Factor structure, psychometric properties, and proposal for a brief-form version of the Levenson Self-Report Psychopathy Scale: Validation in a court-referred partner-violent men sample

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ABSTRACT

Psychopathy has been widely studied among criminal populations. Most analyses address it in institutionalized populations, however, the present study examines the psychometric properties of the Levenson Self-Report Psychopathy Scale (LSRP) in 642 court-referred partner-violent men serving suspended prison sentences. The confirmatory factor analysis confirmed the two-factor structure (primary and secondary psychopathy) of the original scale. The resulting scale was a brief-form version of the LSRP that presents satisfactory data in terms of internal consistency and criterion validity, and significant positive correlations with measures of intimate partner violence (IPV), antisocial personality traits and impulsivity. In terms of known-groups validity, meanwhile, psychopathy was found to decrease with the age of the participants. In this light, the LSRP brief-form offers adequate psychometric reliability as an instrument to measure primary and secondary psychopathy in partner-violent men serving suspended sentences.

The construct of psychopathy, which may be described as "a socially devastating disorder defined by a constellation of affective, interpersonal, and behavioral characteristics, including egocentricity; impulsivity; irresponsibility; shallow emotions; lack of empathy, guilt or remorse; pathological lying; manipulativeness; and the persistent violation of social norms and expectations" (Hare, 1996, p. 25), has generated a profusion of scientific contributions dealing with criminal populations and delinquent behaviors. Psychopathic offenders not only commit more crimes (Kosson et al., 1990) but also more varied crimes (Hare, 1981; Kosson et al., 1990). They are also generally more violent (Kosson et al., 1990; Serin, 1991) and tend to accumulate longer criminal careers than non-psychopathic criminals (Hare et al., 1992). Furthermore, psychopathy has been shown to be a good predictor of criminal recidivism (Bate et al., 2014; Lussier et al., 2020; Sellbom, 2011). As one of the most studied constructs among offenders and one that has implications both clinically and in terms of criminal recidivism, it soon became clear that psychometrically reliable instruments were needed to assess the components of psychopathy. The most widely used instrument to date has been the Psychopathy Checklist-Revised (PCL-R; Hare, 2003), despite certain limitations. Most studies that apply the PCL-

R use institutionalized samples and prison populations. Application of the PCL-R takes considerable time and effort, because it is not a self-report measure, and it requires the researcher to trawl through a whole bundle of information drawn from case histories and other prior reports. Furthermore, the checklist cannot be used in cases where such reports are not available or even where when they are not full and complete, because the absence of crucial information might lead to lower scores (Alterman et al., 1993; Lilienfeld, 1998).

In this context, it was soon realized that other types of scales that could be more straightforwardly applied were also needed to detect psychopathic traits in non-institutionalized populations. One of the most developed is Levenson's Self-Report Psychopathy Scale (LSRP; Levenson et al., 1995), which is specifically designed to measure psychopathic traits in non-institutionalized samples. This scale measures both primary and secondary psychopathy and comprises 26 items with a Likert response scale ranging from 1 (strongly disagree) to 4 (strongly agree). The primary psychopathy subscale (16 items) addresses affective and emotional traits, insensitivity, self-centeredness and lack of empathy, and the secondary psychopathy subscale (10 items) refers to impulsive and antisocial lifestyles, poor impulse control and a certain tendency

towards antisocial behavior (Lilienfeld & Fowler, 2006). The LSRP was initially validated in a study using a sample of 487 university students, which found both factors through an exploratory factor analysis and displayed adequate internal consistency indices for both primary (Cronbach's alpha = 0.82) and secondary psychopathy (Cronbach's alpha = 0.63; Levenson et al., 1995). In terms of convergent validity, Salvador et al. (2017) carried out a meta-analysis covering a total of 39 studies, which examined the convergent validity of different instruments to measure psychopathy, including the PCL, LSRP and Psychopathic Personality Inventory (PPI; Lilienfeld & Andrews, 1996). These scholars tested the convergent validity of the instruments at the one-dimensional level and for the affective and antisocial factors common to all of them, finding positive, significant, and generalizable convergent validity between all of the instruments analyzed.

