Current Psychology (2023) 42:23045–23058
https://doi.org/10.1007/s12144-022-03452-w

The role of parental psychopathic traits: longitudinal relations with parenting, child's psychopathy features and conduct problems

Silvija Ručević[1] · David P. Farrington[2] · Henrik Andershed[3]

Accepted: 5 July 2022 / Published online: 11 July 2022

Abstract
Using cross-lagged model design, the present study is the first one to longitudinally examine whether bidirectional associations between child psychopathy features and negative parenting behaviors remain when controlling for parental psychopathic traits. The relationship between parental and child psychopathology, child conduct problems and parental rejection was assessed in 175 children (80 boys) at the ages 5, 6 and 8. Child psychopathy features and conduct problems at age 5–8 years were assessed using kindergarten/teacher-reported questionnaires, whereas parenting behaviors across all waves and parental psychopathic traits at Wave 1 were assessed using self-reports. Similar to past research, parental psychopathic traits were significantly related to both negative parenting practices and child's psychopathy features. However, although cross-lagged models provided evidence for bidirectional dynamics between child psychopathy features and parenting at all waves, this relationship became non-significant once parental psychopathic traits were entered into the model. These findings provide important new evidence that parental psychopathic personality has an important effect on the relationship between child psychopathy features and parenting practices observed in previous longitudinal studies. Thus, in addition to child psychopathy features, interventions for children with conduct problems should also target parental psychopathy in order to contribute to children's healthy development.

Keywords Child and parental psychopathic traits · Parenting practices · Conduct problems · Longitudinal

The potential effects of parental psychopathic personality on the dynamics of family life and child-rearing techniques have not been the focus of much research. This is surprising given that prior research has linked parental psychopathology to parenting practices and parenting styles. For example, in a large nationally representative study, Kim-Cohen et al. (2006) found that mothers with a history of antisocial behavior exhibited higher levels of hostility toward their school-aged children and were more likely to physically maltreat them. Similarly, Bosquet and Egeland (2000) showed that mothers scoring high on the Antisocial Practices scale of the Minnesota Multiphasic Personality Inventory-2 (Butcher et al., 1989) were observed to be less understanding, harsher and more hostile in their parenting styles after their children were born, compared with clinical and healthy control mothers. In contrast, clinical and healthy control mothers did not differ on any measures of parenting. Moreover, in another research that analyzed data from the Dunedin Multidisciplinary Health and Development Study (Silva & Stanton, 1996), Jaffee et al. (2006) reported that parents who had a history of any psychopathology in adolescence engaged in less positive parenting compared with their peers, and their children were more difficult to manage. Furthermore, Smith and Farrington's (2004) analysis of the Cambridge Study in Delinquent Development data revealed that parental antisocial behavior was a significant predictor of authoritarian parenting and parental conflict. Finally, follow-up studies of children in high-risk families

✉ Silvija Ručević
s.rucevic.03@cantab.net

David P. Farrington
dpf1@cam.ac.uk

Henrik Andershed
henrik.andershed@oru.se

[1] Faculty of Humanities and Social Sciences, Department of Psychology, University of Osijek, L. Jägera 9, 31000 Osijek, Croatia

[2] Institute of Criminology, University of Cambridge, Cambridge, UK

[3] School of Law, Psychology and Social Work, Örebro University, Örebro, Sweden

found that parental personality disorder predicted adolescent personality disorder, a relationship mediated by maladaptive parenting behaviors (Johnson et al., 2001).

From a development perspective, parental psychopathic traits may directly be related to children's development through several possible mechanisms (Kochanska et al., 1997). First, children may directly inherit certain personality characteristics. A number of genetic studies have found evidence of the partial heritability of psychopathic personality (e.g., Dhanani et al., 2018; Larsson et al., 2006; Tuvblad et al., 2014, 2017). In addition to genetic factors, during early childhood, shared environmental factors also influence development of psychopathic features (e.g., Tuvblad et al., 2017). That is, parents with certain personality traits may provide models of aggressive and unregulated behaviors for their child, and subsequently their child may imitate these behaviors (Auty et al., 2015; Campbell et al., 2000; Rowe & Farrington, 1997). For instance, behaviors of parents high on psychopathic traits may be characterized by impulsive and manipulative acts. Impulsive behaviors and the deceitfulness of young children might result from imitating these behaviors. Finally, parents use parenting strategies that may contribute to the maintenance (or development) of childhood psychopathology and conduct behaviors. Longitudinal studies focusing on the relationship between child psychopathy features and parenting practices have shown that the relationship between the two is bidirectional, with child psychopathy features being more predictive of changes in parenting over time than parenting being predictive of changes in psychopathy features over time. Specifically, Salihović et al. (2012) found that adolescent psychopathic traits increased negative parental behaviors and decreased parental use of positive behaviors, and these effects were systematic over four years. Similar results were observed for callous-unemotional (CU) traits alone. Specifically, Muñoz et al. (2011) found that CU traits moderated the link between parenting and youth conduct problems suggesting that parents responded to CU traits. Likewise, in a study by Hawes et al. (2011) child CU traits uniquely accounted for change in parental inconsistent discipline, punishment, and involvement. Although multiple domains of parenting uniquely predicted change in CU traits, the authors concluded that parental behavior is more a reaction than a predictor of child psychopathy features. Findings to the contrary have also been reported. For example, Childs et al. (2014) found that corporal punishment and poor supervision/monitoring predicted increases in CU traits, however, the inverse relations were not found. Nevertheless, these results suggest that parents may play a role in the development and maintenance of their child's psychopathology in multiple ways, and presumably these different ways interact and may exacerbate each other.

Although mounting evidence supports the continued study of the relationship between parenting practices and child psychopathy features, there are several limitations in this research. To date, only handful of studies have examined the relationship between parental psychopathy and parenting practices and/or styles. Using data from the National Longitudinal Study of Adolescent Health, Beaver et al. (2014) found that persons scoring higher on psychopathic personality traits were, on average, more likely to report more negative parenting quality. This association was detected for both males and females and remained significant even after controlling for parental transmission (i.e., maternal disengagement, maternal involvement, maternal attachment and parental permissiveness) and child-effects. Similar results were reported by Cox et al. (2018) in a sample of 165 community members (93 women) using the Psychopathic Personality Inventory-Revised (PPI-R; Lilienfeld & Widows, 2005). For example, PPI-R Machiavellian Egocentricity and PPI-R Rebellious Nonconformity were significantly associated with both permissive and authoritarian parenting. Findings to the contrary have also been reported. In an all-male sample ($N = 75$; ages 7–11 years) maternal fearless dominance and self-centered impulsivity measured by the PPI-R were not significantly related to any parenting variables (Robinson et al., 2016).

Another important limitation is that prior research has mainly relied on single informants, either parents (e.g., Hawes et al., 2011) or youth (e.g., Salihović et al., 2012) when assessing psychopathic traits and parenting behaviors. The ones that did use multiple informants (i.e., teachers and parents) have mainly relied on the use of parent report on multiple measures (e.g., Childs et al., 2014). Given this, it is possible that the relationships observed in previous studies appear, due to common-method variance, stronger than they actually are in reality. Furthermore, several studies have demonstrated that parental psychopathology can be a potential source of bias on parents' reports of their children (for reviews, see Achenbach, 2006; De Los Reyes & Kazdin, 2005). For example, Najman et al. (2000) in a longitudinal study found that anxious and/or depressed mothers reported more problem behaviors in their children than non-depressed mothers and the children themselves. Taken together, judging from earlier research, it is possible that parents who exhibit high levels of psychopathic traits will have different expectations, attributions, and interpretations of child behaviors than parents with low levels. In other words, parents' psychopathic personality will influence their reactions to children's problem behaviors and psychopathy features.

