THE DEVELOPMENT OF THE FIVE-FACTOR

BORDERLINE INVENTORY-OTHER REPORT

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BORDERLINE INVENTORY- OTHER REPORT

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Abstract: Borderline Personality Disorder (BPD) is one of the most studied personality disorders and is associated with significant outcomes such as suicide. Although BPD is represented in DSM-5 as a categorical diagnosis, it may be better characterized dimensionally, such as using the five-factor model of general personality (FFM; Clark, 2007; O'Connor, 2005; Samuel & Widiger, 2004; Samuel & Widiger, 2008; Saulsman & Page, 2004; Lynam & Widiger, 2001). Mullins-Sweatt and colleagues (2012) developed a self-report measure, the Five Factor Borderline Inventory (FFBI) to assess BPD traits using eleven facets from the FFM that are highly related to BPD. Previous research suggests that informant-reports may increase the reliability and validity of assessments and provide additional information (Klonsky, Oltmanns, & Turkeheimer, 2002). The current study developed an informant measure of the FFBI, Five Factor Borderline Inventory- Other Report (FFBI-OR) and examined its convergent and discriminant validity compared to the FFBI, FFM, and traditional measure of PDs. Overall, the FFBI-OR demonstrated good convergent validity and moderate discriminant validity with the FFBI, FFM, and other traditional measures of PDs. Additionally, the current study explored the incremental validity of the FFBI-OR over the FFBI in predicting functional impairment. The FFBI-OR did not exhibit incremental validity over the FFBI in predicting functional impairment.

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CHAPTER I

INTRODUCTION

Borderline personality disorder (BPD) is described in the American Psychiatric Association's (APA) Diagnostic and Statistical Manual of Mental Disorders (DSM-5) as "a pervasive pattern of instability of interpersonal relationships, self-image, and affects, and marked impulsivity that begins by early adulthood and is present in a variety of contexts" (APA, 2013, p. 663). The DSM-5 diagnostic criteria for BPD consists of nine symptoms with a cut-off of five symptoms in order to provide the BPD diagnosis. However, there have been many issues with this diagnostic system, including arbitrary cut-offs, comorbidity within PDs, comorbidity with other psychological disorders, and heterogeneity of diagnoses (e.g. Tomko et al., 2014; Lenzenweger et al., 2007; APA, 1987). First, regarding arbitrary cut-offs, the cut-off value of five was created based on DSM-III BPD diagnostic criteria (APA, 1987). Since then, the wording of the criteria has been altered and a criterion has been added. Despite these changes, there has not been clear empirical support to retain five as the cut-off value. Additionally, personality disorders are highly comorbid both with other personality disorders as well as with other mental disorders (e.g. Tomko et al., 2014; Lenzenweger et al., 2007). Finally, there is a problem of heterogeneity of symptoms within BPD. Specifically, there are 256 different symptom combinations possible for a BPD diagnosis, meaning that individuals with a BPD diagnosis may present quite differently from one another.

Characterizing PDs dimensionally may resolve some of these issues. There is strong

taxometric evidence supporting a dimensional conceptualization of BPD (Arntz et al., 2009;

Rothschild et al., 2003; Trull, Widiger & Guthrie, 1990). Arntz and colleagues (2009) conducted

a series of taxometric analyses on a large sample of individuals with and without PDs to study

the underlying structure of six common PDs, including BPD. Out of seventy-eight analyses using

Mean Above Minus Below A Cut (MAMBAC;Meehl & Yonce, 1994), MAXimum EIGenvalue

(MAXEIG; Waller & Meehl, 1998), and Latent Mode (L-MODE; Waller & Meehl, 1998),

seventy-six analyses provided support for dimensional structure of PDs. Specifically, for BPD,

all but one of the twelve analyses using MAMBAC and MAXEIG supported the dimensionality

of BPD (CCFI<.40). The graphs of simulated curve of MAMBAC, MAXEIG, and L-Mode for

BPD indicated better fit for dimensionality than categorical distributions of BPD as well. These

findings support previous taxometric research of BPD that similarly found evidence for

dimensionality (Rothschild et al., 2003; Trull, Widiger & Guthrie, 1990).

Livesley, Jang, and Vernon (1998) conducted principal components analysis of PD

symptoms in different samples, which resulted in the same four factors that were consistent with

dimensions of general personality. Taken together, these results suggest that a dimensional

classification of PD is compatible with the dimensional structure of normal personality since

there was no difference in the PD factor structure in normal and PD samples. In fact, PD

researchers have recently proposed to conceptualize and assess PDs dimensionally in both DSM-

5 and ICD-11 (APA, 2013; Tyrer et al., 2011).

Among the various dimensional models of PDs, the five-factor model (FFM; McCrae &

Costa, 2003) is the most prominent. The FFM, a widely accepted model of general personality,

consists of 5 dimensional domains of personality (neuroticism, extraversion, openness to

experience, agreeableness, and conscientiousness), with each domain containing six facets each. Over 200 studies have suggested that the FFM successfully accounts for the symptoms of the PDs (O'Connor, 2005; Samuel & Widiger, 2008; Saulsman & Page, 2004).

There is particularly strong evidence that illustrates that BPD can be conceptualized in the perspective of FFM. Saulsman and Page (2004) conducted a meta-analytic review of PDs and characterized BPD by high neuroticism, low agreeableness, and low conscientiousness. Samuel and Widiger (2008) confirmed these findings and also specified which facets were significantly correlated with BPD. They found that all six facets of neuroticism (anxiousness, angry hostility, depressiveness, self-consciousness, impulsiveness, and vulnerability) were positively correlated with BPD while two facets (warmth and positive emotions) from extraversion, three facets (trust, straightforwardness, and compliance) from agreeableness, and four facets (competence, dutifulness, self-discipline, and deliberation) from conscientiousness were negatively correlated with BPD.

Following the evidence that it is beneficial to conceptualize BPD as maladaptive traits of FFM, Mullins-Sweatt and colleagues (2012) developed a self-report measure, the Five Factor Borderline Inventory (FFBI), assessing BPD traits using eleven facets from the FFM that are highly related to BPD. The FFBI consists of twelve subscales, with FFM vulnerability being assessed by two subscales (affective dysregulation and fragility subscales), and a total score. The twelve facets of the FFBI are anxious uncertainty, dysregulated anger, despondence, self-disturbance, behavioral dysregulation, affective dysregulation, fragility, dissociative tendencies, distrust, manipulativeness, oppositionality, and rashness. The scale contains a total of 120 items, with 10 items per subscale, and was validated with a large undergraduate student sample and a clinical sample in a residential treatment facility.

The FFBI subscales had strong convergent validity with its comparable FFM facets and strong discriminant validity with other FFM facets (Mullins-Sweatt et al., 2012). The results from the validation study also indicated that the FFBI showed significant incremental validity predicting the scores of other BPD measures over the corresponding FFM facets from the NEO Personality Inventory- Revised (NEO-PI-R; Costa & McCrae, 1992). The total score of the FFBI accounted for significant additional variance in the PAI BPD scale above and beyond other BPD measures, such as the OMNI Personality Inventory-IV (Loranger, 2001).

Although self-reports are most often used in the diagnoses of BPD, this method is not without limitations. Self-report provides only one source of information, which may include biases. This may be pertinent in PD diagnoses especially, since individuals with PD commonly have distortions of self-perception (Oltmanns & Turkheimer, 2009). Therefore, informant reports can provide complementary information that can aid in the assessment of PDs. In fact, self-report and informant-reports of personality pathology are moderately correlated, at best. Klonsky, Oltmanns and Turkehiemer (2002) conducted a review of previous literature of self and informant ratings of PDs. The median correlation between self-other ratings of continuous measures of PDs was .36; whereas, the median correlation kappa of the self-informant studies that used categorical diagnoses of PD was .14. Specifically, the BPD median correlation was .48 and median kappa was .28.

Research suggests that informant reports also have incremental validity above and beyond self-report of personality for certain outcomes. Oh, Wang, and Mount (2011) reported that observer ratings of the FFM contributed significant additional variance beyond the self-reports of personality in predicting overall job performance. However, they noted that self-report data were not incrementally valid above and beyond informant reports. Miller, Pilkonis, and Morse (2004)

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found that informant reported FFM PD scores contributed to a significant increase in variance for borderline, paranoid, antisocial, histrionic and avoidant PDs. Balsis, Cooper, and Oltmanns (2015) found that the informant reports of FFM and PDs were more internally consistent than the self-reports. They reported that informant reports predicted global measures of health better than the self-reports.

As one of the diagnostic characteristics of BPD is identity disturbance, use of informant reports in research and clinical setting may be beneficial. Those diagnosed with BPD show poor awareness of their own values and goals (Linehan, 1993), have difficulty predicting future behaviors (Damman et al., 2011), and have difficulty predicting how they are perceived by others (Carlson & Oltmanns, 2015). Additionally, changes in self-perception may influence the way individuals report. If one is unaware of who they are or if their sense of self changes regularly, assessment of their personality traits becomes challenging; hence, informant-report may be useful in providing more accurate and stable trait descriptions.

As illustrated above, informant reports may provide useful information in addition to self-report measures. Despite its usefulness, informant-reports are underutilized in PD research. Some of the reasons may be due to preconceived ideas of informant data collection, such as difficulty in recruitment, concerns of faking response, and being expensive (Vazire, 2006). However, these issues can be easily addressed in recruitment methodology outlined by Vazire (2006). For example, not compensating informants eliminates the problem of providing incentives for the participants and informants to invalidly fill out the responses and reduces the cost of the research study.

