Assessment of juvenile delinquency: convergent and criterion validity of the Jesness Inventory – revised – Brazilian – short form

Avaliação em delinquência juvenil: validade convergente e de critério do Inventário de Jesness – revisado – brasileiro – reduzido

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Abstract

The aim of this study was to analyze evidence of convergent and concurrent criterion validity of the scales of the short form of the Jesness Inventory - Revised - Brazilian version. A sample of 597 male adolescents, aged between 12 and 20 years, participated in the study. The evidence of convergent validity obtained indicates that most scales would have maintained their interpretive meaning in the short form. They also indicated the need for further investigations on the Immaturity scale. The concurrent criterion validity suggests that high scores on the scales can differentiate adolescents based on both criteria, Judicialization and Frequency of self-reported delinquency in the last 12 months. Investment in standardized and brief instruments can drive the development of evidence-based practices in the juvenile justice system and, for this, a research agenda is presented.

Keywords: Personality tests; Psychometrics; Validity of tests.

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Resumo

O objetivo deste estudo foi analisar evidências de validade convergente e de critério concorrente das escalas da versão reduzida do Inventário de Jesness – Revisado Brasileiro. Participaram do estudo 597 adolescentes do sexo masculino, com idades entre 12 e 20 anos. As evidências de validade convergente obtidas indicam que a maioria das escalas teria mantido o seu sentido interpretativo na versão reduzida. Indicaram também a necessidade de mais investigações para a escala de Imaturidade. A validade de critério concorrente sugere que altas pontuações nas escalas são capazes de diferenciar adolescentes com base nos critérios Judicialização e Frequência de delitos autorrevelados nos últimos 12 meses. O investimento em instrumentos padronizados e breves pode impulsionar o desenvolvimento de práticas baseadas em evidências no sistema de justiça juvenil e, para isso, uma agenda de pesquisa é apresentada.

Palavras-chave: *Testes de personalidade; Psicometria; Validade dos testes.*

In Brazil, when an adolescent is prosecuted for an infraction, the response of the Juvenile Justice System may involve the application of different types of socio-educational measures, which follow specific guidelines (Presidência da República, 2002). Once in compliance with the measure, the adolescent must be treated with a view to their full development through responses to personal needs and overcoming specific difficulties. In this way, their social reintegration is made possible, and the risk of recidivism in the offending practice is reduced (Cauffman et al., 2016).

Considering the different risk factors for involvement in illegal conduct, at the individual level the role of personality aspects (Andrews & Bonta, 2010) is highlighted, which should be assessed in adolescents and incorporated to intervention strategies. However, in the Brazilian context, only the Psychopathy Checklist: Revised (PCL:R) is available for professional use in assessing judicialized adolescents and adults. The PLC:R is applied to measure traits of psychopathy and assess the risk of violent recidivism, aspects that concern a portion that is a minority in the Justice System (Morana, 2004). The PCL-R is, therefore, too specific to differentiate between the different profiles of adolescents in conflict with the law, regarding psychological functioning, based on personality characteristics.

In this scenario, the Jesness Inventory-Revised (JI-R) (Jesness, 2003) is an instrument that has been developed and improved over the years and is widely used in the context of the North American Juvenile Justice System, alongside the Minnesota Multiphasic Personality Inventory – Adolescent (MMPI-A) and the Millon Adolescent Clinical Inventory (MACI), well-established measures, and comparable to the JI-R (Pinsoneault & Ezzo, 2011). The JI-R is highly valued because it assesses personality aspects – in terms of traits, beliefs, and attitudes (Bazon, 2016) and, therefore, susceptible to change – associated with involvement in offenses. In addition, it also assesses other personality aspects relevant to understanding the psychological functioning of adolescents (Wenger & Pueyo, 2016).

In the Brazilian context, recent studies have proposed the short form of the Jesness Inventory – Brazilian – Revised – Short Form (IJ-Br-R[R]) (Costa et al., 2020), with the aim of optimizing the applicability of the Inventory to the specific population for which it is intended (Worthington & Whittaker, 2006). The IJ-R-Br(R) consists of 85 items – in contrast to the 160 items of the full version (IJ-R-Br; Bazon, 2016). Through dichotomous answers – true (T) or false (F) – and easy-to-understand items (Jesness, 2003; Wenger & Pueyo, 2016), the Inventory provides scores on thirteen different measures. Among them, the ones most related to the commission of offenses, with their respective examples, are: Social Maladjustment (SM; "If the police don't like you, they will try to get you for anything"), Value Orientation (VO ; "When things go wrong, there isn't much you can do about it"), Autism (Au; "I am smarter than most people I know"), Alienation (Al; "A person is better off if he does not trust people"), Manifest Aggression (MA; "When I'm really angry, I can do anything"), Conduct Disorder (CD; "I've used a weapon that could have hurt someone"), Oppositional Defiant Disorder (ODD; "I'm happy to annoy some people"), and Asocial Index (AI; which is the result of an equation between inventory scales). The other scales provide information on general psychological functioning and help identify individual differences among young people: Immaturity (Im; "Every day is full of things that

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keep me interested"), Withdrawal (Wd; "Nothing big has ever happened in my life"), Social Anxiety (SA; "I get nervous when I ask someone to do me a favor"), Repression (Rep; "I am liked by everyone I know") and Denial (Den; "It is hard for me to talk to my family and parents about my troubles", reverse scored).

