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Differentiating Borderline Personality Disorder from Bipolar Disorder Using the Rorschach Inkblot Test

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Differentiating Borderline Personality Disorder from Bipolar Disorder Using the Rorschach Inkblot Test

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Report

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Abstract

Differentiating Borderline Personality Disorder from Bipolar Disorder Using the Rorschach Inkblot Test

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The proposed study has one central purpose, to determine if the Comprehensive System (CS), an empirically valid system for scoring and interpreting the Rorschach Inkblot Test, can effectively discriminate between individuals diagnosed with borderline personality disorder (BPD) and those diagnosed with bipolar disorder. Previously conducted, peer-reviewed studies since 1985 have uncovered CS variables that were statistically significant in BPD and in bipolar groups when examined separately. However, there have been relatively few such investigations, making the body of research with CS variables small in this area. It would be valuable to know whether or not the CS is a useful tool in distinguishing between these two disorders. A second goal of the current study is to uncover variables that help diagnose both bipolar disorder and BPD as separate entities. Some CS variables have not been previously studied with regard bipolar disorder or BPD. Additional research with variables known to be useful in identifying

these disorders will cross-validate findings that already exist. Moreover, if the Rorschach could help classify individuals with these disorders and uncover distinct differences between them in their test results, these data would also lend support for the idea that these are indeed two different disorders, a tertiary goal of the current study.

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Chapter 1: Introduction

Borderline Personality Disorder (BPD) and bipolar disorder are illnesses that cause significant functional impairment, are expensive to treat, are costly in terms of lost productivity, are associated with high comorbidity rates, and frequently co-occur with each other. Because individuals diagnosed with either disorder commonly demonstrate impulsivity, affective instability, destructive behaviors including alcohol and drug use, sexual acting out, parasuicidal behavior, and suicidal attempts, there is debate in the literature as to whether they are each distinct diagnostic categories or if they are actually different labels for the same problem.

Moreover, several studies have shown that BPD is one of the most frequently occurring Axis II disorder in patients diagnosed with a disorder on the bipolar spectrum (Brieger, Ehrt, and Marneros, 2003; Üçok, Karaveli, Kundakçi, and Yazici, 1998; Benazzi, 2000). And, data is mounting that indicate that BPD and Bipolar I Disorder occur together more frequently than BPD does with most other psychiatric diagnoses. Moreover, on a separate but related front, researcher conceptualizations about the bipolar spectrum are broadening (Akiskal, 1996; Hirschfeld, 2001; Deltito et al, 2001). Some are beginning to question the legitimacy of the BPD diagnosis. These researchers suggest that a bipolar disturbance is often misdiagnosed as BPD because the root of marital discord, promiscuity, poor work performance, and/or substance abuse is often attributed to a personality disorder, rather then complications of a mood disturbance. Others, however, disagree and, for example, have demonstrated through confirmatory analysis that both a one factor model and a three factor model that provide empirical support the existence of BPD. (Zanarini et al., 1998; Sanislow et al. (2002).

The Rorschach Inkblot Test is a perceptual-cognitive task in which the respondent must organize a response to an ambiguous stimulus. The manner in which an individual

approaches this task is thought to be similar to how he/she responds to ambiguity in daily life. The end result of this activity provides valuable information about how individuals people focus their attention, perceive people and events, reflect on their experience, manage emotions and stress, and view themselves and others. Since its introduction to the professional public in September 1921, several different systems have been created to administer, score, and interpret the instrument, each of which contained elements that threatened its credibility (Exner, 2003). Beginning in 1970 with a series of surveys to help define the existing problems with the instrument, John Exner sought to develop a new system that would retain the parts of the previous systems that worked well, discard the elements that were flawed, and add new variables where opportunities existed. The method he developed, the Comprehensive System (CS), was the result of his efforts and was introduced in 1974. Since then, the body of empirical knowledge about the CS continues to be refined, continually improving the already respectable intercoder agreement, retest reliability, validity, and normative samples.

The CS has endured multiple criticisms on multiple fronts. For example, Nezworski and Wood questioned the validation data used to generate interpretations about egocentricity (1995). Wood, Nezworski, and Stejkal raised questions about interrater agreement findings as well as the validation data underlying several of the CS's indices (1996). They further questioned the integrity of studies reported in various editions of the basic CS textbook for not having been also published in peer-reviewed journal articles. In another example, Hunsley and Bailey conducted a review of the Rorschach literature and concluded that there was little scientific evidence to support the clinical utility of the Rorschach and that even if it could provide valid information about personality structure, no replicated evidence existed to support that it would have any meaningful bearing on services or treatment outcome (1999).

Despite criticism of the CS's psychometric properties, the Rorschach has been consistently shown to demonstrate ICCs of greater than .90 for the majority of its variables. In adults, the short- and long-term stability of most CS variables exceeds .75, and 19 of its core variables have demonstrated one-year or three-year retest correlations of .85 or higher (Weiner, 1999; Meyer et al., 2002). In children its variables have been shown to move along a developmental trajectory that maps onto cognitive and emotional theories of development. And, meta-analysis of MMPI and Rorschach protocols suggests that these instruments possess similar mean validity coefficients, both of which are among the highest ranking of all psychological assessment tools. In addition, the Rorschach CS includes normative reference data on 600 nonpatient adults, 1390 children ages 5 to 16, and several patient groups. And, in response to criticism, a new reference sample was recently gathered that revealed that the norms have changed little in the past two decades.

In terms of its utility, the Rorschach can be helpful in assessing patients who conceal psychopathology or who are attempting to feign more distress than is true. It has been demonstrated to be effective at identifying psychosis and provides a valuable description of an individual's personality traits that can illuminate problems that may become obstacles to successful treatment. And, it can inform treatment planning by helping define treatment goals (Bihlar & Carlson, 2000). The Rorschach can also be a useful tool in monitoring treatment progress and improvement over time (Weiner & Exner, 1991).

Relatively few studies in the past 25 years have been conducted analyzing CS variables that examine the Rorschach's ability to identify either bipolar disorder or BPD. Moreover, no studies exist that have attempted to ascertain whether the CS can discriminate between them. Of the few studies that do exist, BPD has been associated in

the CS with lack of a differentiated coping style, chronic stimulus overload, ego-dystonic aggression, and egocentricity (Exner, 1986) and possibly the presence of trauma in the protocol (Mihura, 2006). The protocols of manic bipolar patients have been significant for distortions of reality associated with anger and hostility, an elevated Perceptual Thinking Index, and severe instances in the protocol of ideational impulsivity and disjointed cognition (Singer & Brabender, 1993). And, depressed bipolar patients have been shown to be less able to produce well-organized and sophisticated percepts than their manic counterparts. While it is unlikely that the Rorschach will be able to definitively place an individual into a distinct diagnostic category, any additional assistance that an assessment instrument could scientifically provide would be potentially helpful. Furthermore, if the Rorschach were able to be able to discriminate between these two groups, it would also provide additional support for the idea that BPD and bipolar disorder are distinct diagnostic entities.

The current study has one central purpose, to determine whether or not the CS for the Rorschach Inkblot Test can effectively discriminate between individuals diagnosed with BPD and those diagnosed with bipolar disorder. Previously conducted, peer-reviewed studies since 1985 have uncovered CS variables that were statistically significant in BPD and in bipolar groups when examined separately. However, there have been relatively few such investigations, making the body of research with CS variables small in this area. It would be valuable to know whether or not the CS is a useful tool in making diagnostic determinations for these two disorders, especially given the previously discussed criticisms of the instrument. A second goal of the current study is to uncover variables that help diagnose both bipolar disorder and BPD. Some of these variables have not been previously studied with regard bipolar disorder or BPD. Others may cross-validate findings that already exist. Moreover, if the Rorschach could help classify

individuals with these disorders and uncover distinct differences between them in their test results, these data would also lend support for the idea that these are indeed two different disorders, a tertiary goal of the current study.

Chapter 2: Review of the Literature

A psychological test is a collection of questions or stimuli to which an individual is to for the purpose of understanding their symptoms, personality characteristics, or traits (Kaplan and Saccuzzo, 2008). These can provide information about cognitive, emotional, behavioral, or interpersonal functioning or some combination thereof. Some personality tests seek to describe the structure and features of an individual's personality, while others are intended to evaluate the presence of signs and symptoms of psychopathology or psychiatric disorders. These instruments can be further divided into two types of tests: objective tests and projective tests. Objective tests generally include standardized questions in which the answers are restricted to a limited choice of answers. Included among objective tests are structured and semi-structured interviews, as they are designed to illicit specific responses to specific questions that are standardized, presented in a particular order, and coded in a standardized manner. Projective tests have traditionally involved presenting to the examinee novel or ambiguous stimuli and have permitted an open-ended response format, allowing for an almost unlimited number of different responses (Compas & Gotlib, 2002). This format was purposely devised so as to provide minimal structure with the idea that the internal dynamics of the examinee are more likely to reveal themselves under these conditions. Stimuli of this kind commonly includes inkblots, ambiguously drawn pictures, drawings made by the examinee, and incomplete sentences. Frank proposed that projective techniques were psychological r-rays (1948). It was postulated that in the process of formulating a response, examinees were thought to project aspects of their personality onto the stimuli in an effort to describe or make sense of them. This notion was based upon Freud's concept of projection, the idea that people unconsciously attribute their own negative impulses and personality traits onto others. Under this model, projective tests

then were hypothesized to bypass conscious defenses in responding and allow test examiners access to psychological processes of which the respondent was unaware. Because projective measures are believed to elicit unconscious material, they are believed by some to provide incremental validity beyond what objective measures offer (Weiner, 1999).