Various studies of the LSRP's factorial structure have successfully replicated both factors with college students (Lynam et al., 1999) and incarcerated men (Brinkley et al., 2001), in both cases analyzing the modification indices, which resulted in a total of 17 correlated errors, to improve fit. However, numerous researchers have criticized the practice of selecting modification indices based on empirical criteria, on the grounds that the selection should rather obey theoretical criteria, ensuring more appropriate decisions regarding goodness of fit in models of this nature (Hooper et al., 2008; Whittaker, 2012). Taking these limitations into account, Brinkley et al. (2008) again sought to validate the LSRP structure for a sample of 430 incarcerated women. However, they did not find a good fit for the two-factor model of the original scale, and in this light they opted to perform an exploratory factor analysis to determine which model would best fit the specific sample utilized. The conclusion of this study was that the LSRP was in fact formed by three factors, while seven of the scale's original 26 items were eliminated. The three factors found by Brinkley et al. (2008) were egocentricity (10 items), callousness (four items), and antisociality (five items). However, no confirmatory factor analysis was carried out in this study that would have allowed an analysis of fit in the new three-factor model. Sellbom (2011) attempted to replicate this three-factor model performing a confirmatory factor analysis on three different samples, consisting of 573 male prison inmates, 202 male college students and 200 female college students. This study analyzed the data and fit of five possible models, finding that none offered a good fit for all three of the samples considered. Specifically, the results showed a good fit between the three-factor model proposed by Brinkley et al. (2008) and the group of college men, but not so with the other two samples.

In view of these inconsistencies, Salekin et al. (2014) addressed the factorial structure and construct validity of the LSRP using a sample of 1257 undergraduate students (869 female and 378 male) to examine the fit of three possible (one-, two- and three-factor) models applying a confirmatory factor analysis. The results showed that the three-factor model offered the best fit for the data, followed by the two-factor model, which also displayed an adequate fit. Upon analyzing the convergent and discriminant validity of these two models, however, they found important theoretical difficulties in the three-factor model. In contrast, the two-factor model presented satisfactory data for convergent and discriminant validity, which ultimately led the researchers to conclude that the two-factor proposal for the original scale was still the best way to interpret the LSRP. Brinkley et al. (2008) concluded by emphasizing the importance of convergent and discriminant validity when testing the factorial structure of psychological assessment instruments, and in this light, they advised against placing reliance on the results of the confirmatory factor analysis alone.

In short, the factorial structure of the LSRP does not appear consistent across different samples (mainly North American university students and convicted criminals held in US prisons), a problem that continues to stoke controversy. In point of fact, the latent structure of the scale has yet to be rigorously analyzed. In a number of studies, it has been found necessary both to eliminate certain items that did not work well and to analyze modification indices in order to correlate residues

only at the end of the process. As already mentioned, however, this strategy is not without its detractors (Hooper et al., 2008; Whittaker, 2012), given that rational/theoretical criteria also need to be considered in decisions of this kind.

This study examines the psychometric properties of the LSRP for a Spanish sample of intimate partner violence (IPV) offenders serving suspended sentences. Though the LSRP has been widely applied to samples of men convicted of offences involving IPV (e.g., Graña et al., 2014; Redondo, Cantos, et al., 2019), the actual functioning of the scale in populations of this type has not yet been analyzed in detail. The existing studies provide reliability data, but they do not analyze the validity and internal structure of the measures and inferences obtained based on the scores generated by the instrument. Hence, the current data are insufficient to form a clear idea of the psychometric properties and performance of the LSRP in samples of this type. In general terms, this study examines the psychometric properties of the LSRP for a sample comprising convicted male IPV offenders serving suspended sentences in Spain (Madrid Region). Though the scale was in fact designed to measure psychopathy in non-institutionalized samples, validation studies have largely focused on samples from the ranks of university students and the prison population. In this light, it will be of interest to analyze the factorial structure and psychometric properties of the LSRP using a sample of offenders convicted of relatively minor offences that did not warrant immediate incarceration. Most studies that apply the PCL-R use institutionalized samples and prison populations. On the upside, such populations are easily accessible, but on the downside, instances of psychopathy in samples of this kind can be masked by the crimes committed by offenders, years of drug and alcohol abuse, subjects' criminal records and cases involving multiple prison terms served over the years with the associated loss of freedom and opportunity (Hare, 1984; Shanok & Lewis, 1981). Secondary psychopathy is closely associated with antisocial behavior patterns and delinquent lifestyles, both of which are typical of institutionalized samples, and this high correlation may mask the presence of actual psychopathic traits in populations who have been deprived of their freedom. Hence, it would be interesting explore psychopathy among populations of open-regime offenders, like the sample used in this study, who have not served any actual prison time because they had no prior criminal record, and who therefore do not have a pre-existing deviant lifestyle.

