

## **STUDYING CONFIGURATIONS OF PSYCHOPATHIC TRAITS: EXPLORING THE VIABILITY OF PSYCHOPATHIC PERSONALITY IN EARLY CHILDHOOD**

Laura López-Romero, PhD, Estrella Romero, PhD,  
Randall T. Salekin, PhD, Henrik Andershed, PhD,  
and Olivier F. Colins, PhD

The idea that very young children can manifest a constellation of personality traits that looks like psychopathy has rarely been explored. To fill this void, data from 2,247 children, aged 3–6 years ( $M = 4.25$ ;  $SD = 0.91$ ), from the Estudio Longitudinal para una Infancia Saludable (ELISA) were utilized. Parents and teachers completed questionnaires at baseline and at 1-year follow-up. Using three parent-rated psychopathy dimensions as indicators, the authors conducted latent profile analysis and arrived at five latent classes: Control (39.2%), Impulsive-Need for Stimulation (34.8%), Grandiose-Deceitful (16.5%), Callous-Unemotional (6.2%), and Putative Psychopathic Personality (PP, 3.3%). Children in the PP class, overall, engaged in higher levels of concurrent, future, and stable conduct problems and reactive and proactive aggression, and lower levels of prosocial behavior, as rated by parents or teachers. Findings also revealed meaningful differences between the remaining four classes. Person-oriented analyses seem to offer a fruitful avenue to identify 3- to 6-year-olds who exhibit a putative psychopathic personality and are at risk for future maladjustment.

*Keywords:* psychopathic traits, profiles, early childhood, limited prosocial emotions, impulsivity, conduct problems

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*Supplemental materials are available online.*

From Universidade de Santiago de Compostela, Santiago de Compostela, Spain (L. L.-R., E. S.); The University of Alabama, Tuscaloosa, Alabama (R. T. S.); Örebro University, Örebro, Sweden (H. A., O. F. C.); and Ghent University, Gent, Belgium (O. F. C.).

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Address correspondence to L. López-Romero, Departamento de Psicología Clínica y Psicobiología, Facultad de Psicología, Rúa Xose María Suárez Núñez S/N, Campus Sur, 15782, Santiago de Compostela, Spain. E-mail: laura.lopez.romero@usc.es

Adults with a psychopathic personality cause considerable harm to others and themselves and also pose considerable costs to society (e.g., Colins, Fanti, Salekin, et al., 2017; Kiehl & Hoffman, 2011). To identify these individuals earlier in life, and to increase the chances of intervening successfully, the adult psychopathy construct has been extended downward in age to adolescence and childhood (Salekin & Lynam, 2010). Currently, psychopathic personality is commonly claimed to be a developmental disorder that is rooted in early childhood (e.g., Frick et al., 2014; Raine, 2013) and can therefore be identified at early developmental stages (Blair, 2010; Colins et al., 2014). Yet this claim has hardly been tested. Therefore, this study was designed to explore if 3- to 6-year-old children can display a constellation of personality traits that resembles the psychopathic personality.

## THE MULTIDIMENSIONAL CHILD AND ADOLESCENT PSYCHOPATHY CONSTRUCT

Adult psychopathic personality is traditionally conceptualized as a constellation of co-occurring traits that load onto various components, including interpersonal (e.g., manipulation, lying, and grandiose self-worth), affective (e.g., lack of empathy, shallow affect, and lack of guilt), behavioral/lifestyle (e.g., sensation-seeking, impulsivity, and irresponsibility), and possibly antisocial (e.g., criminal versatility and revocation of conditional release) components (Cooke & Michie, 2001; Hare & Neumann, 2008). When the psychopathy construct is extended to early childhood and adolescence, this multidimensional conceptualization substantially remained intact. However, child and adolescent psychopathy assessment tools typically do not include an antisocial component (Colins & Andershed, 2018) because they were explicitly designed to be uncontaminated with criminal behavior (e.g., juvenile delinquency), because the few items that tap such behaviors do not load on an antisocial component, and/or because some features are difficult, if not impossible, to measure in children (Andershed et al., 2002; Colins et al., 2014; Frick et al., 2000; Lynam & Gudonis, 2005). Therefore, child and adolescent psychopathic personality is typically conceptualized as a multidimensional construct that includes interpersonal, affective (or callous-unemotional), and behavioral/lifestyle components.<sup>1</sup>

The vast majority of research on the psychopathy construct in early childhood and adolescence has predominantly focused on relations between one (e.g., Ezpeleta et al., 2013; Waller & Hyde, 2017) or more (Colins, Veen, et al., 2018; López-Romero, Maneiro, et al., 2019) psychopathy components and external correlates of interest. There is heuristic value in studying components of the psychopathy construct in isolation from one another (e.g., through zero-order correlations), but this is not sufficient to bolster what is known about psychopathy as a constellation of co-occurring traits (or the psychopathic personality syndrome). Various studies have also tried to unravel the unique

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1. For notable exceptions, see the Proposed Specifiers for Conduct Disorder (Salekin & Hare, 2016) and the Psychopathy Checklist: Youth Version (Forth et al., 2003).

contribution (e.g., through partial correlations) of each component in relation to external correlates, such as aggression (e.g., Colins, Fanti, Larsson, et al., 2017), genetic and environmental influences (e.g., Tuvblad et al., 2017), and amygdalar connectivity (e.g., Aghajani et al., 2016), but these studies still run the risk of losing sight of psychopathic personality (Colins & Andershed, 2018; Hare & Neumann, 2008; Hare et al., 2018; Salekin, 2017). Defining child and adolescent psychopathic personality as a constellation of co-occurring traits (e.g., Andershed et al., 2018; Colins et al., 2014; Salekin, 2016) basically suggests that children and adolescents with a psychopathic personality exhibit high scores on all psychopathy components (e.g., Colins et al., 2012; Fanti et al., 2018; Frick, 2009).

Various strategies can be used to bolster what is known about psychopathic personality in children and adolescents. One strategy that is deemed important for studying psychopathic personality is the examination of a three-way interaction among the psychopathy components (e.g., Lilienfeld, 2018; Somma et al., 2018). Prior work that relied upon different informants and psychopathy measures revealed a three-way interaction effect among the three psychopathy components in predicting conduct problems (Colins et al., 2014), conduct disorder symptoms (Fanti et al., 2018), delinquency (Somma et al., 2018), and proactive aggression (Orue & Andershed, 2015). However, testing three-way interactions is power consuming and often difficult to replicate (Colins, Fanti, Salekin, et al., 2017; Lilienfeld, 2018). An alternative strategy for examining psychopathic personality is studying configurations of traits by applying person-oriented analyses (De Fruyt & De Clercq, 2014), thereby assigning participants to mutually exclusive groups. An increasing number of studies among children (e.g., Colins, Andershed, et al., 2018; Frick et al., 2000), adolescents (e.g., Andershed et al., 2018; Colins et al., 2012; Nijhof et al., 2011), and emerging adults (Colins, Fanti, Salekin, et al., 2017) have shown that participants who are high on all three psychopathy components can be differentiated from those with various other constellations of psychopathic traits (e.g. only high on the callous-unemotional component) and are at the highest risk for concurrent and future antisocial behavior. These findings emerged when using data-driven, person-oriented analyses, such as model-based clustering or trajectory analyses (e.g., Déry et al., 2019; Ribeiro da Silva et al., 2019), or when using theory-driven, person-oriented analyses, such as applying distribution-based cutoffs (e.g., Andershed et al., 2018; Colins, Andershed, et al., 2018).

## **THE VIABILITY OF PSYCHOPATHIC PERSONALITY IN EARLY CHILDHOOD**

To date, only two studies that relied on the same sample have explored the viability of psychopathic personality in early childhood (Frogner, Andershed, et al., 2018; Frogner, Gibson, et al., 2018). Overall results suggested that 3- to 5-year-old children with high levels on all three psychopathy components were at the greatest risk for concurrent and future behavioral problems. Yet both studies had several notable limitations. Only teachers were used as informants,

thereby increasing the likelihood that associations with outcomes of interest are partially explained by shared rater variance. In addition, children were assigned to mutually exclusive groups based on “high” (.50 *SD* above the mean) or low (.50 *SD* below the mean) scores on each of the three teacher-rated psychopathy component scores. Although such a relatively nonstringent approach has been used in prior work (e.g., Pasalich et al., 2012; Viding et al., 2008), it remains to be seen if findings hold when using data-driven statistical strategies (e.g., latent profile analysis; Colins, Fanti, Salekin, et al., 2017; Garofalo et al., 2020).

## THIS STUDY

The claim that psychopathic personality is rooted and can be identified in early childhood is not well researched. A focus on this constellation of co-occurring traits in relation to conceptually and clinically relevant outcomes will further elucidate the viability of the psychopathic personality syndrome in early childhood, as well as other constellations of psychopathic traits (e.g., high in grandiose-deceitful traits only). Such a focus also will help to clarify how the construct can be conceptualized in childhood, a topic of uttermost relevance given it is not certain that psychopathic personality manifests similarly across development, that is, by high levels on all components.

For these reasons, the current longitudinal investigation was designed to test if very young children with a putative psychopathic personality can be identified within a large sample of children. In line with prior work, we expected that latent profile analysis would identify children who score high on all three psychopathy components of the Child Problematic Traits Inventory (CPTI; Colins et al., 2014), along with children who score high only on the callous-unemotional component and children who score low on all three psychopathy components. We do not exclude the possibility that children with other constellations of traits emerge, including children who might score high only on the grandiose deceitful (interpersonal) or impulsive needs stimulation (behavioral/lifestyle) components (e.g., Colins, Fanti, Salekin, et al., 2017). Psychopathic traits would be positively related to conduct problems and aggression and negatively to prosocial behavior (e.g., Colins et al., 2020; López-Romero, Romero, et al., 2019; Vahl et al., 2014; Wang et al., 2018). Hence, we also hypothesized that children who score high on all three CPTI psychopathy components will appear to be the most problematic group, as indexed by higher levels of concurrent and future levels of conduct problems, reactive and proactive aggression, and lower levels of prosocial behavior.

## METHOD

### PARTICIPANTS

Data for the present study were collected in Waves 1 (W1) and 2 (W2) of the Estudio Longitudinal para una Infancia Saludable (ELISA), a prospective longitudinal study conducted in Galicia (NW Spain) with the aim of

better understanding behavioral, emotional, personality, and psychosocial development from early childhood to adolescence. The initial sample (W1) was composed of 2,467 children (48.1% girls) aged 3 to 6 years ( $M_{\text{age}} = 4.25$ ;  $SD = 0.91$ )<sup>2</sup> from 57 public (79.2%), 13 charter (18.1%), and 2 private (2.8%) schools. The schools were located in predominantly working-class communities that were equal in terms of ethnicity (93.9% of the children were Spanish). Information was collected through 2,266 reports from parents (87.2% mothers) and 2,420 reports from preschool teachers. About 24% of the mothers and 39.8% of the fathers completed compulsory education, respectively; 47.4% and 31.2% completed higher education; and 28.9% and 29% completed vocational training studies. At the time of data collection, 77.2% of the mothers and 92.4% of fathers were working outside the home.