THE RORSCHACH INKBLOT TEST

The Rorschach Inkblot Test is often considered to be the quintessential projective personality measure. And, in its first several decades of existence, it was approached from a psychoanalytic point of view as a "stimulus-to-fantasy" task (Erdberg, 1990). The examinee symbolically projected her/his inner need states onto an ambiguous blot of ink that the administrator would then interpret. Although vestiges of the psychoanalytic approach remain today, the prevailing current approach to the Rorschach is one that treats it more as a perceptual-cognitive task in which the respondent must organize a response to an ambiguous stimulus. While there is certainly ample ambiguity in each blot, each card is designed in such a manner that correct and incorrect answers do exist for each inkblot. The manner in which the test-taker approaches this task is thought to be similar to the way in which he/she responds to ambiguity in daily life. And, the content is more secondary to the structural and perceptual aspects of the response. Current Rorschach assessment and interpretation provides dependable information about the manner in which people focus their attention, perceive people and events, reflect on their experience, manage emotions, handle stress, and view themselves and others. Rorschach responses can also provide information to underlying needs, attitudes, conflicts, and concerns that likely influence behavior, all or some of which can be beyond conscious awareness (Weiner, 2003).

Intercoder Agreement

Data regarding the CS's Rorschach indices has been consistently positive across numerous studies, whether measured by percentage agreement or by kappa and intraclass correlation coefficients (ICC). Meyer and colleagues (2002), using four different samples, 219 protocols, and 4,761 responses, found a median ICC of .93 for intercoder agreement across 138 Rorschach variables, with the ICC's for134 of them variables falling in the excellent range. Viglione and Taylor (2003), examined coder agreement for 84 protocols and 1,732 responses and found a median ICC of .92 for 68 variables considered to be of central interpretive significance in the CS. Some critics of the Rorschach have nevertheless asserted that codes were originally included in the CS solely on the basis of the percentage of intercoder agreement (80% or more) and that no intercoder agreement data exists to suggest that clinicians in practice using the instrument are coding reliably (Lilienfeld, Wood, & Garb, 2000). The kappa and ICC data mentioned previously render the first of these two arguments moot. The second concern holds the Rorschach CS to a level of scientific rigor not applied to other instruments. Field studies of intercoder agreement are not required in the literature to prove the psychometric adequacy of other assessment instruments. For example, no studies exist reporting interrater agreement for scoring Wechsler Comprehension items. Furthermore, the responsibility for competence administering, coding, and interpreting psychological instruments lies with the practitioner who uses a test, not with the instrument itself.

Reliability

Reliability studies with both children and adults over periods of time ranging from 7 days to 3 years have demonstrated sound reliability estimates for most Rorschach variables, including summary scores and indices that are believed to reflect trait-like characteristics (Weiner, 1999). This includes the majority of CS variables. In adults, the

short- and long-term stability of most CS variables exceeds .75. In addition, 19 core variables with major interpretive significance have demonstrated one-year or three-year retest correlations of .85 or higher. Two exceptions appear to emerge in the research data. First, Rorschach summary scores that are composed few variables seem to not produce as desirable retest correlations. And, as would be expected, combinations of CS variables that are believed to measure situational state characteristics do not produce good reliability estimates either. The results for children reveal stability coefficients similar to those of adults when retested over brief intervals. Over a 2-year period, indices for children and adolescents initially fluctuate markedly but then demonstrate steady increasing long-term consistency as they grow older. This pattern of results in younger examinees mirrors the gradual consolidation of personality characteristics during the developmental years as people age.

Rorschach critics have argued that the reliability of the Rorschach is yet to be demonstrated because only a portion of the CS variables have been included in reports of retest studies (Lilienfeld et al., 2000). Rorschach proponents contend that the majority of the retest correlations described as missing are either: a.) composite variables for which good reliability data exists for each of their component parts; or b.) variables that only occur very infrequently so as not to prevent meaningful statistical analysis. Moreover, proponents also assert that some variables are more critical to the interpretation than others. And, key CS interpretive variables demonstrate particularly high retest correlations. Viglione and Hilsenroth (2001) have published an extensive summary of the Rorschach reliability data that contains, either individually or in combination, nearly all of the CS variables. The retest correlations for all commonly occurring CS variables that are important to the interpretation of trait dimensions of personality compare favorably with the reliability statistics for other frequently used and psychometrically sound

assessment tools, including the Wechsler Scales and the Minnesota Multiphasic Personality Inventory. It is also important to note that Rorschach critics have not published any original data contradicting the strong reliability research for the regularly occurring Rorschach indices of trait variables. In addition, the retest data for children contains evidence of construct validity for Rorschach variables. There is an increasing two-year stability of Rorschach findings as children age. For example, the Egocentricity Index, which is believed to be a measure of self-focusing or self-centeredness à la Jean Piaget shows an almost perfectly linear decrease in young people from age 5 to 16, a finding that is highly consistent with theory and data in developmental psychology. Similarly, the ratio of Form-Color to Color-Form responses, believed to relate to mature affective modulation and to immature affective modulation, respectively, gradually shifts from color-dominated to form-dominated as children move into adolescence, which is consistent with what is known about emotional maturation across childhood (Exner, 2003).

Validity

Although critics have contended in the literature that the Rorschach has little criterion or construct validity (Dawes, 1994; Hunsely & Bailey, 1999; Lilienfeld, Wood, & Garb, 2000), several meta-analytic studies have been published demonstrating strong Rorschach validity (Atkinson, Quarrington, Alp, & Cyr, 1986; Hiller, Rosenthal, Bornstein, Berry, & Brunell-Neuleib, 1999; Parker, Hanson & Hunsley, 1988). Hiller, Rosenthal, Bornstein, Berry, and Brunell-Neuleib (1999) conducted a meta-analysis based on a random sample of Rorschach and MMPI research studies published from 1977 to 1997. Their analysis of 2,276 Rorschach protocols and 5,007 MMPI protocols found almost identical validity for the Rorschach and the MMPI, with a mean validity coefficient of .29 for Rorschach variables and .30 for MMPI variables. The investigators

concluded that the validity for both instruments "is about as good as can be expected for personality tests" (Hiller et al.,1999). They noted that each instrument had strengths relative to the other. The MMPI correlated more highly than the Rorschach with psychiatric diagnosis and self-reports with average effect sizes of .37 and .18, respectively. The Rorschach variables demonstrated an increased ability over the MMPI variables in predicting behavioral outcomes, such as whether patients continue in or drop out of treatment. In addition, 1997 study conducted by Meyer concluded that the Rorschach CS and MMPI correlate remarkable well when people respond to both instruments in either an open or in a guarded manner, as opposed to being forthcoming on one and defensive on either or both (Meyer, 1997). In a more recent investigation also conducted by Meyer et al. (2001), the research team reviewed predictive and meta-analytic studies of various psychological tests and compared their results to those of medical tests. The authors found that validity coefficients for psychological tests, which fell in the .30 to .50 range, including the Rorschach and MMPI-2, were comparable to those of many medical tests, such as electrocardiograms, mammography, and magnetic resonance imaging.

In addition to providing the aforementioned construct validity related to maturational changes in the expected direction, the CS normative sample also provided additional construct validity. The adult reference sample includes 600 nonpatients and 535 psychiatric outpatients. In addition, there 279 inpatients with major depressive disorder as well as 328 patients hospitalized with a first admission for schizophrenia (Exner, 2003). Generally speaking, these four groups can be expected to form a continuum of increasingly severe psychiatric disturbance. Consistent with this notion, Rorschach indices of impaired reality testing and disordered thinking increase linearly across these groups, thus supporting them as measures of disturbance. The mean *X-%*

ranges from .07 in nonpatients to .16 in outpatients, to .20 in depressed inpatients, and to .37 in schizophrenic inpatients. The mean *WSum6* for these four groups, respectively, are 4.48, 9.36, 18.36, and 42.17 (Exner, 2003).

Normative Sample

As previously described, the Rorschach CS includes normative reference data on 600 nonpatient adults, 1390 children ages 5 to 16, and several patient groups. Because the adult nonpatient sample was collected predominately between 1974 and 1986, there has been concern from critics that the data may be outdated and in need of revision. Before his death, Exner undertook a new normative study in which nonpatient adults were administered tests across the country by experienced examiners (2003). With some minor differences leading to only minimal interpretive significance, the new reference group data set is markedly similar to the older one. As a result, no noteworthy modifications in interpretive strategy have emerged. Critics of the Rorschach CS alleged that it is overly pathologizing because it purportedly identifies people as psychologically disturbed when they are not (Wood, Nezworski, Garb, & Lilienfeld, 2001). This allegation is based in part on a normative study conducted in northern California that identified differences from the CS reference data in frequency of pathological indicators. However, the sample size in this investigation was relatively small by comparison to Exner's, only 123 participants, was demographically an unrepresentative sample, and used inexperienced examiners to collect the data (Meyer, 2001). The allegation of overpathologizing is additionally based on control sample data, collected from 32 diverse studies. These data also differ from the CS nonpatient population and do not qualify as representative samples of nonpatient adults. Furthermore, of the 32 individuals sampled, 16 were college students or elderly individuals, both of which commonly produce atypical test responses when serving as volunteer participants in research studies, further indicting that

the sample is not representative of the population. Moreover, five of the protocols were from individuals who were either current or former psychiatric patients, and 11 others were recruited without any mental health screening, leaving their histories largely unknown.