The specific objectives of this study are: a) in the first place to test the fit of one of the most developed three-factor models, proposed by Brinkley et al. (2008), given the controversy surrounding the development of the LSRP and studies of its factorial structure (egocentricity, callousness, and antisociality); b) to test the two-factor structure of the original LSRP, as the evidence to date seems to indicate that it remains conceptually the most appropriate scale to measure psychopathy as described in the scientific literature (Cleckley, 1964; Hare, 1991; Salekin et al., 2014); c) to analyze the criterion validity of the LSRP through its relationship with actual IPV offences, antisocial personality traits, and impulsivity, given that the secondary psychopathy subscale measures antisocial behaviors, deviant lifestyle and impulsivity; and d) to analyze the discriminant validity of the LSRP through its relationship with the age of participants, given that different studies suggest that psychopathy tends, in general, to decrease with age (Harpur & Hare, 1994; Huchzermeier et al., 2008).

1. Method

1.1. Participants

The participants in the study were men living in the Madrid Region (Spain) at the time of the pre-treatment assessment. They had all received suspended prison sentences of <2 years for IPV offences. The sample admission criteria required an adequate understanding of both written and spoken Spanish. The total study sample consisted of 642 men aged between 18 and 74 years, with a mean age of 38.46 (*SD* =

10.36). Most of these men (84.6 %) had been convicted of physical violence towards their intimate partner—most frequently hitting, grabbing, hair pulling and shaking—compared to 15.4 % convicted of psychological violence—mainly threatening and/or insulting their partners. In terms of educational attainment, 41.3 % had completed elementary school, 42.7 % had completed high school and 16 % had attended a college education of some kind. Married men made up 18.5 % of the sample, while 2.2 % were remarried, 0.6 % were widowed, 11.2 % were separated, 20.6 % were divorced, 10.1 % were cohabiting partners, and 36.8 % were single. More than half of the sample were Spanish (60.6 %), 29.1 % were from Latin American countries and 10.3 % were from other countries.

1.2. Measures

1.2.1. Sociodemographic questionnaire

This measure was created to evaluate participants' sociodemographic characteristics and personal variables, including age, marital status, nationality, educational attainment, and occupation. Data relating to the offences committed were obtained through the analysis of court decisions.

1.2.2. Psychopathy characteristics

The Levenson Primary and Secondary Psychopathy Scale (LSRPP; Levenson et al., 1995) was used. This 26-item self-report scale measures primary and secondary psychopathy and displays adequate psychometric qualities in independent research (Lynam et al., 1999).

1.2.3. Antisocial personality disorder

The Structured Clinical Interview for DSM-IV Axis II Personality Disorders (SCID-II; First et al., 1999) was used. SCID-II assesses the presence or absence of the symptoms included in DSM-IV for different personality disorders. In this study, only the items related to Antisocial Personality Scales were administered. Test-retest reliability is 0.84 for the antisocial disorder.

1.2.4. Self-report IPV

Revised conflict tactics scale-CTS2 (Straus et al., 1996; Spanish adaptation of Loinaz et al., 2012). This scale consists of 78 items that assess IPV perpetration and victimization over the past year with respect to the partner who filed the complaint. The original version is reported to have an internal consistency between 0.79 and 0.95 (Straus et al., 1996), while the Spanish version displays internal consistency of between 0.75 and 0.86 (Loinaz et al., 2012).

1.2.5. Impulsivity characteristics

The Plutchik Impulsive Control Scale (Plutchik & Van Praag, 1989; Spanish adaptation published by Rubio et al., 1999) was used. This scale consists of 4 subscales, namely Planning Capacity, Emotional Control, Control over the Behaviors of eating, spending money and maintaining sexual relations, and Control over Other Behaviors. Reliability was 0.73 in the original study (Plutchik & Van Praag, 1989) and 0.90 in the Spanish adaptation (Rubio et al., 1999).