Another limitation to informant research is the lack of validated informant measures of PDs. Currently, there are only a few validated measures for the assessment of PDs (e.g. SCID-II,

CATI, SNAP, MAPP). While other informant measures for BPD exist, none assess BPD within a dimensional personality trait framework, which may be a better way to conceptualize and assess PDs. Therefore, the current study seeks to aid the research of BPD by developing an informant measure of BPD using the maladaptive traits of FFM (Five Factor Borderline Inventory–Other Report). The current study assesses convergent and discriminant validity of the FFBI-OR. Specifically, the FFBI-OR subscale and total scores were correlated with its corresponding FFBI self-report subscales and total scores, IPIP-NEO-120 facet scores, and MAPP BPD scores to examine convergent validity. The FFBI-OR subscale and total scores were also correlated with non-corresponding FFBI subscales, IPIP facets, and MAPP PD subscale scores to examine discriminant validity. Lastly, the current study explored the incremental validity of the FFBI-OR over the FFBI in predicting functional impairment.

CHAPTER II

METHODOLOGY

Participants

Before beginning participation, all participants completed a consent form and provided

contact information for up to three informants. Upon completion of the study, these participants

were debriefed in accordance with the requirements of Oklahoma State University's Institutional

Review Board. There were 685 participants who participated and received course credit.

Participants were 71.2% female and 78% Caucasian. The average age of the participants was

19.47 (SD= 2.16), ranging from 18 to 41 years old.

Informants

Up to three informants were recruited for each participant. All informant participation

was voluntary; the informants completed a voluntary consent form prior to starting the study.

Informants were not compensated for their participation. After their participation, the informants

were debriefed in accordance with the requirements of Institutional Review board at Oklahoma

State University. Most informants (85.3%) reported they knew targets ''extremely well'' ($M =$

4.82, $SD = 0.49$) on a 5-point scale from 1 (not at all) to 5 (extremely well). Informants indicated

the average length of their relationship with targets was 13.76 years ($SD = 7.56$), ranging from

2.5 months to 28 years. Informants were 71% female and 77.8% Caucasian. The average age of

the informants was 37.32 (SD=15.03). The majority of the informants were parents (55%), 28.4% of the informants were friends, 7.3% were partners and 9.3% were other relationships.

Five hundred and fifty informants participated in the current research study. Two informants were removed based on their self-reported response validity. Missing data rates for FFBI-OR, MAPP, and IPIP were calculated and informants who did not complete 80% on any of the three measures were not included in the analyses. Three informant responses were removed due to duplicate IDs. Three hundred and thirty-three informant responses remained for analyses. Informants' responses were averaged for those who responded regarding the same participant, resulting in two hundred and forty-seven informant response sets. These merged informant response data were matched with participant data, resulting in two hundred fourteen participant-informant matched data used for analyses in the study.

Procedures

The participants were recruited through the online SONA psychology participant pool. The study was open to everyone; those who endorsed BPD traits on the pre-screener were additionally sent email invitations to participate in the study. The nine items of the PDQ-4 BPD scale were used as a prescreener from January 2018 to May 2018. From August, 2018 to January 2019, ten MSI-BPD items were used as a prescreener. Those who endorsed 5 or more items on either scale were invited via email as outlined above. Participants were provided with a link to complete the study online using Qualtrics online survey tool. Participants were given a brief introduction to the study and were asked to provide their consent before participation. Once the participants consented to participate, they were asked to provide contact information of up to three informants that knows them very well. For each informant, the participant provided the nature of the relationship, ranked how well the informants knew the participant, and described

how long they have known each other. Following this, the participants completed demographic questionnaires and other measures. Upon completion of measures, the participants received a debriefing document including the purpose and the intent of the study. After completion of the study, the undergraduate participants received 1.5 SONA credits.

Informants were contacted for recruitment via email and phone. Informants were provided with a personalized link to their email to participate in the study. The link provided a brief introduction to the study, the voluntary consent form, and the measures. The informants received the link up to 3 times with each link expiring within 14 days. From September to December of 2018, informants were also contacted via phone before sending the recruitment email to increase response rates. Upon completion of the study, the informants were debriefed in accordance with the requirements of Oklahoma State University's Institutional Review Board.

Measures

Demographics Questionnaire. Several relevant demographic variables were collected via self-report questionnaire. The demographics questionnaire was collected from both the participants and the informants. These questions included participant age, gender, ethnicity, religious affiliation, and income level. The participants and informants also indicated how long they have been acquainted, how often they talk to each other (5-point Likert Scale), how well they know each other (5-point Likert Scale), and if they have been in contact in the last 30 days.

Five-Factor Borderline Inventory (FFBI; Mullins-Sweatt et al., 2012). The FFBI is a 120-item self-report measure that assesses BPD from the perspective of the FFM. The FFBI contains a total score and 12 subscale scores that corresponds to the facets. Each item is rated on a 5-point Likert scale from 1 (Strongly Disagree) to 5 (Strongly Agree). In the current study,

coefficient alphas for each facet ranged from .74 (oppositional) to .92 (Self Disturbance), with coefficient above .80 for 11 of the 12 scales. Coefficient alpha for the total score was 0.95.

Five Factor Borderline Inventory-Other Report (FFBI-OR; Appendix D). The FFBI-OR is a 120-item informant-report measure. The items were revised from first to third person without deleting any items. The items have 5-point Likert scale ranging from 1 (Strongly Disagree) to 5 (Strongly Agree), as the original FFBI form. The FFBI consists of twelve subscales (anxious uncertainty, dysregulated anger, despondence, self-disturbance, behavioral dysregulation, affective dysregulation, fragility, dissociative tendencies distrust, manipulativeness, oppositionality, and rashness). Each of the subtests corresponds to a FFM facet; for example, FFBI Anxious Uncertainty assesses FFM anxiousness from neuroticism domain. The FFBI-OR also contains a total score and 12 subscale scores. Internal consistency of the FFBI-OR subscales ranged from α = .83 – .92, and overall internal consistency of the measure was α = .98. All FFBI-OR subscales were moderately to highly correlated with other FFBI-OR subscales and the FFBI-OR total score.

International Personality Item Pool-NEO-120 (IPIP-NEO-120; Maples, Guan, Carter & Miller, 2014). The IPIP-NEO-120 is a 120-item self-report measure that assesses the five domains and thirty facets of the FFM. The IPIP-NEO-120 was developed using Item Response Theory and is rated on a 5-point Likert scale from 1 (Disagree Strongly) to 5 (Agree Strongly). Internal consistency of the IPIP domains ranged from 0.79 (Openness to Experience) to 0.90 (Neuroticism). Cronbach's alpha for facets ranged from 0.51 (Self Consciousness) to 0.90 (Depression).

International Personality Item Pool-NEO-120 (informant version). The items from the IPIP-NEO-120 were converted from first-person to third-person for the informant version as

instructed by the IPIP website. Cronbach's alpha for domains in the current study ranged from 0.82 (Openness to Experience) to 0.93 (Conscientiousness). Internal consistency for facets ranged from 0.65 (Modesty) to 0.91 (Deliberation).

Multisource Assessment of Personality Pathology (MAPP). The MAPP (Oltmanns & Turkheimer, 2006) is a self-report measure of 80 items that assesses the 10 PDs in the DSM-IV-TR. It is rated on a 5-point Likert Scale from 0 (I am never like this/0% of the time) to 4 (I am always like this/100% of the time). Balsis, Cooper and Oltmanns (2014) reported the Cronbach alpha for the self-report, which ranged from .57 (Schizoid) to .81 (Avoidant). The items were dichotomized according to the scoring guidelines (M. Boudreaux, personal communication, August 17, 2018). Responses of 0, 1, or 2 were scored as 0, whereas 3, and 4 were scored as 1. Cronbach's alpha from the current study ranged from 0.22 (Antisocial) to 0.65 (Avoidant).

Multisource Assessment of Personality Pathology (MAPP; informant version). The MAPP informant-report version of 80 items assess 10 PDs in the DSM-IV-TR on a 5-point Likert Scale from 0 (I am never like this/0% of the time) to 4 (I am always like this/100% of the time). The items were dichotomized according to the scoring guidelines (M. Boudreaux, personal communication, August 17, 2018). Responses of 0, 1, or 2 were scored as 0, whereas 3, and 4 were scored as 1. Cronbach's alpha ranged from 0.50 (Schiztypal) to 0.73 (Narcissistic and Borderline) in the current study.

Personality Inventory for DSM-5 Short Form (PID-5-SF). The PID-5-SF (Maples et al., 2015) is a 100-item self-report measure that assesses pathological personality trait model of the alternative model of PDs in Section III of the DSM-5. The PID-5-SF assesses five domains and twenty-five facets of the pathological personality trait model (negative affectivity, detachment, psychoticism, antagonism, and disinhibition). The items are rated on 5-point Likert scale from 0

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(Very False or Often False) to 3 (Very True or Often True). The Cronbach alpha of the five domains ranged from .85 (Antagonism) to .90 (Negative Affectivity). Cronbach alpha of the facets ranged from 0.51 (Manipulativeness) to 0.90 (Depressivity and Distractability).

Personality Inventory for DSM-5-short form (PID-5-SF informant version). The hundred items of PID-5-SF were converted from first-person to third-person for the informant version, with permission from the author of the PID-5, Dr. Robert Krueger. The PID-5-SF informant version assesses five domains and twenty-five facets of the pathological personality trait model. The items are rated on 5-point Likert scale from 0 (Very False or Often False) to 3 (Very True or Often True). Internal consistency of PID-5-SF domains in the current study ranged from 0.82 (Antagonism) to 0.93 (Negative Affectivity).

