

THE PENNSYLVANIA STATE UNIVERSITY
SCHREYER HONORS COLLEGE

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An Assessment of the Convergent Validity of Two Diagnostic Measures in Relation to
Narcissistic Personality Disorder and Borderline Personality Disorder

ALYSSA BOOB
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Reviewed and approved* by the following:

Kenneth N. Levy
Professor of Psychology
Thesis Supervisor & Honors Advisor

Jeffrey Love
Professor of Psychology
Second Reader

* Electronic approvals are on file.

ABSTRACT

Both the prevalence and severity of personality disorder within the population demand significant research of diagnostic and evaluative measures. Narcissistic personality disorder (NPD) and borderline personality disorder (BPD) are two disorders that are not only associated with reduced life expectancy and increased risk of suicide (Fok et al., 2012, Oldham 2006), but also display trends in comorbidity. By utilizing NPD and BPD as focus points, the study assesses the validity of the recently developed Psychodynamic Diagnostic Manual (PDM-2) measure through comparison to the widely accepted International Personality Disorder Examination (IPDE) measure. A total of 53 participants who were reliably interviewed with the IPDE and the Structured Clinical Interview for DSM Disorders (SCID) were video-taped and coded with the Psychodiagnostic Chart-2 (PDC-2), a measure to assess the constructs of the PDM-2. To evaluate the validity of the PDM-2, as assessed by the PDC-2, on several levels, correlation and association analysis was computed using NPD and BPD results from the IPDE and corresponding results from the first three sections of the PDC-2. PDC-2 results included overall personality organization scores, PDC-2 P-Axis outcomes, and overall level of personality scores. Statistically significant relationships were found between IPDE and PDC-2 results for all three sections of the chart. Additionally, BPD data computations revealed stronger significance than NPD data for all three sections. The findings of our current study enhance our understanding of the measure's applicability and usefulness in personality disorder diagnosis and assessment.

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Chapter 1

Introduction

Personality disorders (PDs) are characterized by severe disruption in personal and social aspects of life, most seen in relationship and identity related areas. They are marked by maladaptive personality traits that are identified commonly in adolescence and develop into adulthood (World Health Organization, 2016). The implications of personality disorders on both the individual and society are substantial. Research suggests that levels of mortality and morbidity are significantly higher among people diagnosed with PDs. A study of patients (N = 1836) in southeast London, with primary PD diagnoses, produced results in which the life expectancy of PD patients was on average 18.7 years and 17.7 years shorter than the general population for females and males respectively (Fok et al., 2012).

Reduced life expectancy can be attributed to increased risk of suicide and homicide in PD diagnosed populations, problems in relationships associated with PDs, detrimental lifestyle factors such as alcohol and drug dependency, and even decreased quality of health care due to relationships with health-care professionals (Tyrer et al., 2015). A longitudinal study, made up of a sample of 717 adolescents, that were later interviewed as young adults, reported that those adolescents that fit diagnostic criteria for PDs were over two times as likely to experience symptoms of anxiety, mood, and substance use disorders in adulthood (Johnson et al., 1999).

Current research asserts the prevalence of personality disorders within the range of 4% and 15% in the general population of North America and western Europe (Tyrer et al., 2015). Data suggests that in community settings, personality disorders are more common in men than in

women, and gender differences in prevalence are found to be associated with specific disorders (Coid et al., 2006). Personality disorders were identified in significant levels in incarcerated populations (Fazel & Danesh, 2002), and in about 50% of people receiving psychiatric outpatient treatment (Beckwith et al., 2014). The prevalence of PDs, combined with their harmful effects that produce heavy societal burden, call for increased research regarding PD diagnosis.

Two specific personality disorders, which are often difficult to diagnose due to their complexity, are narcissistic personality disorder (NPD) and borderline personality disorder (BPD). NPD is characterized by pathological levels of personality traits such as grandiosity, self-centeredness, condescension towards others, and attention seeking. Those with NPD have an impaired sense of identity and form relationships with others that are superficial and used as a vessel for personal gain (American Psychiatric Association, 2013).

An epidemiological study of NPD found the prevalence rate to be 7.7% in men and 4.8% in women (Stinson et al., 2008). This is a higher prevalence level than what had been generally reported in the past and seems to stray from the trend in which NPD frequency in research studies was significantly lower than what was reported in clinical data (Pincus & Lukowistky, 2009). Such a trend points to the necessity for examination of the validity of diagnostic measures utilized in psychological research, specifically regarding NPD. Literature also calls for measures with improved discrimination between NPD and other personality disorders with similar features, such as borderline personality disorder (Levy et al., 2007)

BPD is distinguished by instability in relationships, identity diffusion, difficulty in emotion regulation, intense efforts to avoid abandonment, feelings of emptiness, and suicidal and/or self-harming behavior (American Psychiatric Association, 2013). In a study of 34,653 adults, a lifetime prevalence of BPD was found to be 5.9%, with no significant difference in rates

between male and female subgroups (Grant et al., 2008). While gender related distinctions were not found in general prevalence levels, differences did appear in personality traits exhibited, as well as trends in comorbidity.

Just as in NPD research, questions have been raised regarding the diagnosis of BPD in clinical and research settings, questions that open the door for discussion of the validity of semi-structured interview measures. In contrast to trends of NPD diagnosis within the two settings, the frequency of BPD diagnosis was determined to be higher when research assessments were administered rather than clinician conducted assessments. It was also found that when structured research interviews were evaluated by clinicians, BPD diagnosis was more likely to occur (Zimmerman & Mattia, 1999), suggesting that clinicians may easily miss the diagnosis. Such conclusions support the validity of semi-structured diagnostic measures and provide a basis for the topic introduced in the study to be discussed in this paper.

NPD and BPD literature also consistently discusses comorbid diagnoses related to the two disorders. In a study of 180 inpatients, 91% of patients with BPD also had one other diagnosis. 42% of patients were found to have two or more diagnoses (Fyer et al., 1988). The findings of this study necessitated the establishment of clearer diagnostic boundaries for personality disorders, like BPD, that have characteristics that may also be indicative, or similar to those of other disorders.

Data procured from two international randomized trials, with a sample size of 188 patients, were utilized to examine clinical characteristics of patients with BPD and comorbid NPD. Of the 188 patients, 25 had a comorbid NPD diagnosis. This group, when compared to the BPD only diagnostic group, endorsed significantly more DSM-5 BPD criteria. They also

indicated a higher level of histrionic, paranoid, and schizotypal PD characteristics (Horz-Sagstetter et al., 2018).

Some studies seek to investigate NPD and BPD together, analyzing similarities and differences in comorbidity trends found for both disorders. A study published by Ritter et al. (2010) incorporates an extra level in its analysis, questioning the disparities in comorbidity between disorders with similar personality characteristics but with contrasting levels of symptom stress. An NPD diagnosis was shown to indicate less symptom stress and lower rates of comorbid diagnosis than that of a BPD diagnosis. Disorders most frequently found comorbid with NPD included affective disorders (64.5%) and substance use disorders (35.5%), while substance use disorders and post-traumatic stress disorder (PTSD) were more common in BPD patients than in NPD patients.

