Psychopathic Personality Traits Scale – Revised (PPTS-R): Empirical investigation of construct validity and dimensionality in a forensic and non-forensic sample

Daniel Boduszek [1,2]; Agata Debowska [3,4]; Danielle McDermott [5]; Dominic Willmott [6]; Kathryn Sharratt [1]

[1] *University of Huddersfield, Huddersfield, United Kingdom*

[2] *SWPS University of Social Sciences and Humanities, Katowice, Poland*

[3] *The University of Sheffield, Sheffield, United Kingdom*

[4] *SWPS University of Social Sciences and Humanities, Poznan, Poland*

[5] *Leeds Trinity University, Leeds, United Kingdom*

6 Manchester Metropolitan University, Manchester, United Kingdom

Article accepted for publication in ***Deviant Behavior***

CONTACT: Daniel Boduszek d.boduszek@hud.ac.uk Department of Psychology, University of Huddersfield, Edith Key Building, Queensgate, Huddersfield HD1 3DH, UK

Abstract

The current study objective was to develop a revised version of the Psychopathic Personality Traits Scale (PPTS-R) with an increased number of indicators to more reliably capture the four dimensions of the Psychopathic Personality Traits Model (PPTM). Dimensionality, construct validity, and reliability of the PPTS-R was examined among general (N = 1989) and prison (N = 638) population. Three competing models of the PPTS-R were specified and tested using Mplus with MLR estimation. The current research provides evidence that the 28-item PPTS-R using 5-point Likert scale is best captured by four factors, including affective responsiveness, cognitive responsiveness, interpersonal manipulation, and egocentricity and can be effectively used in forensic and general population. Additionally, the PPTS-R will allow, for the first time, for meaningful comparisons between forensic and non-forensic populations with regards to the prevalence of psychopathic traits.

Key words: Psychopathic Personality Traits Model (PPTM); Psychopathic Personality Traits Scale -Revised (PPTS-R); prison population; general population; confirmatory factor analysis

Introduction

The construct that we now refer to as 'psychopathy' emerged over 200 years ago when scholars began to provide accounts of individuals demonstrating a reduced capacity to experience negative affective states in the context of otherwise intact reasoning capabilities (see Moreira et al. 2014 for a historical overview). However, there was considerable variation between accounts, with some including traits that are more closely associated with contemporary understandings of personality disorders, and others emphasising persistent criminality or a tendency towards extreme violence (Cooke 2018). Observations upon which these accounts were based were often concentrated in forensic and clinical settings, raising the possibility that they represented a narrow clinical definition of the construct. In an attempt to provide a unitary definition of psychopathy, Cleckley (1941) presented a list of core affective and interpersonal traits (e.g. shallow affect, manipulation, deceitfulness, a lack of remorse and pathological egocentricity) alongside adaptive features such as the absence of irrational thought, delusions, and nervousness. Although Cleckley acknowledged that individuals with elevated psychopathic traits might be prone to impulsivity and the transgression of legal and social norms, these behaviours were not considered crucial to identification.

Despite a lack of consensus regarding the inclusion of criminal and antisocial behaviour in the definition of psychopathy, it remains the case that frequently utilised measurement tools such as the Psychopathy Checklist – Revised (PCL-R; Hare 1991, 2003) and Levenson Self-Report Psychopathy Scale (LSRP; Levenson et al. 1995) rely heavily on the assessment of behavioural/antisocial/criminal indicators (see Boduszek and Debowska 2016 for a discussion). Although the Psychopathic Personality Inventory – Revised (PPI-R; Lilienfeld and Widows 2005) endeavoured to index personality traits associated with the phenomenon, the observation of strong correlations with the lifestyle-antisocial facet of the

PCL-R indicates that it is also unintentionally skewed towards the assessment of behavioural deviance (Berardino et al. 2005).

