Reliability and validity of the Psychopathy Checklist-Revised (PCL-R) in a Cuban prison sample

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Original article

SUMMARY

The psychometric properties of the PCL-R (Psychopathy Checklist-Revised) have been standardized in numerous countries. This article evaluates whether the PCL-R can also be validated in the Cuban prison population. The sample was made up of 124 male inmates, imprisoned for committing violent crimes. The PCL-R Spanish version by Moltó et al. was applied. The reliability and internal consistency of the scale were consistent with similar investigations. A two-factor structure was obtained. Factor 1 describes Antisocial behavior and Factor 2 describes Interpersonal-Affective traits of the scale. The two factors showed different patterns of correlation with validated instruments to measure personality traits and confirm the reliability of the construct.

Key words: Standardization, Psychopathy Checklist-Revised, validity, psychopath, prison sample.

RESUMEN

Las propiedades psicométricas de la Escala de Psicopatía de Hare (PCL-R) han sido estandarizadas en diferentes países. Este artículo evalúa si la PCL-R puede ser validada en la población carcelaria cubana. La muestra estuvo compuesta por 124 sujetos, presos por cometer crímenes violentos, a quienes se les aplicó la adaptación española de Moltó et al. (2000). La confiabilidad y la consistencia interna de la escala fueron similares a otros estudios realizados. El análisis factorial mostró una estructura de dos factores, donde el Factor 1 representa los rasgos que describen la conducta antisocial y el Factor 2, los rasgos que describen las relaciones interpersonales y la afectividad. Los dos factores exhiben una alta correlación con distintos instrumentos validados que miden rasgos de personalidad, lo que confirma la validez del constructo.

Palabras clave: Estandarización, Psychopathy Checklist-Revised, psicópatas, validación, población carcelaria.

INTRODUCTION

Psychopathy is a body of psychopathology comprised of a set of personality traits. It is said to be "perhaps the most recognized personality disorder."[1-3] Indeed, is has been described as the most important construct in the criminal justice system and also "that it could be the most important forensic concept of the 21st century".[4-6] Epidemiological studies that examine the prevalence of psychopathy in forensic samples reveal that while 80% of U.S. prisoners come to the diagnosis for antisocial personality disorder (APD), only 15%-25% of those obtain the criteria for psychopathy, according to the Psychopathy Checklist-Revised (PCL-R).[7]

In recent decades, the PCL-R[8,9] has been the instrument of reference for the diagnosis of psychopathy, both in prison populations as well as forensic psychiatry.[10-13] The instrument was originally designed in order to evaluate the clinical structure of psychopathy, but its capacity to predict reoffending of violent acts has been demonstrated, as well as its routine use in forensic assessment or as part of a set of tests to measure pertinent factors and variables in forensic psychology and psychiatry.[14]

The psychometric properties of the PCL-R have been reported in various studies on prison populations, both in America and Europe,[14-18] with broad acceptance and validation in different cultures and races. The aim of the present study is to investigate the reliability and validity of the PCL-R in the Cuban prison population, particularly in that comprised of prisoners with very violent behavior. It aims to use the results obtained to demonstrate that it is also an applicable instrument for the diagnosis of psychopathy in Cuban prisoners.

MATERIAL AND METHODS

Participants

The sample was made up of a total of 124 subjects, imprisoned for committing violent crimes (murder and manslaughter), and aged between 18 and 62 years (mean 31.14, SD=9.09). Their time in prison should be less than two years and they should not have psychiatric history on the I Axis (based on the criteria of the SCAN version 2.1) nor have any classification of learning disabilities. Level of education was distributed as follows: elementary level 18 subjects (14.6%); high school level 70 (56.5%); pre-university 29 (23.3%), and medium-level diploma 7 (5.6%) subjects. In terms of the civil status of the subjects, 74 (59.7%) were single, 34 were married (27.4), and 16 were living with a partner (12.9%).

The ethnic composition of the population studied was 48 (38.7%) Afro-American subjects, 42 (33.9%) Mestizos, and 34 (27.4%) Caucasian. Based on the prisoners' files, the subjects could be classified according to their criminal history of reoffending and on no previous history. Of the 124 subjects studied, 38 (30.6%) had already been in prison and 86 (69.4%) had no previous offences.