Whether or not PD boundaries are present may have an effect on the convergent validity of assessments like the International Personality Disorder Examination (IPDE) and the Psychodynamic Diagnostic Manual (PDM-2), the two measures to be analyzed in the present study. Current assessments of both measures can be found within the literature. Research involving the IPDE is more available, as development of its first iteration began in 1985. The semi-structured interview has demonstrated consistent psychometric properties in terms of its validity and reliability. In his comprehensive review of the IPDE, Loranger concedes that the instrument's validity relies heavily on the validity of the interviewers themselves, but counters this by citing that the validity of the IPDE stems from its procedural structure and allows for replication of findings (Loranger, 1997).

The PDM-2, with its corresponding Psychodynamic Chart-2 used for scoring purposes, was developed as a dimensional assessment of personality disorders, meant to complement ICD

and DSM based diagnostic measures and offer depth in regards to personality evaluation. While the IPDE questionnaire is solely symptom based, the PDM-2 attempts to delve into personality as a whole. The PDM-2 is not a structured interview. The PDC-2 chart coding is completed using previously administered diagnostic interview data or other data (Gordon & Bornstein, 2015). Therefore, it is a convenient measure when evaluating convergent validity, as both diagnostic interview data and corresponding PDC-2 scores are taken for each subject.

Studies of PDM-2/PDC-2 are generally limited, especially regarding the measure's validity. However, literature has been produced regarding the benefits of the PDM model in diagnostic assessment and argue its ability to provide depth to already established and widely accepted symptom-based models. In a brief publication, Gordon and Bornstein (2012) provide survey data, comprised of fifty respondents, that indicate the PDM model was considered useful by a wide range of practitioners.

The Present Study

The current literature supports the validity of the IPDE, as well as the measure's longevity and frequent application in research settings. In contrast, the validity of the PDM-2 measure has yet to be solidified; Gordon and Bornstein (2012) may have shown that practitioners find the tool useful, but the validity of the measure is far from established. The current study investigates the validity of the PDM-2 measure, using the research backed IPDE to measure convergent validity. NPD and BPD scores specifically, from both measures, are utilized to focus the analysis. Said personality disorders were chosen due to their prevalence, detrimental symptoms, and tendency towards comorbidity, as described in the above introduction. Additionally, NPD and BPD, as defined on the IPDE, coincide more clearly with the personality syndromes listed in the PDM-2 than other personality disorders.

In the present dataset, NPD and BPD data, as measured on the both IPDE and PDC-2, are hypothesized to demonstrate convergent validity in specific sections PDC-2. Section I of the PDC-2 is item based, resulting in a section summary score. Section II produces categorical results, requiring coder agreement on two dominant personality syndromes. Section III is item based like the first, with an overall summation score. It is hypothesized that due to the method of scoring, the item-based sections (Section I and Section II) will demonstrate greater validity than Section II. Section II will capture less pathology than the other sections, due to the constrictions of the personality syndrome scoring method. It is also hypothesized that NPD data comparisons will suggest lesser validity than that of BPD data comparisons.

Chapter 2

Methods

Participants

The data utilized in this study were gathered from a total of 53 participants. Participants came from three different studies, conducted from 2009 to 2021. Participants also belonged to one of two groups: 1.) Clinical, in which participants were recruited from the Penn State Psychological Clinic and 2.) Participant pool, in which participants were recruited from the Penn State Psychology Department Participant Pool. Of all 53 participants, 20 were recruited from the Penn State Psychological Clinic and 33 from the Participant Pool. 52 identified as female (98.1%), one identified as male. The average participant age was 30.31 years with a standard deviation of 10.228 years. The age of one participant was not recorded, and therefore marked as missing within the data. Table 1 provides participant demographic information, as well as overall IPDE and PDC-2 diagnostic results.

Measures

Several measures, including the Structured Clinical Interview for DSM Disorders (SCID; First et al., 2015) and the International Personality Disorder Examination (IPDE; Loranger, 1999) were utilized in the interview portion of the data collection. However, only two measures were used in analysis: The International Personality Disorder Examination and the Psychodynamic Diagnostic Chart.

International Personality Disorder Examination (IPDE; Loranger, 1999)

The IPDE is a semi-structured clinical interview developed with the purpose of standardizing personality disorder diagnosis within a clinical research setting. Interview questions correspond with specific DSM criteria pertaining to personality disorders. Criterion are scored on a scale from zero to two; “0” representing the absence of the behavior, “1” representing subthreshold endorsement of the behavior, and “2” indicating a pathological level of the behavior (Loranger, 1997). In the present study, criterion scores from all NPD and BPD items were collected and analyzed.

Doctoral-level therapists, trained to reliability, conducted clinical evaluations under the supervision of a licensed psychologists. Final diagnoses were established at an evaluation conference supervised by a licensed psychologist using the LEAD (longitudinal assessment by expert diagnosticians, using all data) standard (Spitzer, 1983). This method involves using all available data, such as intake, treatment reports, clinician chart notes, and diagnostic interview data from the SCID and IPDE, in order to establish a “best estimate” diagnosis (Pilkonis et al., 1991). In previous studies, interrater reliability was good (Scott et al, 2013). Kappas (K) for SCID-I-CV Axis I diagnoses ranged from .64 to 1.0 and Kappas (K) for IPDE personality disorder diagnoses ranged from .71 to 1.0 (K = .88 for BPD diagnosis). Intraclass correlation coefficients were .94 for number of BPD criteria met and .98 for BPD dimensional scores.

Psychodynamic Diagnostic Manual (PDM-2)/Psychodynamic Chart (PDC-2; Gordon & Bornstein, 2015)

The PDM-2 is the most recent edition of the Psychodynamic Diagnostic Manual. The PDM was developed with the goal of supplementing both the DSM and ICD manuals through a less categorical framework (Lingiardi & McWilliams, 2015). The PDC-2 serves as an operational form of the PDM-2 and was utilized for video coding in the current study. The PDC-

2 is divided into five sections; the first three were included in statistical analysis. Section I asks coders to determine a participant's Personality Organization, using a rating scale of 1-10 that corresponds with four categories: Psychotic, Borderline, Neurotic, and Healthy. Section II is used to determine participant Personality Syndromes or Disorders. Section III requires coders to rate participant Mental Functioning over 12 dimensions (Gordon & Borstein, 2015). All PDC-2 data for all (N = 53) participants were collected and used in statistical analysis. Appendix C provides the PDC-2 chart in its entirety.

Procedure

All participants (N = 53) were recruited for research purposes and administered semi-structured clinical interviews. The assessments were on average four hours in length and included several interview measures, such as the SCID, the IPDE, the Adult Attachment Interview (AAI; George et al., 1985), and the Linehan Suicide Attempt Self Injury Interview (SASII; Linehan et al., 2006) if previous self-injury had been indicated by the participant. Some interviews were completed in several appointments. When assigned to a participant, an interviewer completed all relevant measures. Interviewers included Ph.D. faculty members, graduate students, and undergraduate research assistants. Clinical assessments were recorded and stored in a HIPAA compliant database. Interview measure scores were inputted in corresponding data files. Interview compensation was completed via either class credit or through payment of \$12 per hour, as was approved by the university's Institutional Review Board.

Clinical interview video files were later viewed by a team of undergraduate research assistants trained in PDM-2 coding. Coders watched interview videos in full, simultaneously

utilizing the PDC-2 chart to score participants in relation to the PDM-2. Coders were grouped; two to three research assistants scored one participant individually. Then coders met to discuss scores and create one collaborative coding sheet. Discrepancies in coding were addressed through rater discussion. Coders referenced notes, as well as reviewed sections of the interview video, to come to a consensus about item scoring. After extensive group review, disputed scores were replaced with an agreed upon rating, and a finalized coding sheet was produced. Finalized coding sheets were then saved in a HIPAA compliant database and entered into a data file.