Empirical research has demonstrated than an over-reliance on items pertaining to criminality and behavioural maladjustment in methods of assessment has the potential to over-estimate the prevalence of psychopathic traits amongst incarcerated samples (Boduszek et al. 2017; Boduszek et al. 2019). There are also several indications that criminal behaviour is a possible but not an inevitable outcome of psychopathy, suggesting that behavioural deviance should be regarded as a correlate rather than an integral feature of psychopathy assessments (Boduszek et al. 2017; Boduszek, Dhingra, et al. 2016; Corrado et al. 2015; Skeem and Cooke 2010a, 2010b). Indeed, there is a growing body of evidence indicating that psychopathic traits can be observed amongst several non-criminal groups including business students, politicians, military personnel, fire-fighters and law enforcement officers (Babiak et al. 2010; Benning et al. 2018; Hassall et al. 2015; Lilienfeld et al. 2012; Stevens et al. 2012).

Evidence that psychopathic traits are identifiable across a diverse range of populations indicates the requirement for a method of assessment that can be applied to all samples irrespective of criminal history. The Psychopathic Personality Traits Scale (PPTS; Boduszek, Debowska, et al. 2016) endeavoured to address this need by providing a method of assessment uncontaminated by behavioural indicators. Based on the Psychopathic Personality Traits Model (PPTM; Boduszek, Debowska and Willmott 2018), the scale comprises of four subscales designed to index the psychopathic traits: affective responsiveness (i.e. reduced emotional reactivity), cognitive responsiveness (i.e. inability to understand the emotional state of others), interpersonal manipulation (i.e. deceptive and manipulative communication) and egocentricity (i.e. focus on personal interest and beliefs).