Personality Diagnostic Questionnaire 4+ (PDQ-4+). The PDQ-4+ (Hyler, 1994) consists of 99 true/false items that assess DSM-IV-TR PDs. Hyler and colleagues (1989) reported the internal consistency coefficients of PDQ-4+, which ranged from .56 (schizoid) to .84 (dependent). Cronbach's alpha from the current study ranged from 0.47 (Obsessive-Compulsive) to 0.73 (Avoidant).

Levels of Personality Functioning Scale (LPFS). LPFS (Morey, 2017) is an 80-item measure that assesses impairment in personality functioning as proposed by the alternative model for personality disorder in the dsm-5. The items are rated on a 4-point Likert scale from 1 (Totally False, Not at all True) to 4 (Very True). The total score Cronbach's alpha was .96 and subscale Cronbach's alpha ranged from .82 (Empathy) to .89 (Identity). In the current study, total score Cronbach's alpha was .95 and subscale Cronbach's alpha ranged from .78 (Empathy) to .88 (Identity and Self-Direction).

World Health Organization Disability Assessment Schedule 2.0 (WHODAS 2.0).

WHODAS 2.0 (Üstün et al., 2010) is a 36-item measure that assesses disability and impairment in daily life. The items are rated on 5-point Likert scale from 0 (None) to 5 (Extreme or Cannot Do). The WHODAS 2.0 has high internal consistency (a=.86) and high test-retest reliability (r=.98). Internal consistency a=.91 in the current study.

Power Analysis

Six hundred and eighty-five participants (i.e. scoring below four on EPA Infrequency validity subscale and declining to answer less than 25% of the items) completed the study in a valid manner and received 1.5 credits for their participation. At the end of the survey, participants indicated if there were any reasons to disregard their answers. Based on their self-report, an additional twenty-one participants were removed from analyses. Participants who had over fifty missing items or completed the survey in less than thirty minutes (n= 69) were removed from analyses. An additional forty-six participants were removed because they scored above three on EPA Virtue or EPA Infrequency validity subscales. Three duplicate responses were removed. Five hundred and forty-six participant responses were used for the analyses.

As noted above, five hundred and fifty informants participated in the current study. Two informants were removed based on their self-reported response validity. Missing data rates for FFBI-OR, MAPP, and IPIP were calculated and informants who did not complete 80% on any of the three measures were not included in the analyses. Three informant responses were removed due to duplicate ID. Three hundred and thirty-three informant responses remained for analyses Informants' responses were averaged for those who responded regarding the same participant, resulting in two hundred and forty-seven informant response sets. These merged informant

response data were matched with participant data, resulting in two hundred fourteen participant-informant matched data used for the following analyses.

Post-hoc power analysis was conducted using alpha of .001, effect size of 0.3, and the total sample size of 214 using GPower (Faul et al., 2009). Power of the study was 0.89.

Missing Data Analysis

Within merged data, subscale scores for all measures were calculated. Then, multiple imputation was conducted on the subscale scores using mice package (Van Buuren, Groothuis-Oudshoorn, 2011) in R (R Core Team, 2018). Total scores of scales were calculated using the imputed scores.

CHAPTER III

RESULTS

FFBI-OR and FFBI (Table 1). A series of correlational analyses between FFBI-OR facets

scores and FFBI subscale scores revealed good convergent validity. The total score of FFBI-OR

was significantly correlated (r=0.40) with FFBI total score, as expected. All FFBI-OR subscales

were significantly correlated with its corresponding FFBI subscales in the expected direction

(range: r= 0.26 for Behavior Dysregulation, and Manipulativeness facets to 0.44 for

Despondence). Most FFBI-OR subscales had the highest correlation with its corresponding FFBI

subscale and lower correlations with other subscales of the FFBI, demonstrating good

discriminant validity. Seven subscales of the FFBI-OR (Anxious Uncertainty, Despondence,

Dissociative Tendencies, Distrust, Manipulation, Oppositionality, and Rashness) had the highest

correlation with its corresponding FFBI subscale compared with the other FFBI subscales. Five

of the subscales (Dysregulated Anger, Self-Disturbance, Behavior Dysregulation, Affect

Dysregulation, and Fragility) correlated as strongly or more strongly with other neuroticism-

related FFBI subscales. FFBI-OR Self-Disturbance also had higher correlation with FFBI

Distrust (r=0.32), low agreeableness-related subscale, than its corresponding subscale (r = 0.29).

FFBI-OR Behavior Dysregulation subscale had higher correlation with FFBI rashness (r=0.29),

low conscientiousness-related subscale, than its corresponding FFBI subscale (r=0.26).

FFBI-OR and IPIP (Table 3 & Table 4). A series of correlational analyses between FFBI-OR subscale scores and IPIP informant facet scores revealed good convergent validity. All FFBI-OR subscales were significantly correlated with their corresponding FFBI subscales in the correct direction (range: r= 0.50 for FFBI-OR Dissociative Tendencies and IPIP Imagination to 0.78 for FFBI-OR Despondence and IPIP depression). Four of the FFBI-OR subscales (Anxious Uncertainty, Dysregulated Anger, Despondence, and Rashness) presented good discriminant validity, where the subscale's correlation with the corresponding IPIP facet was the highest compared to its correlation with non-corresponding IPIP facets. However, eight of the FFBI-OR facet scores had higher correlations with a non-corresponding facet than its corresponding facets. Specifically, five subscales of the FFBI-OR had higher correlations with IPIP depression (Self Disturbance, Behavior Dysregulation, Affect Dysregulation, Fragility, and Dissociative Tendencies) than their corresponding facets. The Manipulativeness and Oppositionality subscales revealed higher negative correlations with another facet of agreeableness (r=-0.73 for Manipulativeness and Morality and r= -0.74 for Oppositionality and Cooperation) than its corresponding IPIP agreeableness facet (r=-0.64 for Manipulativeness and Cooperation and r = -0.74 for Oppositionality and Cooperation).

FFBI-OR and other measures of PDs. A series of correlation analyses between FFBI-OR and MAPP categorical PDs revealed good convergent and discriminant validity (see Tables 5 and 6). The FFBI-OR total score was significantly correlated with participant-reported MAPP BPD (0.32) and informant-reported MAPP BPD (r=0.62). The FFBI-OR total score was not significantly related to other participant-reported MAPP PD scores, indicating excellent discriminant validity. The FFBI-OR exhibited lower correlations with other participant-reported MAPP PDs, ranging from -0.06 (Schizoid) to 0.30 (Histrionic). Of those correlations, only

Histrionic PD was significant with p<0.001. FFBI-OR also exhibited lower correlations with other informant-reported PDs, ranging from r=-0.04 for Schizoid PD to r=0.18 for histrionic PD in the informant-reported MAPP.

Correlational analyses between the FFBI-OR and PID-5 PD composite scores were conducted (Tables 7 and 8). The Alternative Model for Personality Disorders (AMPD; APA, 213) proposed a novel, trait-based PD diagnostic system. Within the AMPD, 6 PDs are described by associated pathological personality traits and impairment in personality functioning. The PID-5 (Maples et al., 2015) assesses the 25 pathological personality traits in AMPD. The current study created PID-5 PD composite scores by adding up the pathological personality traits score from the PID-5 that described each PD in the AMPD. Therefore, 6 PD composite scores were created for both self-report PID-5 and informant-report PID-5 for analyses, as outlined in Samuel et al. (2013).

The correlational analyses between the FFBI-OR and PID-5 PD composite scores revealed good convergent validity. As expected, the FFBI-OR scale score was moderately correlated (r=0.42) with the self-reported PID-5 Borderline composite score, and highly correlated with the informant-reported PID-5 Borderline composite score (r=0.86). The analyses revealed moderate discriminant validity with self-reported PID-5 PD composite scores, and questionable discriminant validity with the informant-reported PID-5 PD composite scores. Correlations between the FFBI-OR scale score and self-reported PID-5 PD composite scores ranged from r=0.20 (Obsessive-Compulsive) to r=0.36 (Schizotypal). Correlations between FFBI-OR scale score and informant-reported PID-5 PD composite scores ranged from r= 0.48 (Obsessive-Compulsive) to r=0.79 (Antisocial). Correlations between FFBI-OR scale score and

informant-reported Antisocial (r=0.79), Narcissistic (r=0.75), and Schizotypal (r=0.72) were especially high.

Incremental Validity of the FFBI-OR in predicting Functional Impairment. A series of hierarchical linear regression analyses were conducted to examine whether the FFBI-OR has incremental validity over the FFBI in predicting self-reported functional impairment (Tables 9 and 10). In the first step, the FFBI total score was entered to predict a functional impairment variable (WHODAS-2.0 or LPFS, respectively). In the second step, FFBI-OR scale score was added as an independent variable with FFBI-OR total score to predict a functional impairment variable (WHODAS-2.0 or LPFS). The change in explained variance was calculated and Wald method of comparing two regressions was conducted to examine if the latter linear regression model is statistically different than the first regression model. When FFBI-OR was entered in the second step, the FFBI-OR did not demonstrate incremental validity over the FFBI in predicting self-reported WHODAS-2.0 or LPFS ($p > 0.05$).

This analysis was then reversed as a hierarchical linear regression analysis was conducted to examine if self-reported FFBI had incremental validity over the FFBI-OR in predicting functional impairment. FFBI-OR was entered in the first step to predict functional impairment (WHODAS-2.0 or LPFS). Then, FFBI was added as an independent variable to predict functional impairment. The change in explained variance was calculated and Wald's test was used to compare the two regression models. The self-reported FFBI, exhibited incremental validity over the FFBI-OR in predicting self-reported LPFS ($p < 0.01$, $\Delta R^2 = 0.43$) but did not exhibit incremental validity in predicting the WHODAS-2.0 ($p > 0.01$; $\Delta R^2 = 0.06$).