To start the investigation, the assessment objectives were explained to all the subjects, emphasizing that they had the option to abandon the study at any time and that the results of the study would not affect their sentences or appeals. All subjects signed an informed consent form. The investigation started with 131 subjects after a revision of their prison files. Seven subjects abandoned during the study, leaving the final sample of 124 subjects. This research was directed and approved by the Ethics Committee of the Cuban Neurosciences Center and the Ministry of Public Health.

Methodology used

The neuropsychiatric assessment consisted of a structured interview with general data, the PCL-R, and the application of a group of instruments that assess different personality traits related with psychopathy, with the aim of studying the concurrent validity of the PCL-R with its Interpersonal-Affective and Antisocial behavior characteristics. These were as follows:

a) Schedule for Clinical Assessment in Neuropsychiatry (SCAN version 2.1),[19] a psychopathology questionnaire prepared by the World Health Organization. It is used as a tool for the diagnosis of mental illness in adults.

b) Psychopathy Checklist - Revised by Hare (PCL-R).[8,9] This is a semi-structured interview that assesses both behavior and personality traits related to psychopathy. The scale is made up of 20 items and each one has a score between 0 and 2 points (0= not applicable; 1= applicable under certain circumstances, and 2= completely applicable to the subject assessed). The total score of the scale is 40 points, and the cut-off point for psychopathy is 30. There are two factor models of the scale by Hare: the 1991 version with two factors, and the 2003 version with four factors. in this investigation, the two factor model will be used: Factor 1 (F1) Interpersonal-Affective, and Factor 2 (F2) Antisocial Behavior of the subject.

Six psychiatry specialists were selected and trained to assess the scale. The PCL-R version adapted and validated on the Spanish prison population was used.[16] Each one of the psychiatrists were given a set group of subjects to assess. The methodology for assessment of the instruments indicates that the records held in the prison should be reviewed. To this are added the assessments made by specialists from the multidisciplinary group that also participated in the investigation, comprised of psychologists, neurophysiologists, social workers, and prison re-educators who provided the results of the studies, before the final assessment of the PCL-R. This allowed each psychiatrist to have objective and comprehensive information on the individual to be assessed.

c) The Aggression Questionnaire by Buss and Perry.[20] (Spanish validation by Graña, Andreu, and Peña, 2002).[21] This instrument assesses four forms of aggressive behavior: physical aggression, verbal aggression, anger, and hostility, and provides five possible responses that are scored from one to five points and which range between "does not characterize me" to "totally characterizes me". The scale is scored in reverse; in other words, the higher the score, the less aggressive the subject. Cut-off is 77 points.

d) Control of Impulses Scale by Ramón and Cajal [in Spanish: Escala del Control de los Impulsos Ramón y Cajal] (ECIR y C).[22] This is an instrument that scores impulsive behavior in a range between one to four points. Scoring is structured as follows: "always" three points; "sometimes" two points; "almost never" one point; and "never" zero points. The scale does not have a cut-off point - the higher the score, the more impulsive the subject.

e) Rosenberg's (Self-Esteem Scale).[23] (Spanish version by Vázquez, Jiménez, and Vázquez Morejón) was applied.[24] This instrument consists of 10 items that assess the self-acceptance of the subject studied. The scoring is structured on a range of one to four points, where one point is "very much agree", two points is "somewhat agree", three points is "disagree", and four points is "totally disagree". The score ranges from 10 to 40 points.

f) The Sensation-Seeking scale (SSS-Form V), Zuckerman et al.[25] (Spanish version by Pérez and Torrubia was applied).[26] This is a self-assessed questionnaire that has 40 items with two possible answers: affirmative or negative. The instrument is subdivided into four subscales that assess different forms of sensation-seeking: Seeking Emotions (SEm), Seeking Excitement (SE), Lack of Inhibition (LI), and Susceptibility to Boredom (SB). The

Table 1. Socio-demographic data on the population of psychopaths and non-psychopaths

Variable	Psychopaths
Ethnic distribution	
• Mestizos	45.0%
• Afro-Americans	40.0%
• Caucasians	15.0%
Education	
• Elementary	22.5%
• High school	62.5%
• Medium level diploma	2.5%
• Pre University	12.5%
Reoffending	70.0%

Variable	Non-psychopaths
Ethnic distribution	
• Mestizos	28.6%
• Afro-Americans	8.1%
• Caucasians	3.3%
Education	
• Elementary	10.8%
• High school	53.6%
• Medium level diploma	7.1%
• Pre University	28.6%
Reoffending	11.9%

is no cut-off point; the higher the score, the greater the subject's sensation-seeking.