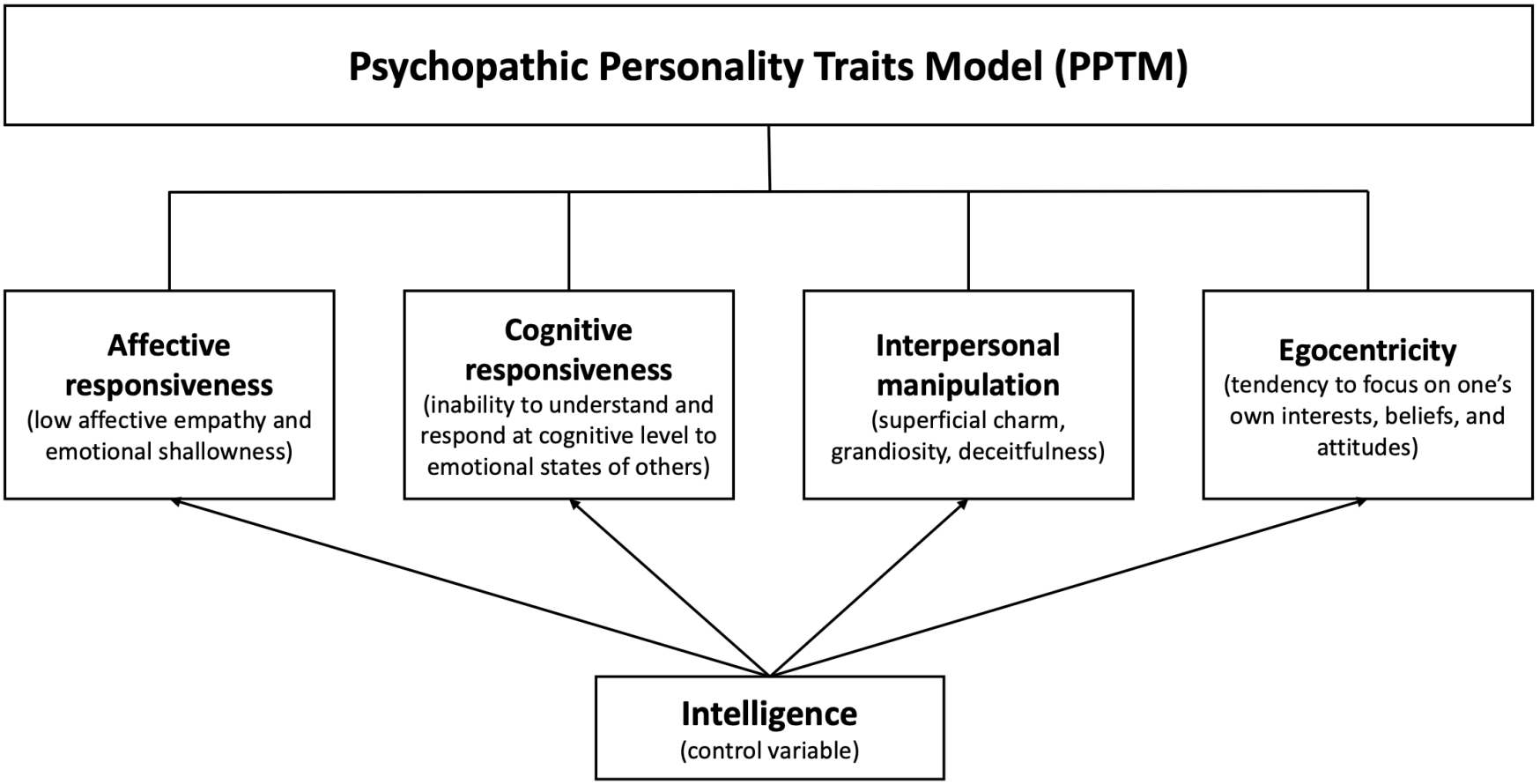

Figure 1. *Psychopathic Personality Traits Model (PPTM, Boduszek et al., 2019)*

The PPTS contains 20 items requiring an agree (0) or disagree response (1). This yields a potential range of scores from 0 to 20, with higher scores indicating elevated levels of psychopathic traits. Based on samples of prisoners from the U.S. and Poland, the application of confirmatory factor analysis revealed that the aforementioned four-factor structure provided a good fit for the data (Boduszek, Debowska, et al. 2016; Boduszek, Debowska, Sherretts, et al. 2018). The appropriateness of this solution was further supported by the observation of differential predictive validity of the four psychopathy factors. Based on the statistics provided (Boduszek, Debowska, Sherretts, et al. 2018), time in prison forms a significant positive correlation with cognitive responsiveness, whereas recidivism correlates positively with interpersonal maniputation. Females score significantly lower than males on affective responsiveness. As for the different types of offences, affective responsiveness associated positively with white-collar crimes, cognitive responsiveness with serial killing, homicide, weapon-related crimes, and robbery. Interpersonal manipulation correlated positively with white-collar crimes, robbery, drug-related crimes, and negatively with homicide. Egocencrity correlated positively with domestic violence. Lastly, composite reliability estimates evidence good internal consistency of the four factors within both samples.

Despite advances made by the PPTS, concerns have been raised about the cognitive responsiveness dimension in particular (see Mededović et al. 2018). Mededović and colleagues cited the argument that with the exception of a single study by Shamay-Tsoory et al. (2010), there is little evidence to indicate that individuals with elevated psychopathic traits experience difficulties inferring the emotional states of others. During their translation of the PPTS, Mededović et al. extended the response format to a five-point scale, which is commensurate with evidence indicating that psychopathy is best understood as a continuous

(trait intensity) as opposed to a dichotomous (trait present or absent) phenomenon (Dhingra et al. 2015; Edens et al. 2011). Based on data from a community sample, cognitive responsiveness demonstrated fewer significant inter-correlations compared to other subscales. Furthermore, exploratory factor analysis produced a two-factor solution whereby items pertaining to cognitive responsiveness loaded onto a separate negatively correlated factor from remaining items. Mededović et al. interpreted this as an indication that cognitive responsiveness does not capture the true essence of psychopathy, but caution should be taken when interpreting these results since all of the items that loaded onto the cognitive responsiveness factor were negatively worded, giving rise to the possibility that this reflects an artificial method effect. In addition, the authors (Mededović et al. 2018) neglected to replicate the best PPTS solution model (i.e., MTMM) presented by Boduszek et al (2016). Yet another problem pertaining to Mededović et al.'s (2018) study is the use a small sample of participants recruited opportunistically via social networks. Finally, although the PPTS is a theoretically based model (PPTM; Boduszek, Debowska and Willmott 2018), Mededović et al. (2018) used exploratory techniques, which are data driven procedures, to assess the validity of the scale.

The Current Study

Considering the most recent research revealing restrictions associated with the PPTS, we decided to revise the measure by adding additional scale items and updating its response format. Therefore, the aim of the current study was to verify whether the Psychopathic Personality Traits Scale – Revised (PPTS-R) can be reliably used among prisoners and participants drawn from the general population (in line with previous research e.g., Rafley, Lebeau & Salimi, 2020). Specifically, we aimed to test construct validity, dimensionality, and composite reliability of the PPTS-R. Given that all revisions were made in line with the original underlying theoretical model, we hypothesised that the PPTS-R would continue to

yield four dimensions indexing affective responsiveness, cognitive responsiveness, interpersonal manipulation, and egocentricity.