CHAPTER IV

DISCUSSION

Issues of the current categorical diagnostic system of PDs issues have long been

highlighted (e.g. Tomko et al., 2014; Lenzenweger et al., 2007). Researchers have suggested

conceptualizing PDs with dimensional traits, highlighted by the AMPD in the DSM-5 and the

ICD-11 proposals. Despite this effort, validated dimensional measures of PDs are limited. The

FFBI (Mullins-Sweatt et al., 2012) is the only dimensional measure of BPD, conceptualizing

BPD with maladaptive FFM traits.

Research also suggests that informant reports of personality and personality pathology

are not only distinct from self-reports, but may also add incremental validity in predicting

behavioral outcomes (e.g. Oh, Wang, & Mount, 2011; Balsis, Cooper, & Oltmanns, 2015; Miller,

Pilkonis, & Morse, 2004). Despite the highlighted importance of researching and utilizing

informant-reports of PDs, there is no validated dimensional informant measure of BPD. The

current study addressed this gap in the PD informant literature by developing and validating Five

Factor Borderline Inventory – Other Report (FFBI-OR), an informant measure of BPD using the

maladaptive traits of FFM that complements the Five Factor Borderline Inventory (FFBI;

Mullins-Sweatt et al., 2012).

The current study aimed to validate the FFBI-OR as a measure using convergent and

discriminant validity with the FFBI, a general personality trait measure, and existing PD

measures. As expected, convergent relationships between the informant- reported FFBI-OR and

other self-reported constructs (i.e. FFBI, MAPP BPD, PDQ BPD, PID-5 BPD) were moderate,

while the convergent correlation between FFBI-OR scale score and informant reported constructs (i.e. MAPP Informant BPD, PID-5 Informant BPD) were high. This is consistent with previous self-informant agreement research, as Oltmanns and Oltmanns (in press)'s meta-analysis found moderate correlation between self-informant agreement on PD ratings. Overall, the FFBI-OR illustrated good convergent validity. However, discriminant validity was modest, especially for FFBI-OR subscales.

Consistent with our hypotheses, the FFBI-OR scale score was significantly correlated with the FFBI scale score while exhibiting smaller but significant correlations with FFBI subscales. The correlation between FFBI-OR and FFBI was moderate (r=0.40), consistent with self-other agreement of r=0.44 for BPD found in a recent meta-analysis (Oltmanns & Oltmanns, in press).

The FFBI-OR subscales illustrated good convergent validity but modest discriminant validity with the facets of the FFBI. This was more apparent with discriminant validity between a FFBI facet and other non-corresponding facets in the same domain. This same pattern emerged when examining discriminant validity between FFBI-OR subscales and IPIP-NEO facets. However, most instances of modest discriminant validity were due to higher correlation with other facets that are theoretically from the same domain. For example, FFBI-OR Fragility subscale had moderate correlation with FFBI Fragility subscale, but also with a few other FFBI subscales that correspond to facets of FFM neuroticism (i.e. r=0.44 with Despondence, r= 0.39 with Affective Dysregulation). This modest discriminant validity with general personality facet-level traits may provide additional insight into the distinct information provided by self- and informant- reports. It is also possible that informants tend to aggregate domain level information

but have difficulty in reporting facet-level information. This hypothesis requires further investigation.

The FFBI-OR total score also demonstrated excellent convergent and discriminant validity with self-report of MAPP, a categorical measure of PDs. As expected, correlations between FFBI-OR and self-reported MAPP BPD was modest and the only significant correlational relationship between FFBI-OR and self-report MAPP PD subscales. On the other hand, the FFBI-OR demonstrated good convergent validity with informant-reported MAPP BPD and modest discriminant validity with other informant-reported MAPP PDs. The FFBI-OR exhibited the highest correlation with informant-reported MAPP Borderline PD scale (r=0.62). However, FFBI-OR was also highly correlated to informant-reported MAPP Histrionic, Narcissistic and Antisocial PD subscales. This is consistent with previous research of categorical PDs that found high comorbidity between BPD, histrionic PD, and antisocial PD (Widiger & Rogers, 1989). Samuel and Widiger (2008)'s meta-analytic review of FFM facets and PDs reveal shared low agreeableness traits between narcissistic, borderline and antisocial PD. Low agreeableness traits may account for the significant relationship between FFBI-OR, MAPP Narcissistic PD, and MAPP Antisocial PD. FFBI-OR Distrust, Manipulation, and Oppositionality subscales corresponds to FFM trust, straightforwardness, and compliance facets which were all traits significantly correlated with borderline, narcissistic, and antisocial PD (Samuel & Widiger, 2008). This finding also may shed a light into personality traits that are accentuated through informants' perception. Externalizing traits, more observable traits to the informants, may be highlighted in those with borderline, antisocial, narcissistic, and histrionic PD traits. Previous research also has found higher self-informant agreement on low agreeableness traits. For example, Sleep and colleagues (in press) found that antagonism (low

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agreeableness) had the highest self-informant agreement among the personality pathology domains based on the DSM-5 AMPD.

It is also important to note that reliability for self-reported and informant-reported MAPP subscales were lower than ideal. This may be due to dichotomizing the scale from Likert-scale responses. Reliability was especially lower for MAPP Antisocial PD, which may be due to lack of antisocial PD symptom endorsements among the sample, with scores ranging only from 0 to 1.

The FFBI-OR illustrated good convergent validity with participant and informant-reported PID-5 PD composite scores. The FFBI-OR demonstrated questionable discriminant validity with PID-5 PD composite scores, though this is in line with previous research on PID-5 traits that indicated poor discriminant validity of the PID-5 traits (Crego et al., 2015; Hopwood et al., 2012). Thus, modest discriminant validity between the FFBI-OR and PID-5 PD composite scores may be attributable to concerns with the PID-5.

The FFBI-OR did not demonstrate incremental validity over the FFBI in predicting self-reported functional impairment, measured by WHODAS and LPFS. This may indicate that functional impairment may be better predicted by FFBI than FFBI-OR. In reality, this is perhaps not surprising. For example, Miller, Pilkonis, and Morse (2004) found that prediction of impairment outcome from personality is higher if reported by the same rater, whether it be clinicians, self, or informant. Therefore, it would be important to explore incremental validity of the FFBI-OR using informant-reported functional impairment.

In conclusion, the FFBI-OR demonstrated good convergent validity with the FFBI, traditional measure of PDs, and a measure of general personality. The FFBI-OR revealed moderate discriminant validity, especially at the subscale level. This moderate discriminant

validity is not only consistent with previous literature on comorbidity of PDs, but also allows insight into differing perception of traits between self and informant. The current study validates the FFBI-OR as an informant measure of BPD in the perspective of FFM.

Previous research examining informant measures of BPD only reported self-informant agreement on the categorical symptoms of BPD according to the DSM-IV. However, the FFBI-OR allows the administrator to understand maladaptive personality traits that are associated with BPD, providing more detailed and useful information to the administrator that can inform future research and clinicians. For research purposes, the FFBI-OR can be utilized to study informant research in BPD. Clinicians can utilize the measure to understand the maladaptive personality traits associated with BPD, to inform treatment.

There are some limitations to the current study. First, the current results are based on one cross-sectional student sample. While the informants were from a mix of student and community sample, it would be important to replicate these findings in a community and/or clinical sample, including with clinicians and patients. Second, the number of informants ranged from 1-3 per participant. For the participants that had more than one informant responses, the responses were averaged. Although most of the participants (>50%) had only one informant responses, some information may have been lost due to averaging informant responses. Additionally, due to the limited number of informants per person, we were not able to examine the effect of certain types of informants (e.g. friend vs. family). If future studies collected data from both friends and family of the participants, how relationship type affects the self-informant agreement could be examined. However, it is also important to note that a number of the participants who completed the self-report measure did not have any corresponding informant reports so these data were not examined in the current study. Finally, in examining incremental validity of the FFBI-OR, only

self-reported functional impairment measures were included in the analyses. In order to truly examine incremental validity of the FFBI-OR, utilizing informant-reported functional impairment and other behavioral outcome scales would be important in future studies.

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Table 1. Correlations between FFBI-OR and FFBI facets.

FFBI-OR \ FFBI	Anx. Uncertain.	Dysreg. Anger	Despond.	Self Disturb.	Behav. Dysreg.	Affective Dysreg.	Fragility	Dissoc. Tend.	Distrust.	Manip.	Opp.	Rash.	Total
Anx. Uncertain.	**0.41**	0.21	0.33	0.25	0.21	0.31	0.37	0.21	0.25	0.13	0.19	0.13	0.30
Dysreg. Anger	0.17	**0.27**	0.24	0.17	0.14	0.22	0.20	0.18	0.21	0.11	0.23	0.13	0.24
Despond.	0.40	0.26	**0.44**	0.34	0.28	0.36	0.44	0.33	0.30	0.20	0.20	0.16	0.38
Self Disturb	0.32	0.24	0.36	**0.29**	0.23	0.31	0.34	0.31	0.28	0.16	0.17	0.22	0.33
Behav. Dysreg	0.20	0.27	0.29	0.24	**0.26**	0.26	0.30	0.28	0.22	0.21	0.20	0.16	0.31
Affective Dysreg	0.34	0.31	0.41	0.31	0.29	**0.36**	0.39	0.29	0.26	0.21	0.23	0.26	0.36
Fragility	0.33	0.25	0.41	0.31	0.27	0.33	**0.43**	0.33	0.26	0.19	0.20	0.21	0.36
Dissoc. Tend.	0.22	0.26	0.30	0.24	0.22	0.27	0.28	**0.34**	0.20	0.16	0.17	0.20	0.29
Distrust.	0.28	0.20	0.32	0.32	0.20	0.26	0.27	0.22	**0.34**	0.18	0.18	0.14	0.29
Manip.	0.14	0.21	0.22	0.22	0.20	0.20	0.23	0.25	0.21	**0.26**	0.20	0.23	0.26
Opp.	0.15	0.25	0.27	0.27	0.18	0.21	0.17	0.22	0.22	0.15	**0.28**	0.21	0.26
Rash.	0.12	0.27	0.24	0.24	0.29	0.22	0.23	0.23	0.17	0.27	0.23	**0.37**	0.29
Total	0.34	0.32	0.42	0.33	0.28	0.36	0.41	0.34	0.32	0.24	0.28	0.26	**0.40**

Notes. All correlation analyses were significant with $p<0.001$.
Anx. Uncertain. = Anxious Uncertainty; Dysreg. Anger = Dysregulated Anger; Despond. = Despondence; Self Disturb. = Self-Disturbance; Behav. Dysreg. = Behavioral Dysregulation; Affective Dysreg. = Affective Dysregulation; Dissoc. Tend. = Dissociative Tendencies; Distrust. = Distrustfulness; Manip. = Manipulativeness; Opp. = Oppositional; Rash. = Rashness.

