rather than explain the behaviours in a distorted exaggerated way; the behaviours are explained in an abstract, generalized manner. Although no one previously hypothesized a relation between Intellectualization and APD or BPD, Lingardi and colleagues (1999) found that Intellectualization was correlated with APD in a sample of clinical outpatients. They found no correlation between Intellectualization and BPD. It was expected that this finding would be replicated in the current study.

Present contribution. The results of Study 3 showed no significant difference between the two groups on Intellectualization. No previous study has examined the differences between APD and BPD on this defense. Lingardi and colleagues' (1999), however, examined the association between Intellectualization and personality disorders. They found that Intellectualization was correlated with APD and not BPD. They concluded that Intellectualization was likely capturing the tendency of the APD group to minimize the negative experiences. The tendency of individuals to minimize can be expressed through multiple defenses, however. These include Intellectualization, as well as Rationalization and Denial. The current studies have demonstrated that Denial is used more by the APD group, but has not provided reliable support that Rationalization or Intellectualization is used more. Gacono and Meloy (1988) suggested that as an individual with APD develops a higher ego functioning, they will utilize Denial less and Rationalization more. It is possible that the APD group's defensive structure represents that of

one with lower ego functioning and therefore, minimization differences between the groups are being captured in Denial. Furthermore, minimization as assessed by Rationalization has been shown to be high in both groups, likely explained by the use of a university sample. Intellectualization was not used greatly by either group, indicating that the defense was not characteristic of BPD or APD traits. Although one suggested explanation is that this group was utilizing Denial and Rationalization, further research is needed to explore the use of Intellectualization, as well as Rationalization and Denial, in APD groups.

Summary. Taken together the results of Lingiardi and colleagues (1999) and the current study, the evidence suggests that Intellectualization may be correlated with APD, but that the use of Intellectualization is not greater in the APD group. Further research is needed exploring the role of Intellectualization in APD and BPD.

9. Acting Out and Passive Aggression

Hypotheses. Many research studies have found BPD and APD to be correlated with Action or Maladaptive defense styles (e.g., Lingiardi et al., 1999; Perry & Cooper, 1986). Theoretically, BPD is considered a slightly more maladaptive disorder than APD and some have argued it should show higher levels of these maladaptive defenses (e.g., Cramer, 1999). Based on this argument, it was hypothesized that BPD would be higher on two maladaptive defenses compared to APD: Acting Out and Passive Aggression.

Present contribution. Results of the current studies showed that the DSQ's Acting Out and Passive Aggression were significantly higher in the BPD group compared to the APD group in two of the three samples. These results were consistent with previous research which has shown the maladaptive defense style is correlated with BPD and not APD (e.g., Perry & Cooper, 1986).

Lingiardi and colleagues (1999) completed the only study examining the association between these specific defenses and APD and BPD. They found no significant correlation between Passive Aggression and either of the disorders. This result was inconsistent with the results of Study 2 which showed significant correlations between Passive Aggression and APD and BPD. They found Acting Out, however, to be correlated with both BPD and APD, which is consistent with the current results. Lingiardi and colleagues (1999) did not examine mean differences between the groups. The current studies were the first to provide consistent evidence indicating Passive Aggression and Acting Out was higher in the BPD group compared to the

APD group.

Although the findings were relatively consistent across the previous studies, they were not replicated in Study 4. One explanation for the null finding in this last study could relate to the sample size. The recommendation for adequate power when assessing seven dependent variables is approximately 28 in each group. This recommendation was met for the first studies, but the sample sizes were slightly under these numbers in Study 4. When this occurs, the degrees of freedom for the error are reduced, thus decreasing the power to detect the effect. Despite decreased power, when the means are qualitatively examined, it is apparent that the difference between groups is much less in Study 4 compared to the previous two studies. Therefore, this sample did not show differences on these defenses compared to the previous studies.

In addition, the significant differences between groups were not detected with the Defense-Q's Acting Out and Passive Aggression. This difference could be related to discrepancies in the measurement between the two measures. For example, the DSQ asks a person to report on impulsivity and aggression, whereas the Defense-Q relies on a coder to observe the behaviour. It is possible that this behaviour may be more easily captured in a person's self-report than a 15 minute interview. However, inter-rater reliability for Acting Out and Passive Aggression were .65 and .64, respectively, indicating that the raters appeared to have adequate material to reliably code this defense.

It is possible that despite assessing Acting Out and Passive Aggression reliably, it may not be evidencing itself adequately through the short interview. When examining the mean placement of these defenses by the coders, we see that the average of both the BPD and APD groups is approximately 4 for Passive Aggression and 3 for Acting Out. This indicates that Acting Out and Passive Aggression were most often placed in the "Neither Characteristic or Uncharacteristic" and "Somewhat Uncharacteristic" piles, respectively. This suggests that the Defense-Q's short interview may not be capturing these behaviours in the BPD and APD groups. Future research could explore whether a longer interview would be more likely to capture the behaviours.

Summary. Both Acting Out and Passive Aggression scores were higher in the BPD group compared to the APD group as measured by the DSQ. These results were relatively consistent across the samples. The Defense-Q did not replicate these results. Further research evaluating these defenses in observer-report measures would be helpful to elucidate the discrepant findings

between the measures.

Conclusion

In sum, results from the current studies provided evidence that some individual defenses were able to differentiate APD and BPD groups. Most notably, Acting Out, Passive Aggression, and Denial showed the most consistent results across studies. TAS was also a strong predictor of group classification with the Defense-Q. Furthermore, additional defenses showed some support for their ability to differentiate groups. For example, Devaluation, and Grandiosity showed trends towards being significantly higher in the APD group and Projection showed a trend towards being higher in the BPD group. Some defenses showed no evidence at being able to differentiate the two groups (e.g., Splitting, Idealization). Taken together, the results show support for the hypothesis that specific defense mechanisms are able to differentiate APD and BPD groups. The implications for these results will be discussed next.

Implications

Theoretical and Empirical Implications

Defense Mechanism Assessment. The results of the current study have many implications for past, present, and future contributions to the study of defense mechanisms. First and foremost, the results of the convergent validity study have raised questions regarding the constructs of individual defenses and our ability to measure them accurately. As previously discussed, achieving reliable indices of individual defenses that merge across measures has been a challenging task with no success thus far (e.g., Bond et al., 1989). Bond has raised discussion regarding three major obstacles in achieving convergent validity. First, many observer report measures do not achieve adequate levels of inter-rater reliability; thus creating too much measurement error in the constructs. In Study 1, inter-rater reliability was very low for the Defense-Q, but in Study 3 it was much higher, indicating that measurement error was less of a problem in the third study. Nonetheless, the inter-rater reliability for some defenses was poor (e.g., Splitting, Projection). Given the low reliability, it is likely that the error among coders decreased the probability of achieving significant correlations between the defenses.

Second, convergent validity of defense measures is poor. Although convergent validity is considered important to many researchers, convergence among individual defenses across measures is considered by some to be an undesirable and unlikely result (Cramer, 1999). Some issues that inhibit achieving convergent validity include that the different assessment methods

(self-report vs. observational) eliciting various levels of stress. Furthermore, the behaviours a person self-reports, especially when they are reporting on derivatives of unconscious behaviours, are likely very different from what an observer witnesses.

Finally, Bond states that the third issue affecting defense measures is conceptual clarity (Bond et al., 1989). Many definitions of defenses differ across measures. These differences have occurred because some of the measures were developed in isolation from other measures. Now that defense mechanism assessment and research is becoming more prominent with its inclusion in the *DSM-IV-TR*, some measures are attempting to merge their definitions and concepts with those in the *DSM*. For example, in the newly revised Defense-Q, the authors researched other measures of defense mechanisms, including the *DSM-IV-TR* and, when able, altered the definitions to reflect the majority (e.g., if the majority of measures included an aspect of a defense that the Defense-Q never previously included, the definition was altered to represent the majority; MacGregor et al., 2008).

Taken together, these issues initially raised by Bond and colleagues (1989) encompass what many defense researchers agree are affecting comparative assessment of individual defense mechanisms. It is important to note, however, that because measures do not converge, the conclusion should not be that the measures are not valid. Instead, it is likely that they are assessing different variants of the same constructs and because of this, they are not converging.

Defense mechanism assessment is not the only area which has faced the problem of convergent validity. Personality disorder assessment, for example, has shown less than adequate convergent validity between self-report and observer-report measures (e.g., Hyler et al., 1989). At the 2008 annual meeting for the Society for Personality Assessment, the topic of convergent validity in personality assessment was recurrent. The general agreement was not to be discouraged by poor convergence, but to be interested in what it means (e.g., Bornstein, 2008). Bornstein has even provided a term for the problem, naming it the *heteromethod convergence problem* (Bornstein, 2002). He states that researchers tend to focus on the poor convergence and ignore research which shows predictive validity of the measures. This leads to many questioning the merits of psychological assessment measures, and he argues that because multiple methods do not converge, does not mean they are invalid. What is more important is that they demonstrate other indices of validity, such as predictive validity (Bornstein, 2002).