In addition, most of previous research on the relationship between parenting behaviors and child psychopathy features for the past two decades has focused primarily on the affective dimension (i.e., CU traits), with the broader construct of psychopathy being underrepresented. Specifically, Frick and colleagues (e.g., Frick et al., 2003, 2005; Frick et al., 2014a, b) have argued that CU traits alone are

likely to differentiate a more severe and aggressive subgroup of youth who have an elevated risk of future problems and poor life outcomes, including adult psychopathy (Hawes et al., 2017). *While there is* empirical evidence to support this rationale, the majority of studies examining the relationship between CU traits and parenting were conducted within clinic-referred and conduct disordered youth who also show elevated levels of impulsive behavior (e.g., Hawes et al., 2011). Furthermore, research has also shown that the three dimensions of psychopathic personality are moderately correlated (from $r = 0.54$ to 0.66) and these correlations are primarily mediated by genetic and shared environmental factors (e.g., Andershed et al., 2018; Tuvblad et al., 2017). Taken together, the higher rates of negative parenting practices reported in previous studies may have been due to the combination of CU traits and other psychopathy dimensions (i.e., impulsivity) rather than to the presence of CU traits alone. Indeed, Fanti et al. (2018) found in child and adolescent samples that CU traits and grandiosity mutually potentiated each other, resulting in much higher levels of conduct disorder symptoms, whereas the presence of impulsivity further aggravated a young person's clinical presentation.

Moreover, in several aforementioned studies parental behavior and child psychopathy features have not been assessed at multiple time points and analyzed simultaneously in cross-lagged models (e.g., Hawes et al., 2011) or the relationship between child psychopathy features and parenting was not examined directly (e.g., Muñoz et al., 2011). When studies have examined the two simultaneously, they have focused primarily on pre-adolescent or adolescent samples (e.g., Childs et al., 2014; Salihović et al., 2012). As a result, little is known whether relationship from parenting to child psychopathy features holds after controlling for the links from psychopathy features to parenting, and vice versa in young children. As suggested by Childs et al. (2014), parental behavior may have different influence on psychopathy features during childhood and adolescence. Finally, prior studies examining child psychopathy features and negative parenting practices have usually failed to examine their contributions with respect to conduct problems, making it difficult to evaluate relative prognostic values of each risk factor.

Based on these issues, using a cross-lagged panel design, the current study sought to fill existing gaps in the literature by empirically examining whether parental psychopathic traits may explain a portion of the relation between child psychopathy features, child conduct problems, and negative parenting behaviors assessed at the ages 5, 6 and 8. Building on prior studies (e.g., Auty et al., 2015; Loney et al., 2007), it was expected that child and parental psychopathy scores will be positively related. It was also hypothesized that child psychopathy scores would correlate with both conduct problems and negative parenting practices (e.g., Hawes et al., 2011; Muñoz et al., 2011; Salihović et al., 2012). Finally, despite limited research basis, it was anticipated that parental psychopathic traits will be positively related to both negative parenting practices (Beaver et al., 2014; Cox et al., 2018) and child's conduct problems (e.g., Weijers et al., 2018).

Method

Participants

Data were drawn from the first three waves of the ECLAT study (Problem behaviours in elementary school-aged children: The role of Executive funCtioning, individuaL, familiAl, and geneTic factors). The study begun in 2014–15, with the original cohort containing a randomly selected 10% of all the children born between May 2009 and May 2010 who were attending local kindergartens during the winter of 2015 in a mid-sized Croatian town. The demographics of this town were similar to the rest of Croatia with regard to age, sex, education level, and the mixture between urban and rural areas. There were no conflicts of interest.

Children and their parents were chosen through a multistage stage random sampling procedure. Sixteen kindergartens were randomly selected in the first stage of sampling. Kindergartens were randomly chosen to gain representative samples from different neighborhoods (e.g., based on crime rates), socioeconomic classes, ethnicities (e.g., Roma), genders, and parental educational qualifications in the sample. In the second stage, 143 children were chosen to participate using a proportional per size (PPS) random selection method. The PPS is a group of random selection methods that controls the selection of clusters based on the information about the number of the final sampling units (i.e., children). Possible bias due to sample attrition was corrected by non-response weighting and numerical adjustment of the sample according to cohort sizes in each kindergarten. The initial attrition of the child-parent dyads who dropped out immediately after randomization but before the first wave (T1) was very low ($n = 3$). Specifically, all three families were moving to another country within a few months. Children with serious health problems, intellectual disability, or pervasive developmental disorders were excluded ($n = 10$). Similar to past research (e.g., Kimonis et al., 2016), in order to achieve greater variability in conduct problems the sample was also composed of children who were selectively recruited from kindergartens because of elevated conduct problems according to parent and teacher reports ($n = 45$; 25 males). The final sample consisted of 175 children (80 males and 95 females) at Wave 1 (T1).

The mean age of participants was 5.28 (SD = 0.61) years at Wave 1 (T1); 6.39 years (SD = 0.57) years at Wave 2 (T2); and 8.21 (SD = 0.62) years at Wave 3 (T3). Data were

collected between June and October each year. The retention rate in each of the waves was 100%. Parents were given an option that one biological parent or, ideally, both, should accompany the child to the research site. All children were accompanied to the research site by only one of their parents (135 mothers and 40 fathers).

The most commonly reported highest levels of education for mothers were secondary school (38.9%) and university (37.6%), and for fathers were secondary school (43.3%) and university (31.3%). Approximately 3% of mothers and 4% of *fathers had not attended high school.* Most parents were employed (78%). Approximately 5% of fathers were retired war veterans. At Wave 1 (T1), 12% of the parents were divorced or separated. Most children lived with both mother and father (Table 1).

Measures

All measures were framed to assess the child's behavior for the past six months. All scales showed acceptable internal consistency (see Table 2). In order to minimize the effect of the common-method variance we used multi-informants, including parents and teachers (kindergarten and school). Study measures in the first wave (T1) did not differ according to socio-economic status, ethnicity, age or parent education variables.

Parental psychopathic traits (T1; parental self-report) In this study, the Croatian version of the Self-Report Psychopathy (SRP-III) scale was administered (Pačić-Turk & Gajski, 2014). The results of exploratory factor analysis *suggest a four-factor structure of the Croatian SRP-III (i.e.,* Interpersonal Manipulation/IPM, Callous Affect/CA, Erratic Life Style/ELS, and Anti-Social Behavior/ASB*,* as well as good internal consistency (Pačić-Turk & Gajski, 2014). Responses are given on a 5-point Likert-type scale (1 = disagree strongly to 5 = agree strongly), with higher scores indicating more psychopathic characteristics. Model fit statistics and factor loadings for the four-factor solution are shown in Table 1.