Data Analysis

The relation between the IPDE and the PDC-2 was examined through a series of Pearson Correlation Coefficients and Chi Square Tests. Data analysis involved three variables from the PDC-2, each representing the first three sections, along with two variables from the IPDE. For all calculations, significance was established at the 0.05 level. The standard association strength scale used can be found in Table 2.

The first section of the PDC-2, titled *Level of Personality Organization*, is summarized by an overall personality organization score, determined by four mental functioning items. These four mental functioning items include: identity, object relations, level of defenses, and reality testing. The items were rated on a scale from 1 to 10, with “1” representing severely impaired functioning and “10” representing healthy functioning. The overall personality disorder score is rate on a scale from 1 to 10 as well, with “1” representing psychotic organization and “10” representing healthy organization. Pearson correlation coefficients were calculated between the

overall personality organization score of Section I of the PDC-2 and personality disorder dimensional scores of the IPDE. BPD and NPD scores were used.

Section II of the PDC-2, the *Personality Syndromes* or P-Axis section, lists 12 personality syndromes. Coders are instructed to check off as many syndromes as apply to the participant but are limited to two dominant syndromes when coding is finalized. To evaluate the validity of this section of the PDC-2 (P-axis), crosstabulations between IPDE diagnosis and P-Axis categories were created for both BPD and NPD categories. Chi-Square Tests were conducted to evaluate the statistical significance of the relationship between IPDE diagnosis and P-Axis variables. After significance was found, associations between said variables were calculated using the *lambda* measure. Analysis of IPDE PD dimensional scores and P-Axis section results was also conducted. Due to the quantitative and categorical nature of the variables, point biserial correlations for both NPD and BPD data were computed.

The third section of the PDC-2 is similar to the first in its organization. Titled *Mental Functioning* or the M-Axis, the summation of 12 mental functioning item scores serves as the overall level of personality severity score. The 12 items are grouped into four sections, with three items each. The sections include cognitive and affective processes, defense and coping, and self-awareness and self-direction. The items are scored on a scale from 1 to 5, in which “1” represents severe defects in mental functioning, “2” represents major impairments, “3” represents moderate impairments, “4” represents mild impairments, and “5” represents healthy mental functioning. Pearson correlation coefficients were calculated between the overall level of personality severity score and the dimensional scores for both BPD and NPD.

Chapter 3

Results

When assessing the first section of the PDC-2/PDM-2, significant correlations between IPDE PD dimensional scores and PDC-2 overall personality organization scores were found (Figure 1, Figure 2). Both NPD and BPD data produced significant correlations, with BPD dimensional scores yielding the strongest correlation ($r = -.761$; $p < .001$) (Figure 1). NPD dimensional scores yielded a slightly weaker correlation, while still significant at the 0.01 level ($r = -.388$; $p = .004$) (Figure 2). Correlations are negative due to the inverse nature of the variables: a higher dimensional score coincides with a lower organizational score.

To evaluate Section II of the PDC-2/PDM, the P-Axis, crosstabulation analysis was used due to the categorical nature of the variables. Using the Pearson Chi-Square Test, a statistically significant relationship was found between BPD diagnosis on the IPDE and PDC-2 P-Axis borderline diagnosis ($\chi^2 = 15.856$; $p < .001$). To further investigate the strength of the significant relationship, a *lambda* association calculation was performed, revealing a moderate association (Table 2) between the variables when IPDE BPD diagnosis served as the dependent variable ($\lambda = .150$), as well as when PDC-2 borderline diagnosis served as the dependent variable ($\lambda = .250$). A Pearson Chi-Square Test was performed for NPD diagnosis (IPDE) and P-Axis narcissistic diagnosis (PDC-2) data, yielding a relationship significant at the 0.05 level ($\chi^2 = 4.983$; $p = .026$). The corresponding *lambda* association test produced a moderate association (Table 2) when P-Axis narcissistic diagnosis (PDC-2) served as the dependent variable ($\lambda = .111$).

In further evaluation of the second section of the PDC-2, IPDE dimensional scores and PDC-2 P-Axis results, for both NPD and BPD, were analyzed using point biserial correlation

computations (Figure 3, Figure 4). BPD dimensional scores and PDC-2 P-Axis borderline diagnosis results yielded a point biserial correlation statistically significant at the 0.01 level ($r_{pb} = .677, p = < .001$) (Figure 3). NPD dimensional scores and P-Axis narcissistic diagnosis data also correlated significantly, but at a weaker level ($r_{pb} = .345, p = .011$) (Figure 4).

When investigating Section III of the PDC-2, the M-Axis, significant correlations were found between IPDE PD dimensional scores and overall level of personality severity scores (PDC-2). BPD data yielded a stronger correlation ($r = - .773; p = < .001$) (Figure 5), than that of NPD data ($r = - .413; p = .002$) (Figure 6). Correlations are negative due to the inverse nature of the variables: a higher dimensional score coincides with a lower personality severity score.

Chapter 4

Discussion

The present study aims to evaluate the validity of the PDC-2, a newly developed personality disorder evaluative measure with minimal related validity research, through data comparison with the IPDE, a significantly researched and widely accepted semi-structured interview. Through an analysis of the first three sections of the PDC-2, the PDM's corresponding coding chart, involving correlations and Chi-Square tests between NPD and BPD specific data, we seek to highlight areas of convergent validity, while also identify points of discrepancy between the measures. The intent of this evaluation is to appraise the usefulness and applicability of the PDC-2. Said information may then be used to consider potential improvements to the chart's organization. Generally, the study is meant to contribute to the important and necessary examination of personality disorder diagnostic measures, impacting the study and treatment of personality disorder.

The results of the study support the initial hypothesis that convergent validity across the PDC-2 and IPDE measures will be established when analyzing the first three sections of the PDC-2. As expected, examination of Section I and Section III provided statistically significant correlations, serving as evidence for validity within the item scored sections of the PDC-2 measure. The strength of correlations between the IPDE dimensional scores and overall personality organization scores of Section I of the PDC-2, coincided with the strength of correlations between the IPDE dimensional scores and overall level of personality severity scores of Section III. The correlations stayed within the same ranges of strength and significance. For both sections, BPD correlation values were greater than NPD correlation values. BPD correlations also yielded greater significance results than NPD correlations.

Contrary to the initial hypothesis, analysis of Section II of the PDC-2 revealed evidence for convergent validity, despite the expected impact of the limited scoring method. Chi Square Test results of IPDE diagnosis and P-Axis diagnosis data proved a statistically significant relationship between the variables. The significance level of these results corresponded with the ranges displayed by Section I and Section III. Just as in the item-based section analysis, BPD values were greater than NPD values and BPD significance results were greater than those of NPD data.

Analysis of the strength of association between the variables unveiled information that may have some relevance to the claim made by the initial hypothesis that Section II would capture less pathology than the other two sections. For both BPD and NPD association calculations, association levels were considered moderate, however when PDC-2 diagnosis served as the dependent variable the association value was higher. This could be attributed to the fact that the study procedure requires IPDE interviewing to be done before PDC-2 coding. These results may also support the idea that there is lower association between having a specific P-Axis PDC-2 diagnosis and a coinciding IPDE diagnosis. This may point to lower convergent validity in the second section of the PDC-2.