Methods

Participants

Sample 1 consisted of 638 adult male prisoners, housed in two prisons in the North of England. Four hundred and thirty-four (n = 434) participants were housed in a Category B prison (prisoners who pose a risk to the public but may not require the highest security, but for whom escape still needs to be made very difficult; referred to as a 'maximum security prison' hereafter) and 204 participants were housed in a Category C prison (prisoners who cannot be trusted in open conditions but who are unlikely to try to escape; referred to as a 'medium security prison' hereafter). Participants ranged in age from 20 to 80 years (M = 35.86, SD = 11.13). The length of incarceration ranged from 1 to 780 months (M = 79.25, SD = 89.63). Participants completed anonymous, pen-and-paper surveys in their living quarters. All data was collected opportunistically. Participation was voluntary without any form of reward.

Sample 2 consisted of 1989 adult males recruited from the general population in the UK. Due to extensive research in social sciences using university students as participants and limitations associated with this, students were not recruited as a part of this community sample (one of the questions in our survey was related to university student status – those who responded "yes" were excluded from the analysis). Participants ranged in age from 21 to 68 years ((M = 34.96, SD = 10.93). A link to the Qualtrics survey was shared on social media platforms i.e., twitter and facebook (opportunistic and snowball sampling was utilized).

Both studies were approved by University of Huddersfield Ethical Board in line with British Psychological Society ethical guidelines.

Measure

Psychopathic Personality Traits Scale - Revised (PPTS-R) is a self-reported 28-item measure designed to assess psychopathic traits in forensic and non-forensic populations. This measure is an updated/extended version of the original PPTS proposed by Boduszek et al. (2016). The PPTS-R consists of four subscales: Affective Responsiveness (items 1, 5, 9, 13, 17, 21, 25), Cognitive Responsiveness (items 2, 6, 10, 14, 18, 22, 26), Interpersonal Manipulation (items 3, 7, 11, 15, 19, 23, 27), and Egocentricity (items 4, 8, 12, 16, 20, 24, 28). All responses are indexed using a 5-point Likert scale (Strongly agree = 4, Agree = 3, Sometimes Agree = 2, Disagree = 1, Strongly disagree = 0). Scores range from 0 to 112, with higher scores indicating increased levels of psychopathic traits. The affective responsiveness subscale assesses lack of empathy and emotional shallowness (higher scores suggest greater deficits in affective responsiveness). Cognitive responsiveness subscale refers to the ability to understand others' emotional states, mentally represent another person's emotional processes, and engage with others emotionally at a cognitive level (higher scores indicate greater deficits in cognitive responsiveness). The interpersonal manipulation subscale is used to measure characteristics such as superficial charm, grandiosity, and deceitfulness (higher scores indicate an increased ability to manipulate others). Egocentricity subscale measures an individual's tendency to focus on one's own interests, beliefs, and attitudes (higher scores suggest increased egocentricity). All items have been constructed to assess knowledge/skills or attitudes/beliefs as opposed to behaviors. Items 10 and 22 are reverse scored. All PPTS-R items are presented in Table 1.

Table 1. *PPTS-R items* (for original 20-item PPTS please see Boduszek et al., 2016)