Parenting practices (T1-T3; parental self-report) The Parental Acceptance–Rejection Questionnaire/Control-Short form (PARQ/Control-SF; Rohner & Khaleque, 2010) consists of 29 items organized into four rejection subscales, namely warmth/affection (8 items reverse scored; e.g., "I say nice things about my child"; $\alpha = 0.71$), hostility/aggression (6 items; e.g., "I hit my child, even when (s)he does not deserve it"; $\alpha = 0.70$), indifference/neglect (6 items; e.g., "I pay no attention to my child"; $\alpha = 0.72$), undifferentiated rejection (4 items; e.g., "My child is a nuisance for me"; $\alpha = 0.71$), and perceived behavioral control subscale (5 items; e.g. "I see to it that my child knows exactly what (s)he may or may not do"; $\alpha = 0.53$). Each item is rated on a four-point scale (1 = almost never true; 4 = almost always true), with higher scores indicating more perceived rejection or control. The PARQ/Control-SF has been previously validated in Croatian samples (e.g., Vučković et al., 2021). Reliability coefficients of the subscales in the present study were satisfactory across all waves with the exception of the Control subscale. Given this, the Control subscale was dropped from further analyses (see Table 2). Correlations between the four rejection subscales ranged across three waves from $r = 0.58$ to $r = 0.73$. Thus, for the present analyses we used only the *total score that measures overall* parental rejection.

Child psychopathy features (T1-T3; teacher-reported) Kindergarten teachers (T1 & T2) and school teachers (T3) completed the Child Problematic Traits Inventory (CPTI; Colins et al., 2014, 2017), a widely used 28-item measure of problematic (psychopathic) traits in children using a 4-point Likert-type scale ranging from (1) ''Does not apply at all'' to (4) ''Applies very well'', with higher scores indicating more problematic (psychopathic) characteristics. The items were averaged to create indexes of Grandiose-Deceitful dimension (GD; 8 items; e.g., "Often lies to get what he/

Table 1 Model fit statistics and factor loadings for measures of parental and child psychopathy

	Fit indices		Psychopathy dimensions (β)			
Child age	CFI	RMSEA (95% CI)	Callous-unemotional traits	Grandiose-deceitful style	Impulsive/need for stimulation	
Child psychopathy features (CPTI)						
T1: 5 years	.922	.060 (.02-.11)	.81	.75	.86	
T2: 6 years	.931	.057 (.01-.11)	.87	.83	.89	
T3: 8 years	.974	.054 (.01-.09)	.93	.88	.92	
Parental psychopathic traits (SRP-III)						
	CFI	RMSEA (95% CI)	Callous affect	Interpersonal manipulation	Erratic lifestyle	Anti-Social Behaviour
T1	.899	.059 (.01-.14)	.76	.70	.68	.49

CPTI Child problematic traits inventory; *SRP-III* Self-report psychopathy scale

Table 2 Descriptive statistics and correlations among primary study variables

	1.	2.	3.	4.	5.	6.	7.	8.	9.	10.
Parental psychopathic traits T1										
1. CA	—									
2. IPM	.56	—								
3. ELS	.51	.47	—							
4. ASB	.21	.25	.29	—						
Negative parenting practices T1-T3										
5. Rejection T1	.32	.30	.29	.13	—					
6. Rejection T2	.28	.27	.24	.11	.56	—				
7. Rejection T3	.21	.19	.16	.08	.39	.46	—			
Child psychopathy features T1										
8. CU	.28	.22	.16	.17	.43	.35	.29	—		
9. GD	.18	.24	.19	.05	.39	.30	.24	.47	—	
10. INS	.20	.23	.26	.11	.48	.40	.37	.40	.42	—
Child psychopathy features T2										
11. CU	.26	.22	.16	.13	.26	.37	.27	.41	.36	.24
12. GD	.17	.22	.17	.05	.25	.32	.24	.34	.33	.23
13. INS	.20	.21	.23	.06	.39	.41	.33	.30	.30	.71
Child psychopathy features T3										
14. CU	.22	.19	.14	.04	.22	.24	.34	.30	.29	.26
15. GD	.15	.21	.18	.06	.20	.20	.30	.28	.30	.29
16. INS	.19	.19	.24	.03	.30	.32	.40	.25	.26	.67
Childhood conduct problems T1-T3										
17. CP T1	.29	.26	.13	.06	.40	.23	.17	.44	.38	.42
18. CP T2	.25	.24	.09	.05	.22	.37	.20	.39	.36	.40
19. CP T3	.20	.19	.03	.02	.18	.19	.25	.24	.21	.28
Descriptive statistics										
M	27.19	28.82	33.93	18.14	61.23	63.84	63.24	15.05	11.75	23.22
SD	2.56	2.88	2.95	2.52	4.85	5.28	4.21	4.36	3.38	5.40
	.83	.80	.74	.70	.83	4.21	.84	.80	.76	.84

	11.	12.	13.	14.	15.	16.	17.	18.	.19
Parental psychopathic traits T1									
1. CA									
2. IPM									
3. ELS									
4. ASB									
Negative parenting practices T1-T3									
5. Rejection T1									
6. Rejection T2									
7. Rejection T3									
Child psychopathy features T1									
8. CU									
9. GD									
10. INS									
Child psychopathy features T2									
11. CU	—								
12. GD	.45	—							
13. INS	.44	.46	—						
Child psychopathy features T3									
14. CU	.36	.32	.29	—					

Table 2 (continued)

	11.	12.	13.	14.	15.	16.	17.	18.	.19
15. GD	.32	.34	.27	.44	—				
16. INS	.31	.30	.74	.47	.48	—			
Childhood conduct problems T1-T3									
17. CP T1	.40	.38	.42	.31	.26	.35	—		
18. CP T2	.42	.40	.44	.33	.29	.36	.82	—	
19. CP T3	.38	.25	.40	.43	.38	.54	.38	.46	—
Descriptive statistics									
M	15.25	11.03	22.97	15.72	11.00	21.58	1.22	2.67	3.03
SD	4.21	3.11	5.98	4.45	3.31	5.58	2.34	1.98	1.22
	.81	.78	.91	.83	.80	.88	.70	.84	.89

CA SRP-III Callous Affect; *IPM* SRP-III Interpersonal Manipulation; *ELS* SRP-III Erratic Life Style; *ASB* SRP-III Anti-Social Behavior; *CU* CPTI Callous-Unemotional dimension; *GD* CPTI Grandiose-Deceitful dimension; *INS* CPTI Impulsive-Need for Stimulation dimension; *CP* SDQ Conduct problems subscale; *T1* Child's age 5 years; *T2* Child's age 6 years; *T3* Child's age 8 years

All correlations with $|r| \geq .16$ are significant at $p < .05$

she wants"), Callous-Unemotional dimension (CU; 10 items; e.g., "Often does not seem to care about what other people feel and think"), and Impulsive-Need for Stimulation dimension (INS; 10 items; e.g., "Seems to do certain things just for the thrill of it"), with higher scores indicating more problematic (psychopathic) traits. The CPTI has been previously validated in international community and clinical child samples (e.g., Colins et al., 2018b, 2020; López-Romero et al., 2018; Somma et al., 2016), including Croatian (Ručević & Andershed, 2021). Model fit statistics and factor loadings for the three-factor solution are presented in Table 1.

Conduct problems (T1-T3; teacher-reported) Kindergarten teachers (T1 & T2) and school teachers (T3) completed the Conduct Problems subscale of the Strengths and Difficulties Questionnaire (SDQ; Goodman, 1997), which has been previously validated in Croatian samples (e.g., Tatalović Vorkapić et al., 2017). The Conduct Problems subscales comprises five items such as "Often fights with other children or bullies them" and "Often lies or cheats". Each item was rated on a 3-point scale as certainly true, somewhat true, or not true, with higher scores indicating more conduct problems.