The values of correlations between IPDE PD dimensional scores and P-Axis diagnosis results corresponded with the values of PDC-2 Section I and Section III correlations. Significance levels also resembled those of the item-based sections. The increased strength and higher significance levels of BPD data compared to NPD data, fall in line with the established trend, visible in all sections of the PDC-2.

The consistently higher values of BPD calculations and significance levels may be due to the diagnosis dispersion within the sample. BPD diagnosis frequencies, for both measures, were

overall higher than NPD diagnosis frequencies (Table 1). It is also important to note that the recruitment procedure for the clinical participant group favors participants with existing dispositions towards BPD.

Due to the developing nature of the PDC-2 measure, previous findings regarding the chart's validity are minimal. However, both construct validity and internal consistency of the PDC-2 were established by studies conducted by Gordon and Stoffey in 2012 and 2014. Construct validity was investigated through comparison of PDC scales to scales of the Minnesota Multiphasic Personality Inventory (MMPI-2), the Operationalized Psychodynamic Diagnosis (OPD), and the Karolinska Psychodynamic Profile (Gordon & Bornstein, 2015). The current study's findings are in line with the validity established by this work, although the specific type of validity differs. Gordon (2019) offered a study of concurrent validity specific to the P-Axis of the PDC-2. Similar to the present study, Gordon compared P-Axis personality syndromes to that of an already existing and established diagnostic tool. However, instead of utilizing a measure such as the IPDE, Gordon chose to study the P-Axis in direct comparison to several notable taxonomies of PD, such as the clusters of the DSM-5, personality dimensions of the Shedler-Westen Assessment Procedure-II, and the alternative model of the DSM-5. Gordon's factor analysis yielded significant concurrent validity, similar to the results of the present study. The present study's analysis of the P-Axis and its personality syndrome scoring method is comparable to Gordon's study, in regards to theory and intent, suggesting Section II of the PDC-2 elicits potential validity questions and concerns.

The implications of the present study's results as they relate to theory can be connected to one of Kernberg's (1993) expressed problems with classifying personality disorders. Kernberg asserts that semantic discrepancies have the potential to influence the evaluation of personality

feature, and in turn personality disorders. Within his book, Kernberg questions classification of PD based on any singular typology. This sentiment is the basis for the examination of convergent validity between measures like the PDC-2 and the IPDE. Through comparison study of PD specific data, one investigates whether classification has been biased by differing theoretical perspectives. The present study's findings assert validity between measures, suggesting that theoretical bias is limited. Such considerations are reviewed further in both clinical and research contexts.

Clinical implications of the study's results relate significantly to the two personality disorders, NPD and BPD, used to concentrate the analysis. An investigation of comorbidity trends of both PDs is helpful in developing an understanding of the spectrum of homogeneity and heterogeneity in PD comparison groups, a spectrum that may affect validity across measures. Issues with symptom similarity and disorder characteristic ambiguity in relation to frequently comorbid personality disorders, such as NPD and BPD, is evident in the literature (Fyer et al., 1988). Such topics are heavily connected to the scoring method of Section II of the PDC-2. While analysis proved significant relationships between P-Axis variables and IPDE scores, these results prompt further examination. The P-Axis of the PDC-2 provides very little distinction between personality syndromes, relying heavily on the descriptions provided by the PDM-2. While collaborative coding helps to make the scoring of the P-Axis less subjective, no specific criteria is present like that of the IPDE. Therefore, the ambiguity that can accompany comorbid diagnosis has the potential to be highlighted by the P-Axis of the PDC-2. The comorbidity trends established in past research, as well as investigation of the limitations of assessment scoring methods, may be helpful in understanding boundaries and recognizable characteristics that facilitate consistent and correct diagnosis of PDs via multiple measures. Accurate diagnosis is

key to adequate treatment and thus, the overall improvement of patient life expectancy and enjoyment. It is also important to note that agreement between clinical and researcher formulated diagnoses, has been shown to significantly improve patient treatment (Jensen-Doss & Weisz, 2008). Therefore, investigating the validity of measures like the PDC-2, that have established clinical support (Gordon & Bornstein, 2015), as well as research relevance, has the potential for positive impact on the population of those suffering from personality disorders.

Along with clinical connections, the establishment of convergent validity between the minimally researched PCD-2 and the widely accepted IPDE, presents certain implications specific to a research context. The strong correlations observed in the analysis of the item-based sections of the PDC-2 (Section I and Section III), suggest similarity between PDC-2 personality organization and severity ratings and IPDE PD dimensional scores. In contrast to the IDPE, which provides a categorical framework for diagnosis (Loranger, 1997), the PDC-2 intends to examine personality as a whole. The correlation between IPDE dimensional scores, which are computed through the summation of disorder criteria scores, and overall personality and severity scores may prompt comparison between PDC-2 mental functioning items and IPDE disorder criteria. The direct and clear nature of IPDE criterion, as well as their specific relation to one personality disorder, is very different than the broad personality focus of PDC-2 mental functioning items. An examination of criteria and their relatedness to general mental functioning items may relate to the ambiguities in PD diagnosis referenced in the context of clinical implications. If criteria intended to be specific to one PD are similar in nature to items that are meant to capture the entirety of personality functioning, how distinctive can lines between personality disorders be? Research regarding similarities and differences in the measures, may lead to further discussion of the usefulness of PDC-2 as a supplement for already established and

validated measures like the IDPE. It may also spawn questions as to whether a general, overall perspective of personality or a diagnosis centered perspective is most helpful in evaluating and assessing PD.

The study is limited by its ability to only analyze the first three sections of the PDC-2 measure. While the utilization of three sections, instead of the five total sections that make up the chart, worked well within the context of the study's statistical analysis, future research analyzing the entirety of the PDC-2 measure would provide a more comprehensive understanding of its validity. Analyzation of video coding interrater validity was not included in this study but might be an important aspect of future research that may attempt to provide a more extensive evaluation of the PDC-2's validity.

Considerations must also be made in regards to the study's sample ($N = 53$). A total of 53 participants is relatively small in a research context, and therefore the extent of applicability to larger populations is limited. The sample is also almost entirely comprised of women, thus restricting any analysis of gender related trends. As previously mentioned, clinical participant group recruitment may skew BPD diagnosis data, as well as overall calculation values and significance levels, due to predisposition to borderline features.

Sample size and composition is also relevant when evaluating the results of PDC-2 P-Axis analysis. While computations supported the convergent validity of Section II of the PDC-2, association results pose questions about the scoring method of this section. The small sample size leads one to question whether disorder frequency is too low to detect strong associations between variables, or if frequency is unrelated. If so, the scoring method in which finalized coding requires the designation of two dominant personality syndromes and any other applicable personality syndromes to the participant are disregarded, may be a source of decreased validity.

While the present study may not provide an exhaustive investigation of the PDC-2's validity, it does serve as a significant evaluation of a facet of the measure's functionality and effectiveness. The significant relationships established by the study's comparison of PDC-2 and IPDE data, contribute to the development of PD evaluative methods that correctly identify and assess PD. Future research may use results of convergent validity experimentation to dive into issues of PD comorbidity, PD diagnosis validity, and even disorder treatment perspectives.