Statistical analysis

The statistical methodology used to verify the validity and reliability of the construct was based on calculating Pearson's coefficient of correlation. To measure internal consistency, Cronbach's alpha coefficient was used. For the estimation of the intrinsic factors of the PCL-R, a factor analysis model was used with two factors, and rotated according to normalized varimax.

RESULTS

Descriptive analysis of the sample

The PCL-R was applied in the first part of this study with a cut-off point of 30, and the sample ranked 40 (32.2%) psychopaths and 84 (67.8%) non-psychopaths. The mean and standard deviation of the age of the psychopaths was (mean=28.37; SD=6.63) and that of the non-psychopaths was (mean=32.95; SD=9.82). Table 1 shows the socio-demographic data of the sample divided between psychopaths and no-psychopaths.

Table 2 shows the descriptive statistic of the scale, where the total mean of the PCL-R (reflecting the median and the quartile ranges of the items) was 22.92 (SD=9.90), which is similar to the Spanish sample, 22.42,[16] the Hare sample,[8] 23.60, and the Mexican sample, 22.81.[18]

Internal consistency

In order to measure the reliability of the construct, Pearson's coefficient of correlation was used between each item and the total of the PCL-R. Table 3 shows the correlations between each item and the total of the scale and the corrected item-total correlation. The minimum value of uncorrected

Table 2. Statistical description for each item on the PCL-R

Psychopathy Checklist Revised (PCL-R)	Mean	S.D.	Median	Quartile range
Glibness / superficial charm	0.99	0.80	1.00	2.00
Grandiose sense of self worth	1.23	0.74	1.00	1.00
Need for stimulation / proneness to boredom	1.36	0.71	1.50	1.00
Pathological lying	1.22	0.77	1.00	1.00
Conning and manipulative	1.31	0.80	2.00	1.00
Lack of remorse or guilt	1.31	0.78	2.00	1.00
Shallow affect	1.17	0.79	1.00	1.00
Callous and lack of empathy	1.06	0.81	1.00	2.00
Parasitic lifestyle	0.73	0.85	0.00	2.00
Poor behavioral controls	1.66	0.57	2.00	1.00
Promiscuous sexual behavior	1.03	0.84	1.00	2.00
Early behavioral problems	1.14	0.94	2.00	2.00
Lack of realistic, long term goals	1.45	0.78	2.00	1.00
Impulsivity	1.67	0.57	2.00	1.00
Irresponsibility	1.35	0.76	2.00	1.00
Failure to accept responsibility for own actions	1.29	0.76	1.00	1.00
Many short term marital relationships	0.90	0.85	1.00	2.00
Juvenile delinquency	0.73	0.90	0.00	2.00
Revocation of conditional release	0.25	0.65	0.00	0.00
Criminal versatility	1.05	0.95	1.00	2.00

S.D. = Standard deviation.

Table 3. Correlation of each item and the Total PCL-R

Psychopathy Checklist Revised (PCL-R)	Corrected correlation between items and total PCL-R
Glibness/superficial charm	0.13
Grandiose sense of self worth	0.55
Need for stimulation/proneness to boredom	0.61
Pathological lying	0.63
Conning and manipulative	0.72
Lack of remorse or guilt	0.73
Shallow affect	0.79
Callous and lack of empathy	0.76
Parasitic lifestyle	0.63
Poor behavioral controls	0.55
Promiscuous sexual behavior	0.31
Early behavioral problems	0.68
Lack of realistic, long term goals	0.67
Impulsivity	0.55
Irresponsibility	0.81
Failure to accept responsibility for own actions	0.73
Many short term marital relationships	0.26
Juvenile delinquency	0.56
Revocation of conditional release	0.26
Criminal versatility	0.65