Procedure

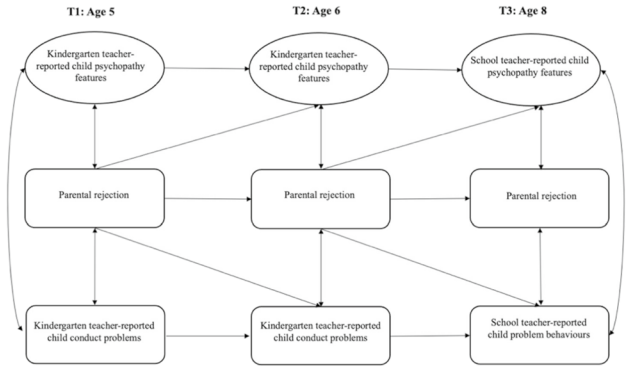
Ethical approval was granted for this research from the University of Osijek, Faculty of Humanities and Social Sciences institutional review board (IRB), as well as from the research committees at all data collection sites (i.e., kindergarten and schools). Written explanations of the study were provided to both parents/guardians and kindergarten/school teachers and headmasters. Informed consent was obtained from all parents of the children included in the study. Parents were also provided with a letter indicating clearly that they could withdraw from the study at any time, but none of them refused for their child to participate. In addition, all of the parents gave written consent to contact the child's kindergarten/school teacher.

Parent–child dyads were individually seen in the department laboratory where they were administered a number of questionnaires. Parents were paid 15 USD for participation; children received a toy or school/kindergarten supplies of their choosing. Teachers completed a set of questionnaires independently at each assessment period and were not compensated for their participation. Kindergarten/school teachers had known the child for at least one year, and the response rate among them was 100%.

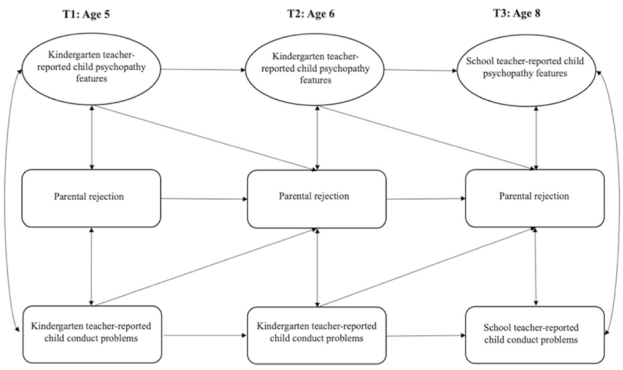
Data analytic strategy

The relationships among the variables were examined using Mplus Version 8.2 (Muthén & Muthén, 1998-2017). Following Cole and Maxwell's (2003) suggestions, data analyses proceeded in three main steps. We first conducted a parent-directed model (see Fig. 1, Model 1), after which we conducted a child-directed model (Fig. 1, Model 2). These models were compared with a bidirectional model (i.e., combination of parent- and child-directed model (Fig. 1, Model 3), which included all variables simultaneously. Finally, to examine the role of parental psychopathology, direct paths from parental psychopathic traits at T1 were added to all other variables (i.e., integrated model; Fig. 1).

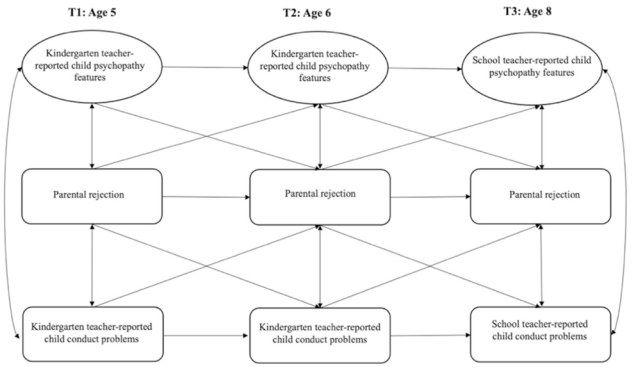
Given the different conceptualizations of psychopathic traits in child and adult samples, we used a latent variable approach to examine the relationship between parent and child psychopathy features. In addition, by using the multidimensional conceptualization of child psychopathy we



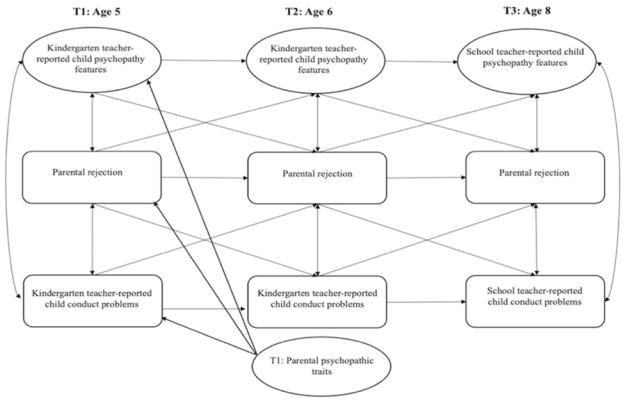
Model 1: Parent-directed model



Model 2: Child-directed model



Model 3: Bidirectional model (Parent- and child-directed paths)



Model 4: Integrated model

Fig. 1 Theoretical models on the directionality of the links between child psychopathy features, child conduct problems, and parenting. *Note*. Rectangles represent observed (manifest) variables and eclipses represent latent variables. Parental psychopathic traits consist of the four SRP-III factors (i.e., CA, IPM, ELS, and ASB), whereas child psychopathy features include the three CPTI dimensions (i.e., CU, GD, INS). In the Integrated model direct paths from parental psychopathic traits to all other variables were added for each wave. However, for simplicity, only regression paths from parental psychopathic traits to variables measured at Wave 1 (T1) are shown

kept its conceptualization congruent with adult models (Hare et al., 2018). Specifically, child psychopathy features latent variable was based on the CPTI multidimensional factor structure (Andershed et al., 2018), whereas parental psychopathic traits latent variable consisted of four manifest variables corresponding to the SRP-III four factors (see Table 1 for factor loadings and fit statistics).

Overall, the fit indices, as well as factor loadings were largely consistent with other published studies utilizing the CPTI (e.g., Colins et al., 2018a; López-Romero et al., 2018; Somma et al., 2016) and the SRP-III (e.g., Dotterer et al., 2017) in similar samples. In contrast, negative parenting behaviors and child conduct problems were measured as manifest variables.

In all models, we used the MLR estimator, which produces parameter estimates with standard errors and mean-adjusted chi-square test statistic that are robust to non-normality. In this study, *we did not have any internal missing data.* The theoretical models were compared according to several fit indices, such as chi-square difference test ($\Delta\chi^2$; critical value of less than 0.01 was used here), CFI (>0.95), Akaike Information Criterion, and RMSEA (<0.06) (Byrne, 1994; Hu & Bentler, 1999).

Results

Mean scores, standard deviations, and correlations among variables are presented in Table 2 (parent and teacher report).

On average, ratings of parental rejecting behaviors, child psychopathy features and conduct problems were moderately stable and (with few exceptions) significantly intercorrelated in expected directions. Throughout all variables of interest, correlations with parent and child genders, child age and SES were small and nonsignificant in most cases. Therefore, these variables were excluded from further analyses.

The relationship between parenting practices, child psychopathy features and child conduct problems across time

The bidirectional model with parent and child effects showed the best fit and was retained as the final model (see Table 3, Model 3).

