# The Use of a Screening Device to Assess Psychopathy in Young Offenders

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The aim of this research was to determine to what extent a psychopath screening device (the APSD) is useful in forensic assessments to predict general and violent offending. For this purpose, a cross-sectional study was done and 238 young people serving a sentence were assessed. The gold standard instrument used to measure psychopathy was the Psychopathy Checklist: Youth Version (PCL:YV; Forth, Kosson & Hare, 2003). The results indicate that the association found between the screening device scores and several indicators of risk is low if compared with those obtained with the PCL:YV, suggesting that it is less useful as a tool in order to predict offending or violent offences. However, an Area Under the Curve of .784 and a validity index of 62.5 support its use as a screening device or as a preliminary approach to assess psychopathy in this population. The usefulness of this instrument to make assessments with young people in the forensic setting is discussed.
*Keywords: psychopathy, youth offenders, screening tools, ROC analyses, APSD.*

Este trabajo tiene como finalidad determinar la medida en que un instrumento para el cribado de la psicopatía (el APSD) es útil en la predicción de la conducta delictiva y violenta de los delincuentes juveniles. Se realizó un estudio transversal con una muestra de 238 delincuentes juveniles que estaban cumpliendo una medida impuesta por el Juzgado de Menores. El instrumento que se empleó como criterio para determinar la capacidad predictiva fue la Psychopathy Checklist: Youth Version (PCL:YV; Forth, Kosson & Hare, 2003). Los resultados indican que existe una asociación baja entre las puntuaciones del instrumento de cribado APSD y diversos indicadores de riesgo de delincuencia, si la comparamos con la que muestra la PCL:YV con esos mismos factores de riesgo, lo que sugiere que la APSD es menos útil que la PCL:YV en la predicción de la delincuencia y la violencia en los jóvenes. No obstante, se observó que la APSD alcanzaba un Área Bajo la Curva de .784 y un índice de validez de 62.5, lo que avala su utilización como un instrumento de cribado o como un método preliminar para evaluar la psicopatía entre los delincuentes juveniles. Finalmente se discute el uso del instrumento de cribado en el contexto forense juvenil.
*Palabras clave: psicopatía, delincuencia juvenil, instrumentos de cribado, análisis Roc, APSD.*

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Psychopathy is understood as a psychic anomaly in which the individual's social behavior is pathologically altered, but whose superior cognitive capacities remain unaltered. Essentially, psychopathy is a disorder with an underlying incapacity to feel moral emotions (Hare, Hart, & Harpur, 1991). The psychopathy assessment tools available to professionals vary. The most frequently used are those that originate from the initial scale to measure psychopathy in adults (Psychopathy Checklist – Revised, PCL-R; Hare, 1991, 2003). Currently, PCL scales are widely used in epidemiological and applied research, as they are in the legal system and in the field of mental health. These scales have neither been designed to specifically assess the risk of antisocial or criminal behaviors nor to determine the type of therapeutic measures and interventions that must be used with each individual. Yet they have proved useful for objectives like these as confirmed at length in empirical research studies with adults. This is mainly because the construct being measured plays a key role in the understanding of a good number of antisocial behaviors which are more or less prevalent in legal systems.

Currently, the importance of studying this construct in delinquency stems from one basic assumption: there is a group of young offenders that will tend to maintain serious, regular antisocial behaviors in the future when the precursor traits of typical adult psychopathy are shown (Forth & Burke, 1998). Recent findings indicate that higher psychopathy scores are associated with increases in general delinquency (including both violent and non-violent offences), hostile aggression, and some forms of early onset delinquency, including offending, police contact, and juvenile court referral (Vaughn, Howard, & Delisi, 2008). On the other hand, it is also known that groups of young individuals with high psychopathy scores exhibit more negative personality traits and are judged to be at greater risk for violent behaviors (Lee, Salekin, & Iselin, 2010). For these reasons, the study of psychopathy in young people may prove to be very useful if it allows an accurate prediction of offending behavior and helps adapt therapeutic strategies at times when the criminal career has not yet been completely established. Without doubt, this would lead to treatments becoming increasingly efficient (Forth & Mailloux, 2000; Frick, Barry, & Bodin, 2000), lower recidivism rates, and Lynam's statement would become very important (2002): psychopathy is persistent only because it is not intervened early enough.

Traditionally, it has been established that decisions about diagnoses relating to personality disorders must be made in the post-adolescent period. Yet there is evidence that a number of psychopathic personality traits, if not the whole disorder itself, appear during the first years of life (Lynam, 2002). Three decades of research reveal that this syndrome consists in a stable set of personality traits, attitudes and disruptive behaviors which stem from childhood (Forth, Kosson, & Hare, 2003; Lynam, 2002; Sadeh, Verona,

Javdani, & Olson, 2009). Thus, further investigating at early ages may reveal fundamental aspects of the etiology of this disorder (Forth & Burke, 1998; Lynam, 1996). Psychopathic symptoms have been discovered in children aged 6-10 years (Widinger et al., 1996), and Lynam (1996) states that when you look at an antisocial child today, you are looking at a future antisocial adult. Throughout his/her life, a child who is not able to directly feel an emotion will increasingly begin to not pay attention to the keys identifying this emotion, and will compensate this situation by paying full attention to other signals that help him/her predict how people will respond to his/her behavior. In the end, the child will end up imitating other people's usual responses more or less accurately, and will present him/herself to society with a "mask of sanity" (Cleckley, 1941, 1976).