Utility of the Rorschach

The Rorschach is frequently used by clinicians in outpatient, inpatient, organizational, and forensic settings, and can be helpful in several different applications (Ganellen, 2004). For example, the Rorschach may be especially useful in assessing patients who are either attempting to conceal psychopathology or who are attempting to positively malinger (Ganellen, 1994; Ganellen, Wasyliw, Haywood, & Grossman, 1996; Grossman, Wasyliw, Benn, & Gyoerkoe, 2002). Although the Rorschach is not a test that can alone yield a diagnosis and should not be used as the only test instrument on which to base a diagnosis, Rorschach indices can reveal aspects of functioning that have been empirically demonstrated to be correlated to particular disorders. For example, Rorschach indices of a thought disorder and impaired reality testing can be useful in identifying schizophrenia or in confirming the presence of a psychotic disorder. Variables related to dysphoric mood and indications of pessimistic thinking assist in identifying depression. Indices related to coping, subjectively experienced distress, and stimulus overload can help identify an anxiety disorder. In addition, the Rorschach can provide valuable information to help inform treatment planning by describing personality traits that will effect the therapeutic process (Elfhag, Rossner, Lindgren, Anderson, & Carlsson, 2004; Stokes et al., 2003). For example, knowing that an individual is prone to shame, which is identified by use of dimensionalized shading in the record, can alert the clinician to help address this concern sooner rather than later so as to thwart a possible treatment failure. The Rorschach can also help describe problems in several domains of functioning (such

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as such as affect modulation problems) that can help define therapy goals (Bihlar & Carlson, 2000, 2001). Furthermore, the CS can also assist practitioners to understand particular styles of coping that may be obstacles to treatment (such as over-reliance on fantasy or intellectualization) (Ackerman, Hilsenroth, Clemence, Weatherill, & Fowler, 2000; Colson, Eyman, & Coyne, 1994; Hilsenroth, Handler, Toman, & Padawer, 1995; Meyer, 2000; Meyer & Handler, 1997; Nygren, 2004; Weiner, 1999; 2004). Finally, the Rorschach is an effective means of documenting progress in treatment and improvement in functioning over time (Abraham, Lepisto, Lewis, Schultz, & Finkelberg, 1994; Blat & Ford, 1994; Exner & Andronikof-Sanglade, 1992; Fowler et al, 2004; Gronnerod, 2004; Weiner & Exner, 1991).

Limitations of the Rorschach

At the beginning of the current decade, debate sparked in the research literature about the Rorschach's usefulness or lack thereof in answering diagnostic questions. Each article criticizing it was soon matched by a rebuttal. Although a full review of the criticisms and strengths of the Rorschach and the CS is beyond the scope of this review, two examples that highlight some of the CS's limitations are presented here. For example, although the CS for the Rorschach has demonstrated itself to possess adequate psychometric characteristics and to be clinical useful, examination of the criticisms suggests that it possesses some limitations. Critics believe the data indicate that particular indices have limited or poor ability to detect some DSM-IV-TR diagnoses. Jorgensen, Andersen, & Dam (2000) found little evidence to suggest that the Depression Index (DEPI) could reliably predict a DSM-IV diagnosis of depression in either children or adults. While there appears to be little evidence supporting the use of the DEPI to assess current depression, a study conducted by Hartman, Wang, Berg, & Saether found that other Rorschach indices was able to identify cognitive and aggressive disturbances in

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individuals who were actively depressed but not in individuals who have been previously depressed or in individuals who had never been depressed (2003). Also, the Rorschach could identify affective and coping disturbances in depressed individuals and to some degree in previously depressed individuals but not in individuals who had never experienced a major depressive episode.

Another CS variable that has undergone scrutiny from Rorschach critics is the Suicide Constellation (S-Con), for its inability to predict individuals who attempt or will attempt suicide. The empirical data on this variable are mixed at best. Exner and Wylie initially reported that the S-Con was able to correctly identify 75% of the suicide patients and 100% of the nonpatients (1977). These findings were later replicated in a cross-validation study with the exact same results (Exner, 1986). However, another cross-validation study conducted by Eyman and Eyman (1992) found markedly different results. Only 1 of 50 patients who had committed suicide had an S-Con score of 8 or higher. It should be noted that the methodology employed in this study raises questions about the generalizeability of these findings. These investigators followed the CS guidelines to score their protocols but instead used the system outlined by Rapaport, Gill, and Schafer (1946) to administer the test. Ordinarily, a comparison between two Rorschach studies with different administration methods could be easily overlooked, but the investigators concluded that the discrepancy between their results for the S-Con and the previously documented ones were so large that they could not be accounted for solely by a difference in test administration. Moreover, the S-Con could not differentiate between those that attempted suicide and those who did not in either adolescent (Silberg & Armstrong, 1992) or in adult (Meyer, 1993) inpatient samples, although some of the variables that comprise the S-Con have been related to suicidal behavior (Arffa, 1982; Kendra, 1979; Silberg & Armstrong, 1992).

Rorschach advocates have responded to diagnostic and other criticisms of the instrument by explaining that Rorschach findings will likely not consistently correlate with the DSM in that it was not created to do so. According to Weiner, Spielberger, and Abeles (2002), the Rorschach Inkblot Method

> is not a diagnostic test. It is a measure of personality processes. To the extent that it measures disordered thinking, which it does very well, it assists in detecting schizophrenic disorder. To the extent that it measures dysphoric mood and negative cognitions, which it does very well, it assists in identifying depression….However, it is not intended to serve as a sole criterion for diagnosing schizophrenic, mood, or anxiety-related disorders (p. 10).

Although the Rorschach should not be used as a diagnostic tool, specific variables can provide valuable information about the presence of thoughts, feelings, and behaviors that are associated with particular diagnoses and in order to clarify diagnoses (Weiner, 2004). To the extent that it can accurately and reliably perform such a task and with the assistance of other psychometrically sound instruments, practitioners can precisely understand the particular issues with which patients present and arrive at a diagnoses that best encompasses her/his unique characteristics. Self-report measures such as objective tests and clinical interviews can provide inaccurate information and be misleading (Huprich and Ganellen, 2006). Sometimes such inaccuracies are a result of deliberate misrepresentations of oneself so as to appear more disturbed or less disturbed depending on the patient's goal. In other cases, individuals do not wish to acknowledge to themselves the existence of certain traits or characteristics because doing so would mean having to face certain difficult truths that they may not be emotional capable of managing. Also, individuals may misreport information about themselves simply because their ability to engage in introspective behaviors is not well-developed or because of a lack of awareness of how others view their behavior. The Rorschach, on the other hand, can provide information about an individual that may or may not be know to him/her or

that he/she may not wish to acknowledge or admit. As the CS has evolved, data have accumulated that illuminate associations between Rorschach variables and behavioral patterns, traits, and personality characteristics that may or may not be uncovered by self-report. The more empirical evidence that mounts that describes clear associations between certain patterns of thinking, reacting, and behaving to DSM diagnoses, the more useful the instrument will become.

One hurdle for the Rorschach and the CS to overcome in the effort to help discriminate between disorders is to provide more empirical support that it can effectively perform this task. For example, Wood, Lilienfield Garb, and Nezworski point out that deviant verbalizations and poor form quality are associated with Schizophrenia, Bipolar Disorder, Borderline Personality Disorder, and Schizotypal Personality Disorder (2000). While this information does narrow the diagnostic possibilities substantially, if finer discriminations based on well-designed studies could be made between diagnostic categories, it would become an even more valuable part of a psychological assessment. To this end, more studies examining the potential differences among CS variables need to be undertaken. Two other disorders that share several common clinical features are bipolar disorder and BPD. Common to both of these problems is mood variability, impulsivity, suicidality, self-destructive behaviors, and substance abuse, among others. Because these diagnoses can be difficult at times to distinguish, psychological instruments that can provide information to assist in making this distinction would be valuable. To date, no studies exist that compare and contrast borderline personality disorder and bipolar disorder.

BORDERLINE PERSONALITY DISORDER

The Diagnostic and Statistical Manual, Fourth Edition, Text Revision (*DSM-IV-TR*; American Psychiatric Association, 2000, p. 710) characterizes Borderline Personality Disorder (BPD) as:

A. A pervasive pattern of instability of interpersonal relationships, self-image, and affects, and marked impulsivity beginning by early adulthood and present in a variety of contexts, as indicated by five (or more) of the following:

B. frantic efforts to avoid real or imagined abandonment.

C. a pattern of unstable and intense interpersonal relationships characterized by alternating between extremes of idealization and devaluation.

D. identity disturbance: markedly and persistently unstable self-image or sense of self.

E. impulsivity in at least two areas that are potentially self-damaging (e.g., spending, sex, substance abuse, reckless driving, binge eating). **Note:** Do not include suicidal or self-mutilating behavior covered in Criterion 5.

F. recurrent suicidal behavior, gestures, or threats, or self-mutilating behavior.

G. affective instability due to a marked reactivity of mood (e.g., intense episodic dysphoria, irritability, or anxiety usually lasting a few hours and only rarely more than a few days).

H. chronic feelings of emptiness.

I. inappropriate, intense anger or difficulty controlling anger (e.g., frequent displays of temper, constant anger, recurrent physical fights).

J. transient, stress-related paranoid ideation or severe dissociative symptoms.

BPD has sparked controversy as a diagnosis, in part, because women are much more frequently diagnosed with the disorder than are men (DSM-IV-TR, 2000). It has also received criticism for its apparent elasticity and frequent overlap with other diagnoses, especially mood disorders and other Cluster B personality disorders (Akiskal,

et al., 1985; Becker, 1997). Despite these drawbacks, researchers and practitioners continue to hold BPD as a useful framework for understanding and treating patient distress, and extensive research has focused on defining and describing BPD with greater clarity and accuracy (Millon, 1987; Stone, 1990; Tramantano, Javier, & Colon, 2003).

Even though the DSM's approach to the classification of BPD has been atheoretical (APA, 2001), many theoreticians have sought to describe its etiology. The term "borderline" was instituted in 1938 by Adolph Stern, a psychoanalyst, to describe individuals who were more disturbed than patients with neurotic organizations but who were not psychotic. They were believed to alternate between a neurosis and a psychosis (Stern, 1938), depending on their stress level. While this definition was eventually replaced by conceptualizations that emphasized oscillations in ego states, the term "borderline" continues to be used to describe patients who can function effectively in well-structured situations but who become destabilized and sometimes psychotic in the face of ambiguity, emotional uncertainty, or stress (Horwitz, et al. 1996). BPD began receiving attention from psychoanalytic practitioners in the 1950s, and psychoanalytic scholars wrote extensively about the condition during this time period. However, it was in 1980, when the third edition of the DSM was published, that it was formally introduced as a diagnosis in the United States.