In this model, evidence was found for bidirectional effects for child psychopathy features and parental rejection. Specifically, greater child psychopathy features significantly predicted higher levels of parental rejection and greater negative parenting behaviors significantly predicting higher levels of child psychopathy features across three time points (Fig. 2). Differences between the relationship from child psychopathy features to parental rejection and the relationship from parental rejection to child's psychopathy features were not statistically significant (Wald test). In contrast, after controlling for child psychopathy features, child conduct problems and parental rejection were not significantly related. A model comparison test was run with nonsignificant paths between child conduct problems and parental rejection dropped to examine whether this simpler model could be retained. However, this model showed worse fit indices than the full bidirectional model, $\chi^2(46) = 392.78$, $p < 0.001$, CFI = 0.86, RMSEA = 0.13. It should be noted that this model yielded the same pattern of findings as the

Table 3 Comparisons of model fit of the tested theoretical models

Models	$\chi^2(df)$	CFI	RMSEA (95% CI)	AIC	Comparison ($\Delta\chi^2$)	
M1: Parent-directed model	377.367*** (77)	.901	.090 (.03-.11)	493.376	M1 vs. M3	57.726***
M2: Child-directed model	389.034*** (77)	.912	.086 (.03-.15)	505.034	M2 vs. M3	69.393***
M3: Bidirectional model	319.641*** (73)	.961	.057 (.02-.10)	455.641	—	—
M4: Integrated model	294.319*** (128)	.951	.059 (.03-.11)	456.319	—	—

M1 Model 1; *M2* Model 2; *M3* Model 3; *M4* = Model 4; *df* degrees of freedom; *CFI* Confirmatory fit index; *RMSEA* Root mean square residual; *95% CI* 95% confidence interval; *AIC* Akaike information criterion

* $p < .05$; ** $p < .01$; *** $p < .001$

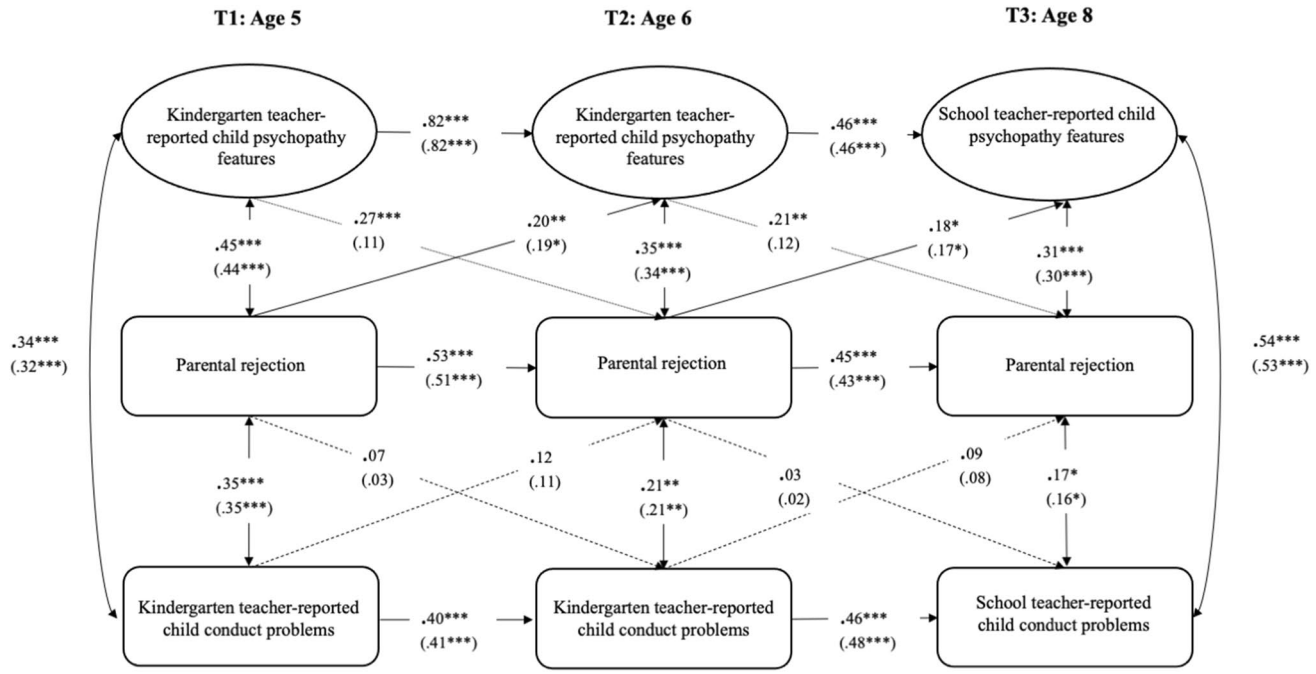


Fig. 2 Parent and child-driven effects. *Note*. Continuous lines indicate significant paths. Dashed lines indicate non-significant paths. Dotted lines indicate paths that have changed significance. All coefficients are standardized. Values in parenthesis represent effects held controlling for parental psychopathic traits (Integrated model; Model 4). Rectangles represent observed variables and eclipses represent latent variables. Parental psychopathic traits consist of the four SRP-III factors (i.e., CA, IPM, ELS, and ASB), whereas child psychopathy features include the three CPTI dimensions (i.e., CU, GD, INS). *$p < .05$; **$p < .01$; ***$p < .001$

full bidirectional model suggesting that the observed relations are truly related to psychopathy features.

Examination of cross-lagged paths controlling for parental psychopathic traits

The integrated model demonstrated adequate fit on all of the indices (see Table 2). Parental psychopathic traits at T1 were significantly related to parental rejection at all three data points (ranging from $\beta_{T3} = 0.24$; $p < 0.05$ to $\beta_{T1} = 0.40$; $p < 0.001$). Similarly, significant relationships were observed between parental and child psychopathic traits (ranging from $\beta_{T3} = 0.18$; $p < 0.05$ to $\beta_{T1} = 0.26$; $p < 0.01$). However, parental psychopathic traits were not significant predictors of child conduct problems (ranging from $\beta_{T3} = 0.03$ to $\beta_{T1} = 0.09$). Furthermore, after controlling for parental psychopathic traits the effects of child psychopathy features on parental rejection became nonsignificant (see Fig. 2).

Discussion

In this study, we explored the complex relationships between parental psychopathic personality, parenting behaviors, and children's psychopathy features and conduct problems. As expected, parental psychopathic traits were both concurrently and longitudinally related to negative parenting practices (e.g., Beaver et al., 2014), as well as to children's psychopathy features (e.g., Auty et al., 2015; Loney et al., 2007), even after taking the prior levels of children's psychopathy and conduct problems into account. The latter finding implies that the heritability previously identified in genetic studies can be detected using different methods, different informants and different conceptualizations of psychopathy (e.g., Larsson et al., 2006; Tuvblad et al., 2014, 2017).

Although longitudinal studies have shown that parental psychopathology is related to future externalizing problem behaviors of their offspring (e.g., Farrington et al., 1996, 2001; Pardini & Loeber, 2008), parental psychopathic traits were not either concurrently or prospectively related to children's conduct problems. However, the aforementioned studies did not take child psychopathology into account. Weak, nonsignificant paths may be due to method variance (i.e., different informants). Specifically, in the present study, parental psychopathy and parenting were reported by parents, whereas child psychopathy features and conduct problems were rated only by teachers.

Furthermore, similar to past studies, both child psychopathy features and conduct problems were moderately stable (e.g., Andershed et al., 2018; Frick et al., 2003). Interestingly, the strength of the relationships between separate child psychopathy features and conduct problems (see Table 2) were similar in magnitude suggesting that concurrent and future conduct problems may not be attributable to only one psychopathy feature (e.g., CU traits) (Andershed et al., 2018; Ručević & Andershed, 2021; Salekin et al., 2018). Recently, López-Romero et al. (2021) in a community sample of children 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.

