

The Investigation of Construct Validity of Diagnostic and Statistical Manual of Mental Disorder-5 Personality Traits on Iranian sample with Antisocial and Borderline Personality Disorders

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ABSTRACT

Background: The goal of this study was to examine the construct validity of the diagnostic and statistical manual of mental disorder-5 (DSM-5) conceptual model of antisocial and borderline personality disorders (PDs). More specifically, the aim was to determine whether the DSM-5 five-factor structure of pathological personality trait domains replicated in an independently collected sample that differs culturally from the derivation sample.

Methods: This study was on a sample of 346 individuals with antisocial ($n = 122$) and borderline PD ($n = 130$), and nonclinical subjects ($n = 94$). Participants randomly selected from prisoners, out-patient, and in-patient clients. Participants were recruited from Tehran prisoners, and clinical psychology and psychiatry clinics of Razi and Taleghani Hospital, Tehran, Iran. The SCID-II-PQ, SCID-II, DSM-5 Personality Trait Rating Form (Clinician's PTRF) were used to diagnosis of PD and to assessment of pathological traits. The data were analyzed by exploratory factor analysis.

Results: Factor analysis revealed a 5-factor solution for DSM-5 personality traits. Results showed that DSM-5 has adequate construct validity in Iranian sample with antisocial and borderline PDs. Factors similar in number with the other studies, but different in the content.

Conclusions: Exploratory factor analysis revealed five homogeneous components of antisocial and borderline PDs. That may represent personality, behavioral, and affective features central to the disorder. Furthermore, the present study helps understand the adequacy of DSM-5 dimensional approach to evaluation of personality pathology, specifically on Iranian sample.

Keywords: Antisocial and borderline personality disorders, construct validity, diagnostic and statistical manual of mental disorder-5, personality traits

INTRODUCTION

The fundamental problem with the personality disorder (PD) diagnostic system in diagnostic and statistical manual of mental

disorder (DSM-III), III-R, and -IV, such as all-or-nothing diagnostic categories, considerable heterogeneity within categories, extensive overlap or comorbidity among categories, indistinct boundaries with normal personality, and incomplete coverage of personality psychopathology, led to DSM approach revision to be considered.^[1,2] Since 2000, after the latest revision of DSM-IV, PD researchers largely agree that personality pathology should be represented dimensionally rather than categorically.^[3] Hence, Many alternative dimensional models of personality have been considered, including interpersonal circumflex models, three-factor models,^[4] four-factor models,^[5] the “big five” five-factor model,^[6] and a seven-factor model.^[7] Empirically-based models of personality trait variation provide a starting point for DSM-5, and ongoing research was used to delineate the conceptual and empirical structure of personality traits in the pathological range.^[6] Finally, a multidimensional trait system has been proposed for representing PD features in DSM-5. In this model, which may also assist in providing scaffolding for the underlying structure of major forms of psychopathology more generally, 25 primary traits are organized by 5 higher order dimensions (negative affect, detachment, antagonism, disinhibition, and psychoticism).^[8] Dimensional models view personality traits as continuously distributed in populations and personality psychopathology as extreme variants of these personality traits and domains.^[9,10] The PD traits and dimensions proposed for use in the DSM-5 have a good theoretical and empirical background.^[8-15] However, practically study in a clinical setting, and cross-culturally study in this field continuously would be needed.^[16,17] Though, in the current research, our objective was to explore the construct validity of the DSM-5 conceptual model of Antisocial and Borderline PDs. More specifically, the aim was to determine whether the DSM-5 five-factor structure of pathological personality trait domains replicated in an independently collected sample that differs culturally from the derivation sample.

METHODS

Subjects

This study was on a sample of 346 individuals with antisocial ($n = 122$) and borderline PD ($n = 130$),

and nonclinical subjects ($n = 94$). Participants randomly selected from prisoners, out-patient and in-patient clients. Subjects were male (90.5%) and female (9.5%). Subjects aged 18-60, with guidance school degree of study and higher. Disorders of Axis I, 179 patients (51.7%) without impairment, 98 patients (28.3%) had a history of substance-related disorders, 35 patients (10.1%) had mood disorder, 15 patients (4.3%) had anxiety disorder, 8 patients (2.3%) had had history of psychotic spectrum disorder and 10 patients (2.9%) had other disorders.

Measures

Data gathering measurements included psychological reports, SCID-II-PQ, SCID-II, DSM-5 Personality Trait Rating Form (PTRF) and levels of personality functioning checklist.