Appendix A

Figures

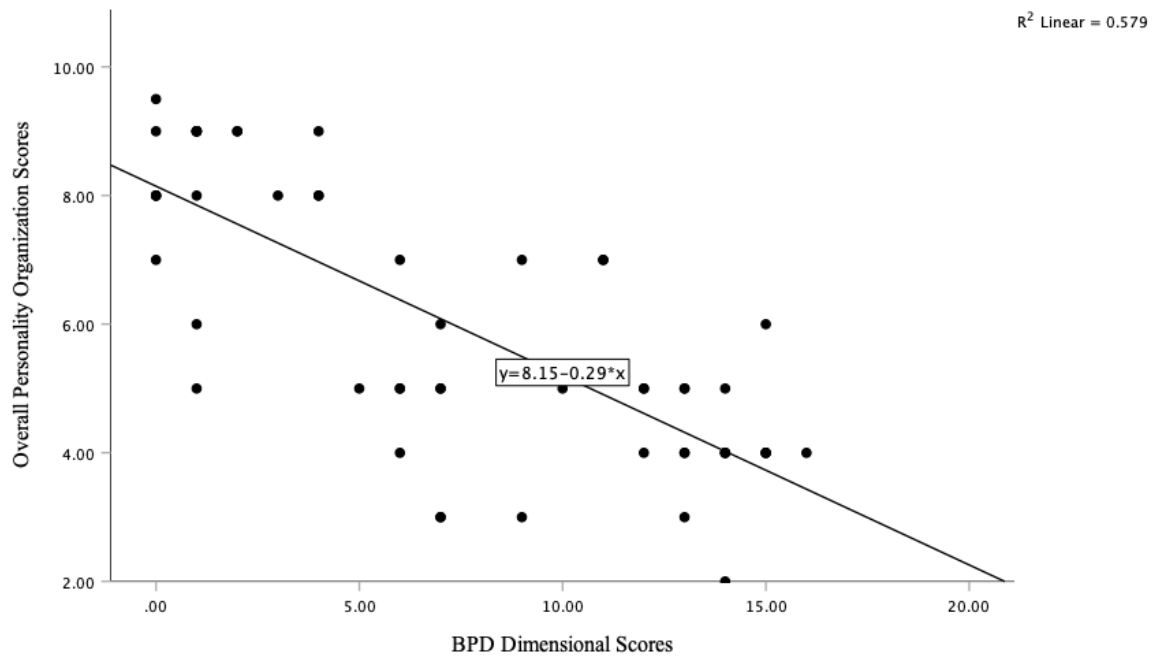


Figure 1. Pearson Correlation Between IPDE BPD Dimensional Scores and PDC-2 Overall Personality Organization Scores

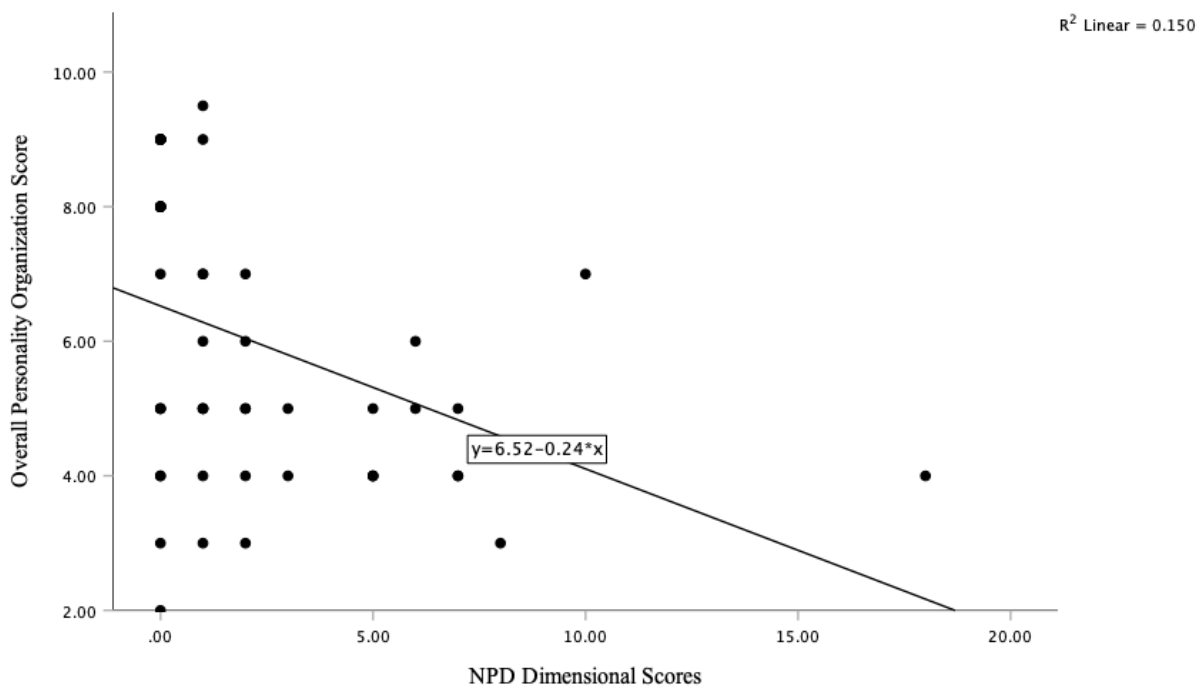


Figure 2. Pearson Correlation Between IPDE NPD Dimensional Scores and PDC-2 Overall Personality Organization Scores

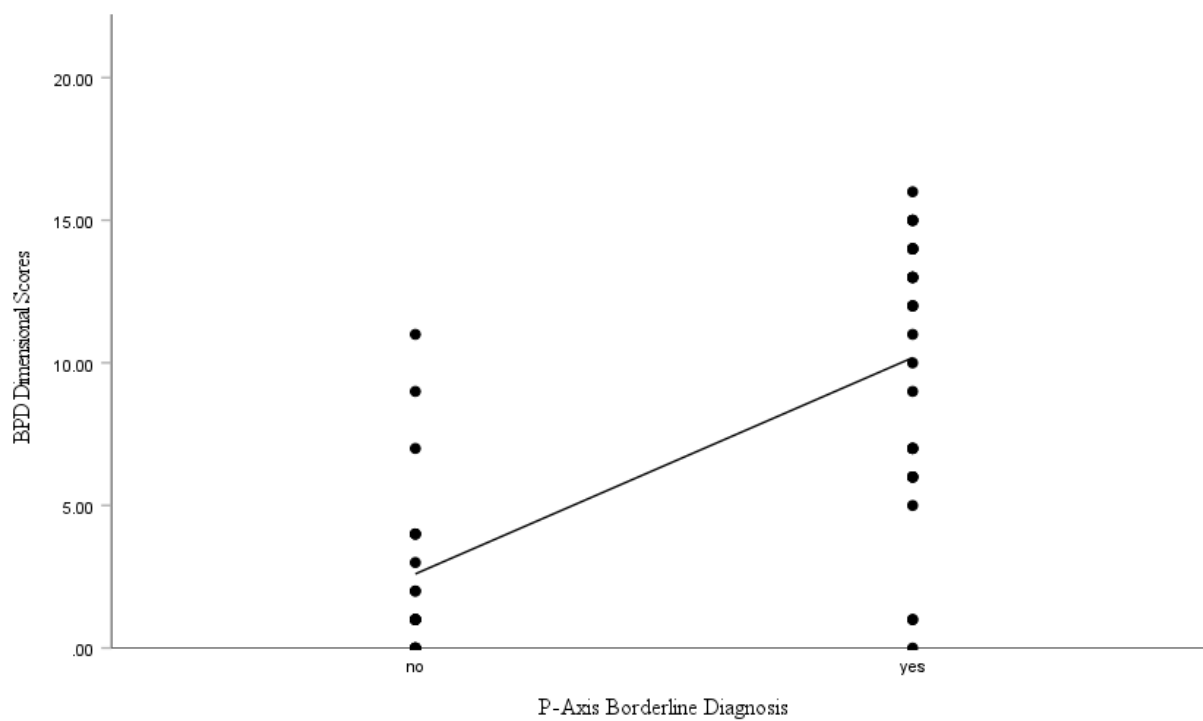


Figure 3. Point Biserial Correlation Between PDC-2 P-Axis Borderline Diagnoses and IPDE BPD Dimensional Scores