A follow-up assessment was conducted 1 year later (W2), and information was provided by 1,988 parents (83.7% of the sample) and 2,186 teachers (92.0%). The level of attrition between W1 and W2 participants was 3.7% considering the total sample, 12.3% based on parent reports and 9.7% based on teacher reports. Comparisons between children with baseline and follow-up data and children without follow-up data revealed no significant differences in terms of gender,  $\chi^2(1) = 0.50$ ,  $p = .47$ ; age  $t(2, 465) = -0.40$ ,  $p = .69$ , and baseline levels of conduct problems reported by parents,  $t(2, 228) = 0.17$ ,  $p = .87$ , and teachers  $t(2, 415) = 1.18$ ,  $p = .24$ . There were differences according to socioeconomic status (SES),  $t(83.77) = -2.79$ ,  $p < .01$ , with lower levels of SES for nonparticipating families. Children for whom baseline data for the three psychopathy components were available were included in the study, resulting in a sample of 2,247 children (48.6% girls;  $M_{\text{age}} = 4.25$ ;  $SD = 0.91$ ).

## MEASURES

### Clustering Measure

*Psychopathy Components.* At baseline, parents completed the Child Problematic Traits Inventory (CPTI; Colins et al., 2014), a 28-item questionnaire designed to assess psychopathic personality traits in children aged 3 to 12 years, based on the three-factor model of psychopathy (Cooke & Michie, 2001). Eight items intend to measure the interpersonal component (labeled: Grandiose-Deceitful [GD]; e.g., “Thinks that he or she is better than everyone on almost everything”), 10 items measure the affective component (labeled: Callous-Unemotional [CU]; e.g., “Never seems to have a bad conscience for things that he or she has done”), and 10 items measure the behavioral/lifestyle component (labeled: Impulsive-Need for Stimulation [INS]; e.g., “Provides himself or herself with different things very fast and eagerly”). The rater is instructed to assess each item based on how the child usually and typically behaves rather than based on how he or she behaves at the moment, using a 4-point response scale ranging from 1 (*does not apply at all*) to 4 (*applies very well*). Because the component scores consisted of different numbers of items, and to

2. The 6-year-old preschoolers (8.2% of the sample) were born before July 2011.

facilitate comparisons with prior CPTI studies, we computed the mean score (*SD*) for each CPTI component. The factor structure, internal consistency, and validity of the CPTI scores have been confirmed in various samples, settings, and countries (Colins, Fanti, Larsson, et al., 2017; Colins et al., 2019; Colins, Veen, et al., 2018; Somma et al., 2016; Wang et al., 2018), including the ELISA study (López-Romero, Maneiro, et al., 2019). The internal consistency of the CPTI scores and all other scales can be retrieved from Table S1, available online, along with mean scores (*SD*).

#### External Measures at Baseline

*Conduct Problems.* Parents and teachers rated 10 conduct problem items that were closely based on *DSM-IV* criteria for oppositional defiant disorder and conduct disorder, and that were relevant to preschool children as well as older children and adolescents (Colins et al., 2014). Examples of items are: “Has been very angry” and “Has beaten, torn, shoved, kicked, or thrown something at others without a reason.” Items were scored using a 5-point response scale (1 = *never* to 5 = *very often*). This scale has been used in previous research (e.g., Klingzell et al., 2016; López-Romero et al., 2020), including studies showing that conduct problems that were assessed by this measure in early and middle childhood were predictive of future parent- and teacher-rated conduct disorder symptoms and child self-reported aggression and bullying 6 to 8 years later (Colins, Andershed, et al., 2021; Colins, Fanti, & Andershed, 2021).

*Reactive and Proactive Aggression.* The Parents’ and Teachers’ Report of Reactive and Proactive Behaviors (Dodge & Coie, 1987) was used to assess reactive (three items; e.g., “Yells at others when they have annoyed him/her”) and proactive aggression (three items; e.g., “Threatens and bullies someone”). Items were scored on a scale ranging from 1 (*never true*) to 5 (*almost always true*).

*Prosocial Behavior.* The parent and teacher versions of the Strengths and Difficulties Questionnaire (Goodman, 1997) were used to assess prosocial behavior (five items; e.g., “Helpful if someone is hurt, upset or feeling ill”). Items were rated on a 3-point response scale ranging from 0 (*not true*) to 2 (*certainly true*). A higher score is indicative of higher levels of prosocial behavior.

#### External Measures at Follow-Up

*Conduct Problems, Reactive and Proactive Aggression, and Prosocial Behavior.* These features were assessed in the same way and by the same informants as described for the external measures at baseline.

*Stable Conduct Problems, Reactive and Proactive Aggression.* In line with prior work (e.g., Andershed et al., 2018; Briggs-Gowan et al., 2006), children were classified as exhibiting stable conduct problems (CP) if they were 1.0 *SD* above the mean in CP at baseline and at follow-up. All other children were

classified as exhibiting nonstable conduct problems. The same strategy was used to define stable reactive and proactive aggression.

## PROCEDURE

The study was approved by the Bioethics Committee at the Universidade de Santiago de Compostela and the Spanish Ministry of Economy and Competitiveness. First, we contacted the heads of 126 public, charter, and private schools in order to obtain school collaboration for the study. Once a school accepted the conditions and agreed to participate, families were contacted and invited to enroll in the study. An active consent form was filled out by the families (rate around 25%–50% per school), after which the preschool teachers could complete the questionnaires. One teacher could complete the questionnaires for as many children in his or her classroom as there were written parental consent forms. One parent (i.e., mother, father, or principal caregiver) was asked to complete the questionnaires. Data collections took place during the spring to assure that teachers had spent at least 6 months with the child before rating the questionnaire items. Participants had 1 month to complete and return the questionnaire. Reminders were sent, first by the preschool teacher and later by the ELISA staff, by e-mail. Neither teachers nor parents received any compensation for their participation. Instead, all the participating schools received a set of educational games for preschoolers as a reward for study participation.

## STATISTICAL ANALYSES

First, descriptive information and correlation coefficients between the main study variables were calculated. Second, latent profile analysis (LPA), in Mplus 7.4 statistical software (Muthén & Muthén, 2015), was used to identify distinct latent classes (LCs) or profiles of children based on their mean CPTI component scores. LPA is a model-based clustering technique and is considered as a specific case of finite-mixture (McLachlan & Peel, 2000; Vermunt & Magidson, 2002). LCs are identified through maximum likelihood estimation, and all the observed indicator variables are continuous (Muthén & Muthén, 2015). Models that specify different numbers of LCs are tested. Details about the statistical criteria used to compare models to identify the optimal number of groups to retain in the total sample are provided in Table 1. To ascertain that the outcome of our LPA was robust, we tested if the same classes emerged in two randomly selected subsamples. Subsequently, a sequence of multigroup LPA was performed to estimate four different levels of measurement invariance across groups (Morin et al., 2016). Third, the LCs were tested to see if they exhibited significant differences in terms of theoretically and clinically relevant external criterion variables at baseline and follow-up. To do so, the auxiliary variable option in Mplus was preferred over traditional analyses (e.g., logistic regression) because this option is considered the most robust and recommended method to examine relationships between LCs and distal, continuous, or categorical outcomes and takes the participants' partial LC membership into account (Asparouhov

**TABLE 1. Model Fit Indices for 1 to 5 Class Solutions From Latent Profile Analysis (LPA)**

	Entropy	Probabilities	AIC	BIC	LMR ( $p$ )	BLRT ( $p$ )
1 Class	—	—	9262.03	9296.33	—	—
2 Class	.84	.97/.91	7867.59	7924.76	1358.44 (< .001)	1402.44 (< .001)
3 Class	.87	.90/.96/.94	7414.51	7494.55	446.62 (< .001)	461.08 (< .001)
4 Class	.86	.96/.94/.80/.85	7127.85	7230.76	285.41 (< .001)	294.66 (< .001)
<b>5 Class</b>	<b>.74</b>	<b>.84/.76/.87/.83/.94<sup>a</sup></b>	<b>6953.75</b>	<b>7079.53</b>	<b>176.39 (.058)</b>	<b>182.10 (&lt; .001)</b>

*Note.* The Akaike information criterion (AIC), Bayesian information criterion (BIC), Lo–Mendel–Rubin (LMR), the Bootstrapped Likelihood Ratio Test (BLRT) statistics, and entropy values are used as statistical criteria to compare models to identify the optimal number of latent classes (LCs) to retain (Nylund et al., 2007). The model with the lowest BIC and AIC values is preferred. The LMR and BLRT statistics, which are considered to be likelihood ratio tests between models with a different number of LCs specified, tests  $k - 1$  classes against  $k$  classes, and reveals a significant  $\chi^2$  value ( $p < .05$ ) indicating whether the  $k - 1$  class model is rejected in favor of the  $k$  class model (Lo et al., 2001). A nonsignificant (*ns*)  $\chi^2$  value ( $p > .05$ ) shows that a model with one fewer class is preferred. The first time the  $p$  value of the LMR is not significant might be a good indicator to stop increasing the number of classes; for statistical model comparisons, the BLRT is generally preferred over the LMR test (Nylund et al., 2007). Average posterior probabilities of class membership and the entropy value are also taken into consideration to determine the precision of classification and the degree to which the classes are distinguishable, respectively. Average probabilities  $\geq .70$  imply satisfactory fit (Nagin, 2005), and an entropy value greater than .70 is preferred because it indicates clear classification and greater power to predict class membership. In addition to statistical fit indices, theoretical and clinical usefulness of the classes should also be used to determine the best solution (Muthén & Muthén, 2015). Numbers and statistics for the selected class solution are in bold. <sup>a</sup>Posterior probabilities for the Control, INS, GD, CU, and PP classes, respectively.

& Muthén, 2014). Finally, to accommodate for covariates without affecting the final class solution, analyses of covariance using Bonferroni correction for multiple comparisons were performed in SPSS 20.0 to enable class comparisons on future continuous outcomes while controlling for initial levels of conduct problems. Unless otherwise specified,  $p < .05$  was used as an indicator of statistical significance.