As noted by Sherry and Whilde (2008), BPD has been described as one of the more difficult and refractory conditions to treat, often because self-destructive behaviors frequently impede treatment (Linehan, 1993), because patients often drop out of treatment (Gunderson, Frank, & Ronningstam, 1989; Skodol, Buckley, & Charles, 1983; Stevenson & Meares, 1992), and because of high comorbidity with Axis I disorders, including major depression (Pilkonis & Frank, 1988; Reich & Noyes, 1987; Sullivan, Joyce, & Mulder, 1994; Zimmerman & Mattia, 1999), panic disorder (Reich and Noyes,

1987; Zimmerman & Mattia, 1999), bipolar disorder (Benazzi, 2000; Kay, Altshuler, Ventura, & Mintz, 1999), eating disorders (Gartner, Marcus, Halmi, & Loranger, 1989; Matsunaga et al., 2000), post traumatic stress disorder (PTSD) (Zimmerman & Mattia, 1999) and substance abuse disorders (Driessen, Veltrup, Wetterling, John, & Dilling, 1998; Nace, Davis, & Gaspari, 1991; Nace, Saxon, & Shore, 1983; Verheul, van den Brink, & Hartgers, 1998; Zimmerman & Mattia, 1999). Moreover, BPD is one of the most prevalent personality disorders found in inpatient and outpatient treatment settings (Widiger & Trull, 1993) and is relatively common in non-clinical populations as well (Gunderson & Zanarini, 1987). Research data suggests that the prevalence of BPD in the general population is about 1-2% and that it comprises about 10% of outpatients and 20% of inpatients (Torgersen, Kringlen, & Cramer, 2001).

The assessment and diagnosis of BPD can be difficult, however, due to the aforementioned frequent comorbidity with other emotional disorders in the *DSM-IV-TR*. Diagnostic accuracy can only be as precise as the method used to perform the task. While the *DSM-IV-TR*'s medical approach may work well for diagnosing physical illnesses like the common cold, this dichotomous system fails to account for the many subtle nuances of human behavior or the intensity with which the behavior presents itself. For this reason, more precise and objective methods of understanding symptoms may be helpful in making these discriminations. Psychological testing can potentially be one method to provide more information to aid in patient diagnosis. One instrument that may be useful in this endeavor is the Rorschach Inkblot Test.

BPD and the Rorschach Inkblot Method

A search of the literature found 87 citations that examine the Rorschach Inkblot Test and BPD. Of these, only four were peer reviewed journal articles whose scientific inquiry centered around variables from Exner's Comprehensive System . In the first of

these articles, Exner compared individuals either diagnosed with schizophrenia, schizotypal personality disorder, and BPD (1986). He found that borderline subjects, as a group, either preferred an affectively driven, intuitive style of coping (Extratensive) or that they were undifferentiated in their coping style (Ambitent). The BPD group also contained more significant instances of protocols of individuals who were experiencing a stimulus overload that exceeded their coping capacities (D Score), leaving them vulnerable to psychological disorganization and disruption of functioning. Furthermore, even when situational factors were extracted, nearly half the BPD group was exposed to a chronic deficit in coping resources (Adjusted D), signifying immature psychological development, poor functional adjustment, and increased instances of behavioral acting out. These problems also appeared to be exacerbated because of additional findings indicating problems with affective modulation. However, relative to the other two groups, BPD patients showed little evidence of disordered thinking (Schizophrenia Index). With regard to reality testing, the BPD group appeared to view the world less conventionally and committed more distortions of reality (X-%) than the normative group but not to the same degree as the schizophrenic group. Lastly, unlike the other two research groups and unlike the normative group, the borderline protocols contained significantly more instances of a self-focus (Egocentricity Index) at the expense of the social environment.

Another of four aforementioned journal articles studying BPD was a case study presenting two protocols of the same individual diagnosed with BPD, one administered at the start of psychotherapy and the other four years later (Murray, 1993). This article references a work performed in the early 1980s by Exner and Weiner (1982) on retest correlations over brief and long-term intervals, identifying inanimate movement and diffuse shading as signifying situational stressors and being unstable in terms of long-term reliability, as environmental stressors tend to be relatively transient. In his case

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analysis, Murray points out that the question of situational stress may be somewhat obscured for the borderline patient, as he/she often tends to be markedly affected by even minor stressors. So, what would be transient stressors for the non-BPD population might actually reflect long-term structural deficits in the tolerance of anxiety or defense operations.

Skinstad, Troland, and Mortensen (1999) conducted an exploratory study to investigate the differences in Rorschach responses between two groups of inpatient alcoholics, one diagnosed with BPD and the other diagnosed with a mixed personality disorder (MPD). Results showed that, although not statistically significantly different from each other, both personality disorder groups produced signs of unconventional thinking (X-%). However, relatively few of any of the study participants demonstrated severe signs of reality testing problems. With regard to cognitive slippage, the BPD group showed a significantly higher proportion of Level 2 Special Scores, suggesting that their thinking was more susceptible to disorganization, compared to the MPD group. In addition, the BPD group also produced more human movement responses, indicating at least some increased interest in others, a higher degree of coping through ideational channels, and perhaps better overall coping, although the this trend did not reach statistical significance. The BPD group also demonstrated a stronger tendency to withdraw from social interaction and approach social interactions more aggressively than the MPD individuals, as demonstrated by their higher Isolation Index Scores and Aggressive Movement scores, respectively. This latter finding suggests that BPD individuals likely harbor more negative and hostile attitudes towards others and may even perceive other people and the environment as threatening.

Lastly, a study by Hilsenroth, Eudell-Simmons, DeFife, and Charnas (2007) investigated the reliability, validity, and diagnostic efficiency of the Perceptual Thinking

Index (PTI), one of the many indices in the Comprehensive System. The PTI was shown to differentiate psychotic patients from nonpatients and from severe personality disorder patients, which included individuals diagnosed with BPD. Nonpatients had the lowest PTI scores. The severe Axis II group had intermediate scores, while the psychotic group had the highest PTI mean. The BPD group was also found to have significantly greater PTI scores than the nonpatient group. A cutoff of 3 points appeared to adequately differentiate between the psychotic patients and the nonpatient group as well as the less severe personality disorders from Cluster C. These results reflect the problems in thinking to which BPD patients are often susceptible. The significant difference over nonpatients likely reflects increased levels of paranoia, odd perceptual experiences, and transient psychotic episodes sometimes reported by these individuals. These findings reflect the ideas of Kernberg who described BPD individuals as living on a continuum between neurosis and psychosis in that their PTI scores lie in between nonpatients and patients diagnosed with a psychotic disorder (1984).

In 2003, Mihura completed a similar review of the literature on BPD and the Rorschach (2006). She also notes that the majority of studies that included BPD groups used non-Comprehensive System scales. She includes in her review studies that address paranoia in BPD. While the data from other scoring systems support paranoia in the protocols of these individuals (Cooper et al., 1988; Stuart et al., 1990), no studies have explored these traits using the CS. Mihura also comments that the Trauma Content Scale may be useful a useful variable to study in BPD patients, as it may related to dissociation and/or the presence of past trauma, both of which are common in this patient group. Although not specifically related to BPD, Kamphuis, Kugeares, and Finn examined the Trauma Content Index's ability to discriminate sexually abused individuals from those who were not abused. They found that this variable was able to accomplish this task.

However, this finding is relevant to BPD because of the well-documented relationship in the literature between childhood sexual abuse and a diagnosis of BPD in adulthood (Brown & Anderson, 1991; Goodwin, Cheeves, & Connell, 1989; Gunderson & Sabo, 1993; Landecker, 1992; Laporte & Guttman, 1996; Paris, 1993).

BIPOLAR DISORDER

Consulting the *DSM-IV-TR* (APA, 2000, p. 383) again to outline the necessary symptoms to diagnose bipolar disorder informs the reader that bipolar disorder exists in two different forms, Bipolar I (BP-1) Disorder and Bipolar II (BP-2) Disorder, with the former described as essentially being more severe than the latter. In either case, the individual in question must have experienced at least one manic or hypomanic episode. The manic episode consists of the following key elements:

A. A distinct period of abnormally and persistently elevated, expansive, or irritable mood, lasting at least 1 week (or any duration if hospitalization is necessary).

B. During the period of mood disturbance, three (or more) of the following symptoms have persisted (four if the mood is only irritable) and have been present to a significant degree:

1) inflated self-esteem or grandiosity

2) decreased need for sleep (e.g., feels rested after only 3 hours of sleep)

3) more talkative than usual or pressure to keep talking

4) flight of ideas or subjective experience that thoughts are racing

5) distractibility (i.e., attention too easily drawn to unimportant or irrelevant external stimuli)

6) increase in goal-directed activity (either socially, at work or school, or sexually) or psychomotor agitation

7) excessive involvement in pleasurable activities that have a high potential for painful consequences (e.g., engaging in unrestrained buying sprees, sexual indiscretions, or foolish business investments).

C. The symptoms do not meet criteria for a Mixed Episode.

D. The mood disturbance is sufficiently severe to cause marked impairment in occupational functioning or in usual social activities or relationships with others, or to necessitate hospitalization to prevent harm to self or others, or there are psychotic features.

E. The symptoms are not due to the direct physiological effects of a substance (e.g., a drug of abuse, a medication, or other treatment) or a general medical condition (e.g., hyperthyroidism).

F. Note: Manic-like episodes that are clearly caused by somatic antidepressant treatment (e.g., medication, electroconvulsive therapy, light therapy) should not count toward a diagnosis of Bipolar I Disorder.