1	I don't care if I upset someone to get what I want.
2	Before slagging someone off, I don't try to imagine and understand how it would make them feel.
3	I know what to say or do to make another person feel guilty.
4	I tend to focus on my own thoughts and ideas rather than on what others might be thinking.
5	What other people feel doesn't concern me.
6	I don't take into account the other person's feelings before I do or say something, even if they may be affected by my behaviour.
7	I'm good at saying nice things to people, to get what I want out of them.
8	I don't try to understand another person's opinion if I don't agree with it.
9	Seeing people cry doesn't really upset me.
10	I can guess how people will feel in different situations.
11	I know how to fake emotions like pain and hurt to make other people feel sorry for me.
12	No matter what happens and what people say, I'm usually the one who is right.
13	I don't feel bad when a friend is going through a tough time.
14	I can't really tell when someone is feeling awkward or uncomfortable.
15	I sometimes provoke people on purpose to see how they react in certain situations.
16	I'm happy to help somebody as long as I get something in return.
17	I don't really feel compassion when people talk about the death of their loved ones.
18	I find it difficult to understand what other people feel.
19	I'm good at pretending that I like someone if this will get me what I want.
20	Something has to benefit me otherwise it I'm not willing to do it.
21	Seeing somebody suffer doesn't distress me.
22	I can see when someone is hiding what they really feel.
23	I would lie to someone if this gets me what I want.
24	I like it when people do as I say, regardless of whether I'm right or wrong.
25	It doesn't really bother me to see somebody in pain.
26	I find it hard to understand why some people get very upset when they lose someone close to them.
27	I'm good at getting people to do what I want, even if they don't want to at first.
28	How others feel is irrelevant to me, as long as I feel good.

Note: Affective Responsiveness (1, 5, 9, 13, 17, 21, 25), Cognitive Responsiveness (2, 6, 10, 14, 18, 22, 26), Interpersonal Manipulation (3, 7, 11, 15, 19, 23, 27), Egocentricity (4, 8, 12, 16, 20, 24, 28). All responses are indexed using a 5-point Likert scale (Strongly agree = 4, Agree = 3, Sometimes Agree = 2, Disagree = 1, Strongly disagree = 0). Reverse scored items: 10 and 22.

Data Analytic Plan

The construct validity of the PPTS-R was investigated using CFA techniques. Three alternative models of the PPTS-R latent structure were specified and tested using Mplus version 7.4 (Muthén and Muthén 1998/2015) with MLR estimation.

Model 1 is a one-factor solution where all PPTS items load on one latent factor of psychopathy. Model 2 is a correlated three-factor solution in which items 1, 2, 5, 6, 9, 10, 13, 14, 17, 18, 21, 22, 25 and 26) load on affective/cognitive responsiveness factor; items 3, 7, 11, 15, 19, 23 and 27 load on interpersonal manipulation factor; and items 4, 8, 12, 16, 20, 24 and 28 load on egocentricity factor. Model 3 is a correlated four-factor solution where items 1, 5, 9, 13, 17, 21 and 25 load on affective responsiveness factor, items 2, 6, 10, 14, 18, 22 and 26 load on cognitive responsiveness factor, items 3, 7, 11, 15, 19, 23 and 27 load on interpersonal manipulation factor, items 4, 8, 12, 16, 20, 24 and 28 load on egocentricity factor. The overall fit of each model and the relative fit between models were assessed using the following goodness-of-fit statistics: the $\chi 2$ statistic, the comparative fit index (CFI; Bentler, 1990), and the Tucker-Lewis index (TLI; Tucker and Lewis, 1973). For CFI and TLI, values 0.90 and above indicate acceptable model fit (Bentler, 1990, 1995; Hu and Bentler, 1999). In addition, the root-mean-square error of approximation (RMSEA; Steiger, 1990) with 90% confidence interval is presented. Ideally, this index should be less than 0.08 to suggest acceptable fit (Bentler, 1990; Hu and Bentler, 1999). Finally, the standardized root mean square residual (SRMR) was used to evaluate the alternative models (values 0.05 and below suggest good model fit).

Results

Descriptive statistics for the four PPTS-R subscales (affective responsiveness [AR], cognitive responsiveness [CR], interpersonal manipulation [IPM], and egocentricity [EGO]) are presented in Table 2 below (separately for general population and prisoners).

Table 2. *Descriptive statistics, average factor loadings, and internal reliability for four psychopathy subscales*.

	AR	CR	IPM	EGO
General population				
Mean	15.46	16.98	17.67	17.38
Standard Deviation	8.63	6.58	6.91	6.89
Average λ	0.87	0.66	0.74	0.72
Composite Reliability	0.96	0.85	0.90	0.89
Cronbach's alpha	0.95	0.86	0.90	0.89
Prisoners				
Mean	25.70	23.33	24.83	24.39
Standard Deviation	6.33	5.26	6.52	5.89
Average λ	0.75	0.61	0.77	0.71
Composite Reliability	0.90	0.78	0.91	0.88
Cronbach's alpha	0.90	0.78	0.91	0.86

Note: λ = factor loading; AR = affective responsiveness, CR = cognitive responsiveness, IPM = interpersonal manipulation, EGO = egocentricity.