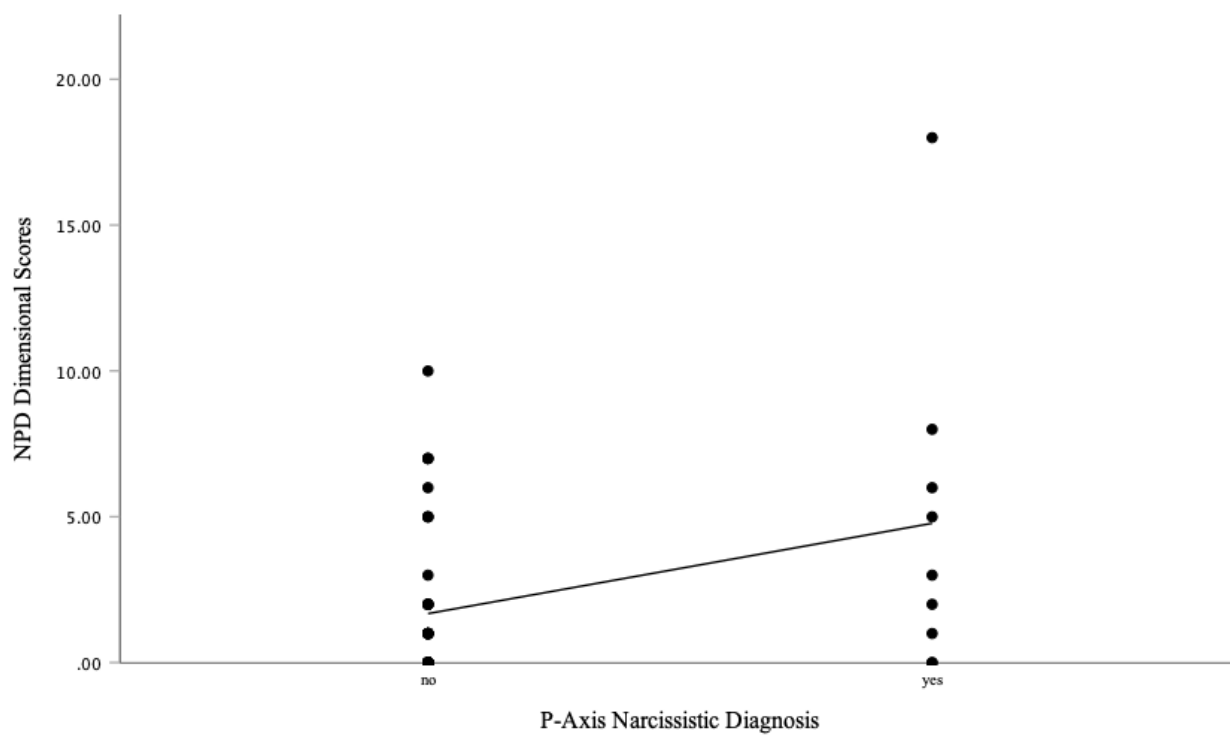


Figure 4. Point Biserial Correlation Between PDC-2 P-Axis Narcissistic Diagnoses and IPDE NPD Dimensional Scores

R² Linear = 0.598

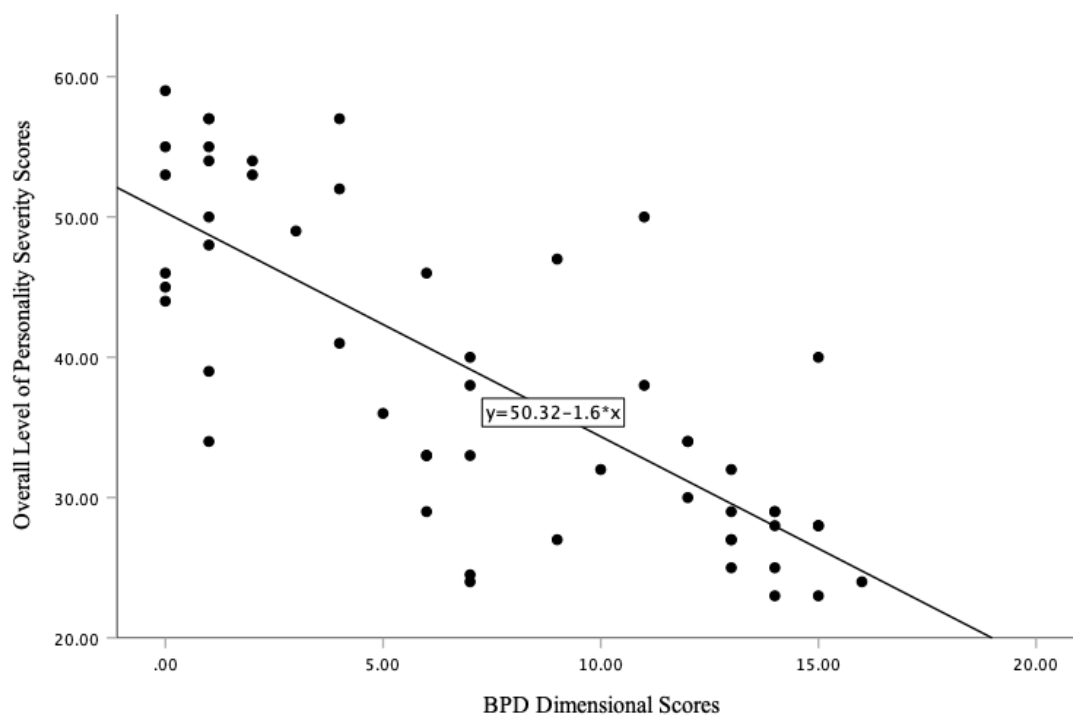


Figure 5. Pearson Correlation Between IPDE BPD Dimensional Scores and PDC-2 Overall Level of Personality Severity Scores