Regarding the psychometric properties of the full version of the Inventory, an analysis of reliability results with Cronbach's alpha is presented, based on the parameter of 0.7 as satisfactory. On the one hand, the Withdrawal, Social Anxiety, Repression, and Denial scales repeatedly show unsatisfactory performance, followed by Oppositional Defiant Disorder. On the other hand, the Social Maladjustment, Value Orientation, Immaturity, Autism, Alienation, Manifest Aggression, and Conduct Disorder scales have a very satisfactory performance (Antequera & Andrés-Pueyo, 2008; Bazon, 2016; Costa et al., 2017; Costa et al., 2019; Ergas & Narváez, 2015; Wenger, 2010; Wenger, 2018;).

Among the psychometric properties to be assessed in a psychological assessment instrument, especially for the purpose of its clinical application, the relevance of the evidence of the relationship between the test scores and other well-established correlated measures is highlighted (Price, 2016). With the full version, Olver and Stockdale (2016), in the United States, found that the Social Maladjustment, Value Orientation, and Asocial Index scales show strong convergence with well-established clinical forensic measures: the Youth Level of Service/Case Management Inventory (YLS/CMI), the Psychopathy Checklist: Youth Version (PCL:YV), and the Violence Risk Scale – Youth Version (VRS-YV). More recently, Wenger (2018), in Spain, identified significant correlations between an important number of scales of the Maturity in Youth Assessment Scale (MAYAS) and the Big Five Personality Trait Short Questionnaire (BFPTSQ) with those of the JI-R.

Focusing on the concurrent criterion validity, part of the scales do seem to be able to differentiate adolescents based on the "Judicialization" criterion. SM, VO, and AI are scales that differentiated groups in all the studies surveyed in this paper (Antequera & Andrés-Pueyo, 2008; Bazon, 2016; Costa et al., 2017; Costa et al., 2019; Ergas & Narváez, 2015; Wenger; 2010; Wenger, 2018). Autism, Manifest Aggression, and Alienation differentiated groups in six of these investigations. Immaturity differentiated groups in four studies, while Repression and Conduct Disorder differentiated three. In this regard, in the studies by Costa et al. (2017) and Wenger (2018), Denial and Repression were also able to differentiate groups, but with higher means for non-judicialized adolescents.

Nevertheless, the Inventory scales have also been shown to be able to differentiate adolescents grouped according to the level of history of reported offenses (self-reported delinquency). Ergas and Narváez (2015) assessed the performance of the Asocial Index and obtained generally weak associations. In a Brazilian study, Costa et al. (2019) had their hypothesis confirmed that the group of adolescents with high scores in Social Maladjustment and Asocial Index would also have more offenses committed. In the study by Wenger (2018), the Social Maladjustment, Value Orientation, Immaturity, Alienation, Manifest Aggression, and Asocial Index scales were associated with a large effect size, with measures of self-reported delinquency. Denial was inversely correlated with the Questionnaire scales. Withdrawal and Social Anxiety were not associated with the self-reported delinquency scales.

Based on the above, it is concluded that the original and complete version of the Inventory has shown satisfactory convergent and concurrent criterion validity, and, according to this, the present study has the general objective of verifying whether the indicators related to this validity are maintained in the IJ-R -Br(R).

The first specific objective was to analyze the pieces of evidence of convergent validity between scales of the short form and subscales of three well-established assessment instruments whose measures can contribute to broaden the understanding that one has of the scales of the short form of the IJ-R-Br. They are the Self-Control Scale (SCS), given that lower levels in the self-control dimensions are associated with higher levels of involvement in offensive conduct (Walters, 2016); the Social Skills Inventory (SSI-Del-Prette), which assesses skills that can be useful to understand the functioning of the Inventory measures that assess general psychological functioning (Semel, 2016), and the Socialization Factorial Scale (SFS). The SFS measures the Agreeableness trait which, at

low levels, is related to the commission of offenses (Walters, 2018). Furthermore, it has already demonstrated convergence with the Youth Level of Service/Case Management Inventory (YLS/CMI), a measure that identifies adolescents with different levels of risk of involvement in offensive conduct (Maruschi et al., 2013).

The second specific objective was to analyze evidence of concurrent criterion validity, investigating whether the scores in the short form of the scales would be able to differentiate adolescents grouped according to recurring criteria in other studies cited: Judicialization (Non-Judicialized = 0; Judicialized = 1) and Frequency of self-reported delinquency committed in the last 12 months (Normative Frequency = 0; High Frequency = 1). These criteria were selected because they are recurrent in studies in juvenile delinquency for being complementary. The criterion of judicialization corresponds to the official data of those adolescents who were apprehended by the juvenile justice system, while the frequency of offenses corresponds to self-reported delinquency, informed by the adolescent regardless of whether or not they were apprehended.

Two hypotheses guided the study. The first one is that there are significant associations between the IJ-R-Br(R) scales and those of the SCS, SSI-Del-Prette, and SFS instruments that measure compatible constructs. The second hypothesis is that adolescents grouped by the criteria "1) judicialization" and "2) Frequency of self-reported delinquency in the last 12 months" can be differentiated based on the scores on the IJ-R-Br(R) scales more strongly associated with offensive conduct: Social Maladjustment, Value Orientation, Autism, Alienation, Manifest Aggression, Conduct Disorder, Oppositional Defiant Disorder, and Asocial Index.