In the current study, some of the defenses evidenced predictive validity by demonstrating

theoretically expected differences between the APD and BPD groups. Some defenses, however, did not show these expected differences. As discussed above, there remain some measurement issues that may be affecting the validity of the defense scales. The measurement of Splitting, for example, is difficult to measure in both self- and observer-report because of the temporal aspect of Splitting that may not be captured in these measures. Therefore, we need to adjust some of these measures to improve our assessment of the constructs before expecting all defenses to show predictive validity. Other defenses, however, did demonstrate predictive validity in the current studies. For example, TAS was higher in the BPD group, supporting the theoretical expectation that this group would internalize negative experiences.

Overall, there is a need to improve our measurement of defense mechanisms. We may not achieve good convergent validity, but we need to aim to achieve adequate construct and predictive validity. The Defense-Q has taken actions to achieve this goal and once new coders have been trained with the revised manual, convergent and predictive validity will be re-evaluated. However, it is unlikely that good convergent validity will be found across method types because of the previously discussed differences between types. Convergent validity could be expected between other observer-report measures and the Defense-Q. This, however, relies on the measures having similar defense mechanism definitions, which is not the case for every defense. Through measure development and further studies of reliability and validity (convergent, construct, predictive), defense measures should be able to improve their measurement properties and researchers will more confidently be able to assess these constructs.

BPD and APD Conceptualization. The results of the current study have supported Kernberg's (1984) proposition that both BPD and APD fall within a borderline personality organization. Many of the primitive defenses he discussed (e.g., Denial, Splitting) were associated with both disorders. Extending beyond Kernberg's hypotheses, many have argued that APD and BPD can be differentiated based on these and other defenses (e.g., Cramer, 1999; Perry & Cooper, 1986). The results demonstrated support for these arguments as well. Some of the results were inconsistent across measures, however, such as Passive Aggression which generally was shown to have higher scores in the BPD group for self-report, but not for observer report. Others were inconsistent across samples, such as Projection which showed both a significant effect and trend towards being higher in the APD group in Study 2 and 3, but not in Study 4. Finally, some defenses showed a general effect for being higher in one group compared to the

other. For example, Denial showed either a significant effect or trend in all studies towards being higher in the APD group (except on the DMM).⁵⁷ Denial appears to be the strongest predictor of group classification for the APD group. For the BPD group, on-the-other-hand, group classification appears to depend on the measure. For the DSQ, Passive Aggression and Acting Out consistently separated the groups in Studies 2 and 3 with the variance accounted by each defense ranging from 9.3% to 12.7%, whereas TAS was the strongest predictor of group classification for the Defense-Q with approximately 6% of the variance accounted.

Taken together, these results provide support for the theoretical positions of: Cramer (1999) who argued that BPD groups would use maladaptive defenses (Passive Aggression and Acting Out) more than APD; Perry and Cooper (1986) who posited that BPD individuals internalize negatives views towards the self instead of towards others (TAS); and Gacono and Meloy (1988) who believed that Denial was a defense most characteristic of APD because of the ego's need to deny any consequences to their antisocial behaviour. Therefore, although both APD and BPD groups appear to utilize many similar defenses, there do in fact appear to be differences in their use of some defenses.

Clinical Implications

Extending beyond a contribution to the defense mechanism and personality disorder literature, the results of the current study also add to our clinical knowledge and practice. APD and BPD are two highly comorbid personality disorders which are often very difficult to differentiate (Becker et al., 2000; Zanarini et al., 2004). Some have posited that there are key differences between the groups which can aid in our differentiation. For example, Gacono and colleagues (1992) posit that although both disorders can involve aggression; aggression in BPD is directed inwards, whereas aggression in APD is directed outwards. The results of the current study contribute to this literature by showing partial support of these hypotheses, such as showing an elevated use of TAS in BPD and a trend of elevated Devaluation use in APD. Therefore, the results of the study can contribute to our differential diagnosis of the disorders. Future research, however, is needed replicating the current results in clinical samples.

The results contribute not only to the assessment of APD and BPD, but also provide treatment implications. In many short-term psychodynamic treatments (e.g., McCullough, 1997)

⁵⁷ There also was no significant effect for Denial in Study 3 for the DSQ, but as explored previously, this became a trend once groups were made equal and analyses re-run.

defense mechanisms are a major focus in therapy. For example, one portion of the therapy is often dedicated to aiding individuals in becoming aware of their defensive behaviours so they can use the information to help improve their reactions to internal and external stressors. For example, Denial appears to have a strong role in APD. Information regarding a patient's use of Denial may help in the assessment process in making diagnostic decisions and also lead to a treatment target whereby the clinician helps the patient become more aware of the consequences of their actions.

Furthermore, any change in defense use can then be assessed longitudinally during the therapy. By assessing defenses over the course of therapy, they provide additional variables to assess outcome. Olson, Presniak, Porcerelli and Dauphin (2008), for example, examined in a case study the change in defense use across a five year psychoanalytic treatment of Avoidant Personality Disorder. Results demonstrated that generally the patient's defense use improved from the intake session to a one year follow-up⁵⁸. Furthermore, Fantasy is considered theoretically the most characteristic defense of Avoidant Personality Disorder (Millon, 1986). Olson and colleagues (2008) revealed that in the beginning years Fantasy contributed a major portion of the individual's defense use. As his defensive functioning improved, Fantasy decreased and was replaced with more adaptive defense mechanisms. Therefore, defenses were able to capture changes occurring in treatment.

Overall, the current studies are only one of a few studies which have attempted to differentiate APD and BPD through the use of defenses. The results provide some evidence of differences between groups, which may be utilized in clinical practice. However, this research is only in its early phases and additional research extending into clinical samples is necessary.

Methodological Contributions

In addition to the contributions to our theoretical, empirical, and clinical understanding of defense mechanisms and their differentiation of APD and BPD, the current studies have provided a contribution methodologically to defense mechanism research. Research evaluating defense mechanisms and their relation to personality disorders has emerged in the last three decades. One problem with attempting to merge this literature and draw conclusions is the study differences in the measures used to assess defenses. The methodology of the current study, which involved a

⁵⁸ The patient's defensive functioning slightly decreased at year one, then gradually improved until year four. At year five, his defensive functioning decreased, but then increased to his highest level at follow-up.

multi-method defense assessment, was an attempt to reduce this problem. Although no study was completed with all three measures, the DSQ was the constant across samples, allowing for comparison between samples and measures.

In addition, this multi-method assessment allowed the assessment of additional defenses that one measure may not have been able to assess. For example, TAS is not included in the DSQ, but is measured by the Defense-Q. Furthermore, this methodology allowed for some interpretations that may not have been available with only one measure. The results for Denial, for example, provided evidence that Denial was higher in the APD group compared to the BPD group for the DSQ (significantly) and the Defense-Q (trend). There were no significant differences between the groups for the DMM Denial. If only the DMM was used, it may have been concluded that there were no differences between the groups on Denial, when in fact, the construct of Denial measured by the DMM is the only measure which showed no trend or significant differences. Overall, the current study contributed to the defense mechanism literature by conducting a multi-method assessment and future research is still needed to expand this more advanced methodology and make conclusions.

Strengths and Limitations

Strengths

As just described above, the methodology was a major strength in the current studies. No previous study has ever examined self-, observer-, and projective-report measures in the same study or sets of studies. By using a multi-method assessment, the relation between defenses and APD and BPD was more thoroughly examined. Furthermore, it allowed the assessment of each measure's convergent validity and predictive validity. Many of the DSQ defenses correlated with the ANT and BOR scales which was consistent with Kernberg's theoretical expectations (1984). Although not all the defenses were able to consistently differentiate the two groups, the correlation analyses provided evidence that the defenses do correlate with the scales as relatively expected. Furthermore, many of the defenses showed theoretically expected differences between the APD and BPD groups.

The statistical analyses chosen were also a strength of the study. Many of the previous studies examining defenses and personality disorders have relied on evaluating the associations between defenses and disorders. This previous literature aided in confirming hypotheses regarding the association between defenses and pathology, but did not aid in our understanding

of whether defenses differed between groups. The current studies' use of MANOVA allowed evaluation of whether defense means differed between APD and BPD groups. Furthermore, the DFA analyses provided information regarding the approximate percentage of participants that could be classified correctly based on defenses. Together, these results have helped answer the question *Can defense mechanisms aid in our differentiation of APD and BPD personalities?* The answer is yes; however, further research replicating the findings is still needed.

Finally, another strength of the studies was the moderate sample size. The only other study that attempted to differentiate the APD and BPD groups based on defenses was Perry and Cooper's (1986) study which had a very small sample. Their APD and BPD groups were comprised of 10 and 8 participants, compared to the current studies' group sizes which ranged from 25 to 55. Although it is difficult to get large clinical samples, it would further elucidate the differences in defenses between APD and BPD groups if these studies could be replicated with large patient samples.

Limitations

Despite the many strengths, the current studies were also limited by some methodological and sample issues. For example, the results from Study 1 demonstrated very poor convergent validity between the measures for individual defense mechanisms. These results may raise questions regarding the validity of the assessment of individual defense mechanisms and the conclusions drawn from the results of the following studies. As discussed previously, however, many argue that we should not expect measures across methods to converge and that we should rely on other indices of validity, such as predictive validity. In the current studies, additional validity problems were discussed aside from convergence. For example, it was noted the difficulties of assessing Splitting in self-report and interviews that rely on short time segments. These measurement issues are a more important limitation to defense research than a lack of convergent validity alone, because they not only affect convergent validity, but they also affect the predictive validity of the defense.