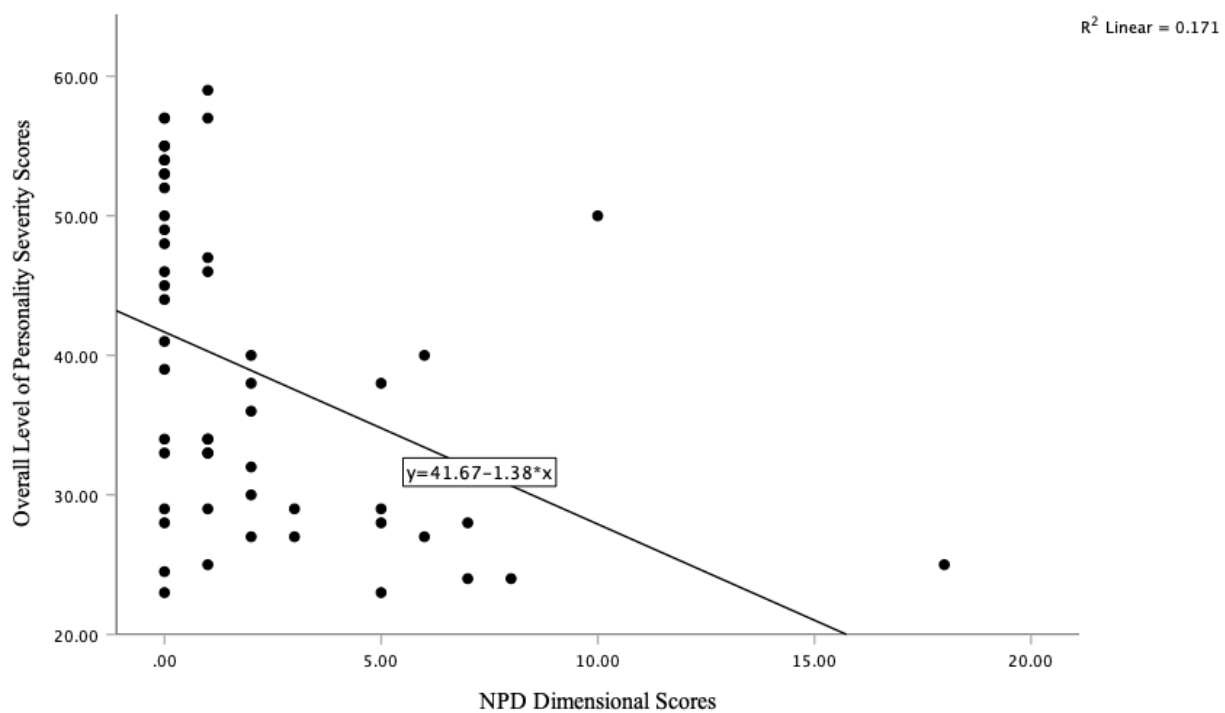


Figure 6. Pearson Correlation Between IPDE NPD Dimensional Scores and PDC-2 Overall Level of Personality Severity Scores

Appendix B

Tables

Table 1. Demographics and Diagnosis Frequencies (N=53)

	<i>M</i>	<i>SD</i>	
<i>Age</i>	30.31	10.228	
<i>Gender</i>	<i>n</i>	<i>%</i>	
Men	1	1.9	
Women	52	98.1	
Other	0	0	
<i>Participant Group</i>	<i>n</i>	<i>%</i>	
Clinical	20	37.7	
Participant Pool	33	62.3	
<i>IPDE PD Disorder Diagnosis Frequencies</i>	<i>Negative (n, %)</i>	<i>Probable (n, %)</i>	<i>Definite (n, %)</i>
Paranoid	53, 100	0, 0	0, 0
Schizoid	53, 100	0, 0	0, 0
Schizotypal	53, 100	0, 0	0, 0
Antisocial	50, 94.3	3, 5.7	0, 0
BPD	33, 62.3	3, 5.7	17, 32.1
Histrionic	48, 90.6	3, 5.7	2, 3.8
NPD	52, 98.1	0, 0	1, 1.9
Avoidant	43, 81.1	5, 9.4	5, 9.4
Dependent	52, 98.1	1, 1.9	0, 0
OCPD	48, 90.6	2, 3.8	3, 5.7
PD-NOS	46, 86.8	2, 3.8	5, 9.4
<i>PDM-2/PDC-2 Disorder Diagnosis Frequencies</i>	<i>No (n, %)</i>	<i>Yes (n, %)</i>	
Depressive	35, 66	18, 34	
Dependent	50, 94.3	3, 5.7	
Anxious/Avoidant	46, 86.8	7, 13.2	
Obsessive-Compulsive	51, 96.2	2, 3.8	
Schizoid	52, 98.1	1, 1.9	
Somatizing	52, 98.1	1, 1.9	
Hysterical-Histrionic	52, 98.1	1, 1.9	
Narcissistic	44, 83	9, 17	
Paranoid	50, 94.3	3, 5.7	
Psychopathic	52, 98.1	1, 1.9	
Sadistic	53, 100	0, 0	

Borderline

20, 37.7

33, 62.3

28

Table 2. Strength of Association Scale

Strength of Association	Value of Lambda (λ)
None	0.00
Weak Association	.01 - .09
Moderate Association	.10 - .29
Strong Association	.30 - .99
Perfect Association	1.00

Notes. This association scale was taken from SPSS ETutor guide.

Appendix C

PDC-2 Chart

Psychodiagnostic Chart-2 (PDC-2)

The Operationalized PDM-2 - Adult version 8.1 • © 2015 Robert M. Gordon and Robert F. Bornstein

Name: _____ Age: _____ Gender: _____ Ethnicity: _____

Date of Evaluation: ____/____/____ Evaluator: _____

Section I: Level of Personality Organization

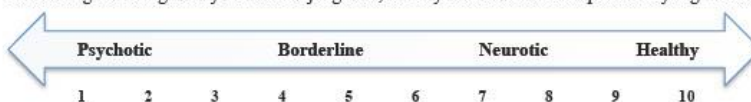
Consider your client's mental functions in determining the level of personality organization. Use these four mental functions to efficiently capture the level of personality organization. Rate each mental function on a scale from 1 (Severely impaired) to 10 (Healthy).



1. **Identity:** *ability to view self in complex, stable, and accurate ways* _____
2. **Object Relations:** *ability to maintain intimate, stable, and satisfying relationships* _____
3. **Level of Defenses:** (using the guide below, select a single number) _____
 - 1-2: Psychotic level (delusional projection, psychotic denial, psychotic distortion)
 - 3-5: Borderline level (splitting, projective identification, idealization/devaluation, denial, acting out)
 - 6-8: Neurotic level (repression, reaction formation, intellectualization, displacement, undoing)
 - 9-10: Healthy level (anticipation, self-assertion, sublimation, suppression, altruism, and humor)
4. **Reality Testing:** *ability to appreciate conventional notions of what is realistic* _____

Overall Personality Organization

Considering the ratings and your clinical judgment, circle your client's overall personality organization.



Healthy Personality—characterized by mostly 9-10 scores, life problems rarely get out of hand and enough flexibility to accommodate to challenging realities. (Use “9” for people at the high functioning neurotic level.)

Neurotic Level- characterized by mostly 6-8 scores, basically a good sense of identity, good reality testing, mostly good intimacies, fair resiliency, fair affect tolerance and regulation, rigidity and limited range of defenses and coping mechanisms, favors defenses such as repression, reaction formation, intellectualization, displacement, and undoing. (Use “6” for people who go between borderline and neurotic levels.)

Borderline Level- characterized by mostly 3-5 scores, recurrent relational problems, difficulty with affect tolerance and regulation, poor impulse control, poor sense of identity, poor resiliency, favors defenses such as splitting, projective identification, idealization/devaluation, denial, omnipotent control, and acting out.)

Psychotic Level- characterized by mostly 1-2 scores, delusional thinking, poor reality testing and mood regulation, extreme difficulty functioning in work and relationships favors defenses such as delusional projection, psychotic denial, and psychotic distortion. (Use “3” for people who go between psychotic and borderline levels.)