1.3. Procedure

This study was approved by the Ethics Commission of the Faculty of Psychology of the Universidad Complutense de Madrid (UCM), on May 30, 2009. The partner-violent men participating were invited to the UCM Psychology Faculty, where a qualified therapist interviewed them and administered the instruments described in the Measures section. The scales used in the studies were separated as part of the general assessment procedure in order to create a physical and psychological space between and so reduce the likelihood that subjects would merely repeat the same answers in all cases. The response format of the scales also differed, again to reduce the likelihood of replication. A linguistic and

cultural adaptation of the LSRP scale was prepared following the guidelines of the International Tests Commission, (ITC; Hambleton, 2001). The scale was independently translated by two groups of experts (PhD) with a knowledge of both languages and cultures, and with >10 years' experience in the field of gender violence and aggression in personal relationships. In general, there was consensus between the two groups of experts and only two items generated debate. These were: a) "I often admire a really clever scam", which provoked some discussion of the terms "clever" and "scam", as a result of which it was concluded that a degree of cultural adaptation was required rather than a literal translation of these terms; and b) "When I get frustrated, I often 'let off steam' by 'blowing my top'", two expressions that were considered upon discussion to be equivalent to "vent" and "get very angry" for the purposes of translation into Spanish. Finally, a third bilingual researcher from the USA made a back translation of the scale to obtain assurance that it maintained semantic equivalence with the original scale. The word chosen by this translator was not the same in the case of one word ("relieve" versus "vent"), although the original idea was maintained, and it was decided not to make further changes.

1.4. Data analysis

All statistical analyses were performed using the *SPSS 26.0* statistical software package. The internal consistency of the scales was determined using Cronbach's alpha and MacDonald's omega. Because the missing data in all dependent variables was at most 3 %, neither full maximum likelihood nor multiple imputation estimation procedures were used. We dealt with missing data using the listwise deletion method in all our analyses. In terms of efficiency and consistency this small percentage of missing data suggests results are unbiased. Complete case analysis with <5 % of missing data is recommended since no biases or practical implications have been found in prior simulation studies with this percentage of missing data (Drechsler, 2015). To analyze the factorial structure of the LSRP, we conducted a confirmatory factor analysis (CFA) using the Mplus 7.0 software package. Given the distribution of the variables, the CFA was conducted using the MLM maximum likelihood parameter with standard errors and a mean-adjusted chi-square test, both of which are robust to non-normality. Compared to ML estimation, a robust MLM approach is less dependent on the assumption of multivariate normal distribution, and it also has the advantage of computing robust versions of CFI and RMSEA. In this light, the MLM estimator was the most appropriate approach for the analysis (Byrne, 2012). The following indices were used to analyze the model's fit (Hooper et al., 2008; Jöreskog, 2001): Root Mean Square Error of Approximation (Good fit = $0 \geq$ RMSEA ≤ 0.05; Acceptable fit = $0.05 \geq$ RMSEA ≤ 0.08); Standardized Root Mean Square Residual (Good fit = 0 SRMR $\leq$ b 0.05; Acceptable fit = $0.05 \geq$ SRMR ≤ 0.1); Tucker-Lewis Index (Acceptable Fit = TLI ≥ 0.9; Good Fit = TLI ≥ 0.95), and Comparative Fit Index (Acceptable Fit = CFI ≥ 0.9). Any inadequately functioning items found were eliminated following based on factor loadings below 0.40 and explained R^2 of <0.20 (Byrne, 2012; Hooper et al., 2008). Pearson correlations were calculated to evaluate the LSRP's criterion validity. We assessed known-groups validity by performing variance analyses to determine the existence of differences in the LSRP scores as a function of age. We also calculated the effect size of the differences found with eta-squared (η^2).

2. Results

2.1. Confirmatory factor analysis

A preliminary test was carried out first to determine the fit of the three-factor model proposed by Brinkley et al. (2008). The results show a poor fit for this three-factor model (CFI = 0.697; TLI = 0.652; RMSEA = 0.076, *CI* 0.071–0.082; and SRMR = 0.077).