## RESULTS

### DESCRIPTIVE INFORMATION AND CORRELATIONS

Descriptive information for all variables used in the study can be retrieved from Table S1, available online. Table S2, available online, shows all study variables to be statistically significant correlated within and across informants ( $p < .05$ ), except prosocial behavior reported by parents in Wave 1 and proactive aggression reported by teachers in Wave 1 and Wave 2.

### MODEL FITTING AND DESCRIPTION OF THE LATENT CLASSES

Overall, LPA results indicated that the five-class solution best fit the data. Details about model selection can be retrieved from Table 1. Importantly, the four-class model identified the same classes as the five-group model, with the exception that a class that was mainly high in Impulsive-Need for Stimulation did not emerge. Yet this class has been revealed in prior work (Colins, Fanti, Salekin, et al., 2017; Nijhof et al., 2011) and the overall pattern of fit indices was in favor of the five-class model. Therefore we finally we proceeded with the five-class model.



FIGURE 1. Latent profile analysis (LPA); findings based on mean Z scores on the three psychopathy components used as clustering variables in LPA.

Mean posterior probabilities for the five-class solution ranged from .76 to .94 and an entropy value of .74, suggesting that the LCs were well separated. The five LCs are illustrated in Figure 1. This figure, along with the standardized mean scores displayed in Table 2, showed that LC1 included children with low scores on all three psychopathy components (Control class; 39.2% of the total sample); LC2 children with below-average GD and CU, but above-average INS scores (INS class; 34.8%); LC3 children with above-average GD scores and relatively low CU and INS scores (GD class, 16.5%); LC4 children with above-average CU scores and relatively low GD and INS scores (CU class, 6.2%); and LC5 children with above average scores on all three psychopathy components (Putative Psychopathy [PP] class, 3.3%).

**TABLE 2. Comparisons Across Five-Class Profiles on Latent Class Indicators (CPTI Scores), Age, and Gender (% Girls)**

	Control	INS	GD	CU	PP	F/ $\chi^2$
	<i>M</i> ( <i>SD</i> )	<i>M</i> ( <i>SD</i> )	<i>M</i> ( <i>SD</i> )	<i>M</i> ( <i>SD</i> )	<i>M</i> ( <i>SD</i> )	
Grandiose-Deceitful	-0.66 (0.36) <sub>a</sub>	-0.21 (0.50) <sub>b</sub>	1.37 (0.48) <sub>c</sub>	0.37 (0.58) <sub>d</sub>	2.97 (0.74) <sub>e</sub>	2079.47**
Callous-Unemotional	-0.62 (0.45) <sub>a</sub>	-0.04 (0.69) <sub>b</sub>	0.43 (0.74) <sub>c</sub>	2.19 (0.75) <sub>d</sub>	2.13 (1.13) <sub>d</sub>	806.33**
Impulsive-Need for Stimulation	-0.90 (0.61) <sub>a</sub>	0.51 (0.64) <sub>b</sub>	0.58 (0.77) <sub>b</sub>	0.68 (0.78) <sub>b</sub>	1.36 (0.83) <sub>c</sub>	702.28**
Age	4.27 (0.91) <sub>a</sub>	4.21 (0.91) <sub>a</sub>	4.29 (0.91) <sub>a</sub>	4.24 (0.93) <sub>a</sub>	4.32 (0.94) <sub>a</sub>	0.74
Girls, <i>n</i> (%)	890 (52.8%) <sub>a</sub>	799 (47.2%) <sub>b</sub>	362 (46.7%) <sub>b</sub>	123 (39.0%) <sub>b</sub>	73 (38.4%) <sub>b</sub>	15.07*

Note. CPTI = Child Problematic Traits Inventory; *M* = mean Z score; *SD* = standard deviation; GD = Grandiose-Deceitful; CU = Callous-Unemotional; INS = Impulsive-Need for Stimulation; PP = Putative Psychopathic personality. Different subscripts refer to significant differences between classes ( $p < .05$ ) with post hoc Bonferroni correction for multiple pairwise comparisons. \* $p < .01$ . \*\* $p < .001$ .

Table 2 also shows that the CU and PP classes did not differ in level of CU, and that the INS, GD, and CU classes did not differ in level of INS. Also, the five classes did not differ in age or in the proportion of girls, with one exception: the Control class included more girls than any of the four other classes. Therefore, LPAs were repeated while including gender as a covariate, and they yielded the same five-class solution, with the exception that the INS class was replaced by a class whose hallmark was low levels of GD and INS. Subsequent class comparisons on external criteria, performed by gender, provided similar results, which will be presented in the remainder of the Results section.<sup>3</sup>

Finally, to test the robustness of the LPA outcome, LPAs were repeated in two subsamples. Findings revealed that the same five classes depicted in Figure 1 emerged in Subsample 1 ( $n = 1,123$ ; 47.5% girls) and Subsample 2 ( $n = 1,124$ ; 49.7% girls), and that this five-class model best fit the data (see Table S3, available online). Next, a sequence of multigroup LPAs was performed to estimate four different levels of measurement invariance (i.e., number of classes, within-group means, within-group variability, and class probabilities) across Subsamples 1 and 2 (Morin et al., 2016). Findings showed that the full constrained model, fixing number of profiles, means, variances, and class probabilities across groups, better fit the data (Bayesian information criterion [BIC] = 10176.85) than the less restricted models (BIC = 10206.22, 10225.87, and 10312.93, respectively). This indicates that the five-class solution was invariant across subsamples, thereby further supporting its robustness and replicability across samples.

#### LATENT CLASS DIFFERENCES IN EXTERNAL FEATURES AT BASELINE (WAVE 1)

*Parent-Reported External Features.* Table 3 shows that children in the PP class exhibited significantly higher levels of conduct problems, reactive and proactive aggression, and lower levels of prosocial behavior than children in the other classes, with one exception: The PP and CU classes were not significantly different in levels of prosocial behavior. Table 3 also shows that Control, INS, GD, and CU classes were significantly different from each other in these features, with the notable exception that the children in the GD and CU classes did not differ from each other in levels of conduct problems and reactive and proactive aggression.

*Teacher-Reported External Features.* Children in the PP classes were higher in conduct problems, reactive and proactive aggression, and lower in prosocial behavior than the Control, INS, and GD classes. Yet, compared to the CU class, the PP class was higher only in proactive aggression. Children in the CU class also exhibited greater conduct problems than children in the GD class.

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3. Results available upon request from the first author.

**TABLE 3. Cross-Sectional Comparisons Across the Five-Class Profiles on External Criteria Reported by Parents and Teachers**

	Control	INS	GD	CU	PP	$\chi^2$
	<i>M (SE)</i>	<i>M (SE)</i>	<i>M (SE)</i>	<i>M (SE)</i>	<i>M (SE)</i>	
Parent-reported Wave 1						
Conduct problems	1.41 (0.02) <sub>a</sub>	1.86 (0.02) <sub>b</sub>	2.05 (0.03) <sub>c</sub>	2.14 (0.07) <sub>c</sub>	2.62 (0.08) <sub>d</sub>	698.25*
Reactive aggression	1.48 (0.03) <sub>a</sub>	1.96 (0.04) <sub>b</sub>	2.25 (0.05) <sub>c</sub>	2.31 (0.09) <sub>c</sub>	2.99 (0.10) <sub>d</sub>	453.85*
Proactive aggression	1.04 (0.01) <sub>a</sub>	1.16 (0.02) <sub>b</sub>	1.38 (0.03) <sub>c</sub>	1.27 (0.05) <sub>c</sub>	1.67 (0.09) <sub>d</sub>	226.66*
Prosocial behavior	1.72 (0.01) <sub>a</sub>	1.60 (0.02) <sub>b</sub>	1.51 (0.02) <sub>c</sub>	1.24 (0.05) <sub>d</sub>	1.32 (0.05) <sub>d</sub>	215.64*
Teacher-reported Wave 2						
Conduct problems	1.27 (0.02) <sub>a</sub>	1.55 (0.03) <sub>b</sub>	1.59 (0.04) <sub>b</sub>	1.84 (0.09) <sub>c</sub>	2.01 (0.12) <sub>c</sub>	143.11*
Reactive aggression	1.37 (0.03) <sub>a</sub>	1.67 (0.04) <sub>b</sub>	1.76 (0.06) <sub>b</sub>	1.83 (0.11) <sub>bc</sub>	2.17 (0.15) <sub>c</sub>	84.84*
Proactive aggression	1.12 (0.02) <sub>a</sub>	1.26 (0.03) <sub>b</sub>	1.32 (0.04) <sub>b</sub>	1.26 (0.06) <sub>b</sub>	1.56 (0.09) <sub>c</sub>	57.02*
Prosocial behavior	1.65 (0.02) <sub>a</sub>	1.58 (0.02) <sub>b</sub>	1.52 (0.03) <sub>b</sub>	1.35 (0.06) <sub>c</sub>	1.39 (0.06) <sub>c</sub>	53.55*

Note. Analyses were performed with the auxiliary option (BCH method) in Mplus 7.4, which is the preferred method to accommodate continuous distal outcomes across LCs (Asparouhov & Muthén, 2014). GD = Grandiose-Deceitful; CU = Callous-Unemotional; INS = Impulsive-Need for Stimulation; PP = Putative Psychopathic personality.

Different subscripts refer to significant differences between classes ( $p < .05$ ) with post hoc correction for multiple pairwise comparisons. \* $p < .001$ .

### LATENT CLASS DIFFERENCES IN EXTERNAL FEATURES AT FOLLOW-UP (WAVE 2)

*Parent-Reported External Features.* Table 4 shows that children in the PP class were significantly higher in conduct problems, and reactive and proactive aggression, and lower in prosocial behavior, relative to children in the other four classes, with a few notable exceptions: The PP and GD classes did not differ in proactive aggression and prosocial behavior, whereas the PP and CU classes did not differ in prosocial behavior. Table S4, available online, shows that results were substantially replicated when controlling for baseline levels of parent-reported conduct problems, with medium to large effect sizes, although the difference between PP and CU classes in level of reactive aggression was no longer significant.

*Teacher-Reported External Features.* Children in the PP class were higher in conduct problems, and reactive and proactive aggression, and lower in prosocial behavior than their counterparts in the other four classes, again with a few exceptions: The PP and GD classes did not differ in proactive aggression, whereas the PP and CU classes did not differ in prosocial behavior. After we controlled for baseline levels of teacher-reported conduct problems, few group differences remained significant, with small effect sizes (Table S4, available online). Specifically, children in the PP class were higher (a) in conduct problems than children in the Control class; (b) in reactive aggression than children in the Control and CU classes, and (c) in proactive aggression than children in the CU class. None of the other group differences reached statistical significance.