The growing interest in applying the psychopathy construct to young populations is not risk-free. Labeling psychopathy in childhood/adolescence may prove difficult as the "psychopath" label tends to be very cumbersome in legal procedures, and may threat and minimize the impact of the other factors present in the young person's surroundings (Edens, Petrila, & Buffington, 2001). Therefore it is most relevant to ask ourselves to what extent it is suitable to assess psychopathy in juveniles (Salekin, Rogers, & Machin, 2001). Without a doubt, pursuing greater accuracy in the diagnoses made in this population is fundamental. Identifying young psychopaths will help us to identify youths who are at risk of getting involved in delinquency (Frick, 1998), as well as to improve and optimize therapeutic interventions. The objective has to be early intervention, while personality traits are still relatively flexible, to lead adolescents toward more prosocial behaviors (Andershed, Kerr, Stattin, & Levander, 2002; Frick, 2002). It is currently being discussed whether it would prove more efficient to incorporate psychopathy as a response factor which encourages the development and implementation of effective interventions, and not as an important marker of either risk or an exclusion principle, for example for treatment or parole (Jones & Cauffman, 2008). If the influence of psychopathy on legal decision-making is restricted to the perception of involvement in dangerous behaviors, then we should ensure that this association is based on the best scientific evidence available.

Currently, the debate about assessing psychopathy traits in adolescence covers two main themes: firstly, the extent to which personality traits in general are stable or variable in this population and whether the construct itself is valid when applied to child/adolescent populations (Edens, Skeem, Cruise, & Cauffman 2001; Frick, 2002; Hart, Watt, & Vincent, 2002, Lynam 2002; Seagrave & Grisso, 2002). The stability of traits in general appears to range between moderate and high, but the stability of the specifically affective traits is apparently moderate to low, especially when measured in early adolescence (Lee, Klaver, Hart, Moretti, & Douglas, 2009). Secondly, another broadly

discussed aspect relates to the tools currently in use to assess young people with antisocial behavior, as far as the validity of the diagnoses made is concerned. For instance, a recent study using three different instruments which specifically assess psychopathy in juvenile offenders (self-report, clinical interview, and a personality assessment questionnaire) showed a barely moderate overlap of the results of the three measures with statistically significant correlations, but with low clinical/forensic significance (between .26 and .36) (Cauffman, Kimonis, Dmitrieva, & Monahan, 2009). Nonetheless, the use of self-reporting psychopathy assessment scales offer low predictive power (Spain, Douglas, Poythress, & Epstein, 2004), low internal consistency (Muñoz & Frick, 2007; Poythress et al, 2006) and lack of robustness in the association between psychopathy and several measures of offending (total number of preadjudication arrest charges and total number of offenses in the year following release) (Boccaccini et al., 2007). Besides, the incremental validity analyses demonstrated that all the predictive effects for the measures of psychopathy features disappeared after conceptually relevant covariates (i.e., substance use, conduct disorder, young age, past property offence) were included in multivariate predictive models (Douglas, Epstein, & Poythress, 2008). In other words, these results emphasize the need to better specify the way to apply and to assess the construct of psychopathy in young populations (Benning, Patrick, Salekin, & Leistico, 2005), and its use in the juvenile forensic setting.

With the goal of detecting the early onset of psychopathy traits, Frick and Hare (2001) developed the Antisocial Process Screening Device to be applied in children (APSD), following the theoretical model of the PCL-R. Initially, the APSD was devised beyond forensic or mental health institutions, as an instrument to assess the precursors of psychopathy traits prior to adolescence (children aged 6-13 years old) in order to apply it in wide population samples. Nonetheless, its user-friendly characteristics, the fact it does not require specially trained staff to apply it and the short time in which it is carried out have led to its proposal to also be used with samples of youth involved in legal procedures. Muñoz and Frick (2007) developed a self-report version to be applied in youth considering that young people behave in many ways without the parents knowledge. However, the self-report form has shown low utility (Douglas et al., 2008), because of its poor convergent validity with other psychopathy measures (Lee, Vincent, Hart, & Corrado, 2003; Salekin, Neumann, Leisitco, DiCicco, & Duros, 2004), and also because the manipulation and pathological lying traits of psychopathy represent a challenge to assessment using self-report as a main way. This is why the APSD scored by parents and teachers has been the more commonly used form in the assessment of juvenile offenders (Väfors Fritz, Wiklund, Koposov, af Klinteberg, & Ruchkin, 2008; Väfors

Fritz, Ruchkin, Koposov, & af Klinteberg, 2008; Vaughn et al., 2008), with good levels of internal consistency. A study employing the APSD in the Cantabria Region in Spain has been carried out, using the same form (translated from the original) as our study (Garrido, 2009). The data showed a high correlation between the APSD and the juvenile version of the PCL-R (PCL:YV).