Fit indices for the three proposed models of the PPTS-R are presented in Table 3.

Table 3. *Fit indices for three alternative models of the PPTS-R*

	χ^2	df	CFI	TLI	RMSEA (90% CI)	SRMR
General population						
One Factor Model	6293.060*	350	0.85	0.84	0.088 (0.086/0.089)	0.065
Three Factor Model	4255.309*	347	0.90	0.89	0.071 (0.069/0.073)	0.059
Four Factor Model	4145.146*	344	0.91	0.90	0.070 (0.069/0.73)	0.054
Prisoners						
One Factor Model	1570.338*	350	0.85	0.83	0.075 (0.071/0.079)	0.057
Three Factor Model	1268.108*	347	0.88	0.87	0.066 (0.062/0.069)	0.055
Four Factor Model	1253.474*	344	0.90	0.89	0.063 (0.061/0.069)	0.052

Note. χ^2 = chi square goodness of fit statistic; *df* = degrees of freedom; CFI = Comparative Fit Index; TLI = Tucker Lewis Index; RMSEA = Root-Mean-Square Error of Approximation; CI = Confidence Interval; SRMR =Standardized Root Mean Square Residual.

Out of the three proposed models, the four-factor model provides the best fit to the data among the general population [CFI = 0.91, TLI = 0.90, RMSEA = 0.070 (90% CI = 0.069/0.073), SRMR = 0.054] and prisoners [CFI = 0.90, TLI = 0.89, RMSEA = 0.063 (90% CI = 0.061/0.069), SRMR = 0.052]. The average score for factor loadings (average λ) provides additional support for the PPTS-R four-factor solution (all values above 0.60 – see Table 2).

Composite reliability and Cronbach's alpha were calculated to determine the internal reliability of the PPTS-R subscales. All four psychopathy subscales demonstrate excellent internal reliability (see Table 2).

Discussion

The main objective of the current study was to validate the revised 28-item PPTS-R using a 5-point Likert scale among male forensic and non-forensic populations. We tested three alternative models of the PPTS-R. The best model, based on all fit indices, was the four-dimensional solution, suggesting that the PPTS-R should be conceptualized to consist of four subscales (affective responsiveness, cognitive responsiveness, interpersonal manipulation, egocentricity) when used among male incarcerated offenders and men drawn from the general population. This result is in line with the theoretical PPTM model (Boduszek, Debowska and Willmott 2018) and the previous research on the PPTS among Polish (Boduszek, Debowska, Dhingra and DeLisi 2016) and US male prisoners (Boduszek, Debowska, Sherretts and Willmott 2018). Additionally, this research provides evidence that the PPTS-R scale is constant across samples drawn from two significantly different settings and hence the PPTS-R can be used in the same way in the general and prison population. This may be due to the exclusion of criminal/antisocial traits and focus on the core components of a psychopathic personality (as presented in Figure 1).

It is important to note that the current study is limited in that the analyses were based on adult males from forensic and general populations and future research should validate the PPTS-R among youths and females. Additionally, in line with the PPTM model, future research should also control for intelligence levels, to determine whether levels of

psychopathic traits (especially cognitive responsiveness) are more pronounced in individuals with decreased cognitive functioning.

Conclusion

Despite the above-mentioned limitations, the current study demonstrates that the 28-item PPTS-R is best captured by four factors, including affective responsiveness, cognitive responsiveness, interpersonal manipulation, and egocentricity and can be effectively used in forensic and general populations. Additionally, the PPTS-R will allow, for the first time, for meaningful comparisons between forensic and non-forensic populations with regards to the prevalence of psychopathic traits.

References

Babiak, Paul, Craig S. Neumann, and Robert D. Hare. 2018. "Corporate Psychopathy: Talking the Walk." *Behavioral Sciences & the Law* 28: 174-193.

Benning, Stephen D., Noah C. Venables, and Jason R. Hall. 2018. "Successful Psychopathy." Pp. 585–608 in *Handbook of Psychopathy,* edited by Christopher J. Patrick. Guilford, UK: The Guilford Press.