Our initial hypothesis was that the factorial structure of the LSRP fits

the model proposed in the original scale (Levenson et al., 1995), which consists of a structure of two correlated factors—namely primary and secondary psychopathy. The goodness-of-fit indices for the original model, containing all items of the original scale, were unsatisfactory (CFI = 0.628; TLI = 0.594; RMSEA = 0.074, *CI* 0.070–0.078; and SRMR = 0.074). Meanwhile, analysis of the factor loadings for each item (Table 1) revealed that 14 items scored below 0.40, ten of them belonging to the primary psychopathy scale and four to the secondary psychopathy scale. Based on these results, we then performed three procedures:

- First, all 14 items with a factor score of <0.40 and explained R^2 of <0.20 were eliminated and the goodness of fit of the resulting model was analyzed. All the goodness-of-fit indices in the new model improved to optimal levels (CFI = 0.957; TLI = 0.946; RMSEA = 0.046, *CI* 0.035–0.056; and SRMR = 0.035), while the factor loads of the items all rose above 0.40 (Table 2). In terms of internal consistency, this brief-form version of the LSRP presents satisfactory indices, as reflected by a Cronbach's Alpha, of 0.74 for primary psychopathy (versus 0.71 in the original model) and 0.71 for secondary psychopathy (versus 0.63) with Omega coefficients of 0.82 (versus 0.79) and 0.80 (versus 0.75), respectively.
- Second, we examined the content of the 14 items that did not function adequately in our sample. The four deficient secondary psychopathy items matched those rejected by Brinkley et al. (2008). Upon analysis of the content of these four items, we found that one of them was less than entirely relevant and was scarcely discriminant in the measurement of the construct ("Love is overrated"), as anybody might answer this item either affirmatively or negatively. The other three items referred to the ability to plan based on the likely consequences of actions, and their content largely overlaps. Meanwhile, all ten of the poorly functioning primary psychopathy items refer to the acceptability of hurting other people to attain goals, scamming others, inflicting emotional pain, deliberately lying, and putting oneself above others (e.g., "I enjoy manipulating other people's feelings"). In contrast, the primary psychopathy items that worked well with the sample concern the success of the strongest, the achievement of goals, doing whatever is necessary to win without being caught (e.g., "For me, what's right is whatever I can get away with"). From this it would seem that the behaviors alluded to in the items implying the deliberate infliction of emotional pain to other people do not fit the construct of psychopathy. The offenders participating in this study had not been incarcerated, and it is therefore probable that their clinical characterization, personality traits and psychopathological deviation are likewise less severe. This profile could be the underlying reason for the poor functioning of these ten primary psychopathy items in this specific sample.
- Third, we proceeded based on statistical criteria (unsatisfactory factor loadings, and the improved goodness of fit and reliability of the model upon elimination) and the content analysis carried out, we proceeded to eliminate the 14 deficient items. The resulting abbreviated version was found to be an optimal measure of primary and secondary psychopathy in court-referred partner-violent men serving suspended prison sentences. The next step, then, was to analyze the criterion and known-groups validity of the proposed brief-form version.

2.2. Criterion validity

The Pearson correlations between the two subscales of the LSRP and the various measures of antisocial behavior (in this case IPV), personality and impulsivity were calculated to analyze the criterion validity of the brief-form version of the LSRP proposed in this study, given the relationship between psychopathy and antisocial acts (Brinkley et al., 2001), antisocial personality traits (Huchzermeier et al., 2007) and impulsivity (March et al., 2017). All correlations were found to be

Table 1

Standardized model results: STDYX Standardization of the original LSRP.