In this context, our research presents two objectives. On the one hand, to verify the extent to which the Antisocial Process Screening Device (APSD; Frick & Hare, 2001) may prove useful to assess psychopathy in juvenile offenders by taking the measure currently most used as a reference (the gold standard), the Psychopathy Checklist: Youth Version (PCL:YV, Forth, et al., 2003). On the other hand, to analyze the APSD's association with known risk indicators of offending behavior as another way of studying its construct validity.

## Method

### Participants

This study was conducted with a sample of 238 young offenders in two Spanish cities, Madrid and Murcia, most of whom were male (84%), aged between 14 and 21 years. Males were older ($M = 17.1$; $SD = 1.26$) than females ($M = 16.9$; $SD = 1.17$) but in a way not statistically significant ($t(236) = 0.977$, $p = .330$.). The most prevalent type of offense was robbery with violence (61%), larceny (8.0%) and offences with the result of injuries (5.1%). Within the most severe level of offenses were sexual offenses (3.9%), homicide (2.4%) and attempted murder (2.4%). Other offenses were less prevalent. In short, 77.3% had committed at least one violent offense, 30.3% were recidivists and 91.4% were serving a sentence in juvenile detention centers, including those who were more than 18 years old but the judicial system considered should serve sentence on these facilities (because they were under that age when they committed the offence). Our study was supported by the regional administrative authorities of both Madrid and Murcia, which incorporated our scales in the evaluation protocol employed by the facilities staff. This was the reason why we did not need to ask for the young informed consent. The staff in charge of the youth made the assessment with the scales of the study.

### Materials

*APSD:* The APSD was devised in an attempt to assess the traits associated with psychopathy displayed in childhood/adolescence, and uses the PCL-R as a guide (Hare, 1991; 2003). The APSD is made up of 20 items that assess three different dimensions: 1) Callous/Unemotional (CU), 2) Narcissism (NAR) and 3) Impulsivity (IMP). Obtaining

high scores in these factors indicates high scores for the aforementioned traits. This scale was devised to be completed by the student's mother or father and his/her teacher. It is recommended to use of the higher of the two scores obtained when interpreting scores, although there are no conclusive data as to which is the better informer. The 20 items are graded on a 3-point scale: NT (*Not At All True*) which scores 0, ST (*Sometimes True*) which scores 1, and DT (*Definitely True*) which scores 2. There are 5 items which inversely score (items 3, 7, 12, 18 and 20). The APSD was normalized in a population sample of 1,120 third-, fourth-, fifth-, sixth- and seventh-grade students in the United States schooling system whose mean age was 10.6 years ($SD = 1.57$) (Frick, Bodin & Barry, 2000), in which satisfactory levels of internal consistency were found ($\alpha$ between .642 and .927) (Frick & Hare, 2001), as well as with young offenders samples in which findings shown Cronbach's alpha = .81 for total score, .75 for narcissism, .67 for impulsivity and .57 for callous-unemotional traits (Vaughn et al., 2008). Another study conducted in a similar population found great improvement on reliability when the distribution of the items by the factors was modified (Väfors Fritz et al., 2008). In Spain, research performed with the APSD version used in our study (a translation from the original version) has found an Cronbach's alpha = .748 for total score (Garrido, 2009).

*PCL:YV*: The Psychopathy Checklist: Youth Version has 20 items that score between 0 and 2. This scale is an adapted version of the PCL-R which considers the characteristics of the population it was designed for: young subjects aged 14-21 years. Similarly to the PCL-R, the PCL:YV uses a semi-structured interview and collateral information to measure the interpersonal, affective and behavioral features relating to a widely understood traditional conception of psychopathy (Forth et al., 2003). Dimensional scores are obtained, although a cut-off point may be employed to group the young subjects into categories (psychopaths vs. non psychopaths). The PCL:YV provides a dimensional score which represents the number and severity of the psychopathic traits displayed by each young subject. The factorial structure that was used in our study is the same that was found in previous research with the PCL-R (Hare & Neumann, 2005), and subsequently confirmed with the PCL:YV (Neumann, Kosson, Forth & Hare, 2006), conceiving of four factors: 1) the interpersonal factor that includes traits as pathological lying or grandiose sense of self-worth, 2) the affective factor that includes items measuring callous or lacking empathy and lack of remorse, 3) the behavioral factor which includes features like impulsivity and irresponsibility, and 4) the antisocial factor that includes characteristics about offending. From a mathematical modeling perspective, the four-model structure has a better parameter-to-data point ratio than other structure models (Neumann et al., 2006) and it seems to have incremental validity over the three-factor model in predicting correlates of psychopathy (Vitacco, Neumann,

Caldwell, Leistico, & Van Rybroek, 2006; Walsh, Swogger, & Kosson, 2003). The scale version used in this study was also a translation from the original that had been used previously in the Cantabria Spanish study (Garrido, 2009).

*Collection of other variables*: An *ad hoc* device has been devised to collect socio-demographic, offending background, schooling, drug abuse and mental pathology case history data. In order to collect the risk indicators of offending, the first part of the Youth Level of Service/Case Management Inventory (YLS/CMI; Hoge & Andrews, 2002) was used, which is comprised of 42 items making up the following eight clusters: 1) Prior and current offenses/Dispositions, 2) Family circumstances/ Parenting, 3) Education/Employment, 4) Peer relations, 5) Substance abuse, 6) Leisure/Recreation, 7) Personality/Behavior and 8) Attitudes/Orientation. The result for adding up the score obtained for all these items is used as an indicator of reoffending risk.