Bentler, Peter M. 1990. "Comparative Fit Indices in Structural Models." *Psychological Bulletin* 107: 238–246.

Bentler, Peter M. 1995. *EQS Structural Equations Program Manual*. Vol. 6. Encino, CA: Multivariate Software.

Berardino, Stacey D., J. Reid Meloy, Mark Sherman, and Delores Jacobs. 2005. "Validation of the Psychopathic Personality Inventory on a female inmate sample." *Behavioral Sciences & the Law* 23: 819-836.

Boduszek, Daniel, and Agata Debowska. 2016. “Critical Evaluation of Psychopathy Measurement (PCL-R and SRP-III/ SF) and Recommendations for Future Research.” *Journal of Criminal Justice* 44: 1-12.

Boduszek, Daniel, Agata Debowska, Katie Dhingra, and Matt DeLisi. 2016. “Introduction and Validation of Psychopathic Personality Traits Scale (PPTS) in a Large Prison Sample.” *Journal of Criminal* Justice 46: 9-17.

Boduszek, Daniel, Agata Debowska, Nicole Sherretts, and Dominic Willmott. 2018. “Psychopathic Personality Traits Scale (PPTS): Construct Validity of the Instrument in a Sample of U.S. Prisoners.” *Frontiers in Psychology* 9: 1596.

Boduszek, Daniel, Agata Debowska, Nicole Sherretts, Dominic Willmott, Mike Boulton, Krzysztof Kielkiewicz, Katarzyna Popiolek, and Philip Hyland. 2019. “Are Prisoners More Psychopathic than Non-forensic Populations? Profiling Psychopathic Traits among Prisoners, Community Adults, University Students, and Adolescents." *Deviant Behavior*: 1-13.

Boduszek, Daniel, Agata Debowska, and Dominic Willmott. 2017. “Latent Profile Analysis of Psychopathic Traits among Homicide, General Violent, Property, and White-collar Offenders.” *Journal of Criminal Justice* 51: 17-23.

Boduszek, Daniel, Agata Debowska, and Dominic Willmott. 2018. “Psychopathic Personality Traits Model (PPTM): A New Approach to Defining Psychopathy.” Pp. 216-224 in *Routledge International Handbook of Psychopathy and Crime*, edited by Matt DeLisi. New York, NY: Routledge Taylor & Francis Group.

Boduszek, Daniel, Katie Dhingra, Philip Hyland, and Agata Debowska. 2016. “A Bifactorial Solution to the Psychopathy Checklist: Screening Version in a Sample of Civil Psychiatric Patients”. *Criminal Behaviour and Mental Health* 26:174-185.

Cleckley, Hervey Milton. 1941. *The Mask of Sanity.* 1st Ed. St. Louis, MO: C.V. Mosby.

Cooke, David J. 2018. “Psychopathic Personality Disorder: Capturing an Elusive Concept.” *European Journal of Analytic Philosophy* 14: 15-32.

Cooke, Jennifer L., and David J. Skeem. 2010a. “Is Criminal Behavior a Central Component of Psychopathy?.” *Psychological Assessment* 22: 433-445.

Cooke, Jennifer L., and David J. Skeem. 2010b. “One Measure does not a Construct Make: Directions toward Reinvigorating Psychopathy Research - reply to Hare and Neumann (2010).” *Psychological Assessment* 22: 445-449.

Corrado, Raymond R., Matt DeLisi, Stephen D. Hart, and Evan C. McCuish. 2015. “Can the Causal Mechanisms Underlying Chronic, Serious, and Violent Offending Trajectories be Elucidated using the Psychopathy Construct.” *Journal of Criminal Justice* 43: 251-261.

Dhingra, Katie, Daniel Boduszek, and Susanna Kola-Palmer. 2015. “A Latent Class Analysis of Psychopathic Traits in Civil Psychiatric Patients.” *The Howard Journal of Criminal Justice* 54: 237-249.

Edens, John F., David K. Marcus, and Michael G. Vaughn. 2011. “Exploring the Taxometric Status of Psychopathy among Youthful Offenders: Is there a Juvenile Psychopath Taxon?.” *Law and Human Behavior* 35: 13-24.

Hare, Robert D. 1991. *The Hare Psychopathy Checklist - Revised*. Toronto, ON: Multi-Health Systems.