In line with past research (Hawes et al., 2011; Muñoz et al., 2011; Salihović et al., 2012), the relationship between child psychopathy features and parenting practices was bidirectional. That is, higher levels of child psychopathy features were related to more parental rejection (i.e., hostile, aggressive and neglectful behaviors), and likewise, negative parenting behaviors were associated with increased levels of child psychopathy features over time. It should be noted that change in negative parenting practices over time was independent of child's level of conduct problems. Similar results were observed by Childs et al. (2014). Although this finding is not novel, it is significant given that these associations persisted even after controlling for the initial levels of child psychopathy features and conduct problems, and the effect of different raters (i.e., parents and kindergarten/school teachers). However, the relationship between child psychopathy features and parenting practices became non-significant once parental psychopathic traits were entered into the model, an important new result.

Taken together, these new finding suggests that although child psychopathy features and parenting practices may be associated with one another in young children, these relations are at least in part, explained by parental psychopathic personality, highlighting the importance to measure psychopathy in both the parent and the child when studying child psychopathy. However, the key question is why in the presence of parental psychopathy traits, child psychopathy features have a limited effect on parenting practices? A possible explanation, although speculative, is that parents high on psychopathic features, due to their affective and interpersonal traits, may be more rigid or fixed in their parenting style, and, as a result, child effects involving psychopathy features may have less influence on their parenting. This may have important implications for clinical practice. The effects of parental psychopathy found in the present study may seem small. However, these small effects may be due to modest sample size, different informants reporting psychopathic traits and conduct problems, or controlling for the stability in the outcome measures (i.e., psychopathy features and conduct problems) (Adachi & Willoughby, 2015). Currently, this is the only empirical evidence for this relationship, and as such future research is needed to clarify these associations.

Limitations and strengths

All of these interpretations need to be made in light of a number of limitations. First, the sample size of the present study was modest for undertaking longitudinal analyses of multiple measures across multiple waves. As a result, some of the nonsignificant paths (e.g., between parental rejection at earlier ages and child conduct problems at later ages) may be due to low power. Nevertheless, small samples have been previously used when examining predictive utility of psychopathy features and conduct problems in non-referred samples of young children (e.g., Frick et al., 2003). Second, when using a bidirectional effects model it is not possible to distinguish whether child psychopathy features are a result of passive-gene-environment (i.e., children of psychopathic parents inherit genetic susceptibility for psychopathy as well as experience an adverse rearing environment) or a result of evocative-reactive-gene environment (i.e., a child's characteristics elicit a particular response from the environment). Third, parental psychopathic traits were measured only at T1, preventing the examination of how changes in these symptoms over time might be related to child psychopathy features and parenting practices.

According to the "goodness-of-fit" hypothesis (Thomas & Chess, 1984), a particular trait or behavior in a child or parent may not be problematic in and of itself but it may lead to conflict and later conduct problems when there is a mismatch between the trait and the characteristics of a particular environment. For example, Childs et al. (2014) found that parental depression moderated the relationship between corporal punishment and CU traits. Specifically, at high levels of depression, corporal punishment was predictive of increases in CU traits, but was unrelated to CU traits at low levels of depression. Likewise, McDonald et al. (2011) found that mothers' psychological aggression and inconsistent parenting each mediated the effects of Project Support, parenting intervention shown to reduce child conduct and indirectly psychopathic traits, after controlling for the other mediators. Building on this small body of research, it is possible that the effect of child psychopathy features upon parenting and/or conduct problems might be dependent on parent psychopathic personality, and the effect of parent psychopathy upon parenting practices/and or child conduct problems may be dependent on child psychopathy features. Future research may address this question using a special class of statistical models for social network analysis (i.e., Exponential Random Graph Models; Lusher et al., 2013) which would enable to investigate the structure and interdependencies of the parent–child relationships, and the effects of individual and dyadic characteristics on childhood outcomes. In addition, unmeasured genetic factors could account for the majority of the relationship between parental and child psychopathic traits.

Furthermore, the present study only utilized data from three time points. Also, it is important to realize that all results have to be considered in light of the young age of the participants in this study and we have to keep in mind that the strength of these relationships and the contribution of the specific predictors would be different at earlier ages when these child behaviors are emerging and at later ages when they are more stable. For example, in the present study, the concurrent relationship between children's psychopathic personality and conduct problems was stronger at T3 (age 8) than at T1 (age 5). Moreover, very few variables were measured within study, thus, further research is needed to replicate our findings, and to extend the range of parenting variables (e.g., by including behavioral control). Although the findings of psychopathy research in community samples are generalizable to more severely affected individuals (Kirkman, 2002), it remains to be seen if our results can be replicated in clinically referred or conduct disordered youth, where higher levels of GD, CU, and INS can be expected. Finally, although both parents had the option to come with the child to the research site, all children were accompanied by only one of their parents, typically mother (135 mothers). Thus, it is possible that we collected data for a selective sample of parents that are more involved in parenting, which in turn might undermine the importance of other parent's psychopathic personality traits (usually father). Previous research has found that individuals with psychopathic characteristics tend to engage in assortative mating practices, developing relationships with psychopathic partners (e.g., Smith et al., 2014). In addition, a recent study in China found different effects of mother's and father's parenting practices on the development of child psychopathy (Deng et al., 2020). Since the majority of children lived with both of their parents, parental psychopathic traits of both parents should be taken into account in future studies.

Despite these limitations, this research has important strengths. Although several studies have examined the relationship between children's psychopathic traits and parenting behaviors, this is the first study to empirically test whether parent psychopathy may explain a portion of the relation between child psychopathy features/conduct problems and negative parenting practices. Furthermore, we controlled the initial levels of all child-driven variables, which makes it more likely that significant changes in outcomes can be ascribed to the intended predictors (i.e., parenting behaviors and parental psychopathic traits). The information was gathered from multiple different sources (i.e., kindergarten and school teacher ratings and parental self-reports) at different times. While using different informants m*inimizes* confounds caused by *shared method variance, some studies show that the* agreement on specific behaviors between different informants is relatively low (e.g., Frick et al., 2003). The modest cross-informant

correlations have sometimes been viewed as a limitation in measures of psychopathic traits for youth (Seagrave & Grisso, 2002). While future studies should include ratings of child psychopathy features by both teachers and parents, one of the advantages of teacher reports on conduct problems and personality features is that teachers have generally observed their students over prolonged periods while being engaged in age-appropriate, educational, and social activities. In addition, teachers are more likely than parents to use a normative approach in their judgments about children (i.e., other students act as a normative reference group). Of note, children and kindergarten/school teachers in this sample spent between four and eight hours together each work day. Teachers also interact with their students in an ongoing fashion, so they have a broad perspective on the child's behavior and functioning, making them optimal informants for psychological adjustment measures on pre-adolescent samples (Frick et al., 2010). Nevertheless, type of error that may arise when children within a group are evaluated by different raters/teachers is leniency/stringency effect. That is, there is the possibility that some children will receive positively or negatively biased evaluations of their conduct problems/psychopathic features due to the fact that they were rated by a relatively lenient or harsh teacher. Since having more than one teacher evaluating each child was not feasible, before each wave we organized a frame-of-reference (FOR) training for raters/teachers. The training aimed to establish common reference among raters/teachers by creating the rating standards (e.g., using group discussion, practice and feedback exercises) and showing fictitious behavioral examples that a child might exhibit on various rating dimensions (Gomez-Mejia et al., 2013; Smith, 1986; Woehr, 1994). Furthermore, it has been shown that within the context of the correction procedures, it is the inconsistent raters, not the lenient or stringent raters, who present the most serious problem. Given this, for each rater/teacher we calculated an index of rater consistency at each wave (e.g., Houston et al., 1991; Raymond & Viswesvaran, 1993). All analyses reported in this manuscript were rerun with the index of rater consistency as a control variable and similar results were obtained (analyses are available upon request from the first author). Overall, future studies would do well to assess the relationships between child's psychopathic traits and parenting behaviors by using self-reported measures that provide direct information from children (Pardini & Loeber, 2008). However, it should be noted that the children's age at all waves led us to use information reported by parents and teachers. As previously noted, parental psychopathy/parenting were reported by parents, and child psychopathy/conduct problems were rated only by teachers. Finally, the retention rate over three evaluation points was 100% and there were no missing data.