## Procedure

The task of collecting the socio-demographic data and the variables relating with the type of offences was carried out using the information contained in the young subject's administrative files, which also helped to obtain collateral information required for the PCL:YV. To conduct this assessment, an interview was organized with each juvenile offender. This scale was rated by the psychologist staff. To conduct the APSD, collaboration was requested from one parent and the staff in charge of tutoring the young subject while he/she was serving a sentence. The people in charge of the data collection tasks were professionals who were members of the educative intervention teams. In addition, two female students in their final year of their psychology bachelor also collaborated. They were all initially trained by a course where they learnt the theoretical framework to assess psychopathy. Subsequently, workshops were organized during which practical cases had to be solved. Finally, they were supervised while they did their first assessments. The whole process was supervised by an expert in psychopathy.

This study was cross-sectional, and investigated retrospective information about recidivism and performing violent offences. A youth was considered a recidivist when he/she had received more than one sentence for delinquency at the time the assessment was made. With regards the violence variable classification, those subjects who committed at least one violent offense were considered violent (robbery, attempted homicide, homicide, sexual abuse or aggression, assault and aggravated assault). Both the PCL:YV and the APSD were used with each young offender.

## Data analysis

Data analysis was done with the SPSS Statistical Package, v. 15.0. First of all, a univariate analysis was done to describe the general characteristics of the sample. Then a bivariate

study was done using the ANOVA test to compare the mean scores obtained in more than two groups. Spearman's correlation coefficient was also used to assess to which extent the scores obtained by both raters in the APSD were associated. Some disagreement between raters may reflect differences in training or perspective, but mainly valid differences are expected which reflect how the subjects behave in different situations or circumstances (Frick & Hare, 2001).

To study the specific APSD indices, the Receiver Operating Characteristic (ROC) analysis was done which assumes that a maximum likelihood-based response ratio corresponds to each point of the scale, but that an area under the curve (AUC) is a continuous predictor (see Mossman & Somoza, 1991). The ROC curves analysis examines sensitivity versus specificity (technically, 1-specificity). An AUC equal to 1 indicates a perfect measure, whereas an AUC equal to .5 suggests that likelihood is equal to randomness. Performing these analyses, clusters of correctly identified cases (true positives and true negatives) and wrongly identified ones (false positive and false negative) were obtained based on a value of 20 as the cut-off point to dichotomize the total score of the psychopathy scales APSD and PCL:YV, an approach that has been used previously by other authors (Murrie & Cornell, 2002). This allows two groups of juveniles to be formed: those with a high psychopathy score and those with a low psychopathy score. This value was selected because it represents the midpoint of the possible range of values (0 to 40) for both scales and because former research studies were unable to define an optimum cut-off point to be directly and unmistakably applied to juveniles. For a score of 20, the sensitivity for reoffending was .431 and for violence was .326, while the false positive rate was .265 for reoffending and .278 for violence. For a score of 30, which is considered the cutoff point in many studies in adult populations, the false negative rates were very low both for reoffending (.012) and for violence (.037), but the sensitivity was not acceptable neither for reoffending (.056) nor for violence (.022). Finally, an analysis of the correlations between the psychopathy scores of both scales and the risk indicators of offending provided by the YLS/CMI was also carried out.

## Results

Most of the subjects were Spanish although 38.2% were from other countries –Latin America, North of Africa or Eastern Europe; the percentage of foreigners was higher in this study sample than in the general population of Spain. In 86.0% of the cases, youth lived at least with their mother, and 54.6% lived with both their parents. There were other less usual family circumstances, for example, 2.1% lived with their partner, and 5.0% were institutionalized under social services guardianship prior to their current conviction. The following cases were found among the families with whom the juvenile offenders serving a sentence lived: drug abuse (7.1%), alcoholism (9.0%), delinquency (8.6%) and the mother and/or a brother/sister had suffered any type of maltreatment (9.2%).

Among participants, recidivism was more frequent among those who had been under social services guardianship (OR = 4.4, CI 95% 2.3 – 8.4), which implies difficult socio-familiar circumstances. Only 20.6% were still studying at the time they committed their offence, and there were many cases of truancy and of dropping out of school (85.0% and 58.0%, respectively). Regarding drug abuse, 64.5% smoked on a regular basis, 13.4% regularly consumed cannabis, 8.8% frequently consumed drugs like cocaine, heroin or methamphetamines, while 33.6% habitually drank alcohol. No statistical differences between male and female were found for violent offenses (79.5% of male and 65.8% of female, $\chi^2(1, N = 238) = 3.422$, $p = .064$) or for reoffending (31.0% of male and 26.3% of female, $\chi^2(1, N = 238) = 0.332$, $p = .564$) nor on the PCL:YV total score where males obtained an average of 16.7 ($SD = 7.90$) and females an average of 14.1 ($SD = 7.35$) ($t(236) = 1.883$, $p = .061$). This was the motive as to why we performed the analyses grouping with both male and female youths.