Table 2. Correlations among FFBI-OR subscales.

FFBI-OR	Anx. Uncertain.	Dysreg. Anger	Despond.	Self Disturb.	Behav. Dysreg.	Affective Dysreg.	Fragility	Dissoc. Tend.	Distrust.	Manip.	Opp.	Rash.
Dysreg. Anger	0.63											
Despond.	0.73	0.67										
Self Disturb	0.69	0.69	0.80									
Behav. Dysreg	0.55	0.73	0.67	0.73								
Affective Dysreg	0.69	0.83	0.74	0.76	0.78							
Fragility	0.72	0.68	0.79	0.76	0.74	0.78						
Dissoc. Tend.	0.54	0.56	0.65	0.68	0.62	0.64	0.70					
Distrust.	0.62	0.64	0.67	0.82	0.59	0.63	0.64	0.49				
Manip.	0.45	0.71	0.54	0.63	0.75	0.70	0.62	0.60	0.52			
Opp.	0.52	0.76	0.51	0.57	0.53	0.66	0.55	0.47	0.58	0.70		
Rash.	0.44	0.63	0.55	0.63	0.79	0.67	0.60	0.61	0.47	0.69	0.64	
Total	0.78	0.87	0.82	0.88	0.86	0.90	0.89	0.74	0.77	0.80	0.75	0.77

Notes. All correlation analyses were significant with p<0.001.
Anx. Uncertain. = Anxious Uncertainty; Dysreg. Anger = Dysregulated Anger; Despond. = Despondence; Self Disturb. = Self-Disturbance; Behav. Dysreg. = Behavioral Dysregulation; Affective Dysreg. = Affective Dysregulation; Dissoc. Tend. = Dissociative Tendencies; Distrust. = Distrustfulness; Manip. = Manipulativeness; Opp. = Oppositional; Rash. = Rashness.

Table 3. Correlations between FFBI-OR and IPIP informant facets.

IPIP \ FFBI-OR	Anx. Uncertain	Dysreg Anger	Despo	Self Disturb	Behav Dysreg	Affect. Dysreg.	Fragility	Dissoc. Tend.	Distrust	Manip	Oppo	Rash
Anxiety	0.76	0.52	0.6	0.58	0.43	0.55	0.55	0.42	0.5	0.3	0.39	0.35
Anger	0.51	0.77	0.47	0.44	0.5	0.62	0.43	0.3	0.44	0.44	0.61	0.45
Depression	0.73	0.63	0.78	0.74	0.58	0.68	0.72	0.56	0.62	0.49	0.48	0.46
Self-Consicousness	0.34	0.24	0.31	0.47	0.29	0.29	0.29	0.26	0.29	0.16	0.10	0.22
Immoderation	0.38	0.41	0.38	0.42	0.48	0.4	0.43	0.46	0.32	0.39	0.45	0.41
Vulnerability	0.62	0.6	0.56	0.57	0.59	0.66	0.62	0.53	0.42	0.47	0.5	0.54
Imagination	0.25	0.19	0.27	0.27	0.28	0.26	0.24	0.50	0.16	0.22	0.2	0.28
Trust	-0.41	-0.37	-0.35	-0.34	-0.29	-0.37	-0.36	-0.24	-0.62	-0.21	-0.4	-0.17
Cooperation	-0.39	-0.7	-0.45	-0.49	-0.59	-0.59	-0.45	-0.35	-0.42	-0.64	-0.74	-0.56
Morality	-0.34	-0.49	-0.37	-0.45	-0.63	-0.51	-0.44	-0.4	-0.35	-0.73	-0.55	-0.38
Cautiousness	-0.38	-0.53	-0.43	-0.51	-0.67	-0.56	-0.50	-0.50	-0.40	-0.59	-0.55	-0.73
Warmth	-0.31	-0.26	-0.27	-0.37	-0.19	-0.24	-0.25	-0.19	-0.36	-0.11	-0.23	-0.16
Gregarious	-0.16	-0.01	-0.08	-0.15	0.04	0	-0.07	-0.08	-0.13	0.1	0.08	0.03
Assertiveness	-0.17	-0.13	-0.17	-0.32	-0.2	-0.23	-0.18	-0.21	-0.14	-0.1	-0.04	-0.22

Activity	-0.28	**-0.29**	**-0.29**	**-0.38**	**-0.36**	**-0.34**	**-0.3**	**-0.34**	-0.18	**-0.3**	-0.22	**-0.34**
Excitement Seeking	-0.01	0.08	0.04	0	0.2	0.1	0.04	0.12	0.02	0.19	0.13	0.2
Cheerfulness	**-0.34**	**-0.37**	**-0.39**	**-0.45**	**-0.35**	**-0.37**	**-0.38**	-0.25	**-0.4**	-0.27	-0.27	-0.26
Artistic Interests	0.02	-0.09	0.01	-0.11	-0.06	-0.02	0.03	0.03	-0.06	-0.09	-0.1	-0.15
Emotionality	**0.45**	**0.31**	**0.37**	**0.3**	**0.31**	**0.39**	**0.39**	**0.29**	**0.32**	0.17	0.23	0.23
Adventurousness	-0.28	-0.18	-0.12	-0.21	-0.07	-0.11	-0.1	-0.07	-0.2	-0.03	-0.08	-0.05
Intellect	0.02	-0.08	0.03	-0.09	-0.16	-0.11	-0.03	0.05	-0.01	-0.11	-0.06	-0.17
Liberalism	0.22	0.15	0.25	0.23	0.21	0.23	0.21	0.28	0.16	0.18	0.18	0.14
Altruism	-0.27	**-0.47**	**-0.29**	**-0.39**	**-0.4**	**-0.43**	-0.28	-0.26	**-0.3**	**-0.46**	**-0.51**	**-0.38**
Modesty	0.03	-0.23	0.05	0	-0.19	-0.14	-0.07	-0.03	-0.08	**-0.34**	-0.32	-0.2
Sympathy	-0.01	-0.19	-0.08	-0.18	-0.15	-0.13	-0.08	-0.14	-0.13	-0.22	-0.25	-0.17
Self Efficacy	**-0.41**	**-0.49**	**-0.44**	**-0.55**	**-0.6**	**-0.57**	**-0.52**	**-0.5**	**-0.36**	**-0.51**	**-0.46**	**-0.6**
Orderliness	-0.22	**-0.30**	-0.26	-0.28	**-0.38**	**-0.34**	**-0.3**	**-0.32**	-0.22	**-0.31**	**-0.33**	**-0.39**
Dutifulness	**-0.39**	**-0.54**	**-0.47**	**-0.56**	**-0.7**	**-0.6**	**-0.51**	**-0.48**	**-0.39**	**-0.76**	**-0.56**	**-0.68**
Achievement Striving	**-0.29**	**-0.41**	**-0.36**	**-0.47**	**-0.52**	**-0.47**	**-0.4**	**-0.41**	-0.27	**-0.45**	**-0.44**	**-0.54**
Self Discipline	**-0.44**	**-0.47**	**-0.45**	**-0.53**	**-0.53**	**-0.53**	**-0.43**	**-0.46**	**-0.35**	**-0.44**	**-0.44**	**-0.54**

Bolded < 0.001; Underlined <0.01

Table 4. Correlations between FFBI-OR subscales and informant-reported IPIP domain scores.

FFBI-OR / IPIP	Anx. Uncertain	Dysreg Anger	Despond	Self Disturb	Behav Dysreg	Affect. Dysreg.	Fragil	Dissoc. Tend.	Distrust	Manip	Oppo	Rash
N	**0.75**	**0.70**	**0.70**	**0.71**	**0.63**	**0.71**	**0.68**	**0.55**	**0.58**	**0.50**	**0.57**	**0.53**
A	-0.36	-0.63	-0.39	-0.47	-0.57	-0.56	-0.44	-0.37	-0.49	-0.66	-0.72	-0.53
O	<u>0.20</u>	0.08	<u>0.21</u>	0.09	0.14	0.18	0.17	**0.29**	0.09	0.10	0.11	0.09
C	-0.40	-0.51	-0.47	-0.57	-0.64	-0.58	-0.53	-0.51	-0.38	-0.56	-0.53	-0.64
E	-0.29	<u>-0.21</u>	<u>-0.24</u>	-0.37	<u>-0.18</u>	-0.24	<u>-0.24</u>	<u>-0.21</u>	-0.26	-0.10	-0.11	-0.17

Bolded < 0.001; <u>Underlined</u> <0.01

N = Neuroticism; A = Agreeableness; O = Openness, C=Consicentiousness, E= Extraversion

Anx. Uncertain. = Anxious Uncertainty; Dysreg. Anger = Dysregulated Anger; Despond. = Despondence; Self Disturb. = Self-Disturbance; Behav. Dysreg. = Behavioral Dysregulation; Affective Dysreg. = Affective Dysregulation; Dissoc. Tend. = Dissociative Tendencies; Distrust. = Distrustfulness; Manip. = Manipulativeness; Opp. = Oppositional; Rash. = Rashness.