Method

Participants

The participants in this study comprise a mixed sample of judicialized and non-judicialized adolescents from an inner city of the state of São Paulo. Data referring only to male adolescents were analyzed. Due to the differences in the patterns of offensive conduct depending on sex (Bright, et al., 2017), it is more pertinent to carry out separate investigations by sex, with specific literature contribution, as described in the manual of the original instrument (Jesness, 2003).

The data of the judicialized adolescents were stored in a database. This sample was composed of 129 adolescents, aged between 16 and 20 years (M = 16.9; SD = 0.7).

Data were collected from a total of 568 adolescents. Excluding cases with incomplete answers, a total of 468 adolescents aged between 12 and 19 years (M = 15.1; SD = 1.9) were obtained, of which 76% were public school students and 24% were from private schools. Regarding the distribution of adolescents according to socioeconomic class, it was identified that 6.0% of the sample belongs to Class A; 19.3% to Class B1, 30.5% to Class B2; 24.6% to Class C1; 13.7% to Class C2; and 5.9% to Classes D-E. The socioeconomic status classification was taken from the *Critério de Classificação Socioeconômica Brasil* (Brazil Socioeconomic Classification Criteria), which divides the population into socioeconomic classes based on the purchasing power of families (Associação Brasileira de Empresas de Pesquisa, 2016). Classes are organized from the one that represents the highest purchasing power (A), to the lowest (D-E) (Mazzon & Kamakura, 2016).

Instruments

Jesness Inventory – Revised – Brazilian (short form) (IJ-R-Br[R]) – (Costa et al., 2020; Costa, 2020). This instrument has 85 items, which are statements to which the adolescent answers "True" or "False". Different combinations between these items provide scores on 13 measures that each refer to latent traits that are relevant to the involvement in offensive conduct, or to the understanding of the adolescent's general

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psychological functioning – favoring customized treatment actions. Examples of inventory items are: "When someone tells me to do something, I feel like doing the opposite", "Most police officers are not intelligent", "Sometimes it is good to be able to deceive, to 'fool' someone", "No matter where I am, I would always like to be somewhere else", and "In my life nothing much has happened".

All non-judicialized adolescents responded to the short form of the instrument, while the judicialized group responded to the full version of the Inventory (IJ-R-Br; Bazon, 2016). Thus, for this group, responses to the 85 items that make up the short form were selected. The accuracy indices of the scales of the short form for the group of non-judicialized adolescents (n = 468) ranged from 0.55 in Social Anxiety to 0.84 in Social Maladjustment. As well as Social Anxiety, Conduct Disorder also had an unsatisfactory index (0.59). For the group of judicialized adolescents (n = 129), only the Oppositional Defiant Disorder scale had an unsatisfactory index (0.56). The highest index was for Social Maladjustment (0.86).

Socialization Factor Scale (SFS) – Nunes and Hutz (2007). The SFS is a Brazilian tool, approved for professional use, that measures the personality dimension called Socialization. It assesses the quality of typical interpersonal relationships of individuals (compatible with traits of the Big Five Model) (Nunes, 2007). This scale is composed of 70 items that describe feelings, opinions, and attitudes, with a 7-level Likert-type response ranging from "It doesn't describe me" to "It describes me very well", which generate scores in the Agreeableness (S1), Pro-sociability (S2), Trust (S3). The identified accuracy indices are 0.91 for Agreeableness (S1), 0.84 for Pro-sociability (S2), and 0.80 for Trust (S3) (Nunes, 2007). This instrument was answered by 468 participants, from the group of adolescents who have not been judicialized.

Self-Control Scale (SCS) – Grasmick et al. (1993). Adapted to the Brazilian context by Gouveia et al. (2013), it is made up of 24 items, each of the mentioned scales being made up of four items. Answers are given on a 4-level Likert scale ranging from "Strongly Disagree" to "Strongly Agree". It comprises the dimensions 1) Interest in risky and exciting experiences, 2) Low tolerance to frustration, 3) Preference for simple tasks, 4) Self-centeredness, 5) Volatile temperament, 6) Impulsiveness. The Cronbach's alpha coefficient for the dimensions ranged from 0.62 to 0.82 (Gouveia et al., 2013). This instrument was answered by 129 participants, from the group of judicialized adolescents.

Social Skills Inventory for Adolescents (SSI-Del-Prette). It is a Brazilian tool approved for professional use, which assesses the adolescent's reaction – their decision making – to a situation of social exposure and conversation described, to measure their social skills (Del Prette & Del Prette, 2009). It consists of 38 items, with a Likert-type response, and formed by subscales in relation to difficulty in 1) Empathy, 2) Self-control, 3) Civility, 4) Assertiveness, 5) Affective Approach, and 6) Social Resourcefulness. Cronbach's alpha coefficient for difficulty ranged from 0.51 in Social Resourcefulness and 0.86 in Empathy. This instrument was answered by 129 participants, from the group of judicialized adolescents.

Juvenile Behavior Questionnaire (QCJ). This is an instrument based on questions from the Second International Self-Reported Delinquency Study (ISRD2), whose adaptation to the Brazilian context and evidence of validity are described in the study by Komatsu et al. (2020). The QCJ addresses areas of the adolescent's life, and, in the case of this study, it was used information referring to self-reported offensive conduct. These pieces of information are obtained through the Self-reported Delinquency Questionnaire, which is part of the QCJ. This methodology is well established, according to Jolliffe and Farrington (2014).