### APSD scores

The items that most frequently scored a high mark (Definitely True) for rater 1 (one of the subject's parents) were: *Does not plan ahead or leaves things until the "last minute"* (47.7%) and *Acts without thinking of the consequences* (41.3%). For rater 2 (a professional at the institution where the juveniles were assessed, normally the youth worker in charge of the case), the items that most frequently scored a mark of 2 were: *Gets bored easily* (34.2%), *Becomes angry when corrected or punished* (32.9%) and *Does not plan ahead or leaves things until the "last minute"* (32.9%). With regards to the agreement between the scores of both raters, significant correlations of between .17 and .38 were registered for most items, except for the following: *Is concerned about how well he/she does at school or work*, *Feels bad or guilty when he/she does something wrong* and *Does not show feelings or emotions*, whose correlations were not statistically significant. Inter- rater reliability was assessed with ICC using two-way mixed effects model (rater effect random; measure effect fixed), both single ratings (ICC1) and average rating (ICC2) (McGraw, & Wong, 1996). In the present study, the ICC1 was .44 for the APSD total score, and ICC2 was .76, indicating acceptable inter-rater reliability for the total scores. The scale with higher inter-rater reliability was narcissism (ICC1 was .62; ICC2 was .85) but impulsivity (ICC1 was .49; ICC2 was .73) and callous-unemotional (ICC1 was .35; ICC2 was .33) showed values lower than desirable. The remaining data analysis was done by combining the scores of both raters, just as the authors of the instrument recommend.

## PCL:YV scores

The means of the scores obtained in the PCL:YV for each factor reveal that the *Behavioral* (F3) and *Affective* (F2) factors were those with the highest score, with a mean value of 4.17 (from a possible total score of 10 points) and 3.85 (from a possible total score of 8 points) respectively; almost representing the midpoint in the range of values. The mean total score was 16.2. In percentage terms, 31.5% (*n* = 75) obtained a score of over 20, the score for 9.7% (*n* = 23) was over 27 (which some studies consider to be the cut-off point to establish the psychopathy criterion) and only 2.5% (*n* = 6) obtained a score over 30 (the most widely used cut-off point, especially in studies with adult populations). The alpha coefficient was .86 for total score, .75 for the interpersonal factor, .81 for the affective factor and .65 for the antisocial factor.

## Recidivism and violent offenses

When we analyzed the differences between the scores obtained by recidivists vs. no recidivists, recidivists obtained higher mean scores for the *Behavioral* (*p* < .01) and *Antisocial* (*p* < .001) factors and for the total score (*p* < .01) in the PCL:YV, whereas no significant differences were found for any of the factors in the APSD for either group. In terms of differences in the mean scores obtained by violent delinquents and non-violent delinquents, the *Behavioral* factor in the PCL:YV stood out with lower mean scores for the non-violent group (*p* < .05), while the APSD obtained no statistically significant differences for any of the factors. Next, we assessed the extent to which the scores obtained with both scales and with the factors discriminated between recidivists and the violent groups in terms of the frequency of their recidivism and the number of violent offences committed. To do this, the following groups were formed: "No recidivists", "Moderate recidivism" (reoffending once or twice), "Severe recidivism" (reoffending three times or more), "Nonviolent", "Moderately violent" (one or two violent offences are registered in their records) and "Severely violent" (three violent offences or more are registered in their records). When we placed "Recidivism" and "Violence" into more than two groups, we found that there were also statistically significant differences for violence, whereas there was only a significant difference for recidivism in the APSD (Table 1). The violent groups continued to still show no differences compared to the non-violent groups in the APSD; in general terms, it may be stated that the scales better discriminated between delinquency and violence seriousness if compared with the dichotomized values for both variables. In order to know what groups show statistical differences a multiple contrast was performed and calculated the value of Cohen's *d* that can be seen in table 1.

## Psychopathy scores and risk indicators of offending

The analysis combining the psychopathy scales and the YLS/CMI risk indicators of offending verified that both the PCL:YV and APSD show significant correlations for several risk clusters. The PCL:YV total score generally presents higher correlations which, for the statistically significant ones, range between .22 with the cluster assessing *Prior and current offenses/Dispositions* and .51 for the score resulting from adding all the YLS/CMI items (*Overall Level of Risk*). The statistically significant correlations in the APSD ranged between .26 for the *Leisure/Recreation* cluster (it is interesting to note that this is the only cluster that does not correlate with the PCL:YV) and .41 for *Attitudes/Orientation*, as well as for *Overall Level of Risk*. In the APSD, three of the YLS/CMI risk indicators showed no correlation (Table 2).

## Analysis of the APSD parameters by taking the PCL:YV as a gold standard

It would be ideal that an instrument like the APSD, which is easy to manage in a short time, could act as a screening element for a more robust test that requires more time such as the PCL:YV. The ROC curves analysis of the total scores obtained with both scales reveals a statistically significant AUC of .784 (EE = .038) (*p* < .0001) (Graph 1).