SCID

Structured Clinical Interview for DSM-IV-TR (SCID) and its versions are considered to be the most comprehensive of the structured diagnostic interviews, which are available. In fact, they are a new and wide range utility instruments, in 1987 by Spitzer, Gibbon, Williams and built in compliance with the criteria of the DSM-IV.^[18] The instrument is established as the gold standard for the reliable assessment of psychiatric disorders. Inter-rater reliability for SCID-I was above 0.70 for mood, anxiety, schizophrenic disorders, and alcohol abuse; it was somewhat lower for a few other disorders,^[19] for SCID-II it was reported between 0.48 and 0.98 for the categorical diagnoses (Cohen's κ) and 0.90 to 0.98 for the dimensional judgments (intra-class correlation coefficient).^[20] Cronbach's α was found between 0.71 and 0.94 for the SCID-II PD scales.^[20] Due to high accuracy of the diagnostic criteria and extraordinary compliance with DSM-IV criteria since the codification, translated to and adapted with different languages. In Iran SCID-II and SCID-II-PQ have been translated and adapted by First *et al.*^[21] The duration of the SCID-I is 30–90 min, the duration of the SCID-II is 30–60 min.

Diagnostic and statistical manual of mental disorder-5 clinicians personality trait rating form (clinicians' PTRF)

Diagnostic and statistical manual of mental disorder-5 PD traits is combined of 5 pathological trait domains and 25 pathological traits facets. PD traits are evaluated in two ways: Domain assessment and facets assessment. Assessment

is performed on a 4-point scale (0-4). 0 indicates very little or not at all descriptive the pathological trait domain and facet, and 3 indicated extremely descriptive. The personality trait assessment can be conducted both generally and in detail by specified facets (APA, 2010). These dimensions originally present general picture of patient's personality pathology. The five broad trait domains proposed for DSM-5 – negative emotionality (NE), detachment, antagonism, disinhibition, and psychoticism – are rated to give a “broad brush” depiction of a patient's primary trait structure. Some of these trait domains and facets are close to DSM-IV-TR PDs. For example, the domain of detachment (dimensional trait; and its facet traits) is virtually synonymous with DSM-IV-TR schizoid PD and many of the traits of the domain of antagonism (A) and of NE suggest narcissistic PD or (DSM-IV-TR Appendix) depressive PD, respectively. The domains figure prominently in the five PD types proposed for DSM-5, as well – for example, a combination of traits from the antagonism and the disinhibition score domains make up the trait profile of the antisocial/psychopathic type.^[22] Noteworthy, in the study we examine report the trait domains and facets, that based on DSM-5 related with antisocial and borderline PDs.

The concurrent validity of DSM-5 clinicians PTRF are evaluated with a structured Interview tool and has good validity.^[23] In terms of content validity, pathological trait domains and facets in DSM-5 is achieved based on extensive statistical analysis, and have good experimental background.^[24-26] In the pilot study Amini *et al.*^[27] have been translated DSM-5 clinicians PTRF to Farsi, and developed a semi-structured interview. In this study, 94 subjects were investigated. Inter-rater reliability for DSM-5 clinicians PTRF items was above 0.78. The DSM-5 Personality Traits and trait domains correlation with DSM-IV was between 0.22 and 0.67. The duration of the DSM-5 Trait Rating semi-structured is 30–60 min.

Procedure

In the implementation process, the researcher applied three postgraduated in clinical psychology. To avoid probable bias, they were not informed of the exact goal of the research in detail, and they were told that the research goal is to study PDs. They were entirely uninformed of the concerned

disorder types. To control the probable bias, the research associates began to collect data periodically in per steps while they were quite blinded to the outcome of the previous or next steps.

The colleagues were trained to use these instruments. After training under the supervision of the researcher, some people were actually interviewed, and Interviewers bug was fixed. As already mentioned above, there were two groups of patients (patients with PDs and nonclinical subjects). Prior to the research onset, the subjects got aware of the research and the process and signed a consent form. To avoid fatigue and reduced motivation in subjects, study for each subject was conducted in 2 days. In the days following the completion of the demographic questionnaire, participants were completed SCID-II-PQ. The cases which had symptoms of antisocial and borderline PD, in the same day, were examined by Structured Clinical Interview for Personality Disorders (SCID-II). On the definitive diagnosis of antisocial PD and borderline, they were invited to attend the next stage of the interview process based on DSM-5 personality traits and domains.

Principal components analysis was used because the primary purpose was to identify the factors underlying the DSM-5 personality traits. To data analysis SPSS for Windows, (Version 16.0. Chicago, SPSS Inc.) was used.

RESULTS

Table 1 shows the means, standard deviations, skewness and kurtosis of the DSM-5 personality traits. Alpha reliability coefficients were conducted in each domain. The conducted alpha (were between 0.90 and 0.92), showed that traits have a good consistency in the domains. Furthermore, the skewness and kurtosis values demonstrate that scales did not violate severely the normality assumption.

Previous researchers have obtained results that the underlying structure of major forms of psychopathology more generally, 25 primary traits are organized by 5 higher order dimensions.^[8] Because the one of analysis those prior researchers used was principal components analysis with varimax rotation the same was utilized in this study.