In this Questionnaire, the adolescent answers if they have already committed any of the following offenses: 1) drug trafficking, 2) theft, 3) merchandise theft (shoplifting), 4) breaking into a vehicle to steal property from it, 5) theft using a car or motorcycle, 6) deliberately hurting animals, 7) bodily injury, 8) bodily injury with an instrument, 9) possession of a firearm, 10) property damage, 11) receiving stolen property, 12) participation in gang fights, and 13) robbery. For each offense investigated that the adolescent indicates that they have already committed, they must answer, among other information, the number of times they

have commissioned the offense in the last 12 months. From this, the variable of interest for the study, the frequency of offenses in the last 12 months, is calculated. This instrument was answered by 597 participants, corresponding to the total study sample.

Procedures

The collection of data from judicialized adolescents took place in three programs for the execution of socio-educational measures in a closed environment (with deprivation of liberty), individually, and in an interview format, between November 2018 and August 2019. The collection was carried out by researcher, who has a degree in psychology, and had a mean duration of 90 minutes.

Non-judicialized adolescents were recruited from 13 educational institutions – seven public and six private –, in classrooms of Middle School, High School, or SAT Preparatory Courses, between August 2018 and November 2019. Data collection took place in group format, with the presence of a researcher with a background in psychology and the class teacher or school inspector. The procedure had a mean duration of 70 minutes.

Data collection and storage of judicialized adolescents *Certificado de Apresentação para Apreciação Ética* (CAAE, Presentation Certificate for Ethical Appreciation, nº 77903617.5.0000.5407) and non-judicialized (CAAE: nº 8686078.1.0000.5407) proceeded according to the procedure approved by the Ethics Committee for Research with Human Beings. All participants signed the consent term (and their parents signed the informed consent form, in the case of adolescents under 18 years old), or the informed consent form, in the case of adolescents over 18 years old.

Data Analysis

To obtain evidence of convergent validity of the IJ-R-Br(R) scales in relation to the subscales/dimensions of the SCS, SSI-Del-Prette, and SFS, Spearman's Rho correlation coefficients were calculated (Schober et al., 2018) between the standardized scores of each instrument. For the analyzes with the SSI-Del-Prette and the SCS, data from the group of judicialized adolescents were analyzed (n = 129) and, for the analyzes with the SFS, the data from the group of non-judicialized adolescents (n = 468) .

To obtain evidence of concurrent criterion validity, we investigated the ability of the IJ-R-Br(R) scales to differentiate groups of adolescents according to the measures of Judicialization (judicialized or non-judicialized) and Frequency of self-reported delinquency in the last 12 months ("Normative Frequency" and "High Frequency").

In the case of the Frequency of self-reported delinquency in the last 12 months and the scores on the IJ-R-Br(R) scales, the absolute values reported by the adolescents were standardized for T distribution, based on an age reference group. Standardized values that are one standard deviation above the mean values, equal to or greater than 60, were considered "High Frequency" and values below 60 were considered "Normative Frequency", for the case of the Frequency of self-reported delinquency in the last 12 months variable. Likewise, for the inventory scales, scores above 60 were considered high and scores below 60 were considered normative (Jesness, 2003). For this analysis, the scores of the inventory scales were treated as categorical measures ("Normative Score" and "High Score"). Observed and expected occurrences were compared with each other using the chi-square test (χ^2) (Turhan, 2020).

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Results

Convergent validity evidence

The correlation coefficients between the IJ-R-Br(R) scores and the SCS, SSI-Del-Prette, and SFS scales are shown in Table 1. The coefficients whose value describe a significant correlation (above than 0.3 or below -0.3) (Gignac & Szodorai, 2016) are highlighted, as well as the coefficients that describe a moderate strength correlation (above 0.4 or below -0.4 (Schober et al., 2018).

Table 1

Spearman's Rho Correlation Coefficients between scales of the short form of the IJ-R-Br and the SCS, the SSI (n = 129), and the SFS (n = 468)