In addition to validity issues, defense measures also show some weaknesses in reliability. Inter-rater reliability is especially a problem for observer-report measures. In Study 1 for example, the inter-rater reliability for the individual defenses was very poor. This was improved substantially in Study 3, but nonetheless, some defenses still showed poor inter-rater reliability (e.g., Splitting). Taken together these low reliabilities, as well as the validity issues discussed in

the assessment of some defenses such as Splitting, it is not surprising that expected results were not seen for all defenses. These validity and reliability issues are likely compromising our ability to accurately and confidently assess relations between defenses and personality disorders. As such, future measurement development should aim to improve these validity and reliability issues. Specifically, convergent validity needs to be improved through revisions which focus on converging defense conceptualizations among measures. Inter-rater reliability can be improved through revisions of training manuals that more explicitly outline how to assess defense behaviours objectively and how to distinguish between individual defenses.

Finally, another limitation to the current studies is the use of a nonclinical sample for the APD and BPD groups. The PAI was chosen because of its demonstrated validity at assessing BPD in nonclinical samples (Boone, 1998; Kurtz, Morey, & Tomarken, 1993; Trull, 1995). BPD is considered one of the most difficult personality disorders to assess, and therefore measure choice was heavily weighted on the validity of the BPD assessment. The choice of a self-report measure was based on previous literature which has used very small sample sizes (e.g., Perry & Cooper, 1986) and as a result, the multivariate analyses were not significant. The current studies aimed to achieve larger sample sizes with more statistical power. The limitation of doing this is that the samples may not display the degree of severity in their symptoms and behaviours compared to clinical groups. This may explain some of the findings which were not significant, as well as the inconsistent findings. Because of this limitation, it will be important to replicate the current research in a clinical sample.

Overall, the current studies have contributed new methodology and new results to the literature. Despite the strengths in the methodology and sample size, the studies and results were limited by a non-clinical sample and measurement issues. Future research is needed to improve these limitations, as well as replicate and extend the current findings.

Future Research

Study 1 raised questions regarding the validity of the assessment of individual defense mechanisms. Despite the poor convergent validity, expected relationships were seen between some defenses and the APD and BPD groups. Nonetheless, the validity of individual defenses was discussed frequently in these studies. One important area of research that warrants further investigation is the validity of individual defense assessment. Because some have argued that the various assessment methods should not converge because of theoretical and testing differences

(e.g., Bond et al., 1989; Cramer, 1999), different aspects of validity should be evaluated. For example, the convergent and predictive validity of the measures can be further evaluated. If the defenses do not converge, but they predict theoretically expected variables, then there is evidence of their validity. In addition, because of the differences between method types, convergent validity should be evaluated between defense measures within the same method. For example, the convergent validity of the DMRS and Defense-Q may be examined. This research would shed light onto the question of whether the lack of convergent validity is due to differences in method issues or whether there are other validity problems between measures.

Because another limitation of the current studies was the nonclinical sample, it will be important to replicate these studies with patient groups. By this replication, we would be able to evaluate whether the same relationships and differentiations emerge in a sample with more severe symptoms and whether we see additional results. For example, Splitting was not found to be significantly different between the APD and BPD groups in the current studies. It is possible that if the BPD symptoms are more severe, such as in an inpatient sample, that Splitting will occur more frequently and prominently and, as such, demonstrate differences between groups. Replicating in a clinical sample, therefore, may provide more evidence for the ability of defenses to differentiate between APD and BPD groups.

Another direction of future research would be to evaluate differences in defenses between other personality disorders. APD and BPD are considered very similar disorders with a very high comorbidity rates. Nonetheless, the results have indicated they are able to be differentiated based on defenses. By expanding this research into more personality disorders, additional and possibly larger differentiations may be found among disorders from other Clusters (e.g., Avoidant Personality Disorder compared to BPD).

Conclusions

The goal of the current studies was to evaluate the ability of individual defense mechanisms to differentiate APD and BPD groups. Self-report, observational, and projective measures were utilized to provide a multi-method assessment of defense mechanisms. Results revealed that both the DSQ and Defense-Q were able to differentiate the two groups, but that the DMM was not. The defenses that were best able to distinguish the BPD group appear to be: Acting Out and Passive Aggression, as measured by self-report; Projection, measured by both self- and observer-report; and TAS, measured by observer report. The defenses best able to

distinguish the APD group were Denial, as measured by self- and observer-report and Devaluation and Grandiosity, as measured by observer-report.

Together, these results have provided support for previous theory and research that has argued for the ability of defenses to differentiate APD and BPD. The results were limited, however, by validity issues. Results of Study 1 indicated very poor convergent validity between measures and some issues were raised regarding the construct validity of some defenses (e.g., Splitting). The difficulty of achieving convergent validity across methods of assessing defenses was discussed with many drawing the conclusion that predictive validity is a better method of assessing validity. Some of the results support the ability of these measures to predict group membership; however, some results do not support previous theory or research.

A major strength of the current studies is the multi-method assessment which provided comparisons across measures. This allowed discussion of the differences in findings between measures and ultimately led to the conclusion that defenses, as measured in the current studies, demonstrated some evidence of predictive validity. For example, the DMM was not able to differentiate groups, while the DSQ and Defense-Q were. Despite support for many hypotheses, measurement development is still needed to improve our assessment of some defenses (e.g., Splitting) and reliability of defenses in general (e.g., inter-rater reliability). Once defense measures achieve good reliability and validity values, they will likely improve in their effectiveness at differentiating between disorders. Nonetheless, the methodological contribution to the literature from the current studies, which utilized a multi-method approach, has provided results with both theoretical and clinical implications regarding the utility of defense mechanisms in differentiating APD and BPD.

References

- Akkerman, K., Carr, V., and Lewin, T. (1992). Changes in ego defense with recovery from depression. *Journal of Nervous and Mental Disease, 180*, 634-638.
- Akkerman, K., Lewin, T., & Carr, V. (1999). Long-term changes in defense style among patients recovering from Major Depression. *The Journal of Nervous and Mental Disease, 187*, 80-87.
- American Psychiatric Association (1980). *Diagnostic and statistical manual of mental disorders (3rd ed)*. Washington, DC.: Author.
- American Psychiatric Association (1994). *Diagnostic and statistical manual of mental disorders (4th ed)*. Washington, DC.: Author.
- American Psychiatric Association (2000). *Diagnostic and statistical manual of mental disorders (4th ed, text revision)*. Washington, DC.: Author.
- Andrews, G., Pollock, C., & Stewart, G. (1989). The determination of defense style by questionnaire. *Archives of General Psychiatry, 46*, 455-460.
- Andrews, G., Singh, M., Bond, M. (1993). The Defense Style Questionnaire. *The Journal of Nervous and Mental Disease, 181*, 246-256.
- Apter, A., Gothelf, D., Offer, R., Ratzoni, G., Orbach, I., Tyano, S., et al., (1997). Suicidal adolescents and ego defense mechanisms. *Journal of the American Academy of Child and Adolescent Psychiatry, 36*, 1520-1527.
- Arlow, J. (1996). The structural model. In R. G. Kopff & E. Nersessian's (eds.) *Textbook of Psychoanalysis* (pp. 57-88). Washington, D.C.: American Psychiatric Press.
- Becker, D. F., Grilo, C. M., Edell, W. S., & McGlashan, T. H. (2000). Comorbidity of borderline personality disorder with other personality disorders in hospitalized adolescents and adults. *American Journal of Psychiatry, 157*, 2011-2016.
- Berg, J. L. (1990). Differentiating ego functions of borderline and narcissistic personalities. *Journal of Personality Assessment, 55*, 537-548.
- Berman, S. M. & McCann, J. T. (1995). Defense mechanisms and personality disorders: An empirical test of Millon's theory. *Journal of Personality Assessment, 64*, 132-144.
- Blais, M. A., Benedict, K. B., & Norman, D. K. (1996). The perceived clarity of the Axis II criteria sets. *Journal of Personality Disorders, 10*, 16-22.
- Blais, M. A., Conboy, C. A., Wilcox, N., & Norman, D. (1996). An empirical study of the DSM-