Items		Squared multiple correlations	Factor loading	Estimate/ *SE*
Primary psychopathy				
1	Success is based on survival of the fittest; I am not concerned about the losers.	0.24	0.49	13.99***
2	For me, what's right is whatever I can get away with.	0.52	0.72	25.46***
3	In today's world, I feel it is fair to do anything I can get away with to succeed.	0.54	0.73	26.52***
4	My main purpose in life is getting as many goodies as I can.	0.03	0.16	3.64***
5	Making a lot of money is my most important goal.	0.15	0.38	9.68***
6	I let others worry about higher values; my main concern is with the bottom line.	0.27	0.52	15.15***
7	People who are stupid enough to get ripped off usually deserve it.	0.20	0.45	12.18***
8	Looking out for myself is my top priority.	0.11	0.34	8.20***
9	I tell other people what they want to hear so that they will do what I want them to do.	0.27	0.51	15.14***
10	It would be upset if my success came at someone else's expense.	0	0.05	1.19
11	I often admire a really clever scam.	0.10	0.31	7.78***
12	I make a point of trying not to hurt others in pursuit of my goals.	0.02	0.14	3.15**
13	I enjoy manipulating other people's feelings.	0.09	0.30	7.33***
14	I feel bad if my words or actions cause someone else to feel emotional pain.	0.02	0.15	3.54***
15	Even if I were trying very hard to sell something, I wouldn't lie about it.	0.03	0.18	4.09***
16	Cheating is not justified because it is unfair to others.	0.04	0.19	4.36***
Secondary psychopathy				
17	I find myself in the same kinds of trouble time after time.	0.23	0.48	12.88***
18	I am often bored.	0.27	0.52	14.41***
19	I find that I am able pursue one goal for a long time.	0.01	0.07	1.64
20	I don't plan anything very far in advance.	0.06	0.24	5.51***
21	I quickly lose interest in tasks I start.	0.28	0.53	14.66***
22	Most of my problems are due to the fact that other people just don't understand me.	0.24	0.49	13.06***
23	Before I do anything, I carefully consider the possible consequences.	0.04	0.20	4.40***
24	I have been in a lot of shouting matches with other people.	0.32	0.57	16.24***
25	When I get frustrated, I often "let off steam" by blowing my top.	0.40	0.63	19.64***
26	Love is overrated.	0.04	0.21	4.74***

** $p < .01$.
*** $p < .001$.

Table 2
Standardized model results: STDYX Standardization of the LSRP brief-form.

Items		Squared multiple correlations	Factor loading	Estimate/ *SE*
Primary psychopathy				
1	Success is based on survival of the fittest; I am not concerned about the losers.	0.26	0.51	13.53***
2	For me, what's right is whatever I can get away with.	0.34	0.58	16.44***
3	In today's world, I feel it is fair to do anything I can get away with to succeed.	0.35	0.59	16.78***
6	I let others worry about higher values; my main concern is with the bottom line.	0.32	0.57	16.04***
7	People who are stupid enough to get ripped off usually deserve it.	0.24	0.49	13.03***
9	I tell other people what they want to hear so that they will do what I want them to do.	0.30	0.55	15.28***
Secondary psychopathy				
17	I find myself in the same kinds of trouble time after time.	0.23	0.48	12.62***
18	I am often bored.	0.25	0.50	13.78***
21	I quickly lose interest in tasks I start.	0.27	0.52	14.08***
22	Most of my problems are due to the fact that other people just don't understand me.	0.24	0.49	13.01***
24	I have been in a lot of shouting matches with other people.	0.34	0.58	16.95***
25	When I get frustrated, I often "let off steam" by blowing my top.	0.43	0.66	20.70***

*** $p < .001$.

statistically significant ($p < .001$) (Table 3). Lastly, the correlation between primary psychopathy in LSRP brief-form and primary psychopathy in the original version was 0.76 ($p < .001$), compared to 0.88 ($p < .001$) in the case of secondary psychopathy.

2.3. Known-groups validity

Age was used as an independent variable to analyze known-groups validity in the brief-form version of the LSRP, since studies have found that many personality traits fluctuate over the course of people's lives

(Zanarini et al., 2005). Three age groups were formed based on the cut-off points determined in various studies (Redondo, Graña, et al., 2019; Ullrich & Coid, 2009): (a) men up to the age of 29 (early adulthood), (b) men aged from 30 to 50, and (c) men above 50 years of age. Statistically significant age-related differences were found in both the primary psychopathy ($F(2, 639) = 10.76, p < .01$) and secondary psychopathy ($F(2, 639) = 16.09, p < .01$) subscales of the LSRP brief-version. In both cases, the group of young participants scored significantly higher than the 30–50 and over-50 age groups (Table 4).