The hypomanic episode differs in several key ways. First, the upward change in mood needs only to last for a period of four days, rather than seven, and lacks the descriptor "abnormal," presumably because the symptoms of the hypomanic episode are less intense and may not necessarily appear as problematic to the onlooker in the way that they might when witnessing full mania. Even though the hypomanic behavior might not necessarily be abnormal compared to other individuals, the *DSM-IV-TR* does require that it be an "unequivocal change in functioning that is uncharacteristic of the person when not symptomatic" (APA, 2000, p.393). This change in mood must also be "observable by others" (APA, 2000, p. 393). Whereas an onlooker might not easily recognize that a problem exists, someone familiar to the person would be able to identify a difference relatively easily. Lastly, the criteria for hypomania specify that there is not a marked impairment in functioning, that hospitalization is not required as a result of the onset of the mood change, and that there is no psychosis present (APA, 2000, p. 393).

In addition the to symptoms of mania and/or hypomania, individuals can receive a diagnosis of BP-1 Disorder or BP-2 Disorder if it can be determined that there is

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evidence in the history to suggest that a manic or hypomanic episode has previously occurred and if the patient is currently experiencing or has also ever experienced a major depressive episode, as outlined by the following *DSM-IV- TR* (APA, 2000, p. 393) criteria:

A. Five (or more) of the following symptoms have been present during the same 2-week period and represent a change from previous functioning; at least one of the symptoms is either 1) depressed mood or 2) loss of interest or pleasure.

B. Note: Do not include symptoms that are clearly due to a general medical condition, or mood-incongruent delusions or hallucinations.

1) depressed mood most of the day, nearly every day, as indicated by either subjective report (e.g., feels sad or empty) or observation made by others (e.g., appears tearful). Note: In children and adolescents, can be irritable mood.

2) markedly diminished interest or pleasure in all, or almost all, activities most of the day, nearly every day (as indicated by either subjective account or observation made by others)

3) significant weight loss when not dieting or weight gain (e.g., a change of more than 5% of body weight in a month), or decrease or increase in appetite nearly every day. Note: In children, consider failure to make expected weight gains.

4) insomnia or hypersomnia nearly every day

5) psychomotor agitation or retardation nearly every day (observable by others, not merely subjective feelings of restlessness or being slowed down)

6) fatigue or loss of energy nearly every day

7) feelings of worthlessness or excessive or inappropriate guilt (which may be delusional) nearly every day (not merely self-reproach or guilt about being sick)

8) diminished ability to think or concentrate, or indecisiveness, nearly every day (either by subjective account or as observed by others)

9) recurrent thoughts of death (not just fear of dying), recurrent suicidal ideation without a specific plan, or a suicide attempt or a specific plan for committing suicide

C. The symptoms do not meet criteria for a Mixed Episode.

D. The symptoms cause clinically significant distress or impairment in social, occupational, or other important areas of functioning.

E. The symptoms are not due to the direct physiological effects of a substance (e.g., a drug of abuse, a medication) or a general medical condition (e.g., hypothyroidism).

F. The symptoms are not better accounted for by Bereavement, i.e., after the loss of a loved one, the symptoms persist for longer than 2 months or are characterized by marked functional impairment, morbid preoccupation with worthlessness, suicidal ideation, psychotic symptoms, or psychomotor retardation.

BP-1 Disorder has been found to be equally prevalent in men and women in all epidemiologic studies conducted in both the United States and Europe since 1990. However, men are more likely to only experience unipolar mania, have either a depressive or manic episode at an earlier age, and have lengthier manic episodes, while women have been shown to experience mixed and major depressive episodes and to receive treatment for any of the three types of bipolar related episodes more often than men (Grant et al., 2005). BP-1 appears to be equally prevalent among African-Americans and Caucasians but affects Latino and Asian populations less frequently, relative to the other two groups.

The symptomatic course of BP-1 is highly recurrent, frequently chronic, and correlated with functional impairment and early mortality (McIntyre & Konarski, 2004). It is also associated with frequent hospitalizations, increased suicide risk, high treatment costs, and impaired occupational functioning (Francis, Kahn, Carpenter, Docherty, & Donovan, 1998; Peele, Xu, & Kupfer, 2003; Harrow, Goldberg, Grossman, & Meltzer, 1990). Research findings suggest substance abuse, anxiety disorders, Axis II disorders,

and eating disorders are commonly comorbid in BP-1, further complicating diagnosis, treatment, and outcomes (McIntyre et al., 2006; Grant et al., 2005). Symptom severity, functional and occupational disability, earlier age of onset of bipolar related episodes, higher rates of suicidality, medication resistance, relapse, and poorer outcome have all been linked with BP-1 when it appears with these comorbid problems (George, Miklowitz, Richards, Simoneau, & Taylor, 2003; Goldberg, Garno, Leon, Kocsis, & Portera, 1999; Sonne, Brady, & Morton, 1994). A 1991 economic investigation conducted by Wyatt and Henter (1995) that focused on the monetary cost of bipolar disorder estimated that the economic cost of the disease to the U.S. economy based on a lifetime prevalence rate of 1.3% to be $45 billion per year. A 2001 figure proposed by Begley et al. calculated the lifetime cost of incident cases from 1998 to be $24 billion based on a 1.6% lifetime prevalence rate.

While other presentations do commonly occur, the initial onset of BP-1 symptoms is most often characterized by the presence of sleep disturbance, low mood, and anxiety (McElroy et al., 2001). Poor insight is also common in BP-1, occurs most often during manic episodes, and is predictive of treatment non-compliance and poor outcome (Ghaemi & Rosenquist, 2004). Comorbid anxiety in BP-1 dramatically increases the risk of having poor insight in addition to increased suicidality, additional episodes of the illness, and hospitalizations (McIntyre et al., 2006). One study found that nearly half, 48.5%, of its BP-1 sample met diagnostic criteria of at least one comorbid anxiety disorder during the twelve months of the study (Grant et al., 2005). Estimates of suicide attempts at least once during the lifetime of individuals diagnosed with BP-1 range between 25% and 50%, among the highest of all psychiatric disorders (Goodwin & Jamison, 1990), and between 9% and 19% of all bipolar patients die due to completed suicide. Risk factors for increased suicide attempts include early onset, numerous

depressive episodes, history of mania induced by antidepressants, and a family history of a suicide attempt (Slama et al., 2004).

Bipolar Disorder and the Rorschach Inkblot Method

A literature search for peer reviewed, North American, journal articles after 1980 using the Comprehensive System identified only one studies meeting these requirements. The first, an investigation by Singer & Brabender (1993) compared Rorschach protocols of three different mood disorder groups: unipolar depressed, bipolar depressed, and bipolar manic. The results found 70% of manic protocols contained at least one Level II Special Score, whereas only 33% of bipolar depressed and 23% of unipolar protocols did. Manic subjects also demonstrated considerably more impairment in reality testing (X-%) compared to the other two groups. And, their protocols indicated that reality testing was markedly hindered by feelings of hostility (S-%). The manic group was more likely than the bipolar depressed group to rely on intellectualization as a defense, and one-third of the manic subjects obtained an elevated SCZI score, increasing the chance that this group was experiencing a higher degree of psychotic thinking. The bipolar depressed group in this study also showed a high degree of cognitive slippage, but their problems in this area were manifest through increased Level I Special Scores whereas their manic counterparts earned significantly higher Level I and Level II Special Scores. Level I Deviant Responses were also significantly higher in all bipolar patients, while bipolar manic patients had significantly higher Level II Deviant Responses. The bipolar depressed The bipolar depressed subjects also were different than the two other groups in their organizational activity (Zf) and cognitive sophistication (DQ+), both of which were lower in the bipolar depressed subjects. In addition, the DEPI was found to more successfully identify individuals in the unipolar depression group than it did in the bipolar depressed group.

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One additional study will be discussed here that did not meet the search criteria but is worth noting; it was conducted in Isreal (Mandel, Last, Belmaker, & Rosenbaum, 1984). It compared the Rorschach protocols of 35 bipolar patients in a euthymic state with Exner's normative group (Exner, 1978). Most study participants were taking lithium. Several variables were identified that were found to be significant, varied one or more standard deviations from the mean, and were true for 50% or more of the cases. Despite their euthymic state, their affect was much less well modulated than the control group (FC:CF+C). Eighty-three percent of the bipolar group had an FC score that was two deviations from the normative mean. Reality testing (F+%) was also low, as was organizational activity (Zf). Complexity of cognitive activity was also lower than expected (Blends). Bipolar subjects also appeared less interested in others (H+Hd), as well as less likely to rely on thinking channels of problem solving (M). Despite being stabilized on medication, special scores still reflected problems with flawed thinking. Lastly, pair responses were lower than the reference group, suggesting that these individuals were avoiding self-focusing.

DISTINGUISHING BPD FROM BIPOLAR DISORDER

Controversy exists in research literature about whether bipolar disorder and BPD are the same problem or whether they are two diagnostically different classifications. This question arises because of overlap of symptoms that they both share (Magill, 2004; Howland & Thase, 1993). In patients who manifest both impulsivity and affective instability, making the determination between the two problems can be difficult, as it requires differentiating between whether or not these symptoms occur during discrete episodes or whether or not they are part of an endogenous pattern of functioning. Patients who also present with unstable relationships and persistent destructive behaviors can add even more complexity to this diagnostic conundrum.

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Before attempting to differentiate these two disorders from each other, an understanding of the extent to which these problem co-occur is useful. Several studies have investigated this relationship. Deltito et al. reported that nearly one-third of their BPD cohort had a history of a spontaneous manic or hypomanic episode (2001). Akiskal et al. (1985) found that in their 100 subject sample of individuals diagnosed with BPD, mood disorders were the most common comorbid Axis I problem. Seven of their subjects met criteria for cyclothymia and 17 met criteria for Bipolar Disorder II. At the 36-month follow-up, significantly more of the BPD group experienced a manic or hypomanic episode than did the control group. Zanarini et al. (1998) reported that more patients diagnosed with BPD also received a Bipolar II diagnosis, compared with all other Axis II disorders. Data from Levitt, Joffe, Ennis and MacDonald (1990) showed that cyclothymia occurred more often in BPD patients than in patients carrying other personality disorder diagnoses.