- IV Defensive Functioning Scale in personality disordered patients. *Comprehensive Psychiatry*, 37, 435–440.
- Blais, M. A., Hilsenroth, M. J., Fowler, J. C., Conboy, C. A. (1999). A Rorschach Exploration of the DSM-IV Borderline Personality Disorder. *Journal of Clinical Psychology*, 55, 563–572.
- Blais, M. A., & Norman, D. (1997). A psychometric evaluation of the DSM-IV personality disorder criteria sets. *Journal of Personality Disorders*, 11, 168-176.
- Bloch, A.L., Shear, M .K., Markowitz, J. C., Leon, A. C., & Perry, J. C. (1993). An empirical study of defense mechanisms in dysthymia. *The American Journal of Psychiatry*, 150, 1194-1198.
- Boesky, D. (1995). Structural theory. In E. Moore & B. D. Fine (eds.), *Psychoanalysis: The major concepts* (pp. 494-507). London: Yale University Press.
- Bond, M. (2004). Empirical studies of defense style: relationships with psychopathology and change. *Harvard Review Psychiatry*, 12, 263–278.
- Bond, M. P. (1995). The development and properties of the Defense Style Questionnaire. In H.R. Conte & R. Plutchik (Eds.), *Ego defense theory and measurement* (pp. 202-220). New York: Wiley.
- Bond, M., Perry, J. C., Gautier, M., Goldenberg, M., Oppenheimer, J., & Simand, J. (1989). Validating the self-report of defense styles. *Journal of Personality Disorders*, 3, 101-112.
- Bond, M., Gardener, S. T., Christian, J., & Sigal, J. J. (1983). Empirical study of self-rated defense styles. *Archives of General Psychiatry*, 40, 333-338.
- Bond, M., Paris, J., & Zweig-Frank, H. (1994). Defense styles and borderline personality disorder. *Journal of Personality Disorders*, 8, 28-31.
- Bond, M., & Vaillant, J. S. (1986). An empirical study of the relationship between diagnosis and defense style. *Archives of General Psychiatry*, 43, 285–288.
- Bornstein, R.F. (2002). A process dissociation approach to objective-projective test score interrelationships. *Journal of Personality Assessment*, 78, 47-68.
- Bornstein, R.F. (2008, March). *Heisenberg, Kandinsky, and the heteromethod convergence problem: Lessons from within and beyond psychology*. Master lecture at the meeting of the Society of Personality Assessment, New Orleans, LA.

- Boyle, G. J. & Lennon, T. J. (1994). Examination of the reliability and validity of the Personality Assessment Inventory. *Journal of Psychopathology and Behavioral Assessment, 16*, 173–187.
- Brenner, C. (1974). *An elementary textbook of psychoanalysis*. New York: Anchor Books.
- Breuer, J. & Freud, S. (1955). On the psychical mechanism of hysterical phenomena: Preliminary communication. In J. Strachey (Ed. & Trans), *The standard edition of the complete psychological works of Sigmund Freud*, (Vol. 2, pp. 1-19). London: Hogarth Press. (Original work published 1893)
- Chabrol, H., & Leichsenring, F. (2006). Borderline personality organization and psychopathic traits in nonclinical adolescents: Relationships of identity diffusion, primitive defense mechanisms and reality testing with callousness and impulsivity traits. *Bulletin of the Menninger Clinic, 70*, 161–170.
- Clarkin, J. F., Foelsch, P. A., Levy, K. N., Hull, J. W., Delaney, J. C., & Kernberg, O. F. (2001). The development of a psychodynamic treatment for patients with borderline personality disorder: A preliminary study of behavioral change. *Journal of Personality Disorders, 15*, 487–495.
- Conklin, C. Z., & Westen, D. (2005). Borderline personality disorder in clinical practice. *American Journal of Psychiatry, 162*, 867-875.
- Conte, H. R., & Plutchik, R. (1993). The measurement of ego defense in clinical research. In U. Hentschel, G. J. W. Smith, W. Ehlers, & J.G. Dragans, J.G.'s *The concept of defense mechanisms in contemporary psychology*. New York: Springer-Verlag, 275-289.
- Cooper, S. H. (1998). Changing notions of defense within psychoanalytic theory. *Journal of Personality, 66*, 947-964.
- Cramer, P. (1979). Defense mechanisms in adolescence, *Developmental Psychology, 15*, 476-477.
- Cramer, P. (1991). *The development of defense mechanisms: Theory, research, and practice*. New York: Springer-Verlag.
- Cramer, P. (1997). Evidence for change in children's use of defense mechanisms. *Journal of Personality Assessment, 65*, 233–247.
- Cramer, P. (1998a). Defensiveness and defense mechanisms. *Journal of Personality, 66*, 879-894.

- Cramer, P. (1998b). Coping and defense mechanisms. *Journal of Personality*, 66, 919-946.
- Cramer, P. (1999). Future Directions for the Thematic Apperception Test. *Journal of Personality Assessment*, 72, 74-92.
- Cramer, P. (1999). Personality, personality disorders, and defense mechanisms. *Journal of Personality*, 67, 535-554.
- Cramer, P. (2006). *Protecting the self: Defense mechanisms in action*. New York: Guildford.
- Cramer, P., & Davidson, K. (Ed.).(1998). Defense mechanisms in contemporary personality research [Special issue]. *Journal of Personality*, 66.
- Croog, S. H., Shapiro, D. S., & Levine, S. (1971). Denial among male heart patients. *Psychosomatic Medicine*, 5, 385-397.
- Davidson, K. & MacGregor, M. Wm. (1996). The reliability of the Defense-Q. *Journal of Personality Assessment*, 66, 624-639.
- Davidson, K., & MacGregor, M. Wm. (1998). A Critical appraisal of self-report defense mechanism measures. *Journal of Personality*, 66, 965-992.
- Davidson, K., MacGregor, M. Wm., Johnson, E., Woody, E. & Chaplin, W. (2003). The relation between defense use and adaptive behaviour. *Journal of Research in Personality*, 72, 315-323.
- Diehl, M., Coyle, N., & Labouvie-Vief, G. (1996). Age and sex differences in strategies of coping and defense across the life span. *Psychology and Aging*, 11, 127-139.
- Erickson, S., Feldman, S. S., & Steiner, H. (1997). Defense reactions and coping strategies in normal adolescents. *Child Psychiatry and Human Development*, 28, 45-56.
- Evans, D. W., & Seaman, J. L., (2000). Developmental aspects of psychological defenses: The relation to self-complexity, self-perception, and symptomatology in adolescents, *Child Psychiatry and Human Development*, 30, 237-254.
- Feldman, S. S., Aroujo, K. B., & Steiner, H. (1996). Defense mechanisms in adolescents as a function of age, sex, and mental health status. *Journal of American Academy of Child and Adolescent Psychiatry*, 35, 1338-1343.
- Field, A. (2005). *Discovering statistics using SPSS (2nd ed.)*. London: Sage.
- Freud, A. (1986). The ego and the mechanisms of defense. In J.D. Sutherland (Ed. & Trans), *The writings of Anna Freud* (Vol. 2). London: Hogarth Press. (Original work published 1936).

- Freud, S. (1957). The Unconscious. In J. Strachey (Ed. & Trans.), *The standard edition of the complete psychological works of Sigmund Freud* (Vol. 14, pp.166-204). London: Hogarth Press. (Original work published 1915)
- Freud, S. (1959). Inhibitions, Symptoms and Anxiety. In J. Strachey (Ed. & Trans.), *The standard edition of the complete psychological works of Sigmund Freud* (Vol. 20, pp.87-156). London: Hogarth Press. (Original work published 1926)
- Freud, S. (1961). The ego and the id. In J. Strachey (Ed. & Trans.), *The standard edition of the complete psychological works of Sigmund Freud* (Vol. 19, pp.12-63). London: Hogarth Press. (Original work published 1923)
- Freud, S. (1962). The neuro-psychoses of defense. In J. Strachey (Ed. & Trans.), *The standard edition of the complete psychological works of Sigmund Freud* (Vol. 3, pp. 45-61). London: Hogarth Press. (Original work published 1894)
- Freud, S. (1962). Obsessions and phobias: Their psychical mechanism and their aetiology. In J. Strachey (Ed. & Trans.), *The standard edition of the complete psychological works of Sigmund Freud* (Vol. 3, pp. 74-84). London: Hogarth Press. (Original work published 1895)
- Freud, S. (1964). Femininity. In J. Strachey (Ed. & Trans.), *The standard edition of the complete psychological works of Sigmund Freud* (Vol. 22. pp. 112-135). London: Hogarth Press. (Original work published 1933)
- Frosch, J. (1990). *Psychodynamic psychiatry: Theory and practice (Volume I)*. Madison, CT: International Universities Press.
- Gacono, C. B. (1990). An empirical study of object relations and defensive operations in antisocial personality disorder. *Journal of Personality Assessment*, 54, 589–600.
- Gacono, C. B., & Meloy, J. R. (1988). The relationship between cognitive style and defensive process in the psychopath. *Criminal Justice and Behavior*, 15, 472-483.
- Gacono, C. B., Meloy, J. R., & Berg, J. L. (1992). Object relations, defensive operations, and affective states in narcissistic, borderline, and antisocial personality disorder. *Journal of Personality Assessment*, 59, 32–49.
- Gleser, G. C., & Ihlevich, D. (1969). An objective instrument for measuring defense mechanisms. *Journal of Consulting and Clinical Psychology*, 33, 51-60.