Future directions and implications

With respect to implications for practice, this study suggests that, in addition to child psychopathy features, interventions for children with problem behaviors should also target parental psychopathology in order to contribute to children's healthy development. It is known that children of parents who exhibit symptoms of psychopathology show poorer parent training treatment outcome (Reyno & McGrath, 2006). As previously noted, parental psychopathology moderates the relationship between parenting practices and childhood outcomes (e.g., Childs et al., 2014; McDonald et al., 2011). Despite this, the majority of interventions for children with conduct problems do not directly address parental psychopathology, nor do they offer specific techniques for improving affect regulation or reflective function when managing the distress of children, but rather focus primarily on teaching specific parenting practices (e.g., McDonald et al., 2011; for a review see Waller et al., 2013). Furthermore, families where there is a parent with personality disorder are often excluded from parenting programs, as their problems are seen as too complex, especially if they are involved in legal proceedings or have histories of violence (Adshead, 2015). There is also a significant dearth in parenting interventions specifically developed for this population (i.e., parents high on psychopathy). This is worrying given the findings of the present study, and may highlight a divide between psychological research and clinical practice. As suggested by Steele et al. (2019) to ensure that people with personality disorder and their families are receiving appropriate care, it essential to continue to translate current research into clinical practice and policy. Thus, screening for parental psychopathy prior to parents' participation in training programs may help identify those parents who are at risk of engaging in more negative parenting practices (e.g., coercive parenting, harsh discipline) and who may need more specialized, individualized treatment, including special strategies to enhance intervention/treatment adherence. As suggested by previous research, the presence of personality disorder in a parent compromises parenting to the same extent as severe mental illness does, and perhaps even more (e.g., Berg-Nielsen et al., 2002).

Funding This research was supported by grants from the Croatian Science Foundation [HRZZ-IP-2016–06-3917], Zaklada Adris (30.11.2018.), and University of Osijek [IZIP-2016–79].

Data availability The datasets generated during and/or analyzed during the current study are available from the corresponding author on reasonable request.

References

Achenbach, T. M. (2006). As others see us: Clinical and research implications of cross-informant correlations for psychopathology. *Current Directions in Psychological Science, 15*, 94–98. https://doi.org/10.1111/j.0963-7214.2006.00414.x

Adachi, P., & Willoughby, T. (2015). Interpreting effect sizes when controlling for stability effects in longitudinal autoregressive models: Implications for psychological science. *European Journal of Developmental Psychology, 12*, 116–128. https://doi.org/10.1080/17405629.2014.963549

Adshead, G. (2015). Parenting and personality disorder: Clinical and child protection implications. *BJPsych Advances, 21*(1), 15–22. https://doi.org/10.1192/apt.bp.113.011627

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*, 16–25. https://doi.org/10.1007/s10862-018-9659-5

Auty, K. M., Farrington, D. P., & Coid, J. W. (2015). Intergenerational transmission of psychopathy and mediation via psychosocial risk factors. *The British Journal of Psychiatry, 206*, 26–31. https://doi.org/10.1192/bjp.bp.114.151050

Beaver, K., Silva Costa, C., Poersch, A., Freddi, M., Stelmach, M., Connolly, E., & Schwartz, J. (2014). Psychopathic personality traits and their influence on parenting quality: Results from a nationally representative sample of Americans. *Psychiatric Quarterly, 85*, 497–511. https://doi.org/10.1007/s11126-014-9308-4

Berg-Nielsen, T. S., Vikan, A., & Dahl, A. A. (2002). Parenting related to child and parental psychopathology: A descriptive review of the literature. *Clinical Child Psychology and Psychiatry, 7*(4), 529–552. https://doi.org/10.1177/1359104502007004006

Bosquet, M., & Egeland, B. (2000). Predicting parenting behaviors from Antisocial Practices content scale scores of the MMPI–2 administered during pregnancy. *Journal of Personality Assessment, 74*, 146–162. https://doi.org/10.1207/S15327752JPA740110

Butcher, J. N., Dahlstrom, W. G., Graham, J. R., Tellegen, A., & Kaemmer, B. (1989). *Minnesota Multiphasic Personality Inventory—2: Manual for administration and scoring*. University of Minnesota Press.

Byrne, B. M. (1994). *Structural equation modeling with EQS and EQS/Windows*. Sage.

Campbell, S. B., Shaw, D. S., & Gilliom, M. (2000). Early externalizing behavior problems: Toddlers and preschoolers at risk for later maladjustment. *Development and Psychopathology, 12*, 467–488. https://doi.org/10.1017/S0954579400003114

Childs, A. W., Fite, P. J., Moore, T. M., Lochman, J. E., & Pardini, D. A. (2014). Bidirectional associations between parenting behavior and child callous-unemotional traits: Does parental depression moderate this link? *Journal of Abnormal Child Psychology, 42*, 1141–1151. https://doi.org/10.1007/s10802-014-9856-y

Cole, D. A., & Maxwell, S. E. (2003). Testing meditational models with longitudinal data: Questions and tips in the use of structural equation modelling. *Journal of Abnormal Psychology, 112*, 558–577. https://doi.org/10.1037/0021-843X.112.4.558

Colins, O. F., Andershed, H., Frogner, L., López-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*, 4–21. https://doi.org/10.1007/s10862-013-9385-y

Colins, O. F., Andershed, H., Salekin, R. T., & Fanti, K. A. (2018a). 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*, 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*, 602–614. https://doi.org/10.1177/1073191115624544

Colins, O. F., Roetman, P. J., López-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. (2018b). The child problematic traits inventory in a Dutch general population sample of 3- to 7-year-old children. *European Journal of Psychological Assessment, 34*, 336–343. https://doi.org/10.1027/1015-5759/a000347

Cox, J., Kopkin, M. R., Rankin, J. A,, Tomeny, T. S., & Coffey, C. A. (2018). The Relationship between parental psychopathic traits and parenting style. *Journal of Child and Family Studies, 27*(7), 2305–2314. https://doi.org/10.1007/s10826-018-1057-9

De Los Reyes, A., & Kazdin, A. E. (2005). Informant discrepancies in the assessment of childhood psychopathology: A critical review, theoretical framework, and recommendations for further study. *Psychological Bulletin, 131*, 483–509. https://doi.org/10.1037/0033-2909.131.4.483

Deng, J., Wang, M.-C., Shou, Y., Lai, H., Zeng, H., & Gao, Y. (2020). Parenting behaviors and child psychopathy: A regression mixture analysis. *Current Psychology: A Journal for Diverse Perspectives on Diverse Psychological Issues*. Advance online publication. https://doi.org/10.1007/s12144-020-00810-4

Dhanani, S., Kumari, V., Puri, B., Treasaden, I., Young, S., & Sen, P. (2018). A systematic review of the heritability of specific psychopathic traits using Hare's two-factor model of psychopathy. *CNS Spectrums, 23*, 29–38. https://doi.org/10.1017/S1092852917000027X