Table 4. Factor analysis of the PCL-R. Contribution of each item with Factors 1 and 2

	Contribution per item	
PCL-R items	Factor 1	Factor 2
Glibness / superficial charm	-0.37	**0.63**
Grandiose sense of self worth	0.14	**0.72**
Need for stimulation / proneness to boredom	**0.47**	0.45
Pathological lying	0.42	**0.58**
Conning and manipulative	0.42	**0.68**
Lack of remorse or guilt	0.54	**0.56**
Shallow affect	**0.65**	0.54
Callous and lack of empathy	**0.64**	0.50
Parasitic lifestyle	**0.65**	0.27
Poor behavioral controls	0.27	**0.58**
Promiscuous sexual behavior	0.16	0.29
Early behavioral problems	**0.76**	0.24
Lack of realistic, long term goals	**0.67**	0.36
Impulsivity	0.26	**0.61**
Irresponsibility	**0.70**	0.51
Failure to accept responsibility for own actions	0.43	**0.70**
Many short term marital relationships	0.01	0.38
Juvenile delinquency	**0.80**	0.03
Revocation of conditional release	**0.46**	-0.06
Criminal versatility	**0.67**	0.30

correlations obtained was 0.21, and corrected was 0.13. The cut-off point to consider the correlation significant with p<0.05 is of 0.176.

Cronbach's alpha coefficient was also calculated, which gave a value of 0.91 and the average inter-item correlation was 0.38.

Factor analysis

Two factors were considered, taking into account those of previous studies carried out by Moltó et al.[16] and Ostrosky et al.[18] and the percentage of explained variance. Normalized varimax rotation was used. The first factor contributed 43.42% of the total variance, and the second factor 8.68%, meaning that both explained a total of 52.03% of the variance. Table 4 shows the relative weights of each item in both factors. Factor 1 has a concentration of the characteristics related with the antisocial behavior of the subjects studied, while Factor 2 groups the Interpersonal-Affective alterations in Factor 1. Only two items, 11 (promiscuous sexual behavior) and 17 (many short-term marital relations) were not carried in either of the factors.

Factor validity

In order to determine the validity of the factors obtained, a correlation was made between the total of the PCL-R applied in the study with the two factors set out with different scales, widely validated, where each one defines traits related to psychopathy: aggression, impulsivity, sensation-seeking, and self-esteem. This will allow a knowledge of the strength

of the PCL-R when validated by external measurements to clinically identify whether each one of the PCL-R factors has personality traits that distinguish it. Table 5 presents the correlations between the extracted factors and all of the applied subscales. The correlation with the subscales Physical aggression, Verbal aggression, Anger, and Hostility were

Table 5. Correlation between the total PCL-R its factors and self-applied scales that measure personality

Variables	Factor 1	Factor 2	PCL-R total
Physical aggression	-.327 p=0.000	-.523 p=0.0005	-.445 p=0.000
Verbal aggression	-.295 p=0.010	-.469 p=0.000	-.424 p=0.000
Anger	-.198 p=0.027	-.411 p=0.000	-.330 p=0.000
Hostility	-.273 p=0.002	-.445 p=0.000	-.408 p=0.000
Emotion-seeking	.005 n.s.	.121 n.s.	.097 n.s.
Excitement-seeking	.106 n.s.	.240 p=0.007	.235 p=0.009
Lack of inhibition	.191 p=0.034	.339 p=0.000	.332 p=0.000
Susceptibility to boredom	.272 p=0.002	.390 p=0.000	.349 p=0.000
Impulse control scale	.251 p=0.005	.485 p=0.000	.406 p=0.000
Self-esteem	.235 p=0.009	.453 p=0.000	.383 p=0.000

highly significant and inversely proportional to the factors Antisocial and Interpersonal-affective, and to the PCL-R. The subscale Seeking emotions did not obtain a significant correlation with any factor, nor with the PCL-R. Seeking excitement did not relate with Factor 1 either (Interpersonal-affective), but it did have a high correlation both with Factor 2 (Antisocial behavior) as well as with the total value of the scale, while Lack of inhibition, Susceptibility to boredom, Control of impulses, and Self-esteem showed a high correlation both with the PCL-R and with Factors 1 and 2.