- Greene, L.R. (1996). Primitive defenses, object relations, and symptom clusters in borderline psychopathology. *Journal of Personality Assessment*, *67*, 294–304.
- Hall, P., Davidson, K., MacGregor, M. Wm., & MacLean, D. (1998). *Expanded Structured Interview administration training manual: Technical report #1*. Halifax, Canada: Heart Health of Nova Scotia.
- Hansson, S. B., Johnsson, P., & Sorbris, R., (1988). Cognitive style and defense in three groups of women with body-dissatisfaction. *Psychological Research Bulletin*, *28*, 1-16.
- Herkov, M. J. & Blashfield, R. K. (1995). Clinician diagnoses of personality disorders: Evidence of a hierarchical structure. *Journal of Personality Assessment*, *65*, 313–321.
- Hibbard, S. & Porcerelli, J. (1998). Further validation for the Cramer Defense Mechanism Manual. *Journal of Personality Assessment*, *70*, 460–483.
- Hilsenroth, M. J., Hibbard, S. R., Nash, M. R., & Handler, L. (1993). A Rorschach study of narcissism, defense, and aggression in borderline, narcissistic, and cluster c personality disorders. *Journal of Personality Assessment*, *60*, 346-361.
- Holdwick, D.J., Hilsenroth, M.J., Castlebury, F.D., & Blais, M.A. (1998). Identifying the unique and common characteristics among the DSM-IV Antisocial, Borderline, and Narcissistic personality disorders. *Comprehensive Psychiatry*, (*39*), 277 – 286.
- Hylar, S. E., Rieder, R. O., Williams, J. B. W., Spitzer, R. L., Lyons, M., & Hendler, J., (1989). A comparison of clinical and self-report diagnoses of DSM-III personality disorders in 552 patients. *Comprehensive Psychiatry*, *30*, 170-178.
- Ihilevich, D., & Gleser, G.C. (1995). The defense mechanisms inventory: Its development and clinical applications. From H.R. Conte & R. Plutchik (Eds.). *Ego Defenses: Theory and development*. New York: Wiley.
- Kernberg, O. F. (1984). *Severe personality disorders: Psychotherapeutic strategies*. New Haven, CT: Yale University Press.
- Kernberg, O.F. (1996). A psychoanalytic theory of personality disorders. In J.F. Clarkin & M.F. Lenzenweger (Eds). *Major theories of personality disorder*. New York: Guilford.
- Kipper, L., Blaya, C., Teruchkin, B., Heldt, E., Isolan, L., Mezzomo, K., et al., (2004). Brazilian patients with panic disorder: The use of defense mechanisms and their association with severity. *The Journal of Nervous and Mental Disease*, *192*, 58-64.
- Kurtz, J. E., Morey, L. C., Tomarken, A. J. (1993). The concurrent validity of three self-report

- measures of borderline personality. *Journal of Psychopathology and Behavioral Assessment*, 15, 255-266.
- Kwon, P. (1999). Attributional style and psychodynamic defense mechanisms: Toward an integrative model of depression. *Journal of Personality*, 67, 645-658.
- Kwon, P. & Lemon, K. E. (2000). Attributional style and defense mechanisms: A synthesis of cognitive and psychodynamic factors in depression. *Journal of Clinical Psychology*, 56, 723-735.
- Lerner, P.M. (1990). Rorschach assessment of primitive defenses: A review. *Journal of Personality Assessment*, 54, 30-46.
- Leichsenring, F., Kunst, H., & Hoyer, J. (2003). Borderline personality organization in violent offenders: Correlations of identity diffusion and primitive defense mechanisms with antisocial features, neuroticism, and interpersonal problems. *Bulletin of the Menninger Clinic*, 67, 314-327.
- Levit, D. B. (1993). The development of ego defenses in adolescence. *Journal of Youth and Adolescence*, 22, 493-512.
- Lingiardi, V., Lonati, C., Delucchi, F., Fossati, A., Vanzulli, L., & Maffei, C. (1999). Defense mechanisms and personality disorders. *The Journal of Nervous and Mental Disease*, 187, 224-228.
- MacGregor, M. Wm. & Davidson, K. (1998). *The Defense-Q: An idiographic Q-Sort measure of defense mechanisms. A manual for clinicians and researchers: Technical report #4*. Halifax, Canada: Heart Health of Nova Scotia.
- MacGregor, M. Wm., & Olson, T. R. (2005). Defense mechanisms: Their relation to personality and health. An exploration of defense mechanisms assessed by the defense-Q. In A. Columbus (ed.) *Advances in Psychology Research* (Vol. 36, pp. 95-141). Nova Science.
- MacGregor, M. Wm., Olson, T. R., Presniak, M. D., & Davidson, K. (2008). *The Defense-Q: An idiographic Q-Sort measure of defense mechanisms. A manual for clinicians and researchers (2nd ed.)* Unpublished manual.
- MacGregor, M. Wm., Davidson, K., Barksdale, C., Black, S., & MacLean, D. (2003). Adaptive defense use and resting blood pressure in a population-based sample. *Journal of Psychosomatic Research*, 55, 531-541.
- MacGregor, M. Wm., Davidson, K., Rowan, P., Barksdale, C., & MacLean, D. (2003). The use of

- defenses and physician health care costs: Are physician health care costs lower in person with more adaptive defense profiles? *Psychotherapy and Psychosomatics*, 72, 315-323.
- McCabe, D.L. (1992). The influence of situational ethics on cheating among college students. *Sociological Inquiry*, 62, 365-374.
- McCullough Vallant, L. (1997). *Changing character: Short-term anxiety regulating psychotherapy for restructuring defenses, affects, and attachment*. New York: Basic Books.
- Millon, T. (1996). *Disorders of personality: DSM-IV and beyond* (2nd ed). New York: Wiley.
- Morey, L. C. (1991). *The Personality Assessment Inventory*. Lutz, FL: Psychological Assessment Resources.
- Morey, L. C. (2003). Essentials of PAI Assessment. In A. S. Kaufman & N. L. Kaufman (Eds). *Essentials of psychological assessment*. Hoboken, NJ: Wiley.
- Murray, H. A. (1943). *Thematic Apperception Test*. Cambridge, MA: Harvard University Press.
- Olson, T., Presniak, M., Porcerelli, J., Dauphin, V. B. (2008, March). *Defense mechanism change over a 5-year psychoanalytic treatment for avoidant personality disorder*. Paper presented at the meeting of the Society of Personality Assessment, New Orleans, LA.
- Paris, J., Zweig-Frank, H., Bond, M., & Guzder, J. (1996). Defense styles, hostility, and psychological risk factors in male patients with personality disorders. *The Journal of Nervous and Mental Disease*, 184, 153-158.
- Paulhus, D. L., Fridhandler, B., & Hayes, S. (1997). Psychological defense: Contemporary theory and research. In J. Johnson, R. Hogan, & S.R. Briggs (Eds.), *Handbook of personality psychology* (pp. 543-579). New York: Academic Press.
- Perry, J. C. (1990). *The Defense Mechanism Rating Scales manual* (5th ed.). Copyright by J.C. Perry, M.D., Cambridge, MA. Unpublished manual.
- Perry, J. C., & Cooper, S. H. (1989). An empirical study of defense mechanisms. *Archives of General Psychiatry*, 46, 444-452.
- Perry, J. C., & Cooper, S. H. (1986). A preliminary report on defenses and conflicts associated with borderline personality disorder. *Journal of the American Psychoanalytic Association*, 34, 863-893.
- Perry, J. C. & Ianni, F. F. (1998). Observer-Rated measures of defense mechanisms. *Journal of Personality*, 66, 993-1024.

- Perry, J. C. & Kardos, M. E. (1995). A review of the defense mechanism rating scales. In H.R. Conte & R. Plutchik (Eds). *Ego defenses: Theory and measurement*. New York: John Wiley & Sons, Inc.
- Perry, J. D. & Perry, J. C. (2004). Conflicts, defenses, and the stability of narcissistic personality features. *Psychiatry*, 67, 310–330.
- Pezza, P.E., & Bellotti, A. (1995). College campus violence: Origins, impacts, and responses. *Educational Psychology Review*, 7, 105-123.
- Porcerelli, J., Thomas, S., Hibbard, S., & Cogan, R. (1998). Defense mechanisms development in children, adolescents, and late adolescents. *Journal of Personality Assessment*, 7, 411-420.
- Semrad, E. (1967). The organization of ego defenses and object loss. In D.M. Moriarty (Eds). *The loss of loved ones*. Springfield, MA: Charles C Thomas.
- Shedler, J., Mayman, M., & Manis, M. (1993). The illusion of mental health. *American Psychologist*, 48, 1117-1131.
- Sinha, B. K., & Watson, D. C. (1999). Predicting personality disorder traits with the Defense Style Questionnaire in a normal sample. *Journal of Personality Disorders*, 13, 281-286.
- Skodol, A. E., & Perry, J. C. (1993). Should an axis for defense mechanisms be included in DSM-IV? *Comprehensive Psychiatry*, 34, 108-119.
- Smith, W. P. & Rossman, B. B. R. (1986). Developmental changes in trait and situational denial under stress during childhood. *Journal of Child Psychiatry*, 27, 227-235.
- Spinhoven, P. & Kooiman, C. G. (1997). Defense style in depressed and anxious psychiatric outpatients: An explorative study. *The Journal of Nervous and Mental Disease*, 185, 87-94.
- Steiger, H., Van der Feen, J., Goldstein, C., & Leichner, P. (1989). Defense styles and parental bonding in eating-disordered women. *International Journal of Eating Disorders*, 8, 131-140.
- Steiner, H. (1990). Defense styles in eating disorders. *International Journal of Eating Disorders*, 9, 141-151.
- Sullivan, P. F., Bulik, C. M., Hall, S., Weltzin, T. E. & Kaye, W. H. (1994). Defense style in women with eating disorders. *International Journal of Eating Disorders*, 16, 251-256.