3. Discussion

Analysis of the LSRP's psychometric properties has produced both a significant volume of scientific contributions and considerable controversy. What seems clear is that the two-factor model of psychopathy (Cleckley, 1964; Hare, 1991) is the best supported by the empirical evidence to date, and this structure remains the most expedient approach to interpret the LSRP (Salekin et al., 2014) at the empirical and conceptual level. In this study, based on a sample of 642 partner-violent men serving suspended sentences, the initial results of the confirmatory factor analysis reflected a poor fit with the proposed two-factor model on the original scale (Levenson et al., 1995). Upon analysis, fourteen items, mostly belonging to the primary psychopathy factor, were found to function poorly in this sample. Fourteen items were removed (as described in the Results section) following the analysis of theoretical content and the statistical adjustment of the scale. The elimination of poorly functioning items resulted in a brief-form version of the LSRP (LSRP brief-form) comprising 12 items (six for primary and six for secondary psychopathy), which presented an optimal fit and higher internal data consistency than the original scale. Most of the eliminated items were part of the primary psychopathy subscale, all of them were items related to manipulation, deliberate lying, lack of empathy, and narcissistic or superiority traits. These characteristics are probably not defining in the type of offenders that make up the sample of the present study, as their criminal and violent behaviors are limited to the context of intimate partner relationships and therefore they do not end up in prison due to the lack of criminal records applicable to this type of crimes. Although the construct of psychopathy remains stable, the construct-irrelevant variance related to the possible erroneous deflation of test scores due to the characteristics of those evaluated for gender violence could be due to a systematic and uncontrolled error of the items included in the original, thereby decreasing the construct validity measured through the test. However, these primary psychopathy items may be better adapted to the characteristics of institutionalized offenders, with longer and more widespread criminal careers in different areas. Therefore, there is a need to contrast the construct validity and measurement invariance in different samples, as an indispensable task in the field of research and clinical practice, especially regarding

Table 3
Means, standard deviations, alpha reliability coefficients, and Pearson's correlations between the LSRP brief-form and measures of IPV, antisocial personality, and impulsivity.

Measure	Primary psychopathy	Secondary psychopathy	*M*	*SD*	α	ω
Primary psychopathy						
Secondary psychopathy	0.49***		2.96	3.32	0.74	0.82
Personality measure			3.72	3.41	0.71	0.80
SCID II antisocial	0.32***	0.37***	1.70	2.38	0.80	0.84
IPV measures						
CTS2-psychological aggression	0.21***	0.38***	16.57	24.64	0.78	0.84
CTS2-physical aggression	0.13**	0.27***	3.14	7.12	0.58	0.83
Measures of impulsivity						
Plutchik impulsivity	0.36***	0.59***	11.39	5.84	0.75	0.82

Note: SCID II = Self-Report Assessment of the Diagnostic and Statistical Manual of Mental Disorders-IV R Personality Disorders; CTS2 = CTS2 = Revised Conflict Tactics Scale; Plutchik = Plutchik Impulsive Control Scale; α = Cronbach's Alpha coefficient; ω = omega coefficient.

** $p < .01$.
*** $p < .001$.

Table 4

Means, standard deviations and age differences (ANOVA) in the LSRP brief-form subscales.

	Group 1 (≤29 years) (n = 136, 21.2 %) M (SD)	Group 2 (30–50 years) (n = 422, 65.7 %) M (SD)	Group 3 (>50 years) (n = 84, 13.1 %) M (SD)	Total (n = 642) M (SD)	$F(2,639)/\eta^2$	Bonferroni
Primary psychopathy	4.09 (3.64)	2.60 (3.14)	2.96 (3.25)	2.96 (3.32)	10.76***0 .03**	1 > 2*** 1 > 3*
Secondary psychopathy	5.16 (4.01)	3.35 (3.17)	3.24 (2.89)	3.72 (3.41)	16.09***0 .05	1 > 2*** 1 > 3***

Note: η 2 = eta-square.
* $p < .05$.
** $p < .01$.
*** $p < .001$.

theoretically heterogeneous constructs such as psychopathy, with diverse clinical features and manifestations (Falkenbach et al., 2017; Sass & Felthous, 2014). Only through the analysis of the psychometric guarantees of an assessment tool can it be ensured that the scores obtained in those samples are meaningful and interpretable (Messick, 1995). Testing the validity and invariance of measurements is especially critical in the field of psychology when there are theoretical grounds to suspect that different samples (for example, different types of offenders) will respond differently to the items of a tool (underrepresentation or test-irrelevant components; Borsboom et al., 2004). Not addressing these differences could have particularly negative consequences for the clinical and judicial monitoring of these samples (Lane, 2014). The results of this study imply that clinicians or researchers who measure psychopathy in court-referred partner-violent men in Spain through the LSRP should consider that there are some items, as detected in this study, that the evaluated individuals may be answering differentially than those in other samples of offenders or in other cultures where the tool has been previously tested. In these cases, the structure and version of the proposed scale in the present study should be considered when calculating scores and arriving at an adequate clinical interpretation.