Five factors with 25 personality traits were specified in the extraction criteria for this first analysis. Five

Table 1: Descriptive statistics of all personality pathological traits

| Domain | Trait | Mean | SD | S | K | Alpha |
|----------------------|--|------|------|--------|----------|-------|
| Negative affectivity | Emotional lability | 3.31 | 2.56 | 0.128 | -1.24 | 0.91 |
| | Anxiousness | 6.55 | 4.44 | 0.693 | -0.64 | 0.91 |
| | Separation insecurity | 3.00 | 2.29 | -0.153 | -1.53 | 0.91 |
| | Perseveration | 2.28 | 1.93 | 0.538 | -0.887 | 0.91 |
| | Submissiveness | 1.59 | 1.58 | 0.319 | -1.52 | 0.91 |
| | Hostility | 3.58 | 3.55 | 0.623 | -0.96 | 0.90 |
| | Depressivity | 4.56 | 3.74 | 0.526 | -1.02 | 0.907 |
| | Suspiciousness | 3.93 | 3.72 | 13.04 | 18.03 | 0.910 |
| Detachment | Detachment | 1.41 | 1.77 | 1.22 | 0.397 | 0.91 |
| | Withdrawal | 3.43 | 2.48 | 0.342 | -0.727 | 0.91 |
| | Anhedonia | 1.84 | 2.17 | 1.04 | -0.028 | 0.91 |
| | Intimacy avoidance | 2.14 | 2.4 | 0.824 | -0.641 | 0.91 |
| Antagonism | Manipulativeness | 3.11 | 3.43 | 0.763 | -0.748 | 0.91 |
| | Deceitfulness | 3.41 | 2.57 | 0.575 | -0.768 | 0.91 |
| | Grandiosity | 2.66 | 2.47 | 0.869 | -0.235 | 0.91 |
| | Attention seeking | 4.19 | 2.62 | -0.278 | -0.1.044 | 0.91 |
| | Callousness | 3.36 | 2.86 | 0.688 | -0.275 | 0.90 |
| | Irresponsibility | 3.24 | 2.92 | 0.218 | -1.459 | 0.90 |
| Disinhibition | Impulsivity | 6.38 | 4.81 | -0.011 | -1.438 | 0.90 |
| | Distraction | 2.97 | 2.60 | 0.425 | -1.170 | 0.91 |
| | Risk taking | 5.74 | 3.62 | -0.162 | -1.540 | 0.91 |
| | (Lack of) rigid perfectionism | 5.54 | 3.67 | 0.280 | -1.10 | 0.92 |
| | Unusual beliefs and experience | 0.95 | 2.50 | 1.72 | 2.37 | 0.91 |
| Psychoticism | Eccentricity | 0.40 | 1.03 | 2.80 | 7.40 | 0.91 |
| | Cognitive and perceptual dysregulation | 0.45 | 1.61 | 5.31 | 31.66 | 0.91 |

SD=Standard deviation, S=Skewness, K=Kurtosis

factors with eigenvalues >1 were obtained accounting for 72.6% of the variance. Table 2 contains the information on the five factors and all factor loadings above 0.30. The Kaiser–Meyer–Olkin (KMO) measure of sampling adequacy was 0.693, and Bartlett’s test of sphericity yielded an approximate Chi-square of 8.681E3 (df: 300; *P* < 0.001). The KMO measure of sampling adequacy is an index that examines the appropriateness of factor analysis. It should be 0.50, and the higher, the better.

As shown in Table 2, fourteen traits loaded onto Factor 1, which defines a disinhibition and negative affectivity due to high loadings items, accounted for 38.9% of the variance in this sample (eigenvalue = 9.74). Factor 2 related to antagonism and antisocial dimension and accounted for 11.62% of the variance in the sample (eigenvalue = 2.90). Factor 3 shows Psychoticism dimension. Factor 3 accounted for 8.35% of the variance in the sample (eigenvalue = 2.09). Factor 4 accounted

for 7.21% of the variance (eigenvalue = 1.80) and is a detachment dimension. The last factor, Factor 5, accounted for 6.46% of the variance (eigenvalue = 1.61) and included loading of (lack of) rigid perfectionism and anxiousness.

DISCUSSION

The main aim of the study was to explore the construct validity of the DSM-5 conceptual model of antisocial and borderline PDs. Principal components analysis was utilized to determine the factor structure of DSM-5 Personality Traits on Iranian sample with antisocial and borderline PDs. In an exploratory factor analysis of the traits, a five-factor solution was most appropriate. Factors similar with the findings of Gore and Widiger,^[28] Stone,^[29] Wright and Thomas,^[8] Westen,^[30] Krueger *et al.*,^[31] Morey *et al.*^[32] The five identified factors showed conceptual structure and adequate construct validity of DSM-5 personality traits.