**TABLE 4. Longitudinal Comparisons Across the Five-Class Profiles on External Criteria Reported by Parents and Teachers**

	Control	INS	GD	CU	PP	$\chi^2$
	<i>M (SE)</i>	<i>M (SE)</i>	<i>M (SE)</i>	<i>M (SE)</i>	<i>M (SE)</i>	
Parent-reported Wave 1						
Conduct problems	1.45 (0.02) <sub>a</sub>	1.85 (0.03) <sub>b</sub>	2.01 (0.04) <sub>c</sub>	2.05 (0.08) <sub>c</sub>	2.37 (0.08) <sub>d</sub>	390.51*
Reactive aggression	1.61 (0.03) <sub>a</sub>	2.08 (0.04) <sub>b</sub>	2.26 (0.05) <sub>c</sub>	2.32 (0.10) <sub>c</sub>	2.69 (0.13) <sub>d</sub>	243.91*
Proactive aggression	1.06 (0.01) <sub>a</sub>	1.22 (0.02) <sub>b</sub>	1.39 (0.04) <sub>cd</sub>	1.28 (0.06) <sub>bc</sub>	1.57 (0.09) <sub>d</sub>	140.94*
Prosocial behavior	1.76 (0.01) <sub>a</sub>	1.63 (0.02) <sub>b</sub>	1.54 (0.02) <sub>c</sub>	1.38 (0.05) <sub>d</sub>	1.43 (0.05) <sub>cd</sub>	159.10*
Teacher-reported Wave 2						
Conduct problems	1.27 (0.02) <sub>a</sub>	1.60 (0.04) <sub>b</sub>	1.63 (0.05) <sub>b</sub>	1.64 (0.07) <sub>b</sub>	1.98 (0.12) <sub>c</sub>	121.90*
Reactive aggression	1.44 (0.03) <sub>a</sub>	1.79 (0.05) <sub>b</sub>	1.84 (0.06) <sub>b</sub>	1.70 (0.10) <sub>b</sub>	2.27 (0.15) <sub>c</sub>	71.79*
Proactive aggression	1.19 (0.02) <sub>a</sub>	1.38 (0.03) <sub>b</sub>	1.41 (0.04) <sub>bc</sub>	1.27 (0.07) <sub>ab</sub>	1.63 (0.12) <sub>c</sub>	40.95*
Prosocial behavior	1.68 (0.02) <sub>a</sub>	1.59 (0.02) <sub>a</sub>	1.63 (0.03) <sub>a</sub>	1.45 (0.05) <sub>b</sub>	1.39 (0.07) <sub>b</sub>	35.31*

Note. Analyses were performed with the auxiliary variable option (BCH method) in Mplus 7.4, which is the preferred method to accommodate continuous distal outcomes across LCs (Asparouhov & Muthén, 2014). GD = Grandiose-Deceitful; CU = Callous-Unemotional; INS = Impulsive-Need for Stimulation; PP = Putative Psychopathic personality.

Different subscripts refer to significant differences between classes ( $p < .05$ ) with post hoc correction for multiple pairwise comparisons. \* $p < .001$ .

## LATENT CLASS DIFFERENCES IN STABILITY OF CONDUCT PROBLEMS AND AGGRESSION

*Parent-Reported Stable Outcomes.* Of the total sample, 235 (10.5%), 244 (10.9%), and 204 (9.1%) of the children displayed stable conduct problems and reactive and proactive aggression, respectively, with higher prevalence rates for children in the PP class (see Table 5). Children in the PP class had significantly higher probabilities of exhibiting stable conduct problems and reactive aggression, compared to children in the other four classes. There were no significant differences between the GD, CU, and PP classes in terms of probabilities of displaying stable proactive aggression, and between the GD and CU classes in terms of probabilities for stable conduct problems and reactive and proactive aggression.

*Teacher-Reported Stable Outcomes.* As reported by teachers, 212 (9.4%), 221 (9.8%), and 294 (13.1%) of the children displayed stable conduct problems and reactive and proactive aggression, respectively, with higher prevalence rates for children in the PP class. As shown in Table 5, children in the PP class showed higher probabilities of displaying stable conduct problems and reactive and proactive aggression compared to the remaining groups, with no significant differences with the GD class in proactive aggression. There were no significant differences between children in the GD and the CU classes in any of the other outcomes, and between children in the CU, the INS, and the Control classes in stable reactive and proactive aggression.

**TABLE 5. Prevalence Rates and Probabilities Across the Five-Class Profiles for Stable CP and Reactive and Proactive Aggression From T1 to T2**

	Control		INS		GD		CU		PP		$\chi^2$
	<i>n</i> (%) <sup>1</sup>	Prob (SE) <sup>2</sup>	<i>n</i> (%) <sup>1</sup>	Prob (SE) <sup>2</sup>	<i>n</i> (%) <sup>1</sup>	Prob (SE) <sup>2</sup>	<i>n</i> (%) <sup>1</sup>	Prob (SE) <sup>2</sup>	<i>n</i> (%) <sup>1</sup>	Prob (SE) <sup>2</sup>	
Parent-reported											
Stable CP	18 (2.0)	0.07 (0.00) <sub>a</sub>	68 (8.5)	0.08 (0.02) <sub>b</sub>	28 (22.8)	0.22 (0.03) <sub>c</sub>	79 (21.8)	0.26 (0.06) <sub>c</sub>	42 (57.5)	0.64 (0.06) <sub>d</sub>	198.57*
Stable Reactive	31 (3.5)	0.02 (0.01) <sub>a</sub>	76 (9.5)	0.10 (0.01) <sub>b</sub>	65 (18.0)	0.17 (0.03) <sub>c</sub>	33 (26.8)	0.30 (0.08) <sub>c</sub>	39 (53.4)	0.58 (0.06) <sub>d</sub>	156.93*
Stable Proactive	24 (2.7)	0.01 (0.01) <sub>a</sub>	65 (8.1)	0.09 (0.02) <sub>b</sub>	72 (19.9)	0.20 (0.03) <sub>c</sub>	21 (17.1)	0.21 (0.05) <sub>c</sub>	22 (30.1)	0.32 (0.06) <sub>c</sub>	122.89*
Teacher-reported											
Stable CP	48 (5.4)	0.04 (0.01) <sub>a</sub>	71 (8.9)	0.10 (0.01) <sub>b</sub>	53 (14.6)	0.15 (0.02) <sub>b</sub>	17 (13.8)	0.13 (0.04) <sub>b</sub>	23 (31.5)	0.34 (0.06) <sub>c</sub>	47.51*
Stable Reactive	55 (6.2)	0.06 (0.01) <sub>a</sub>	75 (9.4)	0.10 (0.01) <sub>a</sub>	55 (15.2)	0.15 (0.02) <sub>b</sub>	15 (12.2)	0.12 (0.04) <sub>ab</sub>	21 (28.2)	0.33 (0.06) <sub>c</sub>	39.20*
Stable Proactive	87 (9.8)	0.09 (0.01) <sub>a</sub>	96 (12)	0.12 (0.02) <sub>a</sub>	68 (18.8)	0.19 (0.02) <sub>bc</sub>	18 (14.6)	0.14 (0.07) <sub>ab</sub>	25 (34.2)	0.39 (0.09) <sub>c</sub>	32.48*

Note. Analyses performed with the auxiliary variable option (DCAT method) in Mplus 7.4, which is the preferred method to accommodate categorical distal outcomes across LCs (Asparouhov & Muthén, 2014). GD = Grandiose-Deceitful; CU = Callous-Deceitful; INS = Impulsive-Need for Stimulation; PP = Putative Psychopathic personality; CP = conduct problems. Probabilities with different subscripts (a, b, c, d) were significantly different ( $p < .05$ ) with post hoc correction for multiple pairwise comparisons. <sup>1</sup> Prevalence rates (*n* and %) within class. <sup>2</sup> Probability estimates (standard errors). \* $p < .001$ .

## DISCUSSION

This study was designed to test the idea that psychopathy is a developmental disorder that is rooted in, and possibly can be identified in, early childhood (e.g., Blair, 2010; Raine, 2013). Data-driven analyses were performed to study configurations of psychopathic traits that occur in the current community sample. To this end, three psychopathy components were assessed by means of a psychometrically sound measure specifically designed for use in early childhood and used as clustering variables. Results indicate that a small group of 3- to 6-year-old children (3.3%) were simultaneously high on the three psychopathy components. Importantly, children in this class were generally at the highest risk for concurrent, future, and stable conduct problems, aggression, and lack of prosocial behavior. Next, we discuss results first in regard to the putative psychopathic personality (PP) class, followed by a reflection upon the findings that relate to the other classes, and possible implications for theory and clinical practice.

### PUTATIVE PSYCHOPATHIC PERSONALITY IN EARLY CHILDHOOD

About 3% of the children in our sample were tentatively labeled as having a putative psychopathic personality, a percentage that closely resembles the 2% estimate of psychopathy in the general population (Drislane & Patrick, 2013). The percentage of children in the PP class, thus, does not appear to be excessively high or incongruent with adult prevalence rates. Of course, the often low correlations between various psychopathy tools and ongoing disputes regarding conceptualization of psychopathic personality continue to hamper studying the prevalence of psychopathic personality in the general population (Lilienfeld et al., 2015; Miller & Lynam, 2015). The fact that a small group of children score simultaneously high on all components nevertheless suggests that psychopathic personality does not manifest itself differently in early childhood, especially because similar findings have been reported in work with older children, adolescents, and adults (e.g., Andershed et al., 2018; Colins, Andershed, et al., 2018; Colins, Fanti, Salekin, et al., 2017; Frogner, Gibson, et al., 2018; Nijhof et al., 2011; Somma et al., 2018). Yet stability studies on psychopathic traits have failed to test how many children remain high on all components over time, rendering it highly speculative to make any claims regarding the continuity of the personality condition into adulthood. According to the developmental equifinality principle, it is also likely that children who were high on only one component early in life are at developmental risk for psychopathic personality. Clearly, the prognostic utility of psychopathic personality in forecasting psychopathy later in life remains to be established.

The class solutions are informative for current debates about the best way to identify children and adolescents who present themselves with a personality that resembles adult psychopathic personality (e.g., Colins, Andershed, et al., 2018; Frick, 2009; López-Romero, Romero, et al., 2019; Salekin, 2016). Children and adolescents with CU traits are assumed to show the highest scores

on the other psychopathy components (Frick, 2009). CU traits are therefore increasingly used as synonymous for psychopathy, especially when CU traits co-occur with conduct problems (e.g., Jones et al., 2009). Interestingly, the current study revealed that children with psychopathic personality were clearly differentiated from a significantly larger class (6.2%) of children who scored high only on the CU component. Specifically, both classes were similar in their score on the CU component, whereas only the PP class displayed high scores on the other two components. This finding and its consistency with prior work (e.g., Andershed et al., 2018; Christian et al., 1997; Colins, Fanti, Salekin, et al., 2017; Salekin et al., 2018; Somma et al., 2018) suggests that children with CU traits do not necessarily exhibit the entire constellation of personality traits associated with psychopathic personality and hence should not be considered to have a putative psychopathic personality. Put differently, when only the CU component is relied on, about two times the number of children with PP in our study would have been labeled or implicitly considered to have “psychopathic personality” if one equates CU traits with psychopathic personality.