Multiple additional studies have shown that BPD is one of the most frequently occurring Axis II disorder in patients diagnosed with BP-I. Brieger, Ehrt, and Marneros (2003) explored the relationship of personality disorders with affective disorders. In their sample, 51% of participants diagnosed with a unipolar depression and 38% of those meeting criteria for a bipolar disorder also met criteria for a comorbid Axis II disorder. The most frequent personality disorders found were obsessive-compulsive, borderline, and narcissistic and avoidant. Cluster C disorders, especially avoidant personality disorder, occurred significantly more frequently in patients with unipolar depression than in bipolar patients. Narcissistic personality disorder occurred significantly more often in bipolar than in unipolar patients. Twelve percent of the unipolar sample was found to have an accompanying BPD diagnosis, while just 7% of the bipolar group received an additional diagnosis of BPD. Üçok, Karaveli, Kundakçi, and Yazici (1998) found similar

results, finding nearly half of their outpatient bipolar sample meeting criteria for a personality disorder. Of the total bipolar sample, 10% received an additional diagnosis of BPD. In a private practice, outpatient sample, Benazzi (2000) found the incidence of BPD to be lower in individuals receiving medication treatment for bipolar disorder. In his sample, only 1.5% of bipolar patients received an additional BPD diagnosis. However, the incidence of BPD rose sharply, to 12%, when patients diagnosed with BP-2 Disorder were also examined, suggesting the possibility of greater overlap with BP-2 Disorder than BP-1. While some studies report slightly different findings, the majority of the data examining the connection between the bipolar spectrum and BPD indicate that BPD and BD-1 occur together more frequently than BPD does with most other psychiatric diagnoses. Likewise, there is a strong link between the bipolar spectrum and the possibility of a comorbid BPD. It is difficult to determine if these results reflect true comorbidity or variations of a single disorder along a spectrum.

Researcher conceptualizations about the bipolar spectrum continue to broaden. Akiskal asserts that the bipolarity not only includes depression, mania, and hypomania but encompasses more subtle forms of hypomanic activation such as cyclothymia, lifelong intermittent mini-depressions alternating with short hypomanic periods with infrequent euthymia, and with hyperthymic temperament, a "permanently elevated baseline of hypomanic adjustment" (1996, p. 7S). Akiskal believes that these less pronounced forms of mania and/or depression are softer forms of bipolar disorder and fall with the broader scope of the bipolar spectrum. He cites a relatively common patient prototype of an individual who presents for care with cyclothymic features, having had soft, alternating cycles of hypomania and depression beginning in late adolescence that are characterized by abrupt shifts from one mood state to the next, with both elevated and depressed states only lasting a few days with short, infrequent periods of affective

stability. Akiskal argues that this above described vignette characterized by rapidly shifting affect is also seen in individuals diagnosed with BPD and that these rapid shifts in affect can become conceptualized by clinicians as character flaws or personality deficiencies rather than mood disorders.

Hirschfeld (2001) calls for broadening the concept of bipolar disorder, also advocating for a spectrum approach. He includes in mixed states, hyperthymic temperament, major depressive episodes, and describes a mixed state as one that includes dysphoria, racing thoughts, irritability, at least moderate anxiety, high fatigue, panic attacks, suicidal ideation and parasuicidal behavior, all of which could easily be interpreted as indicators of BPD. In a similar vein, Deltito et al. (2001) examined signs and symptoms of bipolarity in BDP patients using five indicators: history of mania, history of hypomania, bipolar temperaments, response to medication treatment typical of bipolar disorder, and family history of bipolar disorder. Results found that depending how rigorous (mania) or mild (family history) the criteria were that were applied, between 13 and 81% of the BPD participants demonstrated signs relevant to the bipolar spectrum. When the researchers restricted the criteria to only Bipolar I or II Disorder, 44% of the BPD sample fell on the bipolar spectrum.

Ghaemi, Ko and Goodwin (2002) have called for an additional diagnostic category, bipolar spectrum disorder, to encompass all other potential forms of bipolarity that are not accounted for by BD-I or by Bipolar II Disorder. They suggest that the criteria should require at least one current or past major depressive episode but no spontaneous manic or hypomanic episodes. In addition, one of several combinations of the following criteria would also be required: a positive family history of BD-1 or BP-2 Disorder, mania or hypomania induced by antidepressant pharmacotherapy, hyperthymic temperament, brief and/or recurrent major depressive episodes, early age of onset of first

major depressive episode, post-partum depression, poor response to multiple trials of antidepressant medication, and re-emergence of symptoms while taking a once therapeutic dose of an antidepressant.

Beyond the overlap of symptoms between BPD and the bipolar disorders, several reasons have been suggested to explain what these researchers describe as a misdiagnosis of bipolar spectrum patients as BPD (Magill, 2004). First, prior to meeting criteria for one of the more current rigorous definitions of bipolar disorder in the DSM-IV-TR, these patients experience years of fluctuations in mood and affect that highly resemble bipolar disorder. Furthermore, in addition to the manic/hypomanic and depressive episodes, the sub-threshold episodes of either mood state can all be fertile ground for the genesis and maintenance of interpersonal conflicts and maladaptive character development. Also, individuals who experience cyclothymia, those whose mood symptoms are often difficult to distinguish as clearly manic or clearly depressive, because of the rapid shifting, can be misclassified as BPD. And, when not fully symptomatic, these patients experience fewer asymptomatic periods of time, thereby appearing to exhibit more characteralogical problems than mood related ones. Howland and Thase add that the etiology of issues surrounding marital discord, promiscuity, poor work performance, and substance abuse are often ascribed to a personality disorder, rather then complications of a mood disturbance (1993).

As a result of the debate about the legitimacy of BPD, multiple investigations have examined its validity in closer detail. In an early study, Gaviria, Flaherty, and Val (1982) compared the psychiatric records of two groups of patients, one diagnosed with BP-1 only and the other with BP-1 and BPD. Individuals with more than one diagnosis had higher rates of psychiatric problems in childhood and adolescence, lower school performance, and more loss and/or separation from primary attachment figures during

childhood. Furthermore, patients with comorbidity reported their first mood disorder at an earlier age and reported significantly more psychotic symptoms during than did the BP-1 only group. The records of patients with more than one diagnosis also reflected poorer compliance with treatment and were terminated from treatment significantly more often than their counterparts, who were more likely to end treatment on more positive terms.

Sanislow et al. (2002) tested two validity models using the DSM-IV criteria for BPD. Their first group was comprised psychiatric inpatients and outpatients who met Axis II criteria for borderline, obsessive-compulsive, schizotypal, and avoidant personality disorders using The Diagnostic Interview for DSM-IV Personality Disorders (Zanarini, Frankenburg, Sickel , Yong, 1996). The comparison group contained individuals who met criteria for major depressive disorder but not for an Axis II diagnosis. Confirmatory analysis showed good statistical fit with both a one factor model and a three factor model, although the latter demonstrated a significantly better fit to the data, providing empirical support the existence of BPD. The first factor of the three, described as "disturbed relatedness," included the DSM criteria unstable relationships (criterion number 2), identity disturbance (number 3), and chronic feelings of emptiness (number 7). This factor, reflecting a impaired sense of self and relatedness to others, might be viewed as an essential feature of BPD because they exhibit much of the symptomatic interpersonal behavior typically observed in these patients. The second factor, "behavioral dysregulation," included criteria for impulsivity (number 4) and suicidality and/or self-mutilation behavior (number 5). It captured the most emergent of the symptomatic behavior relevant to treatment and differed from the other factors in that the criteria that it comprised were observable behaviors as opposed to character traits or tempermentally related constructs. The third factor, "affective dysregulation," consisted

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of criteria for affective instability (number 6), inappropriate anger (number 8), and avoidance of abandonment (number 1). It is likely related to stress tolerance, difficulty coping, and inability to contain behavior and words during difficult times.

Zanarini et al. (1998) assessed the lifetime rates of occurrence comorbid Axis I disorders in patients with BPD versus a comparison group, each of whom met criteria for a different personality disorder. The data suggested that anxiety disorders were almost as common among borderline patients as mood disorders but co-occurred in BPD patients at a much higher rather than the comparison group. Posttraumatic stress disorder was a common although not universal comorbid disorder among BPD patients, a finding inconsistent with the belief that BPD is actually a form of chronic PTSD. And, male and female borderline patients differed in their impulsivity. Substance abuse disorders were more common among male borderline patients, whereas eating disorders were more common among female patients. And, a lifetime pattern of complex comorbidity had strong positive predictive power for the BPD diagnosis as well as a high level of both sensitivity and specificity. Zanarini et al. (1998) concluded that multiple Axis I diagnoses over the lifetime of an individual also provide support for the BPD diagnosis.

Gunderson and Elliott (1985) suggest several hypotheses to explain the relationship between BPD and the bipolar spectrum. One theory is that the mood disorder could be the primary problem and that the personality disorder results because developmental milestones related to emotional growth as not met as a consequence of the mood problems. Or, conversely, the coping deficits inherent in the personality disorder could contribute to the genesis of bipolar symptoms to which the individual lacks resilience. Third, both BPD and the bipolar spectrum are unrelated and that they both have high rates of occurrence in the population relative to other disorders. Lastly, the signs and symptoms of bipolar disorder and BPD come from multiple sources and, at

times, result in the development of an Axis I and an Axis II problem. Given their finding that individuals diagnosed with BPD and bipolar disorder commonly experience an earlier age of onset of a mood disorder, Gaviria et al. propose that individuals with BPD who also possess a greater genetic vulnerability to a mood disorder may be more susceptible to developing mood related symptoms at an earlier age (1982). Another possibility is that those who begin with a genetic vulnerability are at a greater risk of developing psychopathology earlier and may be more vulnerable to developing either BPD or bipolar disorder, with the individual signs and symptoms differing depending on the stressors, the social support available, and temperament (Gunderson & Elliott, 1985). Finally, Magill believes that sufficient evidence exists to substantiate BPD as a unique entity, separate from bipolar disorder. She recommends careful questioning about the patient's personal and family history in order to understand better the course of the individual's illness and potentially long-standing patterns of behaving and relating (2004).