Table 2: Rotated component matrix^a of all pathological traits

| Trait | Component | | | | |
|--|-----------|-------|--------|--------|--------|
| | 1 | 2 | 3 | 4 | 5 |
| Impulsivity | 0.854 | | | | |
| Hostility | 0.847 | | | | |
| Irresponsibility | 0.831 | | | | -0.318 |
| Distraction | 0.817 | | | | |
| Risk taking | 0.816 | | | | |
| Emotional lability | 0.787 | | | | |
| Callousness | 0.769 | 0.369 | | | |
| Intimacy avoidance | 0.636 | 0.453 | | | 0.335 |
| Depressivity | 0.634 | 0.499 | | | 0.320 |
| Anxiousness | 0.630 | | | | 0.559 |
| Suspiciousness | 0.622 | | | | |
| Submissiveness | 0.588 | 0.355 | | | |
| Anhedonia | 0.561 | 0.473 | | -0.455 | |
| Detachment | 0.558 | | 0.434 | | -0.309 |
| Manipulativeness | | 0.849 | | | |
| Deceitfulness | 0.324 | 0.809 | | | |
| Grandiosity | | 0.688 | | 0.411 | |
| Withdrawal | 0.458 | 0.477 | | -0.475 | |
| Eccentricity | | | 0.881 | | |
| Cognitive and perceptual dysregulation | | | 0.838 | | |
| Unusual beliefs and experience | | | 0.737 | | |
| Separation insecurity | | | -0.307 | -0.675 | |
| Attention seeking | | | | 0.657 | |
| Perseveration | 0.502 | | | 0.611 | |
| (Lack of) rigid perfectionism | | | | | -0.762 |

Extraction method: Principal component analysis,
 Rotation method: Varimax with kaiser normalization,
^aRotation converged in 8 iterations

As, shown in Table 2, the most of the traits have been loaded on the first factor. The first factor consists of: impulsivity, hostility, irresponsibility, distraction, risk taking, emotional lability, callousness, intimacy avoidance, depressive, anxiousness, suspiciousness, anhedonia and detachment. This factor reflects behavioral and emotional disturbances that labeled disinhibition and negative affectivity domain. In many ways, this factor can be viewed as a core personality aspect of antisocial and borderline PDs in that the affective instability and high risk behaviors are an underpinning of much of the symptoms seen in individuals with the diagnosis of antisocial and borderline PDs.

The second factor, antagonism, consists of manipulativeness, deceitfulness, and grandiosity. This factor captures the most relevant symptomatic behavior of an individual with antisocial PD.

The third factor, psychoticism, consists of the criteria of eccentricity, cognitive and perceptual dysregulation, and unusual beliefs and experiences.

The fourth factor, reflects detachment dimension, consists of separation insecurity, attention seeking, and perseveration.

The fifth factor represents the lack of perfectionism. This trait, theoretically can be relevant with disinhibition, but in this study loaded as a separate factor.

As noted, there is a considerable amount of research to indicate that PDs can be represented within the five factor model.^[8,17,33-35] The obtained model includes five broad, higher-order personality trait domains – negative affectivity, detachment, antagonism, disinhibition, and psychoticism – each comprised of from 3 to 9 lower-order.^[31]

This was the first investigation on Iranian sample to determine the construct validity of DSM-5 personality traits. This is important because the DSM-5 personality traits are so widely used across a variety of clinical settings.

Due to the one goal of our study was to determine whether the DSM-5 five-factor structure of pathological personality trait domains replicated in an independently collected sample that differs culturally from the derivation sample, finding showed that DSM-5 have good construct validity in other cultures. Furthermore, our finding showed that on Iranian sample with antisocial and borderline PDs, factors similar in number with the other studies, but different in the content. Perhaps this derives from our more heterogeneous study.

Nevertheless, there are a number of important limitations to this work, and future research is needed. First, the results are based on a relatively small number of cases and so caution should be used in interpreting the data. Second, data gathered by a semi-structured interview designed to assess a dimensional model of PDs, and future work should focus on other relevant instruments. Thirty limitations of the current study is the nature of the sample, which was drawn from antisocial and borderline PDs. Future research should replicate findings in larger samples and with multiple PDs. Fourth, the most participants in the study were

male. Hence, other research is needed to investigate construct validity of DSM-5 personality traits on female. Fifth and finally, our work has focused on the assessment of personality traits in adults. Further work is needed to determine construct validity of DSM-5 personality traits other age groups.

CONCLUSIONS

Exploratory factor analysis revealed five homogeneous components of antisocial and borderline PDs. That may represent personality, behavioral, and affective features central to the disorder. Furthermore, the present study helps understand the adequacy of DSM-5 dimensional approach to evaluation of personality pathology, specifically on Iranian sample.

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