More important than identifying distinct classes is providing evidence that the classes actually bear theoretical and clinical relevance. Adults, adolescents, and children with a (putative) psychopathic personality have been shown to display higher levels of conduct problems and reactive and proactive aggression than individuals without psychopathy (e.g., Blais et al., 2014; Colins, Fanti, Salekin, et al., 2017; DeLisi, 2016). In addition, a diagnosis of psychopathic personality has been deemed important to identify individuals who are at a heightened risk for future and stable antisocial behavior (e.g., Hare & Neumann, 2008; Loeber et al., 2001). Echoing this pattern of findings and expectations, children in the putative psychopathic personality class were at a significantly higher risk for concurrent, future, and stable conduct problems, as well as reactive and proactive aggression, compared to children in the four other classes, a finding that held across informants. Importantly, various prospective relations remained significant when controlling for baseline conduct problems, although predominantly when using parent reports of outcomes at the 1-year follow-up, not when relying on teacher reports. Although speculative, it might be that the children in the PP class (3.3% of our sample) also are among the 5% of young people who are at risk for becoming life course persistent or career offenders (e.g., Vaughn et al., 2014). Finally, in concert with evidence that low levels of prosocial behavior are a hallmark of psychopathic personality (e.g., Hare & Neumann, 2008), the current study showed that children in the PP class had lower concurrent and future levels of prosocial behavior than their counterparts in most of the other classes. Meta-analytical evidence points to moderate-to-large negative associations between measures of CU traits and prosociality (Waller et al., 2019). Therefore, our finding that children in the PP and CU classes did not significantly differ in prosocial behavior should come as no surprise, especially because both classes were equally high in CU traits.

## OTHER CONFIGURATIONS OF PSYCHOPATHIC TRAITS

This study extends prior work by showing that children who are merely high on the GD psychopathy component can already be detected in early childhood,

and not only in adolescence and adulthood (Colins, Fanti, Salekin, et al., 2017; Nijhof et al., 2011; Salekin, 2016). The GD (versus Control and INS) class displayed higher and stable levels of concurrent and future conduct problems and aggression, along with lower levels of prosocial behavior. In line with prior work with adults (Colins, Fanti, Salekin, et al., 2017), no significant differences in future and stable levels of proactive aggression emerged between the GD and PP classes, a finding that supports speculations that individuals may act out aggressively when their sense of grandiosity and superiority is threatened (e.g., Baumeister et al., 1996). Interestingly, the GD and CU classes, overall, did not differ from each other, with a few notable exceptions in terms of concurrent and/or future conduct problems, proactive aggression, and prosocial behavior. Altogether, findings support recommendations to start exploring whether GD traits must be included as an additional specifier for conduct disorder (Salekin, 2016). However, it cannot be disregarded that a rather large percentage of children (16.5%) was assigned to this GD class. Additional research is needed to determine when levels of GD traits no longer fall within the boundaries of normative development. To illustrate, lying and deceiving are also associated with normal cognitive development (Talwar & Lee, 2008) and thus can be normative in early childhood. Longitudinal research will help to illuminate how many children display stable high levels of GD traits and to determine at what levels GD traits are indicative of development going awry. With this study, we can see that elevated levels of GD are already predicting negative outcomes for children.

In this investigation, we found that children in the CU class also had problems that are more severe than those seen in children in the Control and INS classes. Specifically, of all three classes (CU, INS, Control), the CU class was the highest in conduct problems and aggression and the lowest in prosocial behavior. Relative to the GD class, the CU class was mostly similar to GD in its prediction of negative outcomes, although the CU class also was higher in teacher-reported conduct problems at baseline. Given these differences, and for reasons mentioned earlier, our findings show that it might be beneficial to discontinue equating psychopathic personality and CU traits. CU traits are only one component of a multidimensional psychopathy construct, and it is highly unlikely that all forms of CU traits reflect psychopathy (see also Rutter, 2012).

It should be noted that we did not use conduct problems as a fourth clustering variable because we relied on a psychopathy model that prioritized the three components of psychopathy (GD, CU, and INS). As a consequence, we cannot exclude the possibility that using CU traits and conduct problems or using the three psychopathy components indeed identifies the same children as having a putative psychopathic personality (Frick, 2009). Prior work that explored this possibility nevertheless suggests that this might not be the case (e.g., Andershed et al., 2018; Colins, Andershed, et al., 2018), although systematic research on this topic is needed.

In line with prior research (e.g., Andershed et al., 2002; Colins et al., 2012; Nijhof et al., 2011), a class characterized by relatively higher levels of INS and lower of GD and CU traits also emerged. Impulsivity, sensation seeking, and the like might be quite common in early childhood, thereby

explaining why a large percentage of children (35%) were in this INS class. Alternatively, it cannot be excluded that parents experienced difficulties in accurately rating the level of items that are part of the INS (but also GD) component. As a consequence of their education and experience, teachers may better distinguish between age-related normative and age-related inappropriate traits and behaviors (e.g., Colins et al., 2014). Notwithstanding that the sole reliance on parents to rate the CPTI may constitute a limitation, findings nevertheless suggest that children in the INS class are not without risk for later maladjustment because they were at a higher risk for concurrent, future, and stable conduct problems, aggression, and prosocial behavior, relative to the children in the control class. Altogether, current results reinforce the potential role of impulsivity and sensation seeking as risk factors for externalizing behavioral problems in very young children (e.g., Martel et al., 2017), being considered a relevant indicator of the initiation and explanation of child conduct problems (Salekin, 2016, 2017). Again, with INS, there will likely need to be some calibration to determine when the traits are most harmful to the child and lead to increasing levels of stable and negative outcomes.

## IMPLICATIONS

The study of early childhood psychopathic personality is still in its infancy, likely because tools that reliably assess its multiple components did not exist until recently (Colins et al., 2014). The label *psychopathic personality* is pejorative and stigmatizing, and results are tentative, in need of replication, and should be cautiously interpreted. Therefore, we want to emphasize that one should not use the label *psychopathic personality* for applied purposes when dealing with very young children. However, most researchers with an interest in psychopathy or its components are not operating in some academic vacuum. Thus, if psychopathic personality is considered to be a developmental disorder with roots in early childhood (e.g., Blair, 2010), and if the study of psychopathy is deemed relevant for targeting and improving prevention and intervention (e.g., Lynam, 1997; Salekin, 2017), it could be argued that the benefits outweigh the risks in terms of exploring the viability of early childhood psychopathic personality. But this is only if the aims are to improve treatment efforts and to catch the disorder early in the developmental trajectory.

This study is among the first to support the viability of psychopathic personality in early childhood (but see Frogner, Gibson, et al., 2018; López-Romero et al., 2020). Analyses identified a small class of children who displayed a constellation of personality traits and associated features that, at least at the surface, looks like how psychopathy is often defined at later developmental stages. Importantly, this class was disentangled from the CU class, a finding that should encourage researchers to reconsider the multidimensional conceptualization of psychopathy and use all its components, keeping its conceptualization congruent with adult models (Hare et al., 2018).

The use of person-oriented analyses to identify children with a putative psychopathic personality is interesting in the light of the debate about whether psychopathy is a dimensional or a taxonomic construct. To the extent that psychopathic personality is considered dimensional, one may question

person-oriented analyses to identify children with a psychopathic personality. However, person-oriented analyses in our view are not by definition problematic if one keeps in mind that the levels (or cutoffs) at which young children are assigned to the PP class are to some degree arbitrary. Also, most adult psychopathy researchers who use the Psychopathy Checklist-Revised (PCL-R; Hare, 2003) use a cutoff to identify those with a psychopathic personality. In the light of such categorical use of the PCL-R, analyses that assign children to mutually exclusive classes or categories are in concert with earlier and traditional categorical approaches to psychopathy. Therefore, we think that person-oriented studies are important to increase the field's understanding of psychopathic personality and might provide an alternative to and/or help build on research that tests three-way interaction effects.

Findings should be interpreted in light of the following limitations. First, findings indicate that the viability of the class solutions (which were based on parent-rated psychopathy component scores) most clearly emerged if the external correlates were also rated by the parents. Hence, it is possible that shared method variance to some extent inflated the support for the hypotheses. Second, we did not test the stability and change of the LPA classes (e.g., by latent profile transition analysis). As a consequence, we could not account for the developmental principles of equifinality and multifinality. Third, we focused on conduct problems, aggression, and prosocial behavior. Although important, other external correlates that are relevant for the study of psychopathic personality, such as physical aggression, fearlessness temperament, and environmental risk factors (e.g., harsh parenting), were not included. Alternate external variables could therefore be key to testing the importance of the various components. Fourth, we relied only on data from children attending school. Even though our LPA solution was robust and in line with prior work with young adults residing in the community (Colins, Fanti, Salekin, et al., 2017), it remains to be seen if our findings can be replicated in clinically referred or criminal justice-involved individuals, where higher levels of GD, CU, and INS can be expected (Colins et al., 2020; Colins, Veen, et al., 2018). This is of indisputable relevance because findings from studies with community samples cannot always be generalized to clinical and forensic settings, and vice versa, including work that performed LPA with psychopathy components as clustering variables (e.g., Colins, Fanti, Salekin, et al., 2017; Ribeiro da Silva et al., 2019). Taken together, current results provide the first evidence that data-driven statistical strategies can identify a small group of young children who exhibited a putative psychopathic personality and were at risk for concurrent and future maladjustment.