Table 5. Correlations between FFBI-OR total score and MAPP PD scores

MAPP Scales	FFBI-OR
Borderline	0.27***
Paranoid	0.13
Schizoid	-0.05
Schizotypal	0.16
Histrionic	0.20
Narcissistic	0.11
Antisocial	0.15
Avoidant	0.15
Dependent	0.13
Obsessive-Compulsive	-0.10

Table 6. Correlations between FFBI-OR total score and informant MAPP PD scores

Informant MAPP Scales	FFBI-OR
Borderline	0.62***
Paranoid	0.33***
Schizoid	0.04
Schizotypal	0.35***
Histrionic	0.55***
Narcissistic	0.53***
Antisocial	0.41***
Avoidant	0.42***
Dependent	0.32**
Obsessive-Compulsive	-0.04

*** $p < 0.0001$; ** $p < 0.01$

Table 7. Correlations between FFBI-OR total score and self-reported PID-5 PD composite scores

Self PID-5 Composite	FFBI-OR
Borderline	0.42***
Antisocial	0.30***
Avoidant	0.33***
Narcissistic	0.32***
Obsessive-Compulsive	0.20**
Schizotypal	0.36***

*** $p < 0.0001$; ** $p < 0.01$; * $p < 0.05$

Table 8. Correlations between FFBI-OR total score and informant PID-5 PD composite scores

Informant PID-5 Composite	FFBI-OR
Borderline	0.86***
Antisocial	0.79***
Avoidant	0.61***
Narcissistic	0.75***
Obsessive-Compulsive	0.48***
Schizotypal	0.72***

*** $p < 0.0001$; ** $p < 0.01$

Table 9. Hierarchical linear regressions predicting Levels of Personality Functioning with FFBI and FFBI-OR

	β	R^2	ΔR^2	p-value
FFBI-OR	0.25	0.08		
FFBI-OR + FFBI	0.04; 0.50	0.42	0.34	<0.001
FFBI	0.51	0.42		
FFBI + FFBI-OR	0.49; 0.04	0.42	0.00	0.46

Table 10. Hierarchical linear regressions predicting WHO Disability Assessment Schedule 2.0 with FFBI and FFBI-OR

	β	R^2	ΔR^2	p-value
FFBI-OR	0.01	0.06		
FFBI-OR + FFBI	0.002; 0.02	0.32	0.26	<0.001
FFBI	0.02	0.33		
FFBI + FFBI-OR	0.02; 0.002	0.32	-0.01	0.56

Appendix A. Internal consistency and correlations of the FFBI-OR

	Subscale Internal Consistency	α If Item Deleted	Corrected Item-Total Correlation	Squared Multiple Correlation
Anxious Uncertain	0.91			
FFBIOR1		0.90	0.67	0.48
FFBIOR13		0.89	0.82	0.70
FFBIOR25		0.89	0.75	0.60
FFBIOR37		0.90	0.67	0.67
FFBIOR49		0.89	0.75	0.56
FFBIOR61		0.90	0.71	0.70
FFBIOR73		0.90	0.64	0.43
FFBIOR85		0.89	0.72	0.49
FFBIOR97		0.89	0.74	0.58
FFBIOR109		0.90	0.55	0.38
Dysregulated Anger	0.91			
FFBIOR2		0.90	0.86	0.73
FFBIOR14		0.90	0.78	0.64
FFBIOR26		0.90	0.81	0.64
FFBIOR38		0.90	0.72	0.56
FFBIOR50		0.91	0.67	0.48
FFBIOR62		0.90	0.82	0.65
FFBIOR74		0.90	0.74	0.56
FFBIOR86		0.91	0.61	0.37
FFBIOR98		0.90	0.77	0.61
FFBIOR110		0.92	0.41	0.21
Despondence	0.88			
FFBIOR3		0.88	0.53	0.29
FFBIOR15		0.88	0.56	0.33
FFBIOR27		0.86	0.82	0.65
FFBIOR39		0.87	0.69	0.63
FFBIOR51		0.87	0.57	0.32
FFBIOR63		0.86	0.82	0.63
FFBIOR75		0.87	0.66	0.45
FFBIOR87		0.87	0.68	0.59
FFBIOR99		0.88	0.57	0.36
FFBIOR111		0.87	0.66	0.42
Self Disturbance	0.91			
FFBIOR4		0.90	0.68	0.47
FFBIOR16		0.90	0.72	0.52
FFBIOR28		0.90	0.79	0.60
FFBIOR40		0.91	0.64	0.56
FFBIOR52		0.90	0.49	0.60
FFBIOR64		0.90	0.75	0.58
FFBIOR76		0.90	0.77	0.60

FFBIOR88		0.90	0.67	0.43
FFBIOR100		0.90	0.68	0.44
FFBIOR112		0.90	0.73	0.53
Behavior Dysregulation	0.91			
FFBIOR4		0.90	0.68	0.46
FFBIOR16		0.90	0.72	0.52
FFBIOR28		0.90	0.79	0.60
FFBIOR40		0.91	0.64	0.56
FFBIOR52		0.90	0.69	0.60
FFBIOR64		0.90	0.75	0.58
FFBIOR76		0.90	0.77	0.60
FFBIOR88		0.90	0.67	0.43
FFBIOR100		0.90	0.68	0.44
FFBIOR112		0.90	0.73	0.53
Affect Dysregulation	0.92			
FFBIOR6		0.92	0.71	0.53
FFBIOR18		0.91	0.82	0.66
FFBIOR30		0.91	0.80	0.66
FFBIOR42		0.91	0.82	0.65
FFBIOR54		0.91	0.82	0.67
FFBIOR66		0.92	0.68	0.45
FFBIOR78		0.91	0.76	0.59
FFBIOR90		0.93	0.52	0.27
FFBIOR102		0.92	0.69	0.48
FFBIOR114		0.91	0.77	0.58
Fragility	0.88			
FFBIOR7		0.88	0.59	0.42
FFBIOR19		0.87	0.71	0.51
FFBIOR31		0.87	0.66	0.46
FFBIOR43		0.88	0.55	0.31
FFBIOR55		0.87	0.68	0.43
FFBIOR67		0.87	0.74	0.62
FFBIOR79		0.87	0.60	0.38
FFBIOR91		0.87	0.63	0.43
FFBIOR103		0.87	0.68	0.46
FFBIOR115		0.87	0.72	0.53
Dissociative	0.87			
FFBIOR8		0.86	0.66	0.41
FFBIOR20		0.85	0.78	0.61
FFBIOR32		0.85	0.83	0.70
FFBIOR44		0.85	0.80	0.74
FFBIOR56		0.85	0.79	0.73

FFBIOR68		0.88	0.32	0.26
FFBIOR80		0.87	0.44	0.34
FFBIOR92		0.88	0.39	0.17
FFBIOR104		0.86	0.69	0.47
FFBIOR116		0.85	0.73	0.51
Distrustful	0.87			
FFBIOR9		0.86	0.64	0.47
FFBIOR21		0.86	0.66	0.42
FFBIOR33		0.85	0.75	0.56
FFBIOR45		0.87	0.46	0.24
FFBIOR57		0.86	0.68	0.53
FFBIOR69		0.86	0.62	0.37
FFBIOR81		0.87	0.56	0.34
FFBIOR93		0.85	0.74	0.52
FFBIOR105		0.85	0.75	0.59
FFBIOR117		0.87	0.54	0.28
Manipulative	0.92			
FFBIOR10		0.90	0.83	0.69
FFBIOR22		0.90	0.85	0.69
FFBIOR34		0.92	0.46	0.22
FFBIOR46		0.90	0.81	0.62
FFBIOR58		0.90	0.80	0.62
FFBIOR70		0.92	0.59	0.35
FFBIOR82		0.91	0.67	0.46
FFBIOR94		0.92	0.60	0.39
FFBIOR106		0.90	0.80	0.61
FFBIOR118		0.90	0.85	0.72
Oppositional	0.83			
FFBIOR11		0.80	0.77	0.58
FFBIOR23		0.82	0.53	0.34
FFBIOR35		0.81	0.66	0.42
FFBIOR47		0.81	0.75	0.56
FFBIOR59		0.82	0.59	0.35
FFBIOR71		0.82	0.56	0.36
FFBIOR83		0.82	0.59	0.38
FFBIOR95		0.83	0.46	0.27
FFBIOR107		0.82	0.56	0.31
FFBIOR119		0.84	0.36	0.15
Rashness	0.90			
FFBIOR12		0.88	0.84	0.66
FFBIOR24		0.90	0.50	0.28
FFBIOR36		0.88	0.80	0.62
FFBIOR48		0.89	0.66	0.46
FFBIOR60		0.90	0.56	0.32
FFBIOR72		0.89	0.60	0.36

FFBIOR84	0.89	0.72	0.49
FFBIOR96	0.88	0.80	0.63
FFBIOR108	0.89	0.71	0.51
FFBIOR120	0.89	0.64	0.39

Appendix B

Literature Review

The *Diagnostic and Statistical Manual of Mental Disorders- Fifth Edition* (DSM-5; APA, 2013) defines personality disorders (PDs) as "an enduring pattern of inner experience and behavior that deviates markedly from the expectations of the individual's culture, is pervasive and inflexible, has an onset in adolescence or early adulthood, is stable over time, and leads to distress or impairment" (p. 645). In the DSM-5, there are ten personality disorders: paranoid, schizoid, schizotypal, borderline, antisocial, histrionic, narcissistic, avoidant, dependent, and obsessive-compulsive. The current DSM-5 diagnostic approach of PDs is categorical. However, there are many limitations to this categorical conceptualization of the PDs, including excessive diagnostic co-occurrence, arbitrary and inconsistent diagnostic boundaries, inadequate scientific base for criteria, inadequate coverage, and heterogeneity among disorders (Clark, 2007; First et al., 2002; Livesley, 2003; Trull & Durrett, 2005; Widiger & Trull, 2007).