Convergent measures	SM	VO	Im	Au	Al	MA	Wd	SA	Rep	Den	CD	ODD	AI
Self-Control Scale													
Impulsivity	**0.41**	**0.40**	**0.36**	**0.35**	**0.36**	**0.37**	0.09	0.28	-0.11	**-0.37**	**0.38**	0.33	0.33
Physical activities	**0.36**	**0.37**	0.24	0.30	0.35	0.26	0.25	**0.36**	-0.03	-0.34	0.21	0.17	0.23
Risk seeking	**0.52**	**0.54**	**0.44**	**0.47**	0.38	**0.56**	0.20	0.27	-0.13	**-0.45**	**0.51**	**0.43**	**0.41**
Self-centered	0.30	0.29	0.13	0.18	0.25	0.18	0.06	-0.02	0.22	-0.17	0.16	0.09	0.27
Simple tasks	**0.38**	**0.41**	0.20	**0.42**	0.30	0.32	0.07	0.14	-0.03	-0.23	0.51	0.34	0.31
Volatile temperament	**0.48**	**0.45**	**0.52**	**0.43**	0.34	**0.55**	0.21	**0.38**	-0.28	**-0.41**	**0.50**	**0.44**	**0.39**
Social Skills Inventory													
Empathy	0.20	0.26	0.21	0.16	0.19	0.26	0.14	0.24	-0.29	-0.27	0.21	0.28	0.19
Self-control	-0.21	-0.27	-0.32	-0.21	-0.10	**-0.45**	-0.03	-0.14	**0.47**	0.24	**-0.41**	**-0.39**	-0.17
Civility	-0.11	-0.17	-0.14	-0.19	-0.08	-0.20	0.07	-0.07	**0.42**	0.08	-0.31	-0.25	-0.08
Assertiveness	0.17	0.17	0.30	0.17	0.07	0.29	0.06	0.24	-0.25	-0.19	0.15	0.24	0.12
Affective approach	0.11	0.14	0.14	0.06	0.07	0.15	0.17	0.22	-0.18	-0.14	0.03	0.16	0.10
Social resourcefulness	0.27	0.34	0.27	0.27	0.25	0.34	0.19	0.29	-0.26	-0.30	0.27	**0.38**	0.22
Socialization Factorial Scale													
Agreeableness (S1)	-0.05	-0.10	-0.12	-0.02	-0.09	-0.09	-0.01	0.10	0.19	0.09	-0.09	-0.02	-0.03
Pro-Sociability (S2)	**-0.50**	**-0.43**	-0.34	**-0.48**	**-0.42**	**-0.45**	-0.15	0.06	0.16	0.28	**-0.52**	**-0.48**	**-0.46**
Trust in people (S3)	**-0.52**	**-0.45**	**-0.43**	**-0.46**	**-0.43**	**-0.49**	**-0.30**	-0.14	0.31	0.34	**-0.44**	**-0.41**	**-0.45**

Note: The scores on the Social Skills Inventory scales measure the difficulty adolescents report having in emitting behaviors related to these Social Skills classes. Al: Alienation; AI: Asocial Index; Au: Autism; CD: Conduct Disorder; Den: Denial; Im: Immaturity; MA: Manifest Aggression; ODD: Oppositional Defiant Disorder; Rep: Repression; SA: Social Anxiety; SM: Social Maladjustment; VO: Value Orientation; Wd: Withdrawal. The coefficients in bold are significant or have a moderate strength.

Most of the IJ-R-Br(R) scales correlate more strongly with the "Risk Seeking" and "Volatile Temperament" dimensions of the SCS. The Social Maladjustment (SM) scale is significantly correlated with all the dimensions of the SCS. The scales that assess aspects of general psychological functioning, Withdrawal (Wd) and Repression (Rep), do not show a remarkable correlation of strength with any dimension of the SCS. Social Anxiety (SA) was correlated with the dimension of Preference for physical activities and Volatile Temperament, with a coefficient of strength considered weak. Denial (Den) showed inverse correlations with Impulsiveness, Preference for physical activities, and Risk seeking.

Regarding the SSI-Del-Prette, the Manifest Aggression (MA), Repression (Rep) and Oppositional Defiant Disorder (ODD) scales correlated with greater magnitude with more difficulty scales of the SSI-Del-Prette. In addition to these, Value Orientation (VO) showed a positive correlation with difficulties in Social Resourcefulness and Immaturity (Im), negative with Self-Control, and positive with Assertiveness.

Among the SFS subscales, Agreeableness (S1) was not significantly correlated with any of the IJ-R-Br(R) scales. The relationship with the greatest strength found was with the Repression scale (Rep), with a positive

coefficient of 0.26. The Pro-Sociability (S2) and Trust in People (S3) scales presented negative and significant correlation coefficients with respectively 11 and 12 of the 13 Inventory measures.

Concurrent criterion validity evidence

Evidence of concurrent criterion validity is summarized in Table 2. This evidence, obtained from the chi-square test, indicates whether the distribution observed in the sample is compatible with the expected distribution, in relation to the scores of the IJ-R-Br(R) scales and, respectively, the Judicialization and Frequency criteria for self-reported delinquency in the last 12 months.

Table 2
Chi-square comparison between occurrences of high or normative scores in the scales of the short form of the Inventory with the Frequency and Judicialization criteria