## REFERENCES

- Aghajani, M., Colins, O. F., Klapwijk, E. T., Veer, I. M., Andershed, H., Popma, A., van der Wee, N. J., & Vermeiren, R. R. (2016). Dissociable relations between amygdala subregional networks and psychopathy trait dimensions in conduct-disordered juvenile offenders. *Human Brain Mapping, 37*(11), 4017–4033. <https://doi.org/10.1002/hbm.23292>
- Andershed, H., Colins, O. F., Salekin, R. T., Lordos, A., Kyranides, M. N., & Fanti, K. A. (2018). Callous-unemotional traits only versus the multidimensional psychopathy

- construct as predictors of various antisocial outcomes during early adolescence. *Journal of Psychopathology and Behavioral Assessment*, 40(1), 16–25. <https://doi.org/10.1007/s10862-018-9659-5>
- Andershed, H., Kerr, M., Stattin, H., & Levander, S. (2002). Psychopathic traits in non-referred youths: Initial test of a new assessment tool. In E. Blaauw & L. Sheridan (Eds.), *Psychopaths: Current international perspectives* (pp. 131–158). Elsevier.
- Asparouhov, T., & Muthén, B. (2014). Auxiliary variables in mixture modeling: Using the BCH method in Mplus to estimate a distal outcome model and an arbitrary secondary model. *Mplus Web Notes*, 21(2), 1–22.
- Baumeister, R. F., Smart, L., & Boden, J. M. (1996). Relation of threatened egotism to violence and aggression: The dark side of high self-esteem. *Psychological Review*, 103(1), 5–33. <https://doi.org/10.1037/0033-295x.103.1.5>
- Blair, R. (2010). A cognitive neuroscience perspective on child and adolescent psychopathy. In R. T. Salekin & D. R. Lynam (Eds.), *Handbook of child and adolescent psychopathy* (pp. 156–178). Guilford Press.
- Blais, J., Solodukhin, E., & Forth, A. E. (2014). A meta-analysis exploring the relationship between psychopathy and instrumental versus reactive violence. *Criminal Justice & Behavior*, 41(7), 797–821. <https://doi.org/10.1177/0093854813519629>
- Briggs-Gowan, M. J., Carter, A. S., Bosson-Heenan, J., Guyer, A. E., & Horwitz, S. M. (2006). Are infant-toddler social-emotional and behavioral problems transient? *Journal of the American Academy of Child & Adolescent Psychiatry*, 45(7), 849–858. <https://doi.org/10.1097/01.chi.0000220849.48650.59>
- Christian, R. E., Frick, P. J., Hill, N. L., Tyler, L., & Frazer, D. R. (1997). Psychopathy and conduct problems in children. 2. Implications for subtyping children with conduct problems. *Journal of Abnormal Psychology*, 36(2), 233–241. <https://doi.org/10.1097/00004583-199702000-00014>
- Colins, O. F., & Andershed, H. (2018). Childhood and adolescent psychopathy. In M. DeLisi (Ed.), *Routledge international handbook of psychopathy and crime* (pp. 166–184). Routledge.
- Colins, O. F., Andershed, H., Frogner, L., Lopez-Romero, L., Veen, V., & Andershed, A.-K. (2014). A new measure to assess psychopathic personality in children: The Child Problematic Traits Inventory. *Journal of Psychopathology and Behavioral Assessment*, 36(1), 4–21. <https://doi.org/10.1007/s10862-013-9385-y>
- Colins, O. F., Andershed, H., Hellfeldt, K., & Fanti, K. A. (2021). The incremental usefulness of teacher-rated psychopathic traits in 5- to 7-year olds in predicting teacher-, parent-, and child self-report antisocial behavior at six-year follow-up. *Journal of Criminal Justice*, 101771. Advance online publication. <https://doi.org/10.1016/j.jcrimjus.2020.101771>
- Colins, O. F., Andershed, H., Salekin, R. T., & Fanti, K. A. (2018). Comparing different approaches for subtyping children with conduct problems: Callous-unemotional traits only versus the multidimensional psychopathy construct. *Journal of Psychopathology and Behavioral Assessment*, 40(1), 6–15. <https://doi.org/10.1007/s10862-018-9653-y>
- Colins, O. F., Fanti, K., Larsson, H., & Andershed, H. (2017). Psychopathic traits in early childhood: Further validation of the Child Problematic Traits Inventory. *Assessment*, 24(5), 602–614. <https://doi.org/10.1177/1073191115624544>
- Colins, O. F., Fanti, K. A., & Andershed, H. (2021). The DSM-5 limited prosocial emotions specifier for conduct disorder: Comorbid problems, prognosis, and antecedents. *Journal of the American Academy of Child and Adolescent Psychiatry*, 60(8), 1020–1029. <https://doi.org/10.1016/j.jaac.2020.09.022>
- Colins, O. F., Fanti, K. A., Salekin, R. T., & Andershed, H. (2017). Psychopathic personality in the general population: differences and similarities across gender. *Journal of Personality Disorders*, 31(1), 49–74. [https://doi.org/10.1521/pedi\\_2016\\_30\\_237](https://doi.org/10.1521/pedi_2016_30_237)
- Colins, O. F., Noom, M., & Vanderplassen, W. (2012). Youth Psychopathic Traits Inventory-Short Version: A further test of the internal consistency and criterion validity. *Journal of Psychopathology and Behavioral Assessment*, 34(4), 476–486. <https://doi.org/10.1007/s10862-012-9299-0>
- Colins, O. F., Roetman, P. J., Lopez-Romero, L., & Andershed, H. (2020). Assessing psychopathic traits among children: The first validation study of the Child Problematic Traits Inventory in a clinical sample. *Assessment*, 27(6), 1242–1257. <https://doi.org/10.1177/1073191119832654>
- Colins, O. F., Veen, V., Veenstra, M., Frogner, L., & Andershed, H. (2018). The Child Problematic Traits Inventory in a Dutch general population sample of 3- to 7-year-old children. *European Journal of Psychological Assessment*, 34(5), 336–343. <https://doi.org/10.1027/1015-5759/a000347>
- Cooke, D. J., & Michie, C. (2001). Refining the construct of psychopathy: Towards a hierarchical model. *Psychological Assessment*, 13(2), 171–188. <https://doi.org/10.1037/1040-3590.13.2.171>
- De Fruyt, F., & De Clercq, B. (2014). Antecedents of personality disorder in childhood and adolescence: Toward an integrative developmental

- model. *Annual Review of Clinical Psychology*, 10, 449–476. <https://doi.org/10.1146/annurev-clinpsy-032813-153634>
- DeLisi, M. (2016). *Psychopathy as unified theory of crime*. Palgrave Macmillan.
- Déry, M., Bégin, V., Toupin, J., & Temcheff, C. (2019). Clinical utility of the limited prosocial emotions specifier in the childhood-onset subtype of conduct disorder. *Canadian Journal of Psychiatry*, 64(12), 838–845. <https://doi.org/10.1177/0706743719885469>
- Dodge, K. A., & Coie, J. D. (1987). Social-information-processing factors in reactive and proactive aggression in children's peer groups. *Journal of Personality & Social Psychology*, 53(6), 1146–1158. <https://doi.org/10.1037//0022-3514.53.6.1146>
- Drislane, L. E., & Patrick, C. J. (2013). Psychopathy and antisocial personality disorder. In M. Shally-Jensen (Ed.), *Mental health care issues in America: An encyclopedia* (pp. 599–607). ABC-CLIO.
- Ezpeleta, L., de la Osa, N., Granero, R., Penelo, E., & Domènech, J. M. (2013). Inventory of callous-unemotional traits in a community sample of preschoolers. *Journal of Clinical Child and Adolescent Psychology*, 42(1), 91–105. <https://doi.org/10.1080/15374416.2012.734221>
- Fanti, K. A., Kyranides, M. N., Lordos, A., Colins, O. F., & Andershed, H. (2018). Unique and interactive associations of callous-unemotional traits, impulsivity and grandiosity with child and adolescent conduct disorder symptoms. *Journal of Psychopathology and Behavioral Assessment*, 40(1), 40–49. <https://doi.org/10.1007/s10862-018-9655-9>
- Forth, A. E., Kosson, D. S., & Hare, R. D. (2003). *The Psychopathy Checklist: Youth Version, manual*. Multi-Health Systems.
- Frick, P. J. (2009). Extending the construct of psychopathy to youth: Implications for understanding, diagnosing, and treating antisocial children and adolescents. *Canadian Journal of Psychiatry*, 54(12), 803–812. <https://doi.org/10.1177/070674370905401203>
- Frick, P. J., Bodin, S. D., & Barry, C. T. (2000). Psychopathic traits and conduct problems in community and clinic-referred samples of children: Further development of the psychopathy screening device. *Psychological Assessment*, 12(4), 382–393. <https://doi.org/10.1037/1040-3590.12.4.382>
- Frick, P. J., Ray, J. V., Thornton, L. C., & Kahn, R. E. (2014). Annual research review: A developmental psychopathology approach to understanding callous-unemotional traits in children and adolescents with serious conduct problems. *Journal of Child Psychology and Psychiatry*, 55, 532–548. <https://doi.org/10.1111/jcpp.12152>
- Frogner, L., Andershed, A. K., & Andershed, H. (2018). Psychopathic personality works better than CU traits for predicting fearlessness and ADHD symptoms among children with conduct problems. *Journal of Psychopathology and Behavioral Assessment*, 40(1), 26–39. <https://doi.org/10.1007/s10862-018-9651-0>
- Frogner, L., Gibson, C. L., Andershed, A.-K., & Andershed, H. (2018). Childhood psychopathic personality and callous-unemotional traits in the prediction of conduct problems. *American Journal of Orthopsychiatry*, 88(2), 211–225. <https://doi.org/10.1037/ort0000205>
- Garofalo, C., Sijtsma, J. J., De Caluwé, E., Vaughn, M. C., & DeLisi, M. (2020). A latent profile analysis of the Psychopathic Personality Inventory in a representative sample of referred boys. *Personality Disorders: Theory, Research and Treatment*, 11(5), 365–375. <https://doi.org/10.1037/per0000393>
- Goodman, R. (1997). The Strengths and Difficulties Questionnaire: A research note. *Journal of Child Psychology & Psychiatry*, 38(5), 581–586. <https://doi.org/10.1111/j.1469-7610.1997.tb01545.x>
- Hare, R. D. (2003). *The Hare Psychopathy Checklist-Revised* (2nd ed.). Multi-Health Systems.
- Hare, R. D., & Neumann, C. S. (2008). Psychopathy as a clinical and empirical construct. *Annual Review of Clinical Psychology*, 4, 217–246. <https://doi.org/10.1146/annurev-clinpsy.3.022806.091452>
- Hare, R. D., Neumann, C. S., & Mokros, A. (2018). The PCL-R assessment of psychopathy: Development, properties, debates, and new directions. In C. J. Patrick (Ed.), *Handbook of psychopathy* (pp. 39–79). Guilford Press.
- Jones, A. P., Laurens, K. R., Herba, C. M., Barker, G. J., & Viding, E. (2009). Amygdala hypoactivity to fearful faces in boys with conduct problems and callous-unemotional traits. *American Journal of Psychiatry*, 166(1), 95–102. <https://doi.org/10.1176/appi.ajp.2008.07071050>
- Kiehl, K. A., & Hoffman, M. B. J. J. (2011). The criminal psychopath: History, neuroscience, treatment, and economics. *Jurimetrics*, 51, 355–397.
- Klingzell, I., Fanti, K. A., Colins, O. F., Frogner, L., Andershed, A. K., & Andershed, H. (2016). Early childhood trajectories of conduct problems and callous-unemotional traits: The role of fearlessness and psychopathic personality dimensions. *Child Psychiatry and Human Development*, 47(2), 236–247. <https://doi.org/10.1007/s10578-015-0560-0>