Dotterer, H. L., Waller, R., Neumann, C. S., Shaw, D. S., Forbes, E. E., Hariri, A. R., & Hyde, L. W. (2017). Examining the factor structure of the self-report of psychopathy short-form across four young adult samples. *Assessment, 24*(8), 1062–1079. https://doi.org/10.1177/1073191116640355

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

Farrington, D. P., Barnes, G. C., & Lambert, S. (1996). The concentration of offending in families. *Legal and Criminological Psychology, 1*, 47–63. https://doi.org/10.1111/j.2044-8333.1996.tb00306.x

Farrington, D. P., Jolliffe, D., Loeber, R., Stouthamer-Loeber, M., & Kalb, L. M. (2001). The concentration of offenders in families, and family criminality in the prediction of boys' delinquency. *Journal of Adolescence, 24*, 579–596. https://doi.org/10.1006/jado.2001.0424

Frick, P. J., Barry, C. T., & Kamphaus, R. W. (2010). *Clinical assessment of child and adolescent personality and behavior*. Springer.

Frick, P. J., Cornell, A. H., Barry, C. T., Bodin, S. D., & Dane, H. A. (2003). Callous-unemotional traits and conduct problems in the prediction of conduct problem severity, aggression, and self-report of delinquency. *Journal of Abnormal Child Psychology, 31*(4), 457–470. https://doi.org/10.1023/A:1023899703866

Frick, P. J., Ray, J., Thornton, L., & Kahn, R. E. (2014a). Can callous-unemotional traits enhance the understanding, diagnosis, and treatment of serious conduct problems in children and

adolescents? A comprehensive review. *Psychological Bulletin, 140*, 1–57. https://doi.org/10.1037/a0033076

Frick, P. J., Ray, J. V., Thornton, L. C., & Kahn, R. E. (2014b). 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

Frick, P. J., Stickle, T. R., Dandreaux, D. M., Farrell, J. M., & Kimonis, E. R. (2005). Callous-unemotional traits in predicting the severity and stability of conduct problems and delinquency. *Journal of Abnormal Child Psychology, 33*, 471–487. https://doi.org/10.1007/s10648-005-5728-9

Gomez-Mejia, L. R., Balkin, B. B., & Cardy, R. L. (2013). *Managing Human Resources* (7th ed.). Pearson.

Goodman, R. (1997). The strengths and difficulties questionnaire: A research note. *Journal of Child Psychology and Psychiatry, 38*(5), 581–586. https://doi.org/10.1111/j.1469-7610.1997.tb01545.x

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). The Guilford Press.

Hawes, D., Dadds, M., Frost, A., & Hasking, P. (2011). Do callous–unemotional traits drive change in parenting practices? *Journal of Clinical Child and Adolescent Psychology, 40*, 507–518. https://doi.org/10.1080/15374416.2011.581624

Hawes, S. W., Byrd, A. L., Waller, R., Lynam, D. R., & Pardini, D. A. (2017). Late childhood interpersonal callousness and conduct problem trajectories interact to predict adult psychopathy. *Journal of Child Psychology and Psychiatry, 58*, 55–63. https://doi.org/10.1111/jcpp.12598

Houston, W. M., Raymond, M. R., & Svec, J. C. (1991). Adjustments for rater effects in performance assessment. *Applied Psychological Measurement, 15*(4), 409–421. https://doi.org/10.1177/014662169101500411

Hu, L., & Bentler, P. M. (1999). Cutoff criteria for fit indexes in covariance structure analysis: Conventional criteria versus new alternatives. *Structural Equation Modelling, 6*, 1–55. https://doi.org/10.1080/10705519909540118

Jaffee, S. R., Belsky, J., Harrington, H., Caspi, A., & Moffitt, T. E. (2006). When parents have a history of conduct disorder: How is the caregiving environment affected? *Journal of Abnormal Psychology, 115*, 309–319. https://doi.org/10.1037/0021-843X.115.2.309

Johnson, J. G., Cohen, P., Kasen, S., Smailes, E., & Brook, J. S. (2001). Association of maladaptive parental behavior with psychiatric disorder among parents and their offspring. *Archives of General Psychiatry, 58*(5), 453–460. https://doi.org/10.1001/archpsyc.58.5.453

Kim-Cohen, J., Caspi, A., Taylor, A., Williams, B., Craig, I. W., & Moffitt, T. E. (2006). MAOA, maltreatment, and gene–environment interaction predicting children's mental health: New evidence and a meta-analysis. *Molecular Psychiatry, 11*, 903–913. https://doi.org/10.1038/sj.mp.4001851

Kimonis, E. R., Fanti, K., Hadjicharalambous, X., Mertan, B., Goulter, N., & Katsimicha, E. (2016). Can callous-unemotional traits be reliably measured in preschoolers? *Journal of Abnormal Child Psychology, 44*(4), 625–638. https://doi.org/10.1007/s10802-015-0075-y

Kirkman, C. A. (2002). Non-incarcerated psychopaths: Why we need to know more about the psychopaths who live amongst us. *Journal of Psychiatric and Mental Health Nursing, 9*, 155–160. https://doi.org/10.1046/j.1365-2850.2002.00462.x

Kochanska, G., Clark, L. A., & Goldman, M. S. (1997). Implications of mothers' personality for their parenting and their young children's developmental outcomes. *Journal of Personality, 65*, 387–420. https://doi.org/10.1111/j.1467-6494.1997.tb00959.x

Larsson, H., Andershed, H., & Lichtenstein, P. (2006). A genetic factor explains most of the variation in the psychopathic personality. *Journal of Abnormal Psychology, 115*, 221–230. https://doi.org/10.1037/0021-843X.115.2.221

Lilienfeld, S. O., & Widows, M. R. (2005). *Psychopathic personality inventory-revised: Professional manual*. Psychological Assessment Resources Inc.

Loney, B. R., Huntenburg, A., Counts-Allan, C., & Schmeelk, K. M. (2007). A preliminary examination of the intergenerational continuity of maternal psychopathic features. *Aggressive Behavior, 33*, 14–25. https://doi.org/10.1002/ab.20163

López-Romero, L., Molinuevo, B., Bonillo, A., Andershed, H., Colins, O. F., Torrubia, R., & Romero, E. (2018). Psychometric properties of the Spanish version of the Child Problematic Traits Inventory in 3-to 12-year-old Spanish children. *European Journal of Psychological Assessment.* Advance online publication. https://doi.org/10.1027/1015-5759/a000458

López-Romero, L., Romero, E., Salekin, R. T., Andershed, H., & Colins, O. F. (2021). Studying configurations of psychopathic traits: Exploring the viability of psychopathic personality in early childhood. *Journal of Personality Disorders, 35*(Supplement C), 97–118. https://doi.org/10.1521/pedi_2021_35_538

Lusher, D., Koskinen, J., & Robins, G. (2013). *Exponential random graph models for social networks: Theory, methods and applications*. Cambridge University Press.

McDonald, R., Dodson, M. C., Rosenfield, D., & Jouriles, E. N. (2011). Effects of a parenting intervention on features of psychopathy in children. *Journal of Abnormal Child Psychology, 39*, 1013–1023. https://doi.org/10.1007/s10802-011-9512-8

Muñoz, L. C., Pakalniskiene, V., & Frick, P. J. (2011). Parental monitoring and youth behavior problems: Moderation by callous-unemotional traits over time. *European Child & Adolescent Psