Original article

External validity study of a personality disorders screening test in a community sample

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Abstract

Background: A screening test for personality disorders was recently developed in Brazil, the Dimensional Clinical Personality Inventory – screening version (IDCP-SV). However, no relationship between this screening measure and other scales or external criteria was tested. **Objective:** To seek for validity evidence based on related criteria (*e.g.*, other psychological tests) and external criteria (*e.g.*, sample demographics). **Methods:** Sample comprised 804 participants from São Paulo (Brazil), most female and college students, with mean age equal to 29.65 (SD = 10.73). They answered the IDCP-SV and another screening for personality disorders (IPDS), a depression measure (EBADEP-screening), a scale assessing reasoning for living (EMVIVER), and a self-report for personality disorders categories assessment (SCID-II-PQ). **Results:** IDCP-SV identified 46.4% of community sample as positive for personality disorders. The positive group showed the great mean for almost all comparisions, including psychological tests and the demographics characteristics, including large expressive effect sizes. **Discussion:** Data suggest that the IDCP-SV discriminates a similar percentage of people from the community to what was reported previously using other screening measures; besides, the mean comparisons between groups showed good discriminative capacity by IDCP-SV items.

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Keywords: Screening measure, personality test, diagnosis, personality disorders.

Introduction

Personality disorders (PDs) are characterized as persistent and maladaptive patterns of thoughts, feelings, perceptions, and behaviors, deviant from the expectations of the sociocultural group of belonging[1,2]. PDs' prevalence in the general population (US) is from 5 to 10%[3], with a mean of 13% in Western countries[4], and even greater numbers in North and South America[5]. They are linked to clinical diseases, difficulties in adhering to treatment, bad prognoses, risk suicide, and mortality[3,6-11].

Despite the empirical correlations between PDs and harmful outcomes, data indicate that these conditions are underdiagnosed[4,11,12]. Among several factors, greater familiarity of professionals with other psychiatric disorders and limitations on the diagnosis of PDs are possible explanations[4,13]. In Brazil, where the present research took place, the lack of studies in the field and the tiny number of adapted or developed psychiatric and psychological exams for the assessment of personality disorders are indicators of potential underdiagnosis or even poorly stablishment of diagnosis.

The low number of personality assessment tools for PDs in Brasil is real for both, diagnostic and screening tests (*e.g.*, Carvalho *et al.*[14]), but also reflecting problems encountered at an international level (*e.g.*, Tyrer *et al.*[11]; Olssøn *et al.*[15]). The availability of screening tools for PDs are importante for a number of factors[4,16], including help in the PDs diagnosis and lower costs of this process, providing clinicians with a rapid tool of measurement, and allowing investigations in clinical and community samples in relation to PDs occurrence. Not many studies have investigated the occurrence of PDs in community samples, but those who investigated found frequency above 40%, as 44% using the final best-estimate consensus from the IIP Personality Disorder Scales, Iowa Personality Disorder Screen, and Temperament and Character Inventory[17], 54.4% using the IIP-PD 25 items version[18], and 43% using the International Personality Disorder Examination – Screen[19]. Schöttke *et al.*[20] did not present percentages, but considering the cutoff proposed in the study (*i.e.*, > 4) for the Personality Disorder Screening – Short Version (PSS-K) and the mean and standard deviation of the community sample (F = 3.92; SD = 2.8), one can assume occurrences exceeding 40% for personality disorders in the sample sample. We could not find published studies in Brazil concerning screenings tests for PDs.

Recently, a screening test for personality disorders developed in Brazil was proposed[21]. The Dimensional Clinical Personality Inventory (IDCP) screening version (SV) was builded using the full version IDCP items[22] as a starting point. Multiple regression analyzes and item level comparisions were made for items set final composition following a similar empirical approach based on criteria[23] as the one adopted in the development of the Minnesota Multiphasic Personality Inventory (MMPI). Seeking to determine the ideal cutoff for the IDCP-SV, authors applyed the ROC curve reaching a sensitivity equal to 89.5% and a specificity of 67.2%.

The study of Carvalho *et al.*[21] described step by step the development process and diagnostic accuracy indicators of IDCP-SV. However, no relationship between screening measure and other scales or external criteria was tested. As testing for consentaneity of a measure with other variables is a welcome indication of the test score validity[24], in the present study we seek for validity evidence based on related criteria (*e.g.*, other psychological tests) and external criteria (*e.g.*, sample demographics).

Methods

Sample

Using a cross-sectional design, a convenience sample from community was recruited. The total sample comprised 804 participants from São Paulo State, Brazil, most of whom were caucasian (64.9%), female (65.4%), not living in a marital relationship (66%), college students (83%; varying from complete high school to postgraduate). Age ranged from 18 to 69 (M = 29.65; SD = 10.73), and 60.3% reported having attended to psychotherapy and 14.8% reported have attended to psychiatric treatment.

Instruments

Dimensional Clinical Personality Inventory – Screening Version (IDCP-SV[21])

The IDCP-SV was developed based on the full version of IDCP[22], test for measurement of pathological personality traits.

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The instrument aims to conduct personality disorder screening, and consists of 15 items arranged in a Likert 4-point scale, where 1 equals "has nothing to do with me" and 4 "all about me". It is an integrative part of the IDCP-SV's instructions to respond to socio-demographic questions, which were used for analysis in this research. We tested for the Cronbach's alpha internal consistency reliability of IDCP-SV, that was equal to 0.83.

Iowa Personality Disorder Screen[25]

IPDS consists of 11 items, some containing two questions, refering to the diagnostic criteria for personality disorders. The items are answered on a dichotomous scale, yes (1) or not (0). In the case of items containing two questions, the item is scored 1 when both questions are answered with "yes". The authors present data suggesting psychometric adequacy of IPDS, which is corroborated by other studies (*e.g.*, Germans *et al*.[4]). In the present study, Cronbach's alpha internal consistency reliability of IPDS was 0.77.

Baptista Depression Scale – Screening Version (EBADEP-screening[26]*)*

The EBADEP-screening was developed based on the adult version of EBADEP (EBADEP-A[27]), and aims to track symptoms of depression. In the short version of EBADEP-A were selected 15 items, with the descriptors most commonly used in psychiatric manuals (core symptons), *i.e.,* items related to the sad mood, anhedonia, guilt, fatigue, concentration, suicidal ideation and sleep. In the development study, EBADEP-screening was able to discriminate 40 patients diagnosed with depression by SCID-I 40 people without depression with sensitivity equal to 95.0 and specificity of 87.5. In this research, Cronbach's alpha internal consistency reliability of EBADEP-screening was 0.88.

Reasons for Living Scale (EMVIVER[28]*)*

The EMVIVER is a scale developed in order to predict protective factors of risk behavior for life. The instrument has 55 items that show reasons for living divided into three categories: meaningful relationships; attraction for life; plans for the future; and virtues. The EMVIVER has satisfactory psychometric properties evaluated in previous studies[28]. Cronbach's alpha internal consistency reliability of EMVIVER was 0.94.

Structured Clinical Interview for DSM-IV Personality Questionnaire[29]

SCID-PQ-II was developed to assess the 10 personality disorders of DSM-IV Axis II, besides the two personality disorders not included (depressive, passive-aggressive). The instrument is a self-report, consisting of 119 items that should be answered with yes or no. Psychometric properties demonstrated adequacy in the development study. Cronbach's alpha internal consistency reliability of SCID-II-PQ was higher than or equal to 0.60 for some of the scales but varied from 0.06 to 0.52 for obsessive-compulsive, passive-aggressive, paranoid, schizotypal, schizoid, histrionic and narcissist.

Procedures and statistical analysis

This study was approved by an ethics committee. Following approval the data collection was conducted online (n = 546) and live (n = 256), the latter case in particular universities. All subjects read and agree to the Terms of Consent. For data analysis, using the SPSS statistical software, we use the previous cutoffs from the literature for IDCP-SV[21] e para o IPDS[25]. For the interpretation of data, we considered as significant levels equal or less than 0.01, to avoid Type II error. We first presented descriptive statistics, then the group mean comparisions.

Results

Applying the cutoff criteria for dichotomizing, *i.e.*, up to 8 points as negative for PDs and from 9 points as positive for PDs, we found 46.4% as positive. Looking more carefully to the data, we observed a higher rate of people showing score equal to 9 (12.1%), to 7 or 10 (11.3%), to 8 (8.5%), and to 11 (8.3%), presenting 51.1% in total. As the IPDS is also a screening measure, the same procedures were proceed to it, and from the 203 people that responded the test, only 3.9% reached its cutoff, with the higher rate of people at score equal to 1 (32.5%), 0 (23.8%), 2 (18.3%), and 3 (10.3%), representing 85.6% of total.

As we find expressive differences related to people reaching the cutoff in IDCP-SV and IPDS, we verified the correlation btween them, and observed a small to moderate effect size (0.38; $p < 0.001$). The disagreement between the measures, as observed in Figure 1, is located at the high score level of IDCP-SV, ie, there is many people high in IDCP-SV but not in IPDS. In Table 1 comparisons between means are presented, using IDCP-SV classification as criterion for group establishment.

In all cases the IDCP-SV positive group showed the great mean but in Schizoid SCID-II-PQ factor. Together, Schizoid and Antisocial SCID-II-PQ factors were the exception presenting inexpressive effect size, less than 0.20. The highest scores were for depression (total score and almost all factors bur irritability), SCID-II-PQ Cluster C composition, Borderline and Depressive personality disorder factors. Figure 2 helps to observe the main differences between the two groups.

The positive group is clearly distinguished from the negative group on the left side of the figure ($F = 2.795$; $gl = 3.993$; $p = 0.001$); and despite the positive group show almost all means higher than negative group on the right side of the figure, this distinction is a little less obvious, but equally significant ($F = 173.398$; $gl = 4.208$; $p < 0.001$). Table 2 presents again mean comparisons, but now using criteria variables.

All comparisons were significant and the effect sizes were expressive. Current suicide ideation, history of suicide attempt, and participate on both, psychological and psychiatric treatment, were the criteria with the most visible differences between groups.

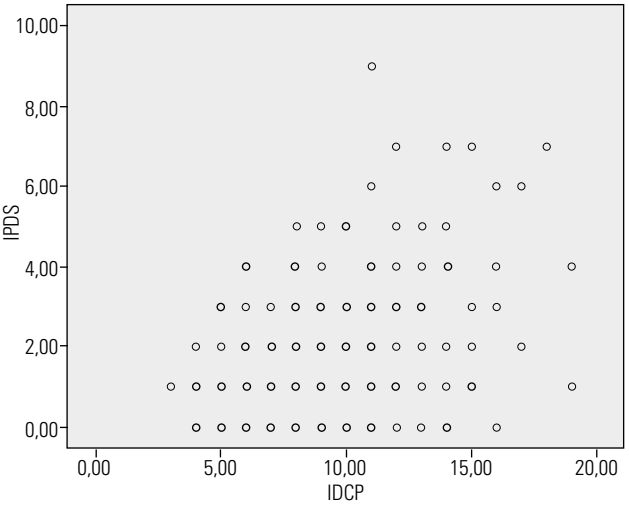

Figure 1. Scatterplot of IDCP and IPDS scores.

Table 1. *t*-test for group comparison in tests based on IDCP-SV classification

Scores	Group	N	M (SD)	*t* (df)	d (p)
IPDS	N	112	1.27 (1.18)	-4.830 (201)	0.68 (< 0.001)
	Y	91	2.38 (2.06)		
EBADEP-screening	N	168	1.66 (0.47)	-9.960 (376)	1.04 (< 0.001)
	Y	204	2.30 (0.71)		
EBADEP humor	N	168	1.75 (0.64)	-7.785 (376)	0.81 (< 0.001)
	Y	205	2.51 (1.12)		
EBADEP somatic	N	169	1.75 (0.59)	-8.328 (376)	0.72 (< 0.001)
	Y	209	2.27 (0.80)		
EBADEP motor	N	169	1.76 (0.87)	-8.087 (376)	0.75 (< 0.001)
	Y	210	2.49 (1.03)		
EBADEP social	N	169	1.63 (0.54)	-7.022 (376)	1.05 (< 0.001)
	Y	209	2.40 (0.84)		
EBADEP cognitive	N	169	1.59 (0.57)	-7.218 (376)	0.85 (< 0.001)
	Y	209	2.18 (0.75)		
EBADEP anxiety	N	169	1.86 (0.83)	-10.136 (376)	0.84 (< 0.001)
	Y	209	2.63 (0.96)		
EBADEP irritability	N	169	1.21 (0.90)	-3.511 (376)	0.36 (0.001)
	Y	210	1.59 (1.12)		
EMVIVER total score	N	109	3.53 (0.34)	4.476 (235)	0.58 (< 0.001)
	Y	128	3.27 (0.52)		
EMVIVER meaningful rel.	N	109	3.47 (0.38)	3.636 (235)	0.49 (< 0.001)
	Y	128	3.24 (0.54)		
EMVIVER attraction life	N	109	3.66 (0.43)	4.285 (235)	0.55 (< 0.001)
	Y	128	3.34 (0.69)		
EMVIVER virtues	N	109	3.47 (0.61)	2.947 (235)	0.38 (< 0.004)
	Y	128	3.21 (0.73)		
SCID Evitative	N	61	2.52 (1,55)	-3.966 (139)	0.68 (< 0.001)
	Y	80	3.71 (1,90)		
SCID Dependence	N	60	2.00 (1.46)	-3.767 (138)	0.64 (< 0.001)
	Y	80	3.08 (1.84)		
SCID Obsessive-compul.	N	59	4.00 (1.85)	-1.228 (139	0.21 (0.22)
	Y	82	4.39 (1.86)		
SCID Passive-aggressive	N	60	2.86 (1.74)	-3.740 (135)	0.65 (< 0.001)
	Y	78	3.92 (1.55)		
SCID Depressive	N	60	2.93 (2.00)	-4.262 (139)	0.73 (< 0.001)
	Y	81	4.34 (1.89)		
SCID Paranoid	N	59	3.08 (2.18)	-1.530 (135)	0.27 (0.13)
	Y	78	3.60 (1.77)		
SCID Schizotypal	N	57	5.59 (2.90)	-3.204 (131)	0.68 (0.002)
	Y	76	7.28 (3.09)		
SCID Schizoid	N	57	2.98 (1.03)	0.485 (134)	0.09 (0.63)
	Y	80	2.87 (1.40)		
SCID Histrionic	N	59	1.52 (1.43)	-1.721 (135)	0.30 (0.09)
	Y	78	2.01 (1.78)		
SCID Narcissistic	N	58	3.89 (2.56)	-1.662 (135)	0.29 (0.10)
	Y	79	4.64 (2.63)		
SCID Borderline	N	57	3.56 (2.69)	-4.512 (137)	0.78 (< 0.001)
	Y	82	6.01 (3.42)		
SCID Antisocial	N	60	1.00 (1.84)	-0.608 (138)	0.10 (0.54)
	Y	82	1.18 (1.77)		
SCID Cluster A	N	55	9.09 (3.44)	-2.346 (127)	0.42 (0.02)
	Y	75	10.58 (3.65)		
SCID Cluster B	N	54	10.29 (6.81)	-3.013 (126)	0.54 (0.003)
	Y	76	14.00 (6.90)		
SCID Cluster C	N	58	14.27 (5.88)	-4.925 (130)	0.86 (< 0.001)
	Y	75	19.39 (5.95)		

N: negative in IDCP-SV; Y: positive in IDCP-SV; EMVIVER meaningful rel.: EMVIVER meaningful relationship; EMVIVER attraction life: EMVIVER attraction for life; SCID Obsessive-compul.: SCID Obsessive-compulsive. For Type II error correction, significance level at 0.01.

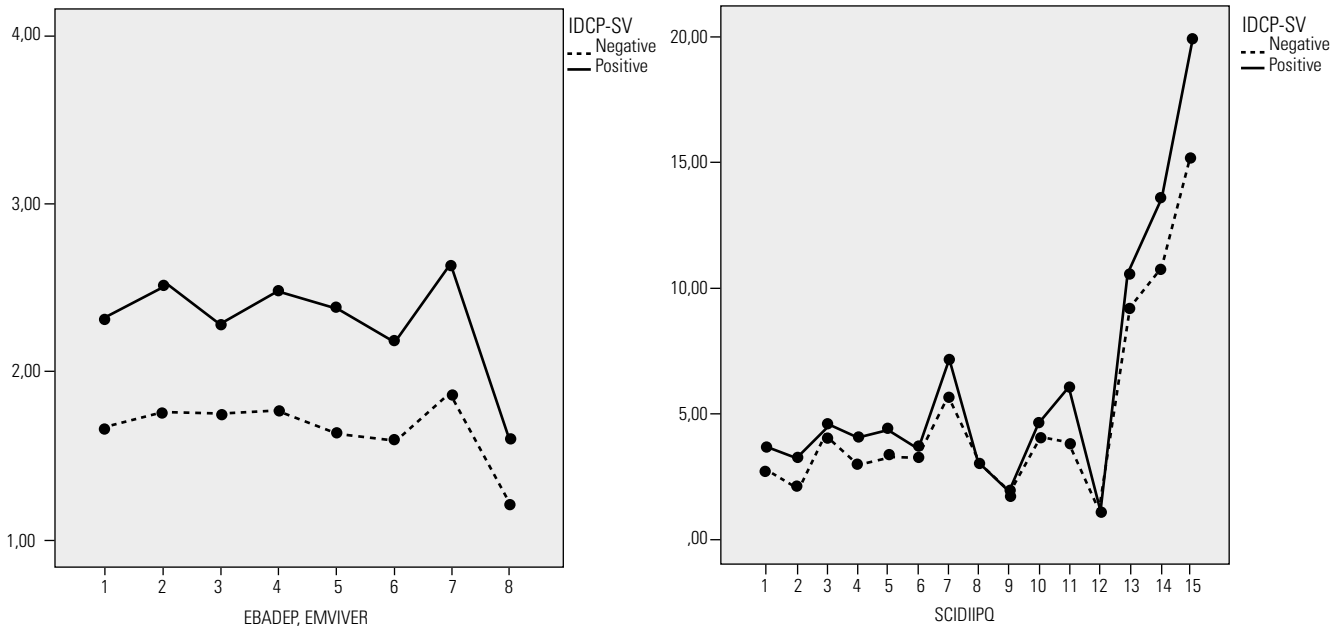

Figure 2. Profile of IDCP-SV groups in administered tests. IPDS scores not included in the figure since it was administered with other part of the sample.

Table 2. *t*-test for group comparison in criteria variables based on IDCP-SV classification

Variables	Groups (N)	M (SD)	*t* (df)	d (p)
Psychological treatment	N (n = 471)	9.09 (3.60)	-6.196 (775)	0.46 (< 0.001)
	Y (n = 306)	10.81 (4.02)		
Psychiatric treatment	N (n = 668)	9.31 (3.59)	-8.443 (770)	0.89 (< 0.001)
	Y (n = 104)	12.60 (4.36)		
Psychological + Psychiatric	N (n = 462)	8.99 (3.48)	-8.581 (556)	0.96 (< 0.001)
	Y (n = 96)	12.47 (4.20)		
Suicide attempt	N (n = 231)	9.70 (3.70)	-5.195 (247)	1.27 (< 0.001)
	Y (n = 18)	14.55 (5.12)		
Suicidal ideation (current)	N (n = 219)	9.30 (3.63)	-3.348 (223)	1.39 (0.001)
	Y (n = 6)	14.33 (3.61)		
Suicidal ideation (past)	N (n = 114)	9.82 (3.61)	-2.966 (133)	0.71 (0.004)
	Y (n = 21)	12.33 (3.26)		

N: negative in IDCP-SV; Y: positive in IDCP-SV; Psychological + Psychiatric: reporting positively to participating on psychological and psychiatric treatment. For Type II error correction, significance level at 0.01.