IJ-R-Br(R) scales		Normative frequency (n = 521)		High frequency (n = 76)		Non-judicialized (n = 468)		Judicialized (n = 129)	
		n (%)	Adjusted Res.	n (%)	Adjusted Res.	n (%)	Adjusted Res.	n (%)	Adjusted Res.
SM	0	402 (77.2)	1.3	25 (32.9)	-3.4	384 (82.1)	2.7	43 (33.3)	-4.7
	1	119 (22.8)	-2.4	51 (67.1)	6.2	84 (17.9)	-4.5	86 (66.7)	8.5
VO	0	408 (78.3)	0.3	29 (38.2)	-3.5	385 (82.3)	2.3	52 (40.3)	-4.4
	1	113 (21.7)	-2.2	47 (61.8)	5.9	83 (17.7)	-3.7	77 (59.7)	7.2
Im	0	409 (78.5)	0.4	51 (67.1)	-0.9	370 (79.1)	0.5	90 (69.8)	-0.9
	1	112 (21.5)	-0.7	25 (32.9)	1.8	98 (20.9)	-0.9	39 (30.2)	1.7
Au	0	429 (82.3)	1	39 (51.3)	-2.7	405 (86.5)	1.9	63 (48.8)	-3.7
	1	92 (17.7)	-1.9	37 (48.7)	5.1	63 (13.5)	-3.7	66 (51.2)	7.2
Al	0	417 (80.0)	1.5	27 (35.5)	-3.9	402 (85.9)	2.9	42 (32.6)	-5.5
	1	104 (20.0)	-2.5	49 (64.5)	6.7	66 (14.1)	-4.9	87 (67.4)	9.3
MA	0	416 (79.8)	1.0	37 (48.7)	-2.7	376 (80.3)	1.1	77 (59.7)	-2.1
	1	105 (20.2)	-1.8	39 (51.3)	4.8	92 (19.7)	-1.9	52 (40.3)	3.7
Wd	0	404 (77.5)	0.3	51 (67.1)	-0.9	374 (79.9)	0.9	81 (62.8)	-1.7
	1	117 (22.5)	-0.6	25 (32.9)	1.6	94 (20.1)	-1.6	48 (37.2)	3.1
SA	0	521 (100)		76 (100)		468 (100)		129 (100)	
	1	-		-		-		-	
Rep	0	432 (82.9)	0.0	63 (82.9)	0.0	394 (84.2)	0.3	101 (78.3)	-0.5
	1	89 (17.1)	0.0	13 (17.1)	0.0	74 (15.8)	-0.6	28 (21.7)	1.2
Den	0	445 (85.4)	-0.2	71 (93.4)	0.6	395 (84.4)	-0.5	121 (93.8)	0.9
	1	76 (14.6)	0.6	5 (6.6)	-1.6	73 (15.6)	1.2	8 (6.2)	-2.3
CD	0	423 (81.2)	1	38 (50.0)	-2.7	396 (84.6)	1.8	65 (50.4)	-3.5
	1	98 (18.8)	-1.9	38 (50.0)	4.9	72 (15.4)	-3.3	64 (49.6)	6.4
ODD	0	389 (74.7)	0.3	49 (64.5)	-0.9	351 (75.0)	0.4	87 (67.4)	-0.8
	1	132 (25.3)	-0.6	27 (35.5)	1.5	117 (25.0)	-0.7	42 (32.6)	1.3
AI	0	399 (76.6)	1.4	26 (34.2)	-3.8	386 (82.5)	2.9	39 (30.2)	-5.5
	1	122 (23.4)	-2.3	50 (65.8)	6.0	82 (17.5)	-4.5	90 (69.8)	8.6

Note: The higher the residual value, from +2 or -2 (derived from the critical value of the z distribution), the greater the contribution of this occurrence to the significant result of the chi-square test. This value is abbreviated as Adjusted Res. Al: Alienation; AI: Asocial Index; Au: Autism; CD: Conduct Disorder; Den: Denial; Im: Immaturity; MA: Manifest Aggression; ODD: Oppositional Defiant Disorder; Rep: Repression; SA: Social Anxiety; SM: Social Maladjustment; VO: Value Orientation; Wd: Withdrawal.

The results for the Judicialization criterion suggest that there is an association between being part of the group of judicialized adolescents and having high scores on the IJ-R-Br(R) scales – except for Rep: χ^2 (1) = 2.1, p = 0.115 and AS (which did not have adolescents with non-normative scores). Analyzing the Adjusted

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Residuals (Adjust. Res), it appears that the strongest associations were found for the Social Maladjustment (SM), Value Orientation (VO), Autism (Au), Alienation (Al), Conduct Disorder (CD), and Asocial Index (AI) scales.

The results regarding the Frequency of offenses in the last 12 months criterion point to a similar direction to those obtained for the Judicialization criterion. There is an association between being part of the group of adolescents with High Frequency of Offenses in the last 12 months and presenting high scores on the IJ-R-Br(R) scales – except for Rt: $\chi^2 (1) = 3,4$, $p = 0.064$, Rep: $\chi^2 (1) = 0.0$, $p = 0.996$, Den: $(\chi^2 (1) = 2.9$, $p = 0.057$, ODD: $\chi^2 (1) = 3.0$, $p = 0.060$, and SA (which did not present any adolescents with non-normative scores).

The analysis of Adjusted Residuals (Adjusted Res.) indicates that the strongest associations were found for the scales Social Maladjustment (SM), Value Orientation (VO), Autism (Au), Alienation (Al), Manifest Aggression (MA), Conduct Disorder (CD), and Asocial Index (AI).

Discussion

This study aimed to analyze evidence of convergent and concurrent criterion validity of the IJ-R-Br(R). Convergent validity analyzes indicated an association between most of the IJ-R-Br(R) scales and the SCS, SSI-Del-Prette, and SFS instruments, corroborating the established H1 hypothesis. Regarding the SCS, most of the IJ-R-Br(R) scales - especially those associated with delinquency - correlated with moderate strength, with the highest indices found, with the "Risk Seeking" and "Volatile Temperament " dimensions of the SCS, according to the results of the meta-analysis by Walters (2016), which indicates that the constructs assessed by the SCS are associated with measures of delinquency.

The "Risk Seeking" construct concerns the interest in risky and exciting experiences and "Volatile Temperament" refers to the low resistance to frustration and emotional reactivity, which are understood as sub-dimensions of low self-control (Gouveia et al., 2013). The scales associated with general psychological functioning do not show a remarkable correlation of strength with any dimension of the SCS, since the SCS, unlike the Jesness Inventory, does not assess aspects of general psychological functioning. Finally, Denial showed inverse correlations, with moderate strength for Preference for physical activities and Risk Seeking, and with weak strength for Impulsiveness. High scores in Denial are associated with lighter offenses (Costa, et al., 2017; Wenger, 2018), while high scores in the SCS, indicating low self-control, are associated with more serious offenses (Walters, 2016).