SUMMARY & PROPOSED STUDY

The Rorschach Inkblot Test is a perceptual-cognitive task in which the examinee must organize a response to an ambiguous stimulus. The manner in which an individual approaches this task is thought to be similar to how one responds to ambiguity in daily life. The end result of this activity provides valuable information about how individuals people focus their attention, perceive people and events, reflect on their experience, manage emotions and stress, and view themselves and others. Despite criticism of the CS's psychometric properties, the Rorschach has been consistently shown to demonstrate ICCs of greater than .90 for the majority of its variables. In adults, the short- and long-term stability of most CS variables exceeds .75, and 19 of its core variables have demonstrated one-year or three-year retest correlations of .85 or higher. In children its

variables have been shown to move along a developmental trajectory that maps onto cognitive and emotional theories of development. And, meta-analysis of MMPI and Rorschach protocols suggests that these instruments possess similar mean validity coefficients, both of which are among the highest ranking of all psychological assessment tools. In addition, the Rorschach CS includes normative reference data on 600 nonpatient adults, 1390 children ages 5 to 16, and several patient groups. And, in response to criticism, a new reference sample was recently gathered that revealed that the norms have changed little in the past two decades.

In terms of its utility, the Rorschach can be helpful in assessing patients who conceal psychopathology or who are attempting to positively malinger, has been demonstrated to be effective at identifying psychosis, and provides a valuable description of an individual's personality traits that can illuminate problems and inform treatment planning. Despite these assets, some Rorschach research has been criticized sharply for its methodology. And, the instrument itself has been criticized because some of its variables have not been demonstrated empirically to measure they purport to measure and for not discriminating well among certain diagnoses.

BPD and bipolar disorder are both illnesses that case significant functional impairment, are costly in terms of treatment and lost productivity, and are associated with high comorbidity rates and with each other. There is debate in the literature as to whether they are each distinct diagnostic categories or if they are actually different labels for the same problem. Relatively few studies have been conducted of the CS in the past 25 years that that examine the Rorschach's ability to identify these two disorders separately. Moreover, no studies exist that have attempted to ascertain whether the CS can discriminate between them. While it is unlikely that the Rorschach will be able to definitively place an individual into a distinct diagnostic category, any additional

assistance that an assessment instrument could scientifically provide would be potentially helpful. Furthermore, if the Rorschach were able to be able to discriminate between these two groups, it would also provide additional support for the idea that BPD and bipolar disorder are distinct diagnostic entities.

The current study has one central purpose, to determine whether or not the CS for the Rorschach Inkblot Test can effectively discriminate between individuals diagnosed with BPD and those diagnosed with bipolar disorder. Previously conducted, peer-reviewed studies since 1985 have uncovered CS variables that were statistically significant in BPD and in bipolar groups when examined separately. However, there have been relatively few such investigations, making the body of research with CS variables small in this area. It would be valuable to know whether or not the CS is a useful tool in making diagnostic determinations for these two disorders, especially given the previously discussed criticisms of the instrument. A second goal of the current study is to uncover variables that add to the existing body of knowledge about the CS and bipolar disorder and BPD independently. Some of these may be variables that have not been previously studied as relevant to either BPD or bipolar disorder. Others may replicate findings that already exist. Moreover, if the Rorschach could help classify these individuals and uncover distinct differences between them in their test results, these data would also lend support for the idea that these are indeed two different disorders, a tertiary goal of the current study.

Chapter 3: Methodology

PARTICIPANTS

The participants for this study will be drawn from a preexisting database of psychological testing files at Austin State Hospital (ASH), an inpatient tertiary care psychiatric hospital in Austin, Texas. The cases to be reviewed were completed over an 11-year period, spanning from 1998-2009.

Prior to data collection, a power analysis using GPower (Erdfelder, Faul, & Buchner, 1996) was conducted to determine the appropriate number of subjects for this study. Univariate analyses will be used given there is no theoretical overlap between the Rorschach variables being studied. Using this data analysis approach, it was determined that sufficient power would be obtained with 159 participants with a medium effect size (power =.8).

The following eligibility criteria will be utilized for the study. Patients must have been administered the Rorschach by a advanced practicum student or intern enrolled in a doctoral-level clinical or counseling psychology training program under the supervision of a licensed psychologist, or by a staff psychologist at ASH. All included Rorschach protocols will have been administered in accordance with the Comprehensive System guidelines (Exner, 1993). Only protocols that contain at least 14 responses and those that are considered valid under the Comprehensive System guidelines will be included. Exner's research suggests Rorschach variables are less valid and reliable when protocols contain fewer than 14 responses (1991).

Medical records will be reviewed for working psychiatric diagnoses based on the DSM-IV-TR (APA; 2000). Patients will be included if they have a DSM-IV diagnosis of Borderline Personality Disorder or BP-1 Disorder. BP-1 diagnosis will be further divided into Bipolar Manic and Bipolar Depressed groups. Grouping variables for the study will

be Bipolar Manic, Bipolar Depressed and Borderline Personality Disorder. Protocols of patients will be excluded if they meet criteria for both diagnoses simultaneously. In the two bipolar groups, the with and without psychotic features subtypes will be collapsed for the analysis. Patients who meet the follow criteria will be excluded from the study: documentation of mental retardation (including suspicion in the medical record), those admitted for forensic psychiatric evaluations, substance abuse related psychosis, and/or those suspected of having an disorder of an organic etiology.

Table 1

Summary of Inclusion and Exclusion Criteria

	Inclusion Criteria	Exclusion Criteria
Rorschach	Completed Rorschach by trained professional Use of Exner Comprehensive System	Fewer than 14 responses
Diagnostic	Borderline Personality Disorder Bipolar I, Current Episode Manic Bipolar I, Current Episode Depressed	Mentally Retarded (or suspicion) Forensic psychiatric inpatients Organic etiology Substance Abuse Psychosis

PROCEDURES

Participants will be drawn from the assessment archives at ASH. A psychological assessment at this facility typically consists of a Rorschach, one objective assessment measure, a clinical interview, and a review of the patient's records. Assessment batteries may also include other measures appropriate to the individual case and/or to the referral

question(s) generated by the treatment team. In cases of suspected malingering, a SIRS (Structured Interview of Reported Symptoms; Rogers, Bagby, & Dickens, 1992) may also be administered. Although all patients in the proposed study completed Rorschach Inkblot tests, they may have also been administered other measures not used in the current study. The order in which the testing instruments are administered varies, usually as a function of pragmatics regarding time available, scheduling, and the patient's ability to tolerate undergoing testing on a particular day. It is unlikely that the order of administration of the instruments in the test battery would have affected the validity of the Rorschach results.

Because patient records over an 11-year period are being used, the assessments will have been administered by multiple examiners. However, as previously noted, all examiners are be advanced practicum students enrolled in a doctoral-level clinical or counseling psychology training program, pre-doctoral psychology interns, or psychology staff at the hospital. All Rorschach examiners will have received formal classroom training and supervision in projective personality assessment. In addition, on-site training for students and interns at ASH typically includes performing a mock Rorschach with a supervisor, observing assessment sessions, being observed by a supervisor, and supervision of test administration and scoring, depending on prior level of experience.

Prior to data collection, permission for the proposed study will be obtained from the University of Texas at Austin's Institutional Review Board (IRB) and from the IRB at ASH. Furthermore, the proposed study will adhere to the ethical standards of the American Psychology Association and to the "Policies and Procedures Governing Research with Human Subjects" of the University of Texas at Austin and of the Texas Department of Mental Health and Mental Retardation.

To protect the anonymity of each subject, no identifying information will be recorded from patient medical records. Following the initial selection of patients for the study, patients will be assigned a numeric code to protect their identities. Data obtained will be stored in a locked file cabinet accessed only by the researchers involved in the proposed study. Inter-rater reliability will be assessed by randomly selecting approximately 25% of the Rorschach protocols and comparing the principal investigator's scoring to the original Rorschach scoring. These protocols will be scored without knowledge of the diagnosis so the researcher will be blind to group membership during the scoring process. The Kappa coefficient will be calculated to determine inter-rater reliability. Estimates of inter-rater reliability are considered excellent if greater than .74, good if they range from .60 to .74, and fair if they range from .40 to .59 (Fleiss, 1981). Finally, selected information from patient charts will be reviewed. Demographic information, such as, sex, age, marital status, and race will be collected. Additional treatment related information will be collected such as length of stay, number of days in hospital prior to testing, number of Axis I and Axis II diagnoses, and GAF scores at admission will be collected.

The principal investigator of the current study has had extensive training and supervision in the use of the Exner CS (1993). He has had a total of seven years of supervised experience in Rorschach administration and scoring. Three of these years included supervised experience in administration, scoring, and interpretation that included weekly hour-long supervision sessions with one of the committee members of the current study and has attended four intensive weekend-long seminars with another one of the committee members.

MEASURES

Rorschach Inkblot Method

The Rorschach Inkblot method is a performance-based instrument that measures several aspects of an individual's personality (Weiner, 2004). It is comprised of ten inkblots that are presented to the examinee with the instructions, "What might this be?" Responses are recorded verbatim and coded based on a variety of dimensions, including, among others, the exact portion of the blot used, the quality of the percept as it relates to the appropriateness or lack thereof of the form contours of the blot, color, shading, and content. From these codes ratios are calculated that provide information about an individual's reality testing, perception of self, and others, emotional functioning, and thought processes (Exner, 1993). Currently, the most reliable and valid system for administering and scoring the Rorschach is Exner's Comprehensive System (CS) (Viglione & Hilsenroth, 2001).