- Lilienfeld, S. O. (2018). The multidimensional nature of psychopathy: Five recommendations for research. *Journal of Psychopathology and Behavioral Assessment*, 40(1), 79–85. <https://doi.org/10.1007/s10862-018-9657-7>
- Lilienfeld, S. O., Watts, A. L., Francis Smith, S., Berg, J. M., & Litzman, R. D. (2015). Psychopathy deconstructed and reconstructed: Identifying and assembling the personality building blocks of Cleckley's chimera. *Journal of Personality*, 83(6), 593–610. <https://doi.org/10.1111/jopy.12118>
- Lo, Y., Mendell, N. R., & Rubin, D. B. (2001). Testing the number of components in a normal mixture. *Biometrika*, 88(3), 767–778. <https://doi.org/10.1093/biomet/88.3.767>
- Loeber, R., Farrington, D. P., Stouthamer-Loeber, M., Moffitt, T. E., Caspi, A., & Lynam, D. (2001). Male mental health problems, psychopathy, and personality traits: Key findings from the first 14 years of the Pittsburgh Youth Study. *Clinical Child Family Psychology Review*, 4(4), 273–297. <https://doi.org/10.1023/a:1013574903810>
- López-Romero, L., Colins, O. F., Fanti, K., Salekin, R. T., Romero, E., & Andershed, H. (2020). Testing the predictive and incremental validity of callous-unemotional versus the multidimensional psychopathy construct in preschool children. *Journal of Criminal Justice*. Advance online publication. <https://doi.org/10.1016/j.jcrimjus.2020.101744>
- López-Romero, L., Maneiro, L., Colins, O. F., Andershed, H., & Romero, E. (2019). Psychopathic traits in early childhood: Further multi-informant validation of the Child Problematic Traits Inventory (CPTI). *Journal of Psychopathology & Behavioral Assessment*, 41(3), 366–374. <https://doi.org/10.1007/s10862-019-09735-0>
- López-Romero, L., Romero, E., Colins, O. F., Andershed, H., Hare, R. D., & Salekin, R. T. (2019). Proposed Specifiers for Conduct Disorder (PSCD): Preliminary validation of the parent version in a Spanish sample of preschoolers. *Psychological Assessment*, 31(11), 1357–1367. <https://doi.org/10.1037/pas0000759>
- Lynam, D. R. (1997). Pursuing the psychopath: Capturing the fledgling psychopath in a nomological net. *Journal of Abnormal Psychology*, 106(3), 425–438. <https://doi.org/10.1037//0021-843x.106.3.425>
- Lynam, D. R., & Gudonis, L. (2005). The development of psychopathy. *Annual Review of Clinical Psychology*, 1, 381–407. <https://doi.org/10.1146/annurev.clinpsy.1.102803.144019>
- Martel, M. M., Levinson, C. A., Lee, C. A., & Smith, T. E. (2017). Impulsivity symptoms as core to the developmental externalizing spectrum. *Journal of Abnormal Child Psychology*, 45(1), 83–90. <https://doi.org/10.1007/s10802-016-0148-6>
- McLachlan, G., & Peel, D. (2000). *Finite mixture models*. Wiley.
- Miller, J. D., & Lynam, D. R. (2015). Psychopathy and personality: Advances and debates. *Journal of Personality*, 83(6), 585–592. <https://doi.org/10.1111/jopy.12145>
- Morin, A. J. S., Meyer, J. P., Creusier, J., & Biétry, F. (2016). Multiple-group analysis of similarity in latent profile solutions. *Organizational Research Methods*, 19(2), 231–254. <https://doi.org/10.1177/1094428115621148>
- Muthén, L., & Muthén, B. (2015). Mplus version 7.4 software [Internet]. Muthén & Muthén.
- Nagin, D. S. (2005). *Group-based modeling of development*. Harvard University Press.
- Nijhof, K. S., Vermulst, A., Scholte, R. H., van Dam, C., Veerman, J. W., & Engels, R. C. (2011). Psychopathic traits of Dutch adolescents in residential care: Identifying subgroups. *Journal of Abnormal Child Psychology*, 39(1), 59–70. <https://doi.org/10.1007/s10802-010-9445-7>
- Nylund, K. L., Asparouhov, T., & Muthén, B. O. (2007). Deciding on the number of classes in latent class analysis and growth mixture modeling: A Monte Carlo simulation study. *Structural Equation Modeling*, 14(4), 535–569. <https://doi.org/10.1080/10705510701575396>
- Orue, I., & Andershed, H. (2015). The Youth Psychopathic Traits Inventory-Short Version in Spanish adolescents—Factor structure, reliability, and relation with aggression, bullying, and cyber bullying. *Journal of Psychopathology and Behavioral Assessment*, 37, 563–575. <https://doi.org/10.1007/s10862-015-9489-7>
- Pasalich, D. S., Dadds, M. R., Hawes, D. J., & Brennan, J. (2012). Attachment and callous-unemotional traits in children with early-onset conduct problems. *Journal of Child Psychology and Psychiatry*, 53, 838–845. <https://doi.org/10.1111/j.1469-7610.2012.02544.x>
- Raine, A. (2013). *The anatomy of violence: The biological roots of crime*. Penguin Books.
- Ribeiro da Silva, D. R., Salekin, R. T., & Rijo, D. (2019). Psychopathic severity profiles: A latent profile analysis in youth samples with implications for the diagnosis of conduct disorder. *Journal of Criminal Justice*, 60, 74–83. <https://doi.org/10.1016/j.jcrimjus.2018.12.003>
- Rutter, M. (2012). Psychopathy in childhood: Is there a meaningful diagnosis? *British Journal of Psychiatry*, 200(3), 175–176. <https://doi.org/10.1192/bjp.bp.111.092072>
- Salekin, R. T. (2016). Psychopathy in childhood: Toward better informing the DSM-5 and

- ICD-11 conduct disorder specifiers. *Personality Disorders: Theory, Research, and Treatment*, 7(2), 180–191. <https://doi.org/10.1037/per0000150>
- Salekin, R. T. (2017). Research Review: What do we know about psychopathic traits in children? *Journal of Child Psychology and Psychiatry*, 58(11), 1180–1200. <https://doi.org/10.1111/jcpp.12738>
- Salekin, R. T., Andershed, H., Batky, B. D., & Bon-temps, A. P. (2018). Are callous unemotional (CU) traits enough? *Journal of Psychopathology & Behavioral Assessment*, 40(1), 1–5. <https://doi.org/10.1007/s10862-018-9663-9>
- Salekin, R. T., & Hare, R. (2016). *Proposed Specifiers for Conduct Disorder (PSCD) scale*. Unpublished manuscript, Department of Psychology, University of Alabama, Tuscaloosa, AL.
- Salekin, R. T., & Lynam, D. R. (2010). *Handbook of child and adolescent psychopathy*. Guilford Press.
- Somma, A., Andershed, H., Borroni, S., & Fossati, A. (2016). The validity of the Child Problematic Traits Inventory in 6–12 year old Italian children: Further support and issues of consistency across different sources of information and different samples. *Journal of Psychopathology and Behavioral Assessment*, 38(3), 350–372. <https://doi.org/10.1007/s10862-015-9528-4>
- Somma, A., Andershed, H., Borroni, S., Salekin, R. T., & Fossati, A. (2018). Psychopathic personality traits in relation to self-report delinquency in adolescence: Should we mind about interaction effects? *Journal of Psychopathology and Behavioral Assessment*, 40(1), 69–78. <https://doi.org/10.1007/s10862-018-9658-6>
- Talwar, V., & Lee, K. (2008). Social and cognitive correlates of children's lying behavior. *Child Development*, 79(4), 866–881. <https://doi.org/10.1111/j.1467-8624.2008.01164.x>
- Tuvblad, C., Fanti, K. A., Andershed, H., Colins, O. F., & Larsson, H. (2017). Psychopathic personality traits in 5 year old twins: The importance of genetic and shared environmental influences. *European Child & Adolescent Psychiatry*, 26(4), 469–479. <https://doi.org/10.1007/s00787-016-0899-1>
- Vahl, P., Colins, O. F., Lodewijks, H. P. B., Markus, M. T., Doreleijers, T. A. H., & Vermeiren, R. (2014). Psychopathic-like traits in detained adolescents: Clinical usefulness of self-report. *European Child & Adolescent Psychiatry*, 23(8), 691–699. <https://doi.org/10.1007/s00787-013-0497-4>
- Vaughn, M. G., Salas-Wright, C. P., DeLisi, M., & Maynard, B. R. (2014). Violence and externalizing behavior among youth in the United States: Is there a severe 5%? *Youth Violence and Juvenile Justice*, 12(1), 3–21. <https://doi.org/10.1177/1541204013478973>
- Vermunt, J., & Magidson, J. (2002). Latent class cluster analysis. In J. Hagenaars & A. McCutcheon (Eds.), *Applied latent class analysis* (pp. 89–106). Cambridge University Press.
- Viding, E., Jones, A. P., Frick, P. J., Moffitt, T. E., & Plomin, R. (2008). Heritability of antisocial behaviour at 9: Do callous-unemotional traits matter? *Developmental Science*, 11(1), 17–22. <https://doi.org/10.1111/j.1467-7687.2007.00648.x>
- Waller, R., & Hyde, L. (2017). Callous-unemotional behaviors in early childhood: Measurement, meaning, and the influence of parenting. *Child Development Perspectives*, 11, 120–126. <https://doi.org/10.1111/cdep.12222>
- Waller, R., Wagner, N. J., Barstead, M. G., Subar, A., Petersen, J. L., Hyde, J. S., & Hyde, L. W. (2019). A meta-analysis of the associations between callous-unemotional traits and empathy, prosociality, and guilt. *Clinical Psychology Review*, 75, 101809. <https://doi.org/10.1016/j.cpr.2019.101809>
- Wang, M.-C., Colins, O. F., Deng, Q., Deng, J., Huang, Y., & Andershed, H. (2018). The Child Problematic Traits Inventory in China: A multiple informant-based validation study. *Psychological Assessment*, 30(7), 956–966. <https://doi.org/10.1037/pas0000545>