Discussion

Based on previous research[21] and in the requirement for knowing the strengths and weaknesses of a measure using external criteria[24], this research reports validity evidence based psychological tests and relevant sample characteristics. Data suggest that the screening version of IDCP (IDCP-SV) discriminates a similar percentage of people from the community to what is found in other countries with similar tools for screening of personality disorders. In addition, mean comparisons between groups showed good discriminative capacity by IDCP-SV items.

The proportion of subjects identified as positive by IDCP-SV was higher compared to the expected prevalence in community samples, even considering the data found to America (*e.g.*, Huang *et al.*[5]). This is expected, since screening tests must have high sensitivity and low specificity[17] to ensure that all individuals with particular psychiatric disorder are referred for diagnosis. Compared of the amount of individuals identified by other screening tests for personality disorders, we found very similar data to what is reported in the literature for community samples, ranging from 43% to 54.4%[17,19,20]. This suggests that the IDCP screening version is comparable to screening for personality disorders used in the world, confirming the favorable data found previously[21].

Specifically regarding the observed discrepancy between IDCP-SV and IPDS, it raises questions about whether the IDCP-SV identifies an excessive number of false positives or IPDS identifies an excessive number of false negatives. However, it should be considered that for screening tests, is the most desirable identification of false positives than false negatives. In the study of Morse and Pikonis[17], the authors did not show the percentage of cases identified as positive by the IPDS in the community sample for the score considering the 11 items, but only for subgroups of items, ranging from 17% to 26% cases identified as positive, which is below than observed in the studies with other instruments in community samples and in the study itself, in which consensus was 44% for this sample. The data obtained in the study of Morse and Pikonis seems to be comparable to from the present study in relation to IPDS, since the means obtained are similar ($d = 0.04$; $p = 0.57$). The data suggest that the IPDS for screening in community samples may have lower sensitivity than desired for screening tools, since the percentage of cases identified as positive, are smaller to what has presently found and what is reported in literature. However, future studies should implement an design for comparing the diagnostic accuracy of IDCP-SV and IPDS, also using a gold standard measure.

Furthermore, means comparisons with the different measures (*i.e.*, IPDS, EBADEP, EMVIVER, and diagnostic categories for SCID-II-PQ) pointed to higher scores for the group identified as positive in the IDCP-SV, suggesting that this group tends to have more pathological functioning compared to the group identified as negative. This indicates the discriminative ability of the IDCP-SV for persons with pathological functioning in relation to people with healthier functionings. We observed that the largest discrepancies between groups happened for more general indicators of pathology (*e.g.*, Eaton *et al.*[30]) as the total score of depression and borderline factor of SCID-II-PQ. Along with this, the score on the Cluster C also presented salient difference, which needs to be further investigated, it may reflect a specific tendency of the sample. We also highlight that the groups (positive and negative)

established based on the classification of the IDCP-SV were widely differentiated in criterion variables used, which is highly desirable for measurements with discriminative purpose[24], demonstrating alarming differences for cases of suicide and psychiatric treatment, as would be expected.

The data currently reported must be observed as initial for a Brazilian screening tool for personality disorders. On one hand the data being found with the IDCP-SV seem to be promising, on the other, the limitations of the present research and the need for research with other study designs and samples should be carefully considered. Among the main limitations of this study, is the absence of a clinical sample diagnosed with personality disorders. Another extremely important limitation is the lack of a gold standard measure and the use of other screening tests used worldwide (*e.g.*, IIP-PD). Future studies should seek to embrace these limitations, deepening the knowledge about the applications of IDCP-SV and, equally important, its limitations.

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