Multiple studies have focused on the inter-rater reliability of the CS variables (Acklin, McDowell, Verschell, & Chan, 2000; Meyer, 1997 a, b; Meyer et al., 2002; Viglione & Hilsenroth, 2001; Viglione & Taylor, 2003). A review article by Viglione & Hilsenroth (2001) found that studies conducted in the past 20 years demonstrate that 95% of CS variables can be coded with good (ICC > .60) to excellent (ICC > .74) inter-rater reliability.

Tables 3.2 presents a summary of the Rorschach variables that were included in this study. These specific variables were selected for inclusion based on a review of the literature and their theoretical importance to understanding and discriminating among Borderline Personality Disorder, Bipolar I Manic, and Bipolar II Depressed groups.

Table 2

Rorschach Variables Believed to Discriminate among Borderline Personality Disorder, Bipolar I Manic, and Bipolar II Depressed Groups

Variable	Abbreviation	Definition
Erlebnistypus	EB	A ratio of internal coping resources available for problem solving related to thinking on the left side and feeling on the right side.
Adjusted D	Adj D	An indicator of the ability to maintain emotional, verbal, and behavioral control. A score of less than zero suggests a chronic state of being overwhelmed, poor stress tolerance, difficulty adapting to stress, and ineffective problem solving.
Food	Fd	Any response containing food. Indicates the presence of an immature dependence on others to meet one's needs. Suggests a likelihood of taking from others while giving little in return.
Hypervigilance Index	HVI	This index is comprised of nine items. When a certain combination of items is reached, the index is considered positive. It signifies a trait in which the person uses energy to maintain a constant state of preparedness based on a mistrusting attitude toward the environment during development related to a sense of insecurity and vulnerability and leading to caution of others.
Aggressive Movement	AG	A response containing verbal or behavioral aggression. Signifies a tendency to not anticipate cooperation with others or to approach interpersonal transactions forcefully.
Trauma Content Index	TC/R	A ratio of the sum of all blood, sex, morbid, and aggressive movement responses. Has been interpreted as a tendency toward psychotic regression and as a dissociative attempt to defend against traumatic memories.
Egocentricity Index	3r+2 / R	Measures the degree to which a person thinks about him-/herself vs. others. Elevations indicate excessive concern with one's own thoughts, feelings, and motivations at the expense of those of others.

Table 2 (continued)

White Space with (-) Form Quality	S-	Percepts incorporating white space are interpreted as negativism, anger, or oppositionality. With combined with poor form quality, it denotes the loss of reality testing when angry.
Perceptual Thinking Index	PTI	A 5-criteria index that draws from indices of perceptual distortion and cognitive slippage. The likelihood of psychosis increases with each additional positive indicator over three.
Developmental Quality	DQ+	Instances when the response reflects well-organized, complex, and sophisticated thinking.
Deviant Response – Level 1	DR1	Responses that detach from the task and reflect mild lapses control in ideational impulses.
Deviant Response – Level 2	DR2	Similar to DR1 but are considered to reflect more serious difficulties in the ability to maintain focus on the task at hand and reflect disjointed and impulsive cognition.

RESEARCH QUESTIONS

The primary aim of the current study is to determine whether the Rorschach, using the CS, is capable of discriminating among Borderline Personality Disorder, BP-1 Disorder with current manic symptoms, and BP-1 Disorder with current depressed symptoms. Although these disorders share many commonalities, a review of the literature indicated that several variables may have the potential to provide such discrimination. The hypotheses for each of these variables as well as the proposed analyses and expected results are listed below:

Research Question 1: Can a patient's coping style, as measured by the Rorschach CS variable Erlebnistypus (EB), discriminate among Borderline Personality, Manic Bipolar, and Depressed Bipolar groups?

Hypothesis: Ambient coping style will be significantly more associated with Borderline Personality than with either Bipolar group.

Proposed Analysis: A generalized linear model analysis will be conducted with diagnosis (Borderline Personality, Bipolar Manic, and Bipolar Depressed) as grouping variable 1 and coping style (Ambitent, Introversive, Extratensive) as grouping variable 2. If a significant main effect for the independent main variable, a follow-up contrast between groups will also be conducted.

Research Question 2: Can a patient's index of his/her overall ability to maintain control during stressful periods (as measured by the Adjusted D-score in the Rorschach CS) distinguish among Borderline Personality, Manic Bipolar, and Depressed Bipolar groups?

Hypothesis: The Borderline Personality group will demonstrate significantly lower Adjusted D-scores than either the Manic Bipolar or the Depressed Bipolar group.

Proposed Analysis: A one-way ANVOA will be conducted with Group as the independent variable and the Adjusted D-score as the dependent variable. If the effect is found to be significant, a Tukey's posthoc analysis will be conducted.

Research Question 3: Can the number of food responses in a patient's protocol distinguish among Borderline Personality, Manic Bipolar, and Depressed Bipolar groups?

Hypothesis: The protocols in the Borderline Personality group will contain significantly more food responses than either the Manic Bipolar or the Depressed Bipolar group.

Proposed Analysis: A one-way ANVOA will be conducted with Group as the independent variable and food responses as the dependent variable. If the effect is found to be significant, a Tukey's posthoc analysis will be conducted.

Research Question 4: Can the number of positive factors on the Hypervigilance Index (HVI) distinguish among Borderline Personality, Manic Bipolar, and Depressed Bipolar groups?

    Hypothesis: The HVI scores in the Borderline Personality group will be significantly higher than in either the Manic Bipolar or the Depressed Bipolar group.

    Proposed Analysis: A one-way ANVOA will be conducted with Group as the independent variable and the number of positive HVI factors as the dependent variable. If the effect is found to be significant, a Tukey's posthoc analysis will be conducted.

Research Question 5: Can the mean number of aggression (AG) responses distinguish among Borderline Personality, Manic Bipolar, and Depressed Bipolar groups?

    Hypothesis: The AG scores in the Borderline Personality group will be significantly higher than in either the Manic Bipolar or the Depressed Bipolar group.

    Proposed Analysis: A one-way ANVOA will be conducted with Group as the independent variable and the number of AG responses as the dependent variable. If the effect is found to be significant, a Tukey's posthoc analysis will be conducted.

Research Question 6: Can the Trauma Index distinguish among Borderline Personality, Manic Bipolar, and Depressed Bipolar groups?

    Hypothesis: The Trauma Index scores in the Borderline Personality group will be significantly higher than in either the Manic Bipolar or the Depressed Bipolar group.

Proposed Analysis: A one-way ANVOA will be conducted with Group as the independent variable and Trauma Index as the dependent variable. If the effect is found to be significant, a Tukey's posthoc analysis will be conducted.

Research Question 7: Can the Egocentricity Index distinguish among Borderline Personality, Manic Bipolar, and Depressed Bipolar groups?

Hypothesis: The Egocentricity Index scores in the Borderline Personality group will be significantly higher than in either the Manic Bipolar or the Depressed Bipolar group.

Proposed Analysis: A one-way ANVOA will be conducted with Group as the independent variable and the Egocentricity Index as the dependent variable. If the effect is found to be significant, a Tukey's posthoc analysis will be conducted.

Research Question 8: Can the White Space (S) responses with minus form quality distinguish among Borderline Personality, Manic Bipolar, and Depressed Bipolar groups?

Hypothesis: The number of distorted angry responses in the Manic Bipolar group will be significantly higher than in either the Borderline Personality group or the Depressed Bipolar group.

Proposed Analysis: A one-way ANVOA will be conducted with Group as the independent variable and S-minus responses as the dependent variable. If the effect is found to be significant, a Tukey's posthoc analysis will be conducted.

Research Question 9: Can number of positive factors in the Perceptual Thinking Index (PTI) distinguish among Borderline Personality, Manic Bipolar, and Depressed Bipolar groups?

Hypothesis: The number of positive factors in the PTI in the Manic Bipolar group will be significantly higher than in either the Borderline Personality group or the Depressed Bipolar group.

Proposed Analysis: A one-way ANVOA will be conducted with Group as the independent variable and number of positive PTI factors as the dependent variable. If the effect is found to be significant, a Tukey's posthoc analysis will be conducted.

Research Question 10: Can the number well-organized responses as measured by the number of DQ+ responses distinguish among Borderline Personality, Manic Bipolar, and Depressed Bipolar groups?

Hypothesis: The number of DQ+ responses will be significantly lower in the Depressed Bipolar group than in either the Borderline Personality group or the Manic Bipolar group.

Proposed Analysis: A one-way ANVOA will be conducted with Group as the independent variable and number of DQ+ responses as the dependent variable. If the effect is found to be significant, a Tukey's posthoc analysis will be conducted.

Research Question 11: Can the number of mild lapses in ideational control as measured by the Level 1 Deviant Responses (DR1) distinguish among Borderline Personality, Manic Bipolar, and Depressed Bipolar groups?

Hypothesis: The number of DR1 responses will be significantly lower in the Borderline Personality group than in both the Depressed Bipolar and the Manic Bipolar groups.

Proposed Analysis: A one-way ANVOA will be conducted with Group as the independent variable and number of DR1 responses as the dependent variable. If the effect is found to be significant, a Tukey's posthoc analysis will be conducted.

Research Question 12: Can the number of more serious instances of ideational control as measured by Level 2 Deviant Responses (DR2) distinguish among Borderline Personality, Manic Bipolar, and Depressed Bipolar groups?

Hypothesis: The number of DR2 responses will be significantly higher in the Manic Bipolar group than in both the Depressed Bipolar and the Borderline Personality groups.

Proposed Analysis: A one-way ANVOA will be conducted with Group as the independent variable and number of DR1 responses as the dependent variable. If the effect is found to be significant, a Tukey's posthoc analysis will be conducted.

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