## SUPPLEMENTARY TABLES

**Table S1.** Descriptive Statistics and Internal Consistency of Main Study Variables

	Wave 1				Wave 2			
	Parent-rated		Teacher-rated		Parent-rated		Teacher-rated	
	<i>M</i> (SD)	$\alpha$ (MIC) <sup>a</sup>	<i>M</i> (SD) <sup>a</sup>	$\alpha$ (MIC) <sup>a</sup>	<i>M</i> (SD)	$\alpha$ (MIC) <sup>a</sup>	<i>M</i> (SD)	$\alpha$ (MIC) <sup>a</sup>
<b>Latent Class Indicators</b>								
Grandiose-Deceitful	1.41 (0.45)	.80 (.53)	—	—	—	—	—	—
Callous-Unemotional	1.42 (0.45)	.84 (.55)	—	—	—	—	—	—
Impulsivity-Need for Stimulation	2.34 (0.56)	.81 (.49)	—	—	—	—	—	—
<b>External correlates</b>								
Conduct problems	1.76 (0.52)	.86 (.57)	1.48 (0.61)	.93 (.72)	1.75 (0.51)	.87 (.58)	1.49 (0.63)	.94 (.75)
Reactive aggression	1.87 (0.86)	.77 (.60)	1.60 (0.82)	.89 (.79)	1.95 (0.73)	.70 (.53)	1.67 (0.85)	.90 (.81)
Proactive aggression	1.17 (0.17)	.73 (.56)	1.22 (0.49)	.82 (.68)	1.20 (0.41)	.78 (.63)	1.31 (0.59)	.86 (.74)
Prosocial behavior	1.60 (0.34)	.66 (.42)	1.57 (0.43)	.78 (.57)	1.65 (0.33)	.65 (.41)	1.62 (0.42)	.80 (.59)

*Note.*  $\alpha$  = Cronbach's alpha; MIC = Mean inter-item correlation. <sup>a</sup> $\alpha$ s were interpreted as follows: < .60 = insufficient; .60 to .69 = marginal; .70 to .79 = acceptable; .80 to .89 = good; and .90 or higher = excellent (Barker, Pistran, & Elliot, 1994). The MIC should be at minimum in the range of .15 to .50 to be considered adequate (Clark & Watson, 1995).

**Table S2.** Zero-order Correlations Between Main Study Variables

	Wave 1										Wave 2								
	Parent-rated					Teacher-rated					Parent-rated				Teacher-rated				
T1-Parent rated	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19
1. GD	—																		
2. CU	.50***	—																	
3. INS	.45***	.43***	—																
4. CP	.47***	.43***	.49***	—															
5. REAC	.42***	.35***	.35***	.67***	—														
6. PROAC	.38***	.29***	.23***	.51***	.51***	—													
7. PROSOC	-.23***	-.45***	-.18***	-.32***	-.26***	-.20***	—												
<b>T1-Teacher-rated</b>																			
8. CP	.21***	.24***	.29***	.38***	.28***	.26***	-.12***	—											
9. REAC	.19***	.16***	.22***	.31***	.26***	.24***	-.07***	.84***	—										
10. PROAC	.17***	.15***	.16***	.23***	.19***	.24***	-.04	.66***	.64***	—									
11. PROSOC	-.12***	-.18***	-.14***	-.24***	-.15***	-.16***	.15***	-.54***	-.46***	-.37***	—								
<b>T2-Parent rated</b>																			
12. CP	.38***	.38***	.43***	.72***	.52***	.43***	-.25***	.35***	.28***	.18***	-.21***	—							
13. REAC	.24***	.30***	.31***	.53***	.59***	.39***	-.22***	.28***	.26***	.19***	-.16***	.68***	—						
14. PROAC	.28***	.24***	.22***	.42***	.38***	.50***	-.13***	.22***	.19***	.17***	-.11***	.55***	.50***	—					
15. PROSOC	-.22***	-.38***	-.20***	-.30***	-.26***	-.21***	.56***	-.14***	-.11***	-.05*	.17***	-.36***	-.31***	-.23***	—				
<b>T2-Teacher-rated</b>																			
16. CP	.19***	.19***	.29***	.33***	.25***	.18***	-.10***	.63***	.55***	.37***	-.33***	.37***	.31***	.21***	-.18***	—			
17. REAC	.16***	.13***	.22***	.24***	.22***	.16***	-.08***	.49***	.50***	.33***	-.25***	.27***	.26***	.16***	-.14***	.84***	—		
18. PROAC	.13***	.09***	.16***	.16***	.14***	.12***	-.02	.39***	.39***	.37***	-.17***	.17***	.18***	.10***	-.08**	.73***	.72***	—	
19. PROSOC	-.08**	-.15***	-.13***	-.18***	-.11***	-.09***	.11***	-.33***	-.30***	-.21***	.40***	-.21***	-.20***	-.12***	.15***	-.55***	-.49***	-.45***	—

*Note.* GD = Grandiose-deceitful; CU = Callous-unemotional; INS = Impulsive-Need for stimulation; CP = Conduct problems; REAC = Reactive aggression; PROAC = Proactive aggression; PROSOC = Prosocial behavior. \* $p < .05$ . \*\* $p < .01$ . \*\*\* $p < .001$ .

**Table S3.** Model Fit Indices for 1- to 5-Class Solutions From Latent Profile Analysis (LPA) Tested in Subsample 1 and Subsample 2

	Entropy	Probabilities	AIC	BIC	LMR ( <i>p</i> )	BLRT ( <i>p</i> )
Subsample 1						
1 Class	—	—	4676.20	4706.64	—	—
2 Class	.85	.97/.92	3972.33	4022.57	687.40 (< .001)	711.87 (< .001)
3 Class	.87	.96/.91/.90	3762.92	3833.25	209.94 (.12)	217.41 (< .001)
4 Class	.87	.96/.79/.87/.93	3633.46	3723.89	132.53 (< .05)	137.46 (< .001)
<b>5 Class</b>	<b>.75</b>	<b>.84/.75/.88/.86/.93<sup>a</sup></b>	<b>3544.49</b>	<b>3655.01</b>	<b>75.73 (.37)</b>	<b>78.43 (&lt; .001)</b>
Subsample 2						
1 Class	—	—	4595.79	4625.94	—	—
2 Class	.84	.97/.91	3897.50	3947.74	682.02 (< .001)	706.29 (< .001)
3 Class	.87	.96/.96/.90	3672.16	3742.50	225.32 (< .001)	233.41 (< .001)
4 Class	.85	.95/.93/.86/.83	3512.08	3602.52	162.30 (< .01)	168.08 (< .001)
<b>5 Class</b>	<b>.74</b>	<b>.83/.78/.87/.82/.96<sup>a</sup></b>	<b>3422.15</b>	<b>3532.69</b>	<b>84.56 (&lt; .01)</b>	<b>97.28 (&lt; .001)</b>

*Note.* AIC = Akaike information criteria; BIC = Bayesian information criteria; LMR = Lo-Mendell-Rubin test; BLRT = bootstrap likelihood ratio test. <sup>a</sup>Posterior probabilities for the Control, INS, GD, CU and PP classes, respectively.

**Table S4.** Longitudinal Comparisons Across the Five-Class Profiles on External Criteria Reported by Parents and Teachers, Controlling for Initial Levels (T1) of Conduct Problems

	Control	INS	GD	CU	PP	<i>F</i>	$\eta^{2a}$
	<i>M</i> (SE)	<i>M</i> (SE)	<i>M</i> (SE)	<i>M</i> (SE)	<i>M</i> (SE)		
<sup>b</sup> Parent-reported Wave 2							
Conduct problems	1.54 (0.02) <sub>a</sub>	1.98 (0.03) <sub>b</sub>	2.01 (0.04) <sub>c</sub>	1.97 (0.05) <sub>c</sub>	2.23 (0.06) <sub>d</sub>	77.63**	.15
Reactive aggression	1.72 (0.03) <sub>a</sub>	2.01 (0.03) <sub>b</sub>	2.26 (0.05) <sub>c</sub>	2.32 (0.10) <sub>cd</sub>	2.69 (0.13) <sub>d</sub>	46.03**	.09
Proactive aggression	1.10 (0.01) <sub>a</sub>	1.20 (0.02) <sub>b</sub>	1.36 (0.02) <sub>cd</sub>	1.26 (0.04) <sub>bc</sub>	1.50 (0.05) <sub>d</sub>	33.23**	.07
Prosocial behavior	1.74 (0.01) <sub>a</sub>	1.64 (0.01) <sub>b</sub>	1.56 (0.02) <sub>c</sub>	1.43 (0.03) <sub>d</sub>	1.46 (0.04) <sub>cd</sub>	37.49**	.08
<sup>c</sup> Teacher-reported Wave 2							
Conduct problems	1.13 (0.02) <sub>a</sub>	1.53 (0.02) <sub>b</sub>	1.56 (0.03) <sub>b</sub>	1.43 (0.05) <sub>ab</sub>	1.64 (0.06) <sub>b</sub>	7.04**	.01
Reactive aggression	1.61 (0.03) <sub>ab</sub>	1.71 (0.03) <sub>bc</sub>	1.74 (0.04) <sub>bc</sub>	1.51 (0.07) <sub>a</sub>	1.89 (0.10) <sub>c</sub>	5.36**	.01
Proactive aggression	1.29 (0.02) <sub>ab</sub>	1.33 (0.02) <sub>b</sub>	1.36 (0.03) <sub>b</sub>	1.17 (0.05) <sub>a</sub>	1.43 (0.07) <sub>b</sub>	3.87*	.01
Prosocial behavior	1.63 (0.02) <sub>a</sub>	1.61 (0.02) <sub>a</sub>	1.65 (0.02) <sub>a</sub>	1.54 (0.04) <sub>a</sub>	1.53 (0.05) <sub>a</sub>	2.31	—

*Note.* Analyses were performed with ANCOVA in SPSS 20, which facilitates to accommodate for covariates without directly affecting class distribution. GD = Grandiose-deceitful; CU = Callous-unemotional; INS = Impulsive-Need for stimulation; PP = Putative Psychopathic personality. Means with different subscripts (a, b, c, d) were significantly different ( $p < .05$ ) with post hoc Bonferroni correction for multiple pairwise comparisons. <sup>a</sup>Partial eta square ( $\eta^2$ ) was interpreted as follows:  $< .05$  = small;  $.06$  to  $.14$  = medium; and  $.15$  or higher = large (Cohen, 1988). <sup>b</sup>For parent-reported wave 2 outcomes, conduct problems rated by parents in wave 1 were controlled for. <sup>c</sup>For teacher-reported wave 2 outcomes, conduct problems rated by teachers in wave 1 were controlled for. \* $p < .01$ . \*\* $p < .001$ .