The APSD presents very high sensitivity with values close to 1 when the values obtained under 20 in the PCL:YV for psychopathy were considered positive (this value was established as the cut-off point in this study). In other words, the lower the cut-off point, the greater the assurance that no individual susceptible to being classified as a psychopath according to the PCL:YV score is left out. Nonetheless, a high rate was also obtained for individuals (50%) who were susceptible to being false positives. This rate dropped to 25% (very acceptable for a screening tool in psychology) when the cut-off value of 25 was established. With a cut-off value of 30 (this being the usual cut-off point established in the PCL-R for adults), there was greater assurance that the subjects the scale classified as psychopaths were indeed psychopaths (false positives were only 15.4%). Nonetheless, the effectiveness of the test to correctly classify a psychopath dropped to 43.1%. That is, many individuals whose PCL:YV score considered them to be psychopaths were not identified as such.

The specific scale indices indicated high sensitivity (91.67; CI 95% = 90.6 – 92.8) and low positive predictive value (44.90; CI 95% = 44.3 – 45.5) standing out due to the high false positives rate (specificity was 49.53; CI 95% = 49.0 – 50.1). However, the value that stood out the most was a very high negative predictive value (92.98; CI 95% = 92.1 – 93.9), meaning that the subject who obtained a low score was very likely to not suffer psychopathy. The

Table 1

*Association between factorial and total scores of the psychopathy scales and the frequency of recidivism and number of violent offences*

| | Recidivism | | | Effect size | | | | |
|---|---|---|---|---|---|---|---|---|
| | No | Moderate | Severe | | | | | |
| | M (SD) | M (SD) | M (SD) | F | sig | d1 | d2 | d3 |
| PCL:YV | (n = 166) | (n = 46) | (n = 26) | | | | | |
| Interpersonal | 2.58 (2.13) | 3.02 (2.54) | 2.96 (2.18) | 0.905 | .406 | 0.19 | 0.18 | −0.03 |
| Affective | 3.70 (2.40) | 4.00 (2.24) | 4.50 (1.94) | 1.435 | .240 | 0.13 | 0.37 | 0.24 |
| Behavioral | 3.89 (2.17) | 4.15 (2.26) | 5.96 (1.34) | 10.816 | .000 | 0.12 | 1.15 | 0.97 |
| Antisocial | 3.01 (2.13) | 3.39 (2.32) | 6.11 (2.21) | 22.973 | .000 | 0.17 | 1.43 | 1.20 |
| Total score | 15.09 (7.54) | 16.62 (7.97) | 22.93 (6.33) | 12.345 | .000 | 0.20 | 1.13 | 0.88 |
| APSD | (n = 119) | (n = 27) | (n = 9) | | | | | |
| CU | 7.35 (1.79) | 7.19 (1.96) | 8.89 (1.69) | 3.244 | .028 | 0.16 | 0.34 | 0.07 |
| Narcissism | 7.12 (3.80) | 7.19 (3.90) | 9.00 (4.33) | 1.124 | .328 | 0.14 | 0.15 | 0.09 |
| Impulsivity | 6.88 (2.09) | 6.26 (1.83) | 8.44 (1.59) | 3.980 | .021 | 0.08 | 0.29 | 0.11 |
| Total score | 23.65 (7.45) | 22.78 (6.99) | 29.67 (6.38) | 3.180 | .032 | 0.18 | 0.25 | 0.18 |
| | Violence | | | Effect size | | | | |
| | No | Moderate | Severe | | | | | |
| | M (SD) | M (SD) | M (SD) | F | sig | d1 | d2 | d3 |
| PCL:YV | (n = 54) | (n = 140) | (n = 44) | | | | | |
| Interpersonal | 2.82 (2.24) | 2.55 (2.17) | 3.07 (2.36) | 1.004 | .368 | −0.12 | 0.11 | 0.23 |
| Affective | 3.59 (2.44) | 3.80 (2.33) | 4.32 (2.15) | 1.253 | .288 | 0.09 | 0.32 | 0.23 |
| Behavioral | 3.61 (2.18) | 4.21 (2.10) | 4.70 (2.42) | 3.125 | .046 | 0.28 | 0.47 | 0.22 |
| Antisocial | 3.06 (2.38) | 3.20 (2.16) | 4.57 (2.66) | 6.714 | .001 | 0.06 | 0.60 | 0.57 |
| Total score | 14.95 (7.83) | 15.77 (7.36) | 19.29 (8.78) | 4.421 | .013 | 0.11 | 0.52 | 0.43 |
| APSD | (n = 34) | (n = 116) | (n = 5) | | | | | |
| CU | 7.44 (1.93) | 7.39 (1.81) | 7.80 (2.39) | 0.856 | .427 | 0.06 | 0.10 | 0.04 |
| Narcissism | 7.21 (4.28) | 7.26 (3.74) | 7.00 (3.94) | 0.655 | .521 | 0.09 | 0.12 | 0.10 |
| Impulsivity | 6.85 (2.16) | 6.84 (2.05) | 7.60 (1.95) | 0.049 | .952 | 0.01 | 0.03 | 0.02 |
| Total score | 24.06 (8.14) | 23.71 (7.25) | 25.00 (7.84) | 0.474 | .624 | 0.04 | 0.07 | 0.04 |

*Note*: d1= moderate vs. none; d2= severe vs. none; d3= severe vs. moderate.