- Tabachnick, B. G., & Fidell, L. S. (2000). *Using multivariate statistics (4th ed.)*. Boston: Allyn and Bacon.
- Tordjman, S., Zittoun, C., Ferrar, P., Flament, M., & Jeammet, P., (1997). A comparative study of defense styles of bulimic, anorexic, and normal females. *The Israel Journal of Psychiatry and Related Sciences*, *34*, 222-227.
- Trull, T. J. (1995). Borderline personality disorder features in nonclinical young adults: 1. Identification and validation. *Psychological Assessment*, *7*, 33-41.
- Tuulio-Henriksson, A., Poikolainen, K., Aalto-Setälä, T., & Lonnqvist, J. (1997). Psychological defense styles in late adolescence and young adulthood: A follow-up study. *Journal of American Academy of Child and Adolescent Psychiatry*, *36*, 1148-1153.
- Vaillant, G. E. (1977). *Adaptation to Life*. Boston: Harvard.
- Vaillant, G. E. (1978). Natural history of male psychological health, IV: What kinds of men do not get psychosomatic illness. *Psychosomatic Medicine*, *5*, 420-431.
- Vaillant, G. E. (1985). An empirically derived hierarchy of adaptive mechanisms and its usefulness as a potential diagnostic axis. *Acta Psychiatrica Scandinavica*, *71*, 171-180.
- Vaillant, G. E. (1992). *Ego mechanisms of defense: A guide for clinicians and researchers*. Washington, DC: American Psychiatric Press.
- Vaillant, G. E. (1993). *The Wisdom of the Ego*. London: Harvard University Press.
- Vaillant, G. E. (1994). Ego mechanisms of defense and personality psychopathology. *Journal of Abnormal Psychology*, *103*, 44-50.
- Walters, G. D., Duncan, S. A., & Geyer, M. D. (2003). Predicting disciplinary adjustment in inmates undergoing forensic evaluation: a direct comparison of the PCL-R and the PAI. *The Journal of Forensic Psychiatry & Psychology*, *14*, 382-393.
- Walters, G. D. & Geyer, M. D. (2004). Construct validity of the psychological inventory of criminal thinking styles in relationship to the PAI, disciplinary adjustment and program completion. *Journal of Personality Assessment*, *84*, 252-260.
- Whitty, M. T. (2003). Coping and defending: Age differences in maturity of defence mechanisms and coping strategies. *Aging & Mental Health*, *7*, 123-132.
- Widiger, T. A. (1993). The *DSM-III-R* categorical personality disorder diagnoses: A critique and an alternative. *Psychological Inquiry*, *4*, 75-90.

- Wilberg, T., Dammen, T., & Friis, S. (2000). Comparing Personality Diagnostic Questionnaire-4+ with longitudinal, expert, all data (LEAD) standard diagnoses in a sample with a high prevalence of axis I and axis II disorders. *Comprehensive Psychiatry*, *41*, 295-302.
- Zanarini, M. C., Frankenburg, F. R., Dubo, E. D., Sickel, A. E., Trikha, A., Levin, A., et al. (2004). Axis II comorbidity of borderline personality disorder: Description of 6-year course and prediction to time-to-remission. *Acta Psychiatrica Scandinavica*, *110*, 416-420.
- Zweig-Frank, H., Paris, J., & Guzder, J. (1994). Dissociation in female patients with borderline and non-borderline personality disorders. *Journal of Personality Disorders*, *8*, 203–209.

Appendix A
Defense-Q Scoring Sheet

Coder ID number and name _____
 Coder sex _____

Interviewer ID number _____
 Interviewer sex _____

Participant ID number _____
 Participant sex _____

Tape number _____

Instructions

Q-sort the 25 defense mechanisms into seven piles with 1, 2, 5, 9, 5, 2, 1, cards in each pile. The cards are sorted according to whether they are characteristic of the individual you are assessing. Once you are finished, record the number of the defense mechanisms in the appropriate spaces below the category headings.

Uncharacteristic	Neither Characteristic nor Uncharacteristic	Characteristic
Most (1), Quite (2) Somewhat (5)	(9)	Somewhat (5) Quite (2), Most (1)

_____	_____	_____
_____	_____	_____

Next rate the individual's overall defensiveness, in terms of : 1) how effective the defenses are (in quelling anxiety), 2) the individual's need for defenses (i.e., how much unresolved anxiety is present), and 3) how active are the individual's defenses typically (i.e., is the person generally "defensive" or "non-defensive").

	Low		Medium		High		
Typical effectiveness	1	2	3	4	5	6	7
Typical need for defenses	1	2	3	4	5	6	7
Typical activation	1	2	3	4	5	6	7

Indicate the degree of confidence you have in the accuracy of the ratings you made of this individual at this time.

	Low		Medium		High		
Confidence in rating	1	2	3	4	5	6	7

Appendix B

Defense Mechanism Manual Defense Scales and Categories**Denial**

Immature categories:

1) Omission of major characters or objects; 2) Misperception; 3) Reversal; 4) Statements of negation; and 5) Denial of reality.

Mature categories:

6) Overly maximizing the positive or minimizing the negative; and 7) Unexpected goodness, optimism, positiveness, or gentleness.

Projection

Immature categories:

1) Attribution of hostile feelings or intentions, or other normatively unusual feelings or intentions, to a character; 2) Additions of ominous people, animals, objects, or qualities; 3) Magical or autistic thinking.

Mature categories:

4) Concern for protection from external threat; 5) Apprehensiveness of death, injury or assault; 6) Themes of pursuit, entrapment and escape; 7) Bizarre story or theme.

Identification

Immature categories:

1) Emulation of skills; and 2) Emulation of characteristics, qualities, or attitudes.

Mature categories:

3) Regulation of motives or behaviour; 4) Self-esteem through affiliation; 5) Work; delay of gratification; 6) Role differentiation; and 7) Moralism.

Table 1. *Definitions for defense mechanisms taken from the DSM-IV-TR (APA, 2000) and the Defense-Q Manual (MacGregor et al., 2007).*

Defense Mechanism	DSM-IV-TR	Defense-Q
Acting Out	The individual deals with emotional conflict or internal or external stressors by actions rather than reflections or feelings. This definition is broader than the original concept of the acting out of transference feelings or wishes during psychotherapy and is intended to include behaviour arising both within and outside the transference relationship. Defensive acting out is not synonymous with “bad behaviour” because it requires evidence that the behaviour is related to emotional conflicts	Acting Out is the process by which a person deals with emotional conflict or stress through potentially destructive actions where the negative consequences are not considered. The actions must be related to the conflict or stressor.
Affiliation	The individual deals with emotional conflict or internal or external stressors by turning to others for help or support. This involves having problems with others but does not imply trying to make someone else responsible for them	
(Pseudo)Altruism	The individual deals with emotional conflict or internal or external stressors by dedication to meeting the needs of others. Unlike the self-sacrifice sometimes characteristic of reaction formation, the individual receives gratification either vicariously or from the response of others.	Pseudoaltruism is the process by which a person deals with emotional conflict or stress by helping others address an apparently similar conflict or stress rather than by helping oneself.
Anticipation	The individual deals with emotional conflict or internal or external stressors by experiencing emotional reactions in advance of, or anticipating consequences of, possible future events and considering realistic, alternative responses or solutions	

(Neurotic) Denial	The individual deals with emotional conflict or internal or external stressors by refusing to acknowledge some painful aspect of external or subjective experience that would be apparent to others.	Neurotic Denial is the process by which a person deals with emotional conflict or stress by not acknowledging consequences of the conflict or stressor that are apparent to most others, such as related affect, action, or intentions. The conflict or stressor is recognized, but the consequences are not.
(Psychotic) Denial	Same as Neurotic Denial, except <i>Psychotic denial</i> is used when there is gross impairment in reality testing.	Psychotic Denial is the process by which a person deals with emotional conflict or stress by breaking contact with and distorting external reality.
Devaluation	The individual deals with emotional conflict or internal or external stressors by attributing exaggerated negative qualities to self or others.	Devaluation is the process by which a person deals with emotional conflict or stress by attributing exaggerated negative qualities to the nonself <i>object</i> causing the conflict in order to mitigate the threat.
Displacement	The individual deals with emotional conflict or internal or external stressors by transferring a feeling about, or a response to, one object onto another (usually less threatening) substitute object.	Displacement is the process by which a person deals with emotional conflict or stress by transferring anxiety-provoking feelings or responses for one <i>object</i> onto another <i>object</i> that is perceived as less threatening.
Dissociation	The individual deals with emotional or internal or external stressors with a breakdown in the usually integrated functions of consciousness, memory, perception of self or the environment, or sensory/motor behaviour.	Dissociation is the process by which a person deals with emotional conflict or stress by temporarily breaking down the integration of the components of consciousness then detaching from and losing conscious contact with the environment and