Regarding the SSI-Del-Prette, Manifest Aggression was inversely and moderately correlated with Difficulty in exercising "Self-Control". This result reinforces the interpretative sense of the Manifest Aggression scale, which assesses a tendency to experience negative emotions and fear of loss of control due to them (Costa et al., 2020), but not necessarily a *de facto* low self-control – one can observe the Weak Correlation between Manifest Aggression and Impulsivity in the SCS. Value Orientation, in turn, was correlated with Difficulty in "Social Resourcefulness". Value Orientation measures a set of behavioral and attitudinal norms compatible with the concept of the *street code*, which legitimizes violently solving problems, especially those associated with defending honor and obtaining respect in the surroundings in which they live. It is a more typical cultural element in structurally disadvantaged contexts (Burgason et al., 2020). Although the correlation found was weak, there is a theoretical sense that allows us to discuss that adolescents from lower socioeconomic classes lack experiences in environments where more formal social interactions prevail, which demand specific behaviors, appropriate to the context, associated with more complex social skills (Moreira et al., 2020), justifying the covariation of the scores in Value Orientation and the difficulty in "Social Resourcefulness".

The Repression scale, which indicates the rejection of negative aspects in oneself and in established relationships (Costa et al., 2020), was inversely correlated with the difficulty in presenting Self-Control and Civility, with moderate strength, indicating that the greater the Repression levels, the less difficult the

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adolescent finds emitting behaviors from these classes of social skills. This result, at first glance, seems contrary to expectations since Repression is considered a poorly adaptive defense mechanism. High scores in Repression would therefore represent a more stereotyped behavior, less sensitive and adjusted to the complexity of interactions (Jesness, 2003). However, understanding that repression has the function of protecting the individual from negative feelings, separating them from their own conscience, it is possible to understand the negative correlations with higher difficulty in Self-Control and Civility (Leme et al., 2015).

The Immaturity scale correlated negatively with difficulty in exercising Self-Control and positively correlated with Assertiveness. It assesses the presence of behavioral characteristics that would be typical of younger ages, related to a phase of greater immaturity. The scores on this scale were associated with those in difficulty in exercising Assertiveness, which reiterates the adequacy of this scale to effectively measure the Immaturity construct. Furthermore, in the study by Wenger (2018), the Immaturity scale, in its full version, was more strongly correlated with Temperance and Perspective measures, from the MAYAS. These measures that measure impulse control, future consequences, and consideration of others and that are compatible with these classes of the SSI-Del-Prette. In this sense, the result for Self-Control was not expected. The hypothesis made is that perhaps adolescents have difficulty in assessing their difficulty in exercising Self-Control. In any case, the correlations found are weak, and this set makes further investigations necessary, as it is not conclusive that Immaturity, in its short form, has preserved its interpretative sense.

Regarding the SFS, negative correlations were identified between the Pro-Sociability and Trust in People subscales and most of the IJ-R-Br(R) scales – including all those more specifically associated with the commission of offenses. Low trust in people, together with low pro-sociability, predisposes to problems with authority, a tendency to disrespect the laws, attribution of hostile intent to others and attitudes favorable to violence (Wolff et al., 2020). These interpretations are in line with what assesses the set of scales Social Maladjustment, Value Orientation, Autism, Alienation, Manifest Aggression, Conduct Disorder, and Oppositional Defiant Disorder and Asocial Index, the scales of the IJ-R-Br(R) more related to delinquency.

The correlations between the SFS subscales and the short form of the Jesness scales, which assess general psychological functioning, suggest positive associations with the Repression and Denial scales, but with weak strength correlations. It is interesting to note that studies which show high levels of aspects assessed by the SFS are associated with lower involvement in offenses (lower frequency), which would be typical of the general population (Jolliffe, 2013; Ljubin-Golub et al., 2017). Repression, as mentioned above, refers to a defense mechanism, as does Denial. The difference is that Denial, conceptually, would describe a more adaptive behavior, related to a conscious tendency to "avoid thinking about personal/relational problems", assuming a more positive attitude towards the future (it would be linked to a kind of optimism). In the context of origin of the Inventory (Jesness, 2003), offenders would generally have high scores in Repression and low in Denial. In other sociocultural contexts, however, the data do not always align with this trend. Repression and Denial usually have higher levels in population groups (Costa et al., 2017; Wenger, 2010, 2018).

The SFS Trust in People subscale showed a negative correlation, weak strength, with Withdrawal, indicating, in a modest way, that the higher the scores in the former, the lower the scores in the latter, and vice-versa. The SFS approaches the Socialization trait from the relational point of view (Nunes, 2007). Therefore, this result supports the interpretative sense of the Withdrawal scale of the Inventory, which would signal difficulties in establishing interpersonal relationships due to a tendency to "close in on oneself" (Withdrawal) (Bazon, 2016; Jesness, 2003). It is noteworthy that the Withdrawal scale, in studies with the full version of the Inventory, did not present satisfactory reliability indices. Thus, this result may be favorable to the scale, from the standpoint of its interpretation – although the weak correlation still denotes the weakness of the measure.