Table 2

*Correlation between the total scores of the psychopathy scales and the score of the YLS/CMI risk indicators of recidivism*

| YLS/CMI | PCL:YV (total score) | APSD (total score) |
|---|---|---|
| Prior and current offenses/ dispositions | .22*** | .04 |
| Family circumstances/ parenting | .32*** | .33*** |
| Education/ employment | .46*** | .38*** |
| Peer relations | .24*** | .14 |
| Substance abuse | .24*** | .13 |
| Leisure/ recreation | .15 | .26*** |
| Personality/ behavior | .46*** | .45*** |
| Attitudes/ orientation | .43*** | .41*** |
| Overall Level of Risk | .51*** | .41*** |

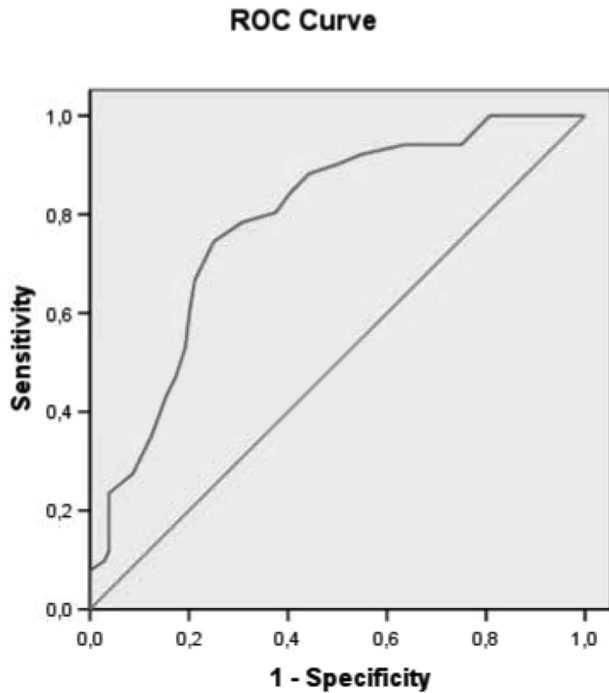*Note*: *p < .05; **p < .01; ***p < .001

## ROC Curve



*Figure 1.* Relation between the total APSD score and the dichotomized score (high vs. low) in the PCL:YV (cut-off point = 20).

validity index or the correct number of accurate cases (the number of individuals correctly classified by the scale) was moderate (62.58; CI 95% = 62.2 – 62.9) since this index also depends on prevalence, sensitivity and specificity, and was affected by a relatively low prevalence (30.97 CI 95% = 30.6 – 31.3) of psychopathy in our study sample.

Significant correlations were obtained for the different factors of both instruments and for the total scores. The total score of both scales showed a correlation of .60, while the scores among the factors ranged from .24 between the *Interpersonal* factor in the PCL:YV and the *Callous/Unemotional* factor in the APSD, to .56 between the total score of the PCL:YV and the *Impulsivity* factor in the APSD (Table 3).

## Discussion

The theoretical basis of this study is that early onset psychopathy is not fully studied or defined. In youths, the psychopathy construct is not as robust as it is in adults, and we can only talk of fledgling psychopaths as Lynam (1996) identified them; that is, juveniles afflicted with a virulent strain of conduct disorder. Nevertheless, some findings support the assessment of the construct in young subjects and its use in forensic settings, although the need to continue research has been acknowledged, particularly in studies with different prospective designs.

Of all the results obtained in this work, the fact that the PCL:YV and APSD scores are associated with significant indicators of offending stands out. The total scores of both scales help distinguish among the recidivist groups in accordance with the frequency with which they reoffend. Furthermore for the PCL:YV, these total scores enable us to distinguish among the violent groups, although as Douglas et al. (2008) pointed out, we believe that the tests themselves are not sufficiently reliable to estimate the risk of certain conducts like violence or recidivism. Since this study has a limitation in that the assessment of recidivism and commission of violent offences was retrospectively done, it could not establish the prospective nature of these tools. Nevertheless, the outcomes seem to show that we can better predict behavior if we study more homogeneous groups in which the level of reoffending and the level of violence be taken into account.

Moreover, one of the significant aspects observed with the PCL:YV is related to the behavioral factors since they reveal an association between recidivism and violence, while the factors usually considered the core of psychopathy (*Interpersonal* and *affective*), show no discriminative power. With the APSD, although the *Callous/Unemotional* factor is associated with the degree of recidivism, it does not prove useful to distinguish among the violent groups. To a point, these results contradict those found by Fritz, Wiklund, Koposov, af Klinteberg, and Ruchkin (2008), as their APSD scores were able to discriminate among the groups with various levels of violence. However, this issue has to be

Table 3

*Correlations among the factorial and total scores of both psychopathy tools*

| PCL:YV | APSD | | | |
|---|---|---|---|---|
| | Callous/Unemotional | Narcissism | Impulsivity | Total score |
| Interpersonal | .244** | .352** | .300** | .392** |
| Affective | .392** | .347** | .398** | .441*** |
| Behavioral | .367** | .278** | .486*** | .438*** |
| Antisocial | .402*** | .401*** | .482*** | .509*** |
| Total score | .476*** | .406*** | .556*** | .595*** |

*Note*: *p < .05; **p < .01; ***p < .001

analyzed with caution because previous studies have shown that when we take into account the effects of other variables jointly, such as early victimization, the effect of psychopathy over violent behavior can decrease (Krischer & Sevecke, 2008; Odgers, Reppucci, & Moretti, 2005). Gender can have a moderate effect in the relationship between psychopathy and violence as well, since violent behavior in women may be less prevalent, as well as the level of psychopathy they show (Vincent, Odgers, McCormick, & Corrado, 2008). Nevertheless, in our study both males and females showed a similar level of psychopathy as well as similar reoffending and violent behavior prevalence, as have other studies before (Kimonis, Frick, Fazekas, & Loney, 2006; Penney & Moretti, 2007). This finding, if replicated in the future can also point out a remarkable difference between psychopathy in adults and juveniles.