Among the ten PDs, borderline personality disorder (BPD) is one of the most studied PDs and is associated with significant outcomes such as suicide. BPD is characterized by a pervasive pattern of instability in affect regulation, self-image, interpersonal relationships and impulse control (Lieb et al., 2004). The prevalence rate for BPD is estimated to be between 1% - 2% of the general population (Torgersen et al., 2001). In clinical populations, BPD is the most common PD with a prevalence rate of 10% of all psychiatric outpatients and 15%-20% of all psychiatric inpatients (Torgersen et al., 2005; Gunderson, 2009). Furthermore, BPD has a mortality rate, from suicide and related injuries, that is fifty times that of the general population (Skodol et al.,

2002). The DSM-5 diagnostic criteria for BPD consists of nine symptoms, which includes fear of abandonment, a pattern of unstable and intense interpersonal relationships characterized by alternating between extremes of idealization and devaluation, markedly and persistently unstable self-image or sense of self, and impulsivity in at least two areas that are potentially self-damaging (APA, 2013).

There are a few problems associated with this method of diagnosis. For example, the cut-off value of the diagnosis is five out of the nine criteria; at least five of these nine criteria must be met in order to provide a diagnosis of BPD. This cut-off score of five for the diagnosis was created in the DSM-III based on previous research. However, there have been a number of changes to the diagnostic criteria (e.g. change from eight total symptoms in DSM-III to nine symptoms in DSM-IV/5). Furthermore, there are 256 different combinations of BPD symptoms that lead to the same diagnosis, highlighting the problem of heterogeneity of the disorder. There also may be little difference between someone who meets four of symptoms of BPD and experiences significant impairment but is not diagnosed with the disorder and someone who meets five of the symptoms and is provided with a diagnosis.

Due to the shortcomings of the current diagnostic approach of the PDs, researchers have investigated alternate ways to conceptualize PDs. There is strong evidence to indicate that PDs can be best characterized using a dimensional model. PDs have been described as maladaptive and extreme variants of normal personality dimensions.

Arntz and colleagues (2009) conducted a series of taxometric analyses on a large sample of individuals with and without PDs to study the underlying structure of six common PDs,

including BPD. They conducted seventy-eight analyses using Mean Above Minus Below A Cut (MAMBAC; Meehl & Yonce, 1994), MAXimum EIGenvalue (MAXEIG; Waller & Meehl, 1998), and Latent Mode (L-MODE; Waller & Meehl, 1998). Seventy-six analyses produced evidence for dimensional structure. Two analyses provided ambiguous results, not supporting either dimensional or categorical structures. For BPD, all but one of the twelve analyses using MAMBAC and MAXEIG supported the dimensionality of BPD (CCFI<.40). Only one of these analyses indicated equal support for dimensionality and taxonicity of the PD. The graphs of simulated curve of MAMBAC, MAXEIG, and L-Mode for BPD indicated better fit for dimensionality rather than taxonic distributions of the disorders as well. These findings support previous taxometric research of BPD that similarly found evidence for dimensionality (Rothschild et al., 2003; Trull, Widiger & Guthrie, 1990).

Livesley, Jang, and Vernon (1998) conducted principal components analysis of PDs symptoms in 3 different samples of community, personality disorder patients, and twin pairs. All three samples yielded the same four components (emotional dysregulation, dissocial behavior, inhibitedness, and compulsivity), which were consistent with the dimensional structure of PDs and normal personality. Multivariate genetic analyses also replicated the results and produced the same factors. These results suggest that a dimensional classification of PD should be compatible with the dimensional structure of normal personality since there was no difference in the PD factor structure in normal and PD samples.

Among the different dimensional perspectives of PDs, the five-factor model (FFM) is the most prominent. The FFM, which consists of neuroticism, extraversion, openness to experience,

agreeableness, and conscientiousness, is a widely accepted model of general personality structure (Costa & McCrae, 1992a; Costa & Widiger, 1994a; Digman, 1990, 1994, 1996; McCrae, 1991). Neuroticism vs. emotional stability is a factor that describes emotional instability. Extraversion vs. introversion represents a tendency to experience positive emotions in interpersonal relationships and includes facets such as warmth, gregariousness, and assertiveness. Openness to experience vs. closedness to experience is a factor that describes intellectually curious or flexible attitudes and values. Agreeableness vs. antagonism includes a dimension of trusting and cooperative traits to antagonistic and callous traits. Lastly, conscientiousness vs. disinhibition is a factor that includes diligent and well-organized personality traits to disorganized and compulsive personality. Each of these factors consists of six facets. For example, neuroticism consists of anxiousness, angry hostility, depressiveness, self-consciousness, impulsiveness, and vulnerability.

Clark (2007) stated that the FFM is comparably robust in its coverage of abnormal and normal personality functioning. Previous research has indicated that the FFM successfully accounts for the symptoms and traits of the PDs (O'Connor, 2005; Samuel & Widiger, 2008; Saulsman & Page, 2004). O'Connor (2005) conducted an interbattery factor analysis on the FFM and PDs. The results revealed that a four-factor structure, excluding openness to experience, was the best fit for both the FFM and PDs. This suggested that the normal personality structure may be well suited to describe PDs. Saulsman and Page (2004) conducted a meta-analytic review examining the FFM and PDs and found that high neuroticism and low agreeableness are the most prominently and consistently correlated domains to various PDs.

Lynam and Widiger (2001) surveyed PD researchers and asked them to rate a prototypic case of the 10 DSM-IV-TR PDs in terms of the thirty facets of the FFM. The results of the study indicated that the agreement between the PD researchers was good, with correlation coefficients ranging from .63 (Schizotypal and Histrionic PDs) to .75 (Schizoid PD). These results suggest that the PDs can be easily described using the facets of the FFM by PD researchers with high levels of agreement. Samuel and Widiger (2004) surveyed clinicians and asked them to describe a prototypic case of the 10 DSM-IV-TR PDs in terms of the FFM as well. Additionally, the practicing clinicians' ratings of the FFM profiles were compared to those of the PDs researchers from Lynam and Widiger (2001). Samuel and Widiger (2004) found high convergent validity between the two distinct samples with correlation coefficients ranging from .90 to .97. These results indicated that both clinicians and researchers can describe PDs using the facets of the FFM with high levels of agreement.

The specific relationship between each PD and the corresponding personality traits have been hypothesized based on the diagnostic criteria for each disorder (Widiger et al., 1994). Specifically, there is substantial evidence to suggest that BPD can be understood from the perspective of the FFM. Within the Saulsman and Page (2004) meta analysis, BPD was characterized by high neuroticism, low agreeableness, and low conscientiousness. Similarly, the Samuel and Widiger (2008) confirmed the findings of Saulsman and Page (2004); BPD was positively correlated with neuroticism, and negatively correlated with agreeableness and conscientiousness. In addition to the domain-level analyses, Samuel and Widiger (2008) analyzed the relationship between PDs and thirty facets of the FFM. They found that BPD was

positively correlated with all six facets of neuroticism (anxiousness, angry hostility, depressiveness, self-consciousness, impulsiveness, and vulnerability), negatively correlated with the warmth and positive emotions facets from the extraversion domain, negatively correlated with trust, straightforwardness, and compliance facets from agreeableness, and negatively correlated with the competence, dutifulness, self-discipline, and deliberation facets from conscientiousness.

As it is useful to conceptualize BPD as maladaptive traits of the FFM, Mullins-Sweatt and colleagues (2012) developed a self-report measure, the Five Factor Borderline Inventory (FFBI), assessing BPD traits using eleven facets from the FFM that are highly related to BPD. The FFBI consists of twelve subscales (FFM vulnerability is assessed by both affective dysregulation and fragility in FFBI) and a total score. The twelve facets of the FFBI are anxious uncertainty, dysregulated anger, despondence, self-disturbance, behavioral dysregulation, affective dysregulation, fragility, dissociative tendencies, distrust, manipulativeness, oppositionality and rashness (Mullins-Sweatt et al., 2012). The FFBI consists of 120 items, with ten items per subscale. Mullins-Sweatt et al. (2012) validated the measure with a large undergraduate student sample and with a clinical sample in a residential treatment facility. The FFBI subscales had strong convergent validity with its matching NEO Personality Inventory-Revised (NEO-PI-R; Costa & McCrae, 1992) facets. The FFBI subscales were also compared with the other NEO-PI-R facets to illustrate discriminant validity; most of these correlations were insignificant and small. Furthermore, the FFBI subscales showed significant incremental validity beyond the corresponding NEO-PI-R facets in predicting the scores of other BPD

measures. The total score of the FFBI was able to account for significant variance in the PAI BPD scale. Also, the FFBI total score accounted for additional variance, ranging from 6% (Millon Clinical Multiaxial Inventory-III; Millon & Meagher, 2009) to 9% (OMNI Personality Inventory –IV; Loranger, 2001), in PAI BPD over the other BPD measures.