Section II: Personality Syndromes (P-Axis)

These are relatively stable patterns of thinking, feeling, behaving and relating to others. Normal level personality patterns do not involve impairment, while personality syndromes or disorders involve impairment at the neurotic, borderline, or psychotic

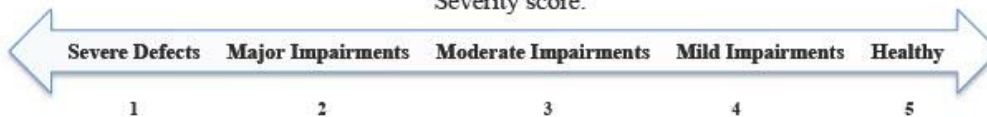
Check off as many personality syndromes as apply from the list below; and then circle the one or two personality styles that are most dominant. Leave blank if none.

(For research purposes, you may also rate the level of severity for all styles, using a 1-5 scale: 1 = Severe Level; 3 = Moderate Severity; and 5 = High Functioning).

	<i>Level of Severity</i>		<i>Level of Severity</i>
<input type="checkbox"/> Depressive Subtypes: <ul style="list-style-type: none"> • introjective • anaclitic • converse manifestation: hypomanic 	—	<input type="checkbox"/> Hysterical-Histrionic Subtypes: <ul style="list-style-type: none"> • inhibited • demonstrative 	—
<input type="checkbox"/> Dependent Subtypes: <ul style="list-style-type: none"> • passive-aggressive • converse manifestation: counterdependent 	—	<input type="checkbox"/> Narcissistic Subtypes: <ul style="list-style-type: none"> • overt • covert • malignant 	—
<input type="checkbox"/> Anxious/ Avoidant/ Phobic Subtype: <ul style="list-style-type: none"> • converse manifestation: counterphobic 	—	<input type="checkbox"/> Paranoid	—
<input type="checkbox"/> Obsessive-Compulsive	—	<input type="checkbox"/> Psychopathic Subtypes: <ul style="list-style-type: none"> • passive-parasitic, con-artist • aggressive 	—
<input type="checkbox"/> Schizoid	—	<input type="checkbox"/> Sadistic	—
<input type="checkbox"/> Somatizing	—	<input type="checkbox"/> Borderline	—

Section III: Mental Functioning (M-Axis)

Rate your client’s level of strength or weakness on each of the 12 mental functions below, on a scale from 1 to 5 (1 = Severe deficits; 5 = Healthy). Then sum the 12 ratings for a Level of Severity score.



- A. Cognitive and affective processes**
 - 1. Capacity for regulation, attention, and learning _____
 - 2. Capacity for affective range, communication, and understanding _____
 - 3. Capacity for mentalization and reflective functioning _____
- B. Identity and relationships**
 - 4. Capacity for differentiation and integration (identity) _____
 - 5. Capacity for relationships and intimacy _____
 - 6. Self-esteem regulation and quality of internal experience _____
- C. Defense and coping**
 - 7. Impulse control and regulation _____
 - 8. Defensive functioning _____
 - 9. Adaptation, resiliency and strength _____
- D. Self-awareness and self-direction**
 - 10. Self-observing capacities (psychological mindedness) _____
 - 11. Capacity to construct and use internal standards and ideals _____
 - 12. Meaning and purpose _____

Overall level of personality severity (Sum of 12 mental functions): _____

[Healthy/Optimal Mental Functioning 54-60; Appropriate Mental Functioning with Some Areas of Difficulty 47-53; Mild Impairments in Mental Functioning 40-46; Moderate Impairments in Mental Functioning 33-39; Major Impairments in Mental Functioning 26-32; Significant Defects in Basic Mental Functions 19-25; Major/Severe Defects in Basic Mental Functions 12-18]

Section IV: Symptom Patterns (S-Axis)

List the main PDM symptom patterns (e.g., those that are related to psychotic disorders, mood disorders, anxiety disorders, event and stress disorders, specific symptom disorders, addiction and medically related disorders, etc.) (If required, you may use the DSM or ICD symptoms and codes here.)



- Symptom/Concern: _____ Level: _____
- Symptom/Concern: _____ Level: _____
- Symptom/Concern: _____ Level: _____

Section V: Cultural, Contextual and Other Relevant Considerations

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ACADEMIC VITA

Alyssa Katherine Boob

EDUCATION

The Pennsylvania State University, University Park, PA *2018-2022*

- Bachelor of Science in psychology (with a focus in neuroscience)
- Minor in biology

Academic Scholarships and Honors

- Ready to Succeed PHEAA Scholarship
- Academic Excellence Scholar Award
- Alumni Memorial Scholarship
- Dean's List: Fall 2018 to present
- President's Freshman Award

Certifications

- Institutional Biosafety Committee
- IRB Human Subjects-Social
- IRB Human Subjects-Biomedical
- State of PA Mandated Reporter

RESEARCH EXPERIENCE

The Laboratory of Personality, Psychopathology, and Psychotherapy *2019-present*
357 Moore Building, The Pennsylvania State University, University Park, PA

Lab Manager *2020-present*

- Devotes 12+ hours a week to managerial responsibilities
- Oversees work of 20 undergraduate research assistants
- Recommends and trains undergraduate research assistants for project coordinator positions
- Fulfills administrative responsibilities, such as the organization of project funding, scheduling of all lab related meetings, and inventory of lab technology and supplies
- Communicates directly with Dr. Kenneth Levy and graduate students to ensure lab functioning

Clinical Assessment Coordinator *2019-present*

- Facilitates all clinical assessment interviews, ensures processes are completed in full
- Rewrites interview protocols and scripts to fit virtual implementation during COVID-19 pandemic
- Manages participant payment and course credit compensation
- Inputs and organizes clinical assessment data using the statistical software platform SPSS

Participant Scheduling Coordinator *2019-present*

- Conducts participant recruitment and collects screening data over phone calls
- Schedules an average of 3 participant interviews per week, ensures teams of undergraduate research assistants and graduate students are available for each interview

- Trains and directs four undergraduate research assistants in scheduling responsibilities

INTERNSHIP EXPERIENCE

Public Defender Intern/Volunteer

June 2021-August 2021

Centre County Public Defender's Office, Bellefonte, PA

- Assisted several Centre County public defenders, worked closely with Assistant Public Defender Shannon Malone
- Conducted legal research via WestLaw online database
- Read and discussed legal briefs and appeals
- Aided in trial preparation and witness information organization
- Attended central court weekly, observed preliminary hearings, sentencing hearings, probation revocations, Accelerated Rehabilitative Disposition placements, and waivers
- Observed client interviews and met with incarcerated clients
- Reviewed criminal complaints, discovery, and MVR footage

EMPLOYMENT

Part-Time Associate: Amazon Hub Locker

2019-present

134 Allen St., State College, PA 16801

- Works 10 to 15 hours per week
- Provides customer service for those with Amazon returns and package pickups
- Organizes package placement
- Cooperates with UPS and USPS employees

Cashier: Barnes and Noble at The Penn State University Bookstore

2018-2019

1 Pollock Rd., University Park, PA 16802

- Worked 8 to 10 hours per week
- Assisted customers purchasing and returning items
- Organized and counted product inventory

EXTRACURRICULAR INVOLVMENT

Member of the Alpha Xi Delta Sorority

Dec. 2020-Nov. 2021

Beta Lambda Chapter, The Pennsylvania State University

- Participated in fundraising activities benefiting Autism Speaks
- Raised funds for THON, the largest student run philanthropy benefiting pediatric cancer research