In general terms, the findings of this study are in agreement with those reported in other research studies insomuch that the behavioral factors have predictive power for violent conducts (Corrado, Vincent, Hart, & Cohen, 2004; Das Ruiter, Lodewijks, & Doreleijers, 2007; Schmidt, McKinnon, Chattha, & Brownlee, 2006) and for recidivism (Schmidt et al., 2006; Walsh & Kosson, 2008), which have even been confirmed in meta-analysis studies (Leistico, Salekin, DeCoster, & Rogers, 2008). Furthermore, the results obtained in adults are beginning to show evidence that the relationship between affective factors, recidivism and violence in comparison with behavioral factors, is less important (Spain et al., 2004). Yet when the predictive validity of the PCL:YV was checked against other self-report psychopathy measures (Douglas et al., 2008), the PCL:YV scores were not found to relate significantly with recidivism and the predictive validity of the self-report measures was better than for the PCL:YV. Although some studies have assessed the incremental validity of the APSD and other measures of concurrent antisocial behavior (Lynam 1997; Poythress et al., 2006), research has not yet addressed the incremental validity of the APSD in terms of predicting future recidivism in juvenile justice settings (Douglas et al., 2008).

Conversely, other authors indicate that psychopathy should be fully incorporated into criminological investigations of delinquent and criminal careers as they found that psychopathy factors proved useful in predicting all the criminal career dimensions (violence, hostility, juvenile delinquency, etc) (Vaughn et al., 2008). For the time being, we may state that the PCL:YV data are inconsistent with some studies that report incremental validity (Gretton, Hare, & Catchpole, 2004; Schmidt et al., 2006), while others do not (Langström & Grann, 2002). Lack of incremental validity suggests that, for predictive purposes, measures may relate to outcome because they contain information about these other risk factors (i.e., past offence- and substance-related problems both enter the assessment of psychopathy) (Douglas et al., 2008). This has also been verified by the present study as the psychopathy measures significantly

correlate with risk indicators of offending, such as academic or occupational performance, drug abuse, or youths' values, attitudes and beliefs in terms of offending.

One of the limitations that may affect the findings of this study is that the scale used to screen psychopathy was not formerly designed to be used in populations with the characteristics of our study sample. Assessing adolescents with the APSD (and not children aged 6-13 years), in the forensic setting (and not in the community setting), may entail having to interpret the results achieved from another prism. Nevertheless, the ease with which the APSD is used favors its use in adolescent forensic samples. Furthermore, the psychometric properties of APSD rating by parents and teachers did not prove to be effective enough in young forensic populations and great caution is required when deciding the future of youths. Applying different cutoff points has shown that it is easy to make mistakes when trying to identify those who have reoffended or who have violent conduct, and a cutoff point of 20 only demonstrated moderate rates of predictive power. In short, the development of screening measures with more accuracy is needed if forensic assessment is required.

With respect to the comparison between the APSD and the PCL:YV, the results obtained show that the APSD may be a good predictor of PCL:YV-assessed psychopathy in these populations. The effectiveness of this tool lies in its capacity to correctly identify individuals who *do not* suffer psychopathy. In terms of the results obtained, the APSD should be used as a screening tool and, if we were to ensure that most of the delinquents who may be classified as psychopaths according to the PCL:YV were taken into account, we should then opt for cut-off point values under 20. On the other hand, if the intention of the assessment is to avoid making many false positives, then we should use a higher cut-off point value such as 25, which stands out given the equilibrium it establishes between sensitivity and the number of false positives.

What appears to prevail in the present empirical work in juvenile psychopathy is the difference in the results obtained, as they do not enable us to draw unequivocal conclusions, and imply the need for further studies to be conducted with large samples in different settings (clinical, forensic and population-based) with a sufficiently long follow-up time. We think forensic uses of juvenile psychopathy instruments will require clinical experts to obtain information about the true numbers and the false positives associated with the scores of the instrument used. Characteristics like sensitivity, specificity, the positive predictive value and the negative predictive value are aspects of any screening instrument that the rater must manage unequivocally. The data about different cut-off point values must be available, and clinical and forensic experts must decide the level of scoring required in order to recognize whether a juvenile offender is at high risk of psychopathy. Deciding where to establish the cut-off point must be based

on the degree of the risk of false positives that we wish to tolerate in relation to the seriousness of the consequences of the decisions to be made. Clinical experts must be well aware that, nowadays, cut-off scores for juvenile delinquents are merely convenience strategies for researchers. In other words, the mere fact that a PCL-R score proves useful to identify psychopathy in adults does not justify a similar conclusion with children and adolescents.

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