DeShong, Lengel, Sauer-Zavala, O'Meara, and Mullins-Sweatt (2015) conducted further validation of the measure using two different student samples with a history of nonsuicidal self injury. The results replicated the initial validation study. In both samples, each FFBI subscale showed strong convergent validity with the corresponding NEO-PI-R or International Personality Item Pool (IPIP NEO; Goldberg, 1990) facets. Most of the FFBI subscales had significantly higher convergent validity than the within and outside-domain discriminant validity. This study also replicated strong convergent validity between the FFBI subscales and total scores of other existing BPD measures. Additionally, the FFBI was compared with other measures of impulsivity and associated problems of BPD, such as self-esteem scores. The results provided support for the construct validity of the measure.

Although self-report is most often used in the diagnoses of BPD, the method is not without limitations. Self-report provides only one source of information. Additionally, many PDs, as with other psychological disorders, involve distortions of self-perception (Oltmanns & Turkheimer, 2009). Therefore, self-report may include some biased and distorted information of individuals. People may not be the best reporters of their own past behaviors (Oltmanns & Carlson, 2013) and may try to present themselves positively (Achenbach et al., 2005). Due to the nature of self-report, many researchers have described the importance of informant-reports in

studies of PDs (Clark et al., 1997; Grove & Tellegen, 1991; Oltmanns & Carlson, 2013; Carlson, Vazire & Oltmanns, 2013; Westen & Shedler, 1999).

Informant-reports provide complementary information that can aid in a valid and reliable assessment of PDs. If the information is independent of the self-reports, informant-reports increase the reliability of assessment by reducing measurement errors of self-reports (Klonsky, Oltmanns, & Turkeheimer, 2002). Additionally, the informant-reports can improve the validity by providing information without the biases of the self.

There is only moderate agreement between self and informant ratings of personality and PDs. Watson and Clark (1991) found significant self-other agreement on eight different affect scales, which ranged from .19 to .41. Lawton, Shields and Oltmanns (2011) reported the self and informant agreement of the FFM in a community sample, which ranged from .35 (agreeableness) to .51 (extraversion and openness to experience). The facet-level agreement between self and informant ranged from .23 (altruism in agreeableness) to .50 (assertiveness from extraversion and order from conscientiousness). Klonsky, Oltmanns and Turkehiemer (2002) conducted a review of previous literature on self and informant ratings of PDs. The authors calculated the median correlations for studies using dimensional assessment of PDs and kappa scores for studies using PDs as categories. The median correlation between self-other ratings of continuous measures of PDs was .36; whereas the median correlation kappa of the self-informant studies that used categorical diagnoses of PD was .14. In the review, the median self-other correlations for cluster B PDs, which includes borderline, antisocial, narcissistic, and dependent PDs, was

.45. The median kappa for the cluster BPDs was .20. Specifically, the BPD median correlation was .48 and median kappa was .28.

Many studies have demonstrated that informant-reports have incremental validity above the self-reports of personality. Oh, Wang and Mount (2011) reported that observer ratings of the FFM predicted overall job performance and was incrementally valid over the self-reports. However, self-reports did not contribute significant additional variance over the informant-reports. Galione and Oltmanns (2013) showed incremental validity using both interview and informant assessment in predicting major depressive episodes within a community sample. In a psychiatric sample, Miller, Pilkonis, and Morse (2004) found that the informant-reported prototype scores of PDs contributed a significant increase in variance for borderline, paranoid, antisocial histrionic and avoidant PDs. Thus, taken together, informant-reports provide a unique opportunity to aid in the prediction of behavioral outcomes.

Research further suggests that the informant-reports actually may be a *better* assessment tool than the self-reports in certain situations. Balsis, Cooper, and Oltmanns (2014) examined the internal consistency of informant-reported personality compared with the self-reported personality in a community sample and found that the FFM and ten PDs were more internally consistent with informant-reports compared with the self-reports. They also reported that the informant-reports predicted global measures of health better than self-reports.

The Current Study

As illustrated above, informant-reports may provide useful information by themselves and provide additional information to self-reports measures. The current study seeks to aid the

research of BPD by developing an informant measure for BPD using the traits of the FFM that complements an existing measure. The items of the 120-item FFBI (Mullins-Sweatt et al., 2012) will be converted from first-person to third-person for the FFBI-OR. This new measure will be validated using a student sample and an online community Amazon MTurk sample. The current study seeks to validate the informant adaptation of the FFBI (Five Factor Borderline Inventory-Other Reports; FFBI-OR) using student and online adult samples. The validated measure may be used to further the research in BPD, such as self-biases in symptom reports. Furthermore, the new informant measure of BPD may be used to increase the validity and reliability of BPD assessment. The new measure may be used to provide additional information to diagnose or predict behavioral outcomes.

Hypotheses:

1) The study will examine the convergent validity of the FFBI-OR.

    a) As the informant-report and self-report BPD median correlation was .48 in a meta-analysis (Klonsky et al., 2002), the current study hypothesizes a medium effect between the total scores of FFBI-OR and FFBI.

    b) The anxious uncertainty subscale from FFBI-OR is hypothesized to significantly correlate with its corresponding subscale in the FFBI.

    c) The dysregulated anger subscale from the FFBI-OR is hypothesized to significantly correlate with its corresponding subscale in the FFBI.

    d) The despondence subscale from the FFBI-OR is hypothesized to significantly correlate with its corresponding subscale in the FFBI.

e) The self-disturbance subscale from the FFBI-OR is hypothesized to significantly correlate with its corresponding subscale in the FFBI.

f) The behavioral dysregulation subscale from the FFBI-OR is hypothesized to significantly correlate with its corresponding subscale in the FFBI.

g) The affective dysregulation subscale from the FFBI-OR is hypothesized to significantly correlate with its corresponding subscale in the FFBI.

h) The fragility subscale from the FFBI-OR is hypothesized to significantly correlate with its corresponding subscale in the FFBI.

i) The dissociative tendencies subscale from the FFBI-OR is hypothesized to significantly correlate with its corresponding subscale in the FFBI.

j) The distrustfulness subscale from the FFBI-OR is hypothesized to significantly correlate with its corresponding subscale in the FFBI.

k) The manipulativeness subscale from the FFBI-OR is hypothesized to significantly correlate with its corresponding subscale in the FFBI.

l) The oppositionality subscale from the FFBI-OR is hypothesized to significantly correlate with its corresponding subscale in the FFBI.

m) The rashness subscale from the FFBI-OR is hypothesized to significantly correlate with its corresponding subscale in the FFBI.

2) The current study also hypothesizes that each FFBI subscale will significantly correlate with its corresponding FFM facets. Furthermore, the FFBI subscale will be correlated with its corresponding facet significantly higher than with other non-

corresponding facets. For example, the FFBI-OR subscale dysregulated anger will significantly correlate to FFM angry hostility and less with other facets of the FFM.

3) The FFBI-OR will significantly correlate with another measure of BPD. As the FFBI-OR is a measure of BPD, the total score of the FFBI-OR is hypothesized to correlate the highest with the BPD subscale.

   a. The FFBI-OR total score will significantly correlate with the BPD score from informant-report of Multisource Assessment of Personality Pathology (MAPP; Oltmanns & Turkheimer, 2006)

   b. The FFBI-OR total score will significantly correlate with BPD score from the informant measure of Personality Inventory for DSM-5 Short form (PID-5-SF; Maples et al., 2015).

4) Finally, the study will examine the incremental validity of the FFBI-OR in predicting functional impairment above the self-reported FFBI. The study hypothesizes that the FFBI-OR total score will significantly account for the variance of functional impairment above and beyond the variance accounted by the FFBI.

Appendix C

Oklahoma State University Institutional Review Board

Date: Thursday, January 11, 2018

IRB Application No   AS17108

Proposal Title: The Development of the Five-Factor Borderline Inventory-Other Report

Reviewed and   Expedited
Processed as:

Status Recommended by Reviewer(s): Approved   Protocol Expires: 1/10/2019

Principal
Investigator(s):

Jiwon Min   Stephanie Mullins-Sweatt
                                                         116 North Murray
Stillwater, OK 74078   Stillwater, OK 74078

The IRB application referenced above has been approved. It is the judgment of the reviewers that the rights and welfare of individuals who may be asked to participate in this study will be respected, and that the research will be conducted in a manner consistent with the IRB requirements as outlined in section 45 CFR 46.

☐ The final versions of any printed recruitment, consent and assent documents bearing the IRB approval stamp are attached to this letter. These are the versions that must be used during the study.

As Principal Investigator, it is your responsibility to do the following:

  1.Conduct this study exactly as it has been approved. Any modifications to the research protocol must be submitted with the appropriate signatures for IRB approval. Protocol modifications requiring approval may include changes to the title, PI advisor, funding status or sponsor, subject population composition or size, recruitment, inclusion/exclusion criteria, research site, research procedures and consent/assent process or forms.
2.Submit a request for continuation if the study extends beyond the approval period. This continuation must receive IRB review and approval before the research can continue.
3.Report any adverse events to the IRB Chair promptly. Adverse events are those which are unanticipated and impact the subjects during the course of the research; and
4.Notify the IRB office in writing when your research project is complete.

Please note that approved protocols are subject to monitoring by the IRB and that the IRB office has the authority to inspect research records associated with this protocol at any time. If you have questions about the IRB procedures or need any assistance from the Board, please contact Dawnett Watkins 219 Scott Hall (phone: 405-744-5700, dawnett.watkins@okstate.edu).

Sincerely,

Hugh Crethar, Chair
Institutional Review Board

VITA

Jiwon Min

Candidate for the Degree of

Master of Science

Thesis: THE DEVELOPMEN TOF THE FIVE-FACTOR BORDERLINE INVENTORY-
OTHER REPORT

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Completed the requirements for the Master of Science in Clinical Psychology at
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