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The SFS Agreeableness subscale did not correlate remarkably with any IJ-R-Br(R) scale. High levels of agreeableness are associated with low involvement in offenses (Vachon & Lynam, 2016), and low levels are associated with a higher probability of involvement in offenses (Walters, 2018). This suggests that the Inventory is not focused on assessing this aspect of the personality. However, the Trust in People subscale (S3) correlates with all the scales of the IJ-R-Br(R), and more specifically with those associated with juvenile delinquency, with moderate strength. This result, in turn, suggests that the aspects assessed by the Inventory are more centered on this basic aspect, related to the way of establishing social relations.

As for the concurrent criterion validity analyses, they indicated an association between the highest scores in the IJ-R-Br(R) and belonging to groups of judicialized adolescents with high frequency – according to the T standard – of commission of offenses. For the Judicialization criterion, the results corroborate previous studies carried out. The Social Maladjustment, Value Orientation, and Asocial Index scales, which consistently differentiate judicialized groups from non-judicialized groups, in all the studies cited also presented the strongest associations, in this investigation, alongside Autism, Alienation, and Conduct Disorder .

For the criterion of Frequency of self-reported delinquency in the last 12 months (Normative = 0; High = 1), the results also corroborate previous studies. For this criterion, the Social Maladjustment, Asocial Index, Value Orientation, Autism, Alienation, Manifest Aggression, and Conduct Disorder scales maintained a good ability to differentiate groups from each other (Costa et al., 2017; Ergas & Narváez, 2015; Wenger, 2018).

As in the study by Wenger (2010), the non-judicialized group had higher scores in the Denial subscale. However, in disagreement with what the author identified, Repression did not differentiate the groups from each other, reiterating the fact that Repression can also be high in population groups, functioning differently from what was seen in the context of origin of the Inventory. The Withdrawal, Social Anxiety, Repression, and Denial scales, associated with general psychological functioning, were not able to differentiate the groups from each other. In a previous study, Withdrawal and Social Anxiety were not associated with self-reported delinquency, as well as Repression and Denial had higher levels in population groups (Wenger, 2018).

 In this sense, the evidence of concurrent criterion validity obtained corroborates the established H2 hypothesis, that scales more associated with offensive conduct – Social Maladjustment, Value Orientation, Autism, Alienation, Manifest Aggression, Conduct and Oppositional Defiant Disorder, and Asocial Index – would be able to differentiate groups of adolescents – either by the criterion of judicialization or by the frequency of offenses in the last 12 months.

Among the limitations of this study, it is noteworthy that for the purposes of convergent validity, there were no valid data from the total sample (n = 597) for all instruments with external criteria, which may have generated inaccuracy in the results obtained. Data from the sample of judicialized adolescents were stored in a database. Likewise, data collection was carried out in a city in the state of São Paulo. About sampling, although data were collected in different regions of the city, it was a non-probabilistic procedure. Contrasting with the distribution of classes by state presented by the *Associação Brasileira de Empresas de Pesquisa* (Brazilian Association of Research Companies), this sample is especially representative of the upper-middle classes of the population of the state of São Paulo (Brazil). For these reasons, conclusions about the instrument should be taken with caution.

Future studies can assess the evidence of convergent validity by expanding and diversifying the samples studied, as well as investigating the correlations between the short form and forensic clinical measures, as did Olver and Stockdale (2016). It would also be important, in future studies, to adopt grouping methods that aim to reduce the internal heterogeneity of groups.

In addition, it is necessary to focus on adapting the Inventory to female adolescents, considering gender specificities regarding serious behavior/delinquency problems (Kruttschnitt, 2013; Lanctot & LeBlanc, 2002). Also considering the relevance of cross-cultural studies to enable the exchange of practices and knowledge

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(Grad & Vergara, 2003), international studies, in partnerships with Portuguese-speaking countries, could encourage the sharing of assessment instruments that favor the improvement of practices in the juvenile justice systems in each sociocultural context.

Conclusion

Despite the limitations of the study, it is considered that the analyzes of the relationships found contributed to a better understanding of the potentials and limits in the interpretative sense of the IJ-R-Br(R) scales. The evidence confirms the potential for multidimensional assessment of the Inventory scales and justifies the continuation of such studies. Correlations with the SSI-Del-Prette, for example, give us evidence that some scales of the IJ-R-Br(R) assess constructs that are associated with aspects of the individual's interrelational skills. This Inventory capacity is fundamental for identifying intervention needs, which can be focused on the context of educational follow-up of adolescent offenders. Regarding the consequences and applications of the assessment tool for the target population, having standardized tools that can be quickly applied that assess relevant aspects associated with juvenile delinquency, can reduce the negative effects, and even produce more positive consequences, in the sense of making the proposition of an adequate monitoring of each adolescent, promoting better practices in the socio-educational system.

This strategy is in line with Evidence-Based Practices, which refer to the importance of scientifically endorsed practices. These are already widespread in some sociocultural contexts, in which Socio-Educational Systems were reformed along these lines – or so planned from the beginning. Encouragingly, some researchers consider that seeking evidence-based practices in juvenile delinquency is a natural tendency, and will end up spreading to other sociocultural contexts, as it certainly provides more effective results and is more readily consistent with the values inherent in the conception of human rights.

Contributors

R. C. S. COSTA was responsible for study conceptualization, data collection, formal analysis, data management, and for writing this paper; L. S. GALINARI and A. V. KOMATSU collaborated for the analysis plan and for reviewing method, results, and discussion; M. R. BAZON collaborated for the study conceptualization and was responsible for the funding, project management and for the review of the final version of this article.

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