We found positive and significant correlations between psychopathy and IPV perpetration, antisocial personality, and impulsivity. As expected, these three measures correlated to a greater extent with secondary psychopathy, which of course refers to the manifestation of antisocial behaviors (Brinkley et al., 2001; Levenson et al., 1995) and high levels of impulsiveness (Brinkley et al., 2001; Lynam et al., 1999). The highest correlation was found between secondary psychopathy and antisocial personality, once again in line both with our expectations and with the findings reported from other studies. In terms of known-groups validity, meanwhile, both primary and secondary psychopathy were found to decrease with the age of the participants. Specifically, we observed significant differences between the younger group (up to 29 years of age) and all the other subjects. This effect is greater in the case of secondary psychopathy. Reported results from other studies suggest that primary psychopathy tends to remain stable over time, while secondary psychopathy tends to decrease with age (Harpur & Hare, 1994), which is consistent with the distinction between *basic tendencies* and *characteristic adaptations* drawn by McCrae and Costa (1985). Basic tendencies are largely stable, while antisocial behaviors and deviant lifestyles are more dynamic factors and therefore more likely to change. Nevertheless, more recent research suggests the contrary, supporting the argument that personality traits fluctuate somehow throughout people's lives (Clark, 2005). More specifically, it seems that personality disorder traits decrease over time, while "normal" personality traits do not follow the same trend (Cooper et al., 2014). In the case of psychopathic traits, there are no consistent results in the scientific literature. Some studies find that psychopathic traits remain stable throughout the lifespan in community populations (Andersen et al., 2022). However, with delinquent populations, the trend seems to be that these traits attenuate and decrease over time (Skodol et al., 2019), especially those related to secondary psychopathy and antisocial behavior (Harpur & Hare, 1994;

Huchzermeier et al., 2008). Therefore, it is necessary to continue analyzing the performance of psychopathy items and scales according to age and specific personality traits in specific samples, such as the one in the present study, and, if possible, through longitudinal studies.

This study has some limitations. First self-report measures were used, which is not ideal insofar as the application of self-report measures to validate other self-report measures can lead to overstatement of the relationships between the instruments concerned. Regarding the levels of IPV displayed, meanwhile, most of the participants (84.6 %) were convicted of physical attacks and only 15.4 % of psychological abuse. This factor may moderate the results obtained. It would also be interesting to examine the discriminant validity of the LSRP brief-form by analyzing the operation of the scale in other samples (e.g. other types of open-regime offenders or incarcerated partner-violent men). A test cannot, of course, be validated strictly speaking. It is only possible to obtain evidence supporting the relevance of the content evaluated and its consistency with underlying theories on one hand, and the generalizability and applicability of scores and findings to other cultures, populations and samples (Messick, 1995). Studies of construct validity and factorial structure in specific populations are particularly important, given that the theoretical and conceptual framework of tests will always be partially moderated by the context and the sample to which they are applied. Finally, ignoring these issues could risk underrepresentation of the construct and construct irrelevance, among other problems (Eignor, 2013). Meanwhile, an in-depth exploration of predictive validity would be very useful to establish the capacity of the LSRP brief-form to anticipate the likelihood of reoffending by partner-violent men, given the relationship between psychopathy and criminal recidivism. While the LSRP has shown satisfactory evidence of construct validity. Given the specific characteristics of the sample, however, we were not able to cross-validate the factorial structure proposed in this study. Future research should seek to cross-validate the factorial structure of the instrument in order to confirm the generalizability of the results obtained in this study. Finally, it is possible that participants' perceptions of social desirability and the fact that the LSRP, like other evaluation instruments, is a self-report measure could affect the results of the study. Even so, analyses of self-reported violence among partner-violent probationers and those subject to compliance with court orders, like the participants in this study, appear to show that self-reporting via CTS2 largely matches the proven facts on which IPV convictions were based, despite the possible presence of social desirability concerns in samples of this kind (Horcajo-Gil et al., 2019), and the same is also true of such studies among imprisoned partner-violent men.

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Credit authorship contribution statement

NR, RR-T, MJM-R and JLG contributed with the conceptualization, investigation, formal analysis, and writing. All authors contributed to the article and approved the submitted version.

Data availability

The data that has been used is confidential.

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