DISCUSSION

The Spanish version of the PCL-R applied on our study sample was that reported by Moltó et al.[16] on the Spanish population. The results obtained in this study are consistent with similar investigations carried out previously on different prison populations[8,16,18] in terms of different aspects that will be discussed later on. Firstly, the percentage of re-offending as a criminological variable in the psychopath sample was greater than in the non-psychopath sample, which is in accordance with the Chilean study.[27] However, the Chilean study obtained a higher percentage of psychopaths (97.4%) than we did in ours (70%). secondly, the psychometric characteristics assessed demonstrate that the Spanish version of the PCL-R[16] has high reliability for the violent Cuban prison population, as well as replicating previous results. The sample size used is approximately equal to studies previously carried out in Spain,[16] Argentina[17] and Mexico.[18] The values of 0.91 obtained in our study do not differ from those obtained in studies by Moltó et al.[16] (0.85 for Cronbach's alpha and 0.22 for the inter-item correlation). On the other hand, the study by Ostrosky et al.[18] contributes values of 0.87 and 0.30, and Hare[8] obtained 0.87 and 0.26 respectively. Another finding that coincides with previous results is that the assessment of the Hare scale with the cut-off point of 30, defined from the start of the PCL-R in order to discriminate psychopaths from non-psychopaths as well as the mean values of the PCL-R, had a high coincidence with the standardizations carried out up to this point.[16-18,27]

In terms of the internal consistency of the scale, we are in accordance with previous works16-18,27 due to similar items that correlate with the total PCL-R. However, each study reported different items that did not have a significant correlation. In the case of our study, item 1 (Ease of speech/superficial charm) did not obtain any correlation. In contrast, Moltó et al.[16] reported correlation in items 4 and 16, while in the Mexican study,[18] all items showed a high correlation.

In the factor analysis carried out, not all studies retained the same level of factors: three of the studies reported two factors[8,16,18] and only two extracted four.[17,27] The criterion with the heaviest weight to extract the number of factors was the interpretation of these factors and the replication with other studies, as well as the percentage of explained variance. In our investigation, factors 3 and 4 only explained the influence of items 10 and 14, and 11 and 17 respectively, with a very low percentage of variability, only a 10% more if the two are added together; moreover these were not reported in the factors already determined in previous studies.[8,16,18] The retained factors 1 and 2 show that the first can basically be explained by antisocial behavior; however, the items Superficial and shallow behavior and Emotional insensitivity and lack of empathy are mixed, which could in turn explain that in our sample, raised antisocial conduct is also capable of raising affectivity. One difference with the Spanish sample and the Hare study[8] is in item 14 (Impulsivity), which obtained greater weight in the factor that describes interpersonal relationship and affectivity.

The correlations drawn between the total PCL-R and its Factors 1 and 2 with different instruments that measure personality traits demonstrated the coincidence of the instrument with the scales applied. Given the high correlation obtained of Factors 1 and 2 and the total PCL-R with the scales of Aggression, Impulse control, and Self-esteem, it could be argued that these instruments can describe the sample in relation to the PCL-R. The items Childhood behavioral problems, Juvenile delinquency, and Criminal versatility have greater weight in their correlations with Aggression, whereas Ease of speaking and superficial charm, Connor, Manipulator, and Need for stimulation/tendency toward boredom were the factors with greatest weight in correlation with the Sensation-seeking scale. The Control of impulses scale could be seen in the items Impulsivity, Poor behavioral control, Failure to accept own actions and irresponsibility, while the scale of Self-esteem is reflected in the item Exaggerated sense of self-worth. In studies carried out by different researchers, Moltó et al.[16] found that self-applied scales moderately correlated with Factor 2, while Factor 1 only correlated with one instrument. Ostrosky et al.[18] demonstrated that Factor 1 was the most correlated.

In conclusion, it has been demonstrated that the PCL-R is a valid instrument in the sub-population of Cuban prisoners, made up of convicts of violent crimes, and that each factor of the scale has its own traits that characterize the behavior of psychopaths and non-psychopaths.

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