Hare, Robert D. 2003. *Manual for the Revised Psychopathy Checklist.* 2nd ed. Toronto, ON: Multi-Health Systems.

Hassall, Jonathan, Daniel Boduszek, and Katie Dhingra. 2015. “Psychopathic Traits of Business and Psychology Students and their Relationship to Academic Success.” *Personality and Individual Differences* 82: 227-231.

Hu, Li-Tzee, and Peter M. Bentler. 1999. “Cutoff Criteria for Fit Indexes in Covariance Structure Analysis: Conventional Criteria Versus New Alternatives.” *Structural Equation Modeling A Multidisciplinary Journal* 6: 1-55.

Rafley, Fardin, Richard Lebeau and Yahya Salimi. 2020. “Development and Validation of the Antisocial Traits Scale in the General Population” *Criminal Justice and Behavior* 47: 369-380.

Levenson, Michael R., Kent A. Kiehl, and Cory M. Fitzpatrick. 1995. “Assessing Psychopathic Attributes in a Noninstitutionalized Population.” *Journal of Personality and Social Psychology* 68: 151-158.

Lilienfeld, Scott O., Irwin D. Waldman, Kristin Landfield, Ashley L. Watts, Steven Rubenzer, and Thomas R. Faschingbauer. 2012. “Fearless Dominance and the US Presidency: Implications of Psychopathic Personality Traits for Successful and Unsuccessful Political Leadership.” *Journal of Personality and Social Psychology* 103: 489-505.

Lilienfeld, Scott O., and Michelle R. Widows. 2005. *Psychopathic Personality Inventory - Revised: Professional Manual*. Odessa, FL: Psychological Assessment Resources.

Međedović, Janko, Tara Bulut, Drago Savić, and Nikola Đuričić. 2018. “Delineating Psychopathy from Cognitive Empathy: The case of Psychopathic Personality Traits Scale.” *European Journal of Analytic Philosophy* 14: 53-62.

Moreira, Diana, Fernando Almeida, Marta Pinto, and Marisalva Fávero. 2014. “Psychopathy: A Comprehensive Review of its Assessment and Intervention.” *Aggression and Violent Behavior* 19: 191-195.

Muthén, Linda K., and Bengt O. Muthén. 1998/2015. Mplus User’s Guide. 7th ed. Los Angeles, CA: Muthén & Muthén.

Shamay-Tsoory, Simone G., Hagai Harari, Judith Aharon-Peretz, and Yechiel Levkovitz. 2010. “The role of the Orbitofrontal Cortex in Affective Theory of Mind Deficits in Criminal Offenders with Psychopathic Tendencies.” *Cortex* 46: 668-677.

Stevens, Gregory W., Jacqueline K. Deuling, and Achilles A. Armenakis. 2012. “Successful Psychopaths: Are they Unethical Decision-makers and Why?.” *Journal of Business Ethics* 105: 139-149.

Steiger, James H. 1990. “Structural Model Evaluation and Modification: An Interval Estimation Approach”. *Multivariate Behavioural Research* 25: 173-180.

Tucker, Ledyard R., and Charles Lewis. 1973. “A Reliability Coefficient for Maximum Likelihood Factor Analysis.” *Psychometrika* 38: 1-10.

Notes on contributors:

Daniel Boduszek, PhD is a professor of criminal psychology at the University of Huddersfield (UK) and SWPS University (Poland). His current research interests and publications include the aspects of criminal social identity, homicidal behavior, psychopathy, prisonization, and recidivism.

Agata Debowska, PhD is an academic at the University of Sheffield and SWPS University of Social Sciences and Humanities. Her current research interests and publications include violence against women and children, child sexual abuse, psychopathy, and criminal social identity.

Danielle McDermott, PhD is a senior lecturer in psychology at Leeds Trinity University. Her current research interests and publications include prison and probation psychology.

Kathryn Sharratt, MSc, is a senior lecturer in criminology at the University of Huddersfield. Her research interests and publications include assessment and rehabilitation of offenders, psychopathy and intelligence.

Dominic Willmott, PhD is a senior lecturer in forensic psychology at the Manchester Metropolian University. Her research interests and publications include jury decision making, vioilence against women, and psychopathy.