		persons in the environment.
(Autistic) Fantasy	The individual deals with emotional conflict or internal or external stressors by excessive daydreaming as a substitute for human relationships, more effective action, or problem solving.	Fantasy is the process by which a person deals with emotional conflict or stress by fantasizing or daydreaming, often as a substitute for relationships with others.
Help-rejecting complaining	The individual deals with emotional conflict or internal or external stressors by complaining or making repetitious requests for help that disguise covert feelings of hostility or reproach toward others, which are then expressed by rejecting the suggestions, advice, or help that others offer. The complaints or requests may involve physical or psychological symptoms or life problems.	
Humour	The individual deals with emotional conflict or external stressors by emphasizing the amusing or ironic aspects of the conflict or stressor.	Humour is the process by which a person deals with emotional conflict or stress by making light of or emphasizing the amusing or ironic aspects of the situation.
Idealization	The individual deals with emotional conflict or external stressors by attributing exaggerated positive qualities to others.	Idealization is the process by which a person deals with emotional conflict or stress by ascribing exaggerated positive qualities to a nonself <i>object</i> related to the anxiety and then, through their association to this exaggeratedly positive <i>object</i> , they have an increase in self-esteem.
Identification With The Aggressor		Identification With the Aggressor is the process by which a person deals with emotional conflict or stress by taking on the same

		characteristics of the nonself <i>object</i> causing the anxiety.
Intellectualization	The individual deals with emotional conflict or external stressors by the excessive use of abstract thinking or the making of generalizations to control or minimize disturbing feelings.	Intellectualization is the process by which a person deals with emotional conflict or stress by using abstract thinking, language, and generalizations, thereby controlling or minimizing the related affect.
Isolation (of affect)	The individual deals with emotional conflict or external stressors by the separation of ideas from the feelings originally associated with them. The individual loses touch with the feelings associated with a given idea (e.g., a traumatic event) while remaining aware of the cognitive elements of it (e.g., descriptive detail).	Isolation is the process by which a person deals with emotional conflict or stress by separating affective processes from cognitive processes related to the <i>impulse</i> and then preventing conscious awareness of the affect related to the threatening ideas and cognitions.
Omnipotence/ Grandiosity	The individual deals with emotional conflict or external stressors by feeling or acting as if he or she possesses special powers or abilities and is superior to others.	Grandiosity is the process by which a person deals with emotional conflict or stress by acting or thinking in a manner where exaggerated positive qualities or abilities are attributed to the self in an attempt to make the self superior to others.
Passive aggression	The individual deals with emotional conflict or external stressors by indirectly and unassertively expressing aggression toward others. There is a façade of overt compliance masking covert resistance, resentment, or hostility. Passive aggression often occurs in response to demands for independent action or performance or the lack of gratification of dependent wishes but may be adaptive for individuals in subordinate positions who have no	Passive Aggression is the process by which a person deals with emotional conflict or stress by indirectly and unassertively expressing thoughts, words, or actions toward the <i>object</i> causing the conflict or stress. There is an overt appearance of general compliance or indifference masking a more covert resistance or disapproval.

other way to express assertiveness more overtly.

Projection	The individual deals with emotional conflict or external stressors by falsely attributing to another his or her own unacceptable feelings, impulses, or thoughts.	Projection is the process by which a person deals with emotional conflict or stress by falsely attributing their own distressing <i>impulses</i> to a nonself <i>object</i> .
Projective identification	As in projection, the individual deals with emotional conflict or external stressors by falsely attributing to another his or her own unacceptable feelings, impulses, or thoughts. Unlike simple projection, the individual does not fully disavow what is projected. Instead, the individual remains aware of his or her own affects or impulses but misattributes them as justifiable reactions to the other person. Not infrequently, the individual induces the very feelings in others that were first mistakenly believed to be there, making it difficult to clarify who did what to whom first.	
Rationalization	The individual deals with emotional conflict or external stressors by concealing the true motivations for his or her own thoughts, actions, or feelings through the elaboration of reassuring or self-serving but incorrect explanations.	Rationalization is the process by which a person deals with emotional conflict or stress through distorted elaborations and explanations, which may be exaggerated.
Reaction formation	The individual deals with emotional conflict or external stressors by substituting behaviour, thoughts, or feelings that are diametrically opposed to his or her own unacceptable thoughts or feelings (this usually occurs in conjunction with their repression).	Reaction Formation is the process by which a person deals with emotional conflict or stress by substituting opposite thoughts, feelings, or behaviours. The thoughts, feelings, or behaviours substituted may be either positive or negative.

Regression		Regression is the process by which a person deals with emotional conflict or stress by reverting to a previously developmentally appropriate way of responding.
Repression	The individual deals with emotional conflict or external stressors by expelling disturbing wishes, thoughts, or experiences from conscious awareness. The feeling component may remain conscious, detached from its associated ideas.	Repression is the process by which a person deals with emotional conflict or stress by expelling wishes, thoughts, or experiences from conscious awareness, although traces of the conflict may remain, such as related affect.
Self-assertion	The individual deals with emotional conflict or stressors by expressing his or her feelings and thoughts directly in a way that is not coercive or manipulative.	
Self-observation	The individual deals with emotional conflict or external stressors by reflecting on his or her own thoughts, feelings, motivation, and behaviour, and responding appropriately.	
Splitting	The individual deals with emotional conflict or external stressors by compartmentalizing opposite affect state and failing to integrate the positive and negative qualities of the self or others into cohesive images. Because ambivalent affects cannot be experienced simultaneously, more balanced views and expectations of self for others are excluded from emotional awareness. Self and object images tend to alternate between polar opposites: exclusively loving, powerful, worthy, nurturant, and kind- or exclusively bad, hateful, angry, destructive, rejecting, or worthless.	Splitting is the process by which a person deals with emotional conflict or stress by compartmentalizing the related affect states, <i>objects</i> , feelings, cognitions, etc., into contradictory components and then failing to integrate the components into a complete and cohesive whole.

Sublimation	The individual deals with emotional conflict or external stressors by channeling potentially maladaptive feelings or impulses into socially acceptable behaviour (e.g., contact sports to channel angry impulses).	Sublimation is the process by which a person deals with emotional conflict or stress by channelling feelings or <i>impulses</i> into socially acceptable and productive behaviours.
Suppression	The individual deals with emotional conflict or external stressors by intentionally avoiding thinking about disturbing problems, wishes, feelings, or experiences.	
Turning Against Others		Turning Against Others is the process by which a person deals with emotional conflict or stress by blaming a nonself <i>object</i> for the conflict or for the outcome of one's behaviour or actions.
Turning Against The Self		Turning Against Self is the process by which a person deals with emotional conflict or stress by attributing exaggerated negative qualities to and blaming the self for the cause of the conflict or anxiety.
Undoing	The individual deals with emotional conflict or external stressors by words or behaviour designed to negate or to make amends symbolically for unacceptable thoughts, feelings, or actions.	Undoing is the process by which a person deals with emotional conflict or stress by making amends for previous behaviour through verbal or behavioural negation, often via repetitive thoughts or actions that are directly or symbolically related to the conflict.

Table 2. *Defense Mechanisms and Styles according to Vaillant (1994), DSQ-72, and the DSM-IV-TR Defensive Functioning Scale*

Vaillant	DSQ-72	DSM – IV- TR Defensive Functioning Scale
Mature	Mature	High Adaptive
Suppression, Altruism, Humor, & Sublimation	Suppression, Altruism, Humor, & Sublimation	Anticipation, Affiliation, Altruism, Humor, Self-Assertion, Self-observation, Sublimation, & Suppression
Neurotic	Neurotic	Mental Inhibitions
Intellectualization, Isolation, Repression, Reaction Formation, Displacement, Somatization, Undoing, & Rationalization	Undoing, Pseudoaltruism, Idealization, & Reaction Formation	Displacement, Dissociation, Intellectualization, Isolation of affect, Reaction Formation, Repression, & Undoing
		Minor Image-Distorting
		Devaluation, Idealization, & Omnipotence
		Disavowal Level
		Denial, Projection, & Rationalization
		Major Image-distorting
		Autistic fantasy, projective identification, & Splitting of self-image or image of others
Immature	Immature	Action
Passive Aggression, Acting Out, Dissociation,	Projection, Passive aggression, Acting Out,	Acting Out, Apathetic Withdrawal, Help-rejecting

Projection, Autistic Fantasy, Devaluation, Idealization, & Splitting	Isolation, Devaluation, Autistic fantasy, Denial, Displacement, Dissociation, Splitting, Rationalization, & Somatization	complaining, & Passive aggression
Psychotic Defenses		Level of defensive dysregulation
Denial (of external reality) & Distortion (of external reality)		Delusional Projection, Psychotic Denial, & Psychotic Distortion

Table 3. *List of research articles examining relation between defense mechanisms and APD and/or BPD in alphabetical order*

	Sample Type	Sample size		Defense Measure	Personality Disorder Diagnosis	Results
		N	n for specific groups			
Berman & McCann (1995)	Clinical (in- and outpatient)	130		DMI	MCMII-II	BPD positively correlated with TAS and negatively correlated with PRN & Reversal APD positively correlated with TAO & PRO and negatively correlated with PRN
Berg (1990)	Clinical	76	50 BPD 26 NPD	Rorschach variables	Diagnostic interview	BPD > NPD on Splitting BPD < NPD on Grandiosity
Blais, Hilsenroth, Fowler, & Conboy (1999)	Clinical (outpatient)	79	23 BPD 16 APD	LDS	Chart review	BPD positively correlated with Splitting and Devaluation BPD ns ⁵⁹ correlation with Projective Identification
Bond (1990)	Sample 1: Clinical (in- and	209	19 BPD 5 Other PD's ⁶⁰	DSQ	DSM-III and on chart review	ns

⁵⁹ Ns = nonsignificant

	outpatient)					
	Sample 2: Clinical (outpatient)	156	6 BPD 21 Other PD's	DSQ & DMRS	Diagnostic interview	ns correlations with defense styles from DSQ BPD > Other PD's for Immature and Image-Distorting defense styles
Bond, Paris, & Zweig-Frank (1994)	Clinical (outpatient)	174	78 BPD 72 nonBPD	DSQ-88	DIB-R	BPD > nonBPD for maladaptive and image- distorting defense styles
Chabrol & Leichsenring (2006)	Nonclinical	243		Borderline Personality Inventory (BPI)	Levenson Self- Report Psychopathy Scale (LSRP)	Callousnes and Impulsivity/conduct problems scales from LSRP correlated with primitive defense mechanisms from BPI
Cramer (1999)	Nonclinical sample	104		DMM	Q-sort completed by experienced clinical psychologists	BPD positively correlated with Denial and significantly predicted by Denial APD positively correlated with Denial & Projection and

⁶⁰ PD = Personality Disorder

						significantly predicted by Projection
Gacono (1990)	Clinical (inpatient)	33	33 APD (14 high psychopathy) (19 low psychopathy)	LDS	Diagnostic interview and PCL-R	Ns difference between psychopathy and low psychopathy groups. All APD patients displayed high use of Splitting, Projective Identification, & Devaluation ⁶¹
Gacono et al., (1992)	Clinical (outpatient)		18 BPD 18 NPD 21 APD (without Psychopathy) 22 APD (with psychopathy)	LDS	Diagnostic interviews and/or chart review	BPD > APD on Idealization
Hilsenroth et al., (1993)	Clinical (outpatient)	51	17 BPD 17 NPD 17 Cluster C PD	LDS	DSM-III diagnosis based on chart review	BPD > NPD on Splitting & Projective Identification BPD > Cluster C on Splitting,

⁶¹ The authors did not present a statistical analysis to demonstrate this finding.

						Devaluation, Idealization, Denial, Projective Identification, & Grandiosity
Leichsenring et al., (2003)	Clinical (inpatient)	90		Borderline Personality Inventory (BPI)	APQ	APQ was correlated with primitive defense mechanisms scale from the BPI
Lingiardi et al., (1999)	Clinical (outpatient)	50		DMRS	Dimensionally assessed with structured interview	BPD positively correlated with Action defense style and Acting Out APD positively correlated with Action defense style and Acting out, Projection., and Intellectualization
Perry & Cooper (1986)	Clinical	81	10 BPD 8 APD	DMRS ⁶²	Diagnostic Interview	BPD scale positively correlated with Action & Borderline defense style BPD diagnosis correlated with Action defense style

⁶² Note that this is prior to publication of DMRS and that it appears to be consistent with what later became known as DMRS

						<p>APD scale correlated with Narcissistic defense style</p> <p>Ns differences between BPD and APD from DFA</p>
--	--	--	--	--	--	--

Table 4. *Correlations between individual defenses (N = 56)*

Defense Q and DSQ	
Acting Out	.07
(Neurotic) Denial	.12
Idealization	.15
Passive Aggression	-.05
Projection	.15
Rationalization	-.06
Splitting	.25
DSQ and DMM	
Denial	.07
Projection	.09
Defense-Q and DMM	
(Neurotic) Denial	-.17
Projection	.09

Table 5. *Correlations between defense styles (N = 56)*

		DMM		
		Denial	Projection	Identification
DSQ	Mature	-.18	-.08	-.09
	Neurotic	-.08	-.15	-.10
	Immature	-.18	.00	-.10
Defense-Q	ADP Similarity Score	-.13	-.13	-.05
		Defense-Q		
		ADP Similarity Score		
DSQ	Mature		.38*	
	Neurotic		.21	
	Immature		-.19	

* $p < .05$

Table 6. Correlations between DMM Immature and Mature forms of defense and the DSQ and Defense-Q defenses and defense styles (N = 56)

		DMM					
		Denial		Projection		Identification	
		Immature	Mature	Immature	Mature	Immature	Mature
		Individual Defenses					
DSQ	Denial	-.09	-.23				
	Projection			-.09	-.07		
Defense-Q	Denial	.12	-.12				
	Projection			.02	-.17		
		Defense Styles					
DSQ	Mature	-.16	.02	-.12	.07	-.11	.05
	Neurotic	-.08	-.14	-.11	-.19	-.13	-.19
	Immature	-.16	-.08	-.05	.04	-.06	-.13
Defense-Q	ADP Similarity Score	-.11	-.07	-.16	.01	-.07	-.01

* $p < .05$

Table 7. Study 2 Means and Standard Deviations (SD) from DSQ

Defense	BPD Mean ^a (SD)	APD Mean ^b (SD)	F	<i>p</i>
Acting Out	33.05 (8.06)	27.38 (6.06)	11.72	.001*
Denial	5.86 (2.89)	7.84 (3.33)	7.41	.008*
Idealization	15.32 (4.71)	13.73 (4.69)	2.13	.149
Passive Aggression	38.57 (8.85)	31.81 (6.94)	13.35	<.001*
Projection	34.46 (10.39)	28.30 (7.86)	8.28	.005*
Rationalization	4.32 (2.31)	5.38 (2.36)	3.77	.056
Splitting	12.05 (5.25)	11.08 (4.58)	.721	.399

* indicates significance after a Holm type adjustment (a.k.a. sequential Bonferroni).

^a n = 37, ^b n = 38

Table 8. Study 3 Means and Standard Deviations (SD) for DSQ

Defense	BPD Mean ^a (SD)	APD Mean ^b (SD)	F	<i>p</i>
Acting Out	32.60 (7.20)	29.87 (6.75)	8.87	.004*
Denial	5.78 (2.72)	7.51 (3.42)	1.58	.213
Idealization	16.60 (5.42)	15.39 (5.26)	.06	.803
Passive Aggression	38.90 (8.50)	33.91 (7.45)	11.86	.001*
Projection	37.10 (11.98)	29.64 (11.10)	3.32	.072
Rationalization	4.78 (2.23)	5.51 (2.34)	.393	.533
Splitting	12.24 (3.99)	12.48 (5.04)	.436	.511

* indicates significance after a Holm type adjustment.

^a n = 35, ^b n = 54

Table 9. Study 3 Means and Standard Deviations (SD) for Defense-Q

Defense	BPD Mean ^a (SD)	APD Mean ^b (SD)	F	p
Acting Out	2.93 (.894)	3.19 (1.03)	1.566	.214
Devaluation	3.87 (.778)	4.36 (.923)	6.765	.011
Grandiosity	3.94 (.737)	4.35 (.836)	5.979	.016
Idealization	3.82 (.663)	3.94 (.629)	.646	.424
Intellectualization	3.12 (1.23)	3.60 (1.49)	2.415	.124
Neurotic Denial	4.12 (1.14)	4.64 (1.19)	4.356	.040
Passive Aggression	4.17 (.851)	4.14 (.780)	.035	.853
Projection	4.31 (.552)	4.06 (.557)	4.269	.042
Rationalization	5.42 (.839)	5.27 (.862)	.625	.431
Splitting	3.38 (.816)	3.16 (.719)	1.824	.180
Turning Against Self	4.65 (1.05)	4.06 (.971)	7.598	.007*
Turning Against Others	4.67 (.759)	4.38 (.797)	2.971	.088

* indicates significance after a Holm type adjustment.

^a n = 36, ^b n = 54

Table 10. *Study 4 Means and Standard Deviations (SD) for DSQ*

Defense	BPD Mean ^a (SD)	APD Mean ^b (SD)	F	<i>p</i>
Acting Out	30.00 (7.62)	29.96 (7.92)	.000	.985
Denial	5.38 (3.23)	8.68 (2.88)	14.692	< .001*
Idealization	15.08 (5.93)	14.28 (5.25)	.257	.614
Passive Aggression	35.12 (8.56)	34.24 (7.76)	.146	.704
Projection	31.62 (13.19)	32.20 (13.68)	.024	.877
Rationalization	3.96 (2.36)	5.56 (1.85)	.722	.010
Splitting	10.12 (5.05)	12.20 (3.78)	2.77	.102

* indicates significance after a Holm type adjustment.

^a n = 25, ^b n = 26

Table 11. *Study 4 Means and Standard Deviations (SD) for DMM*

Defense	BPD Mean ^a (SD)	APD Mean ^b (SD)	F	<i>p</i>
Denial	11.85 (6.28)	13.65 (7.82)	.859	.358
Projection	28.85 (15.00)	29.62 (14.12)	.036	.850
Identification	14.20 (10.32)	16.77 (10.84)	.779	.381

^a n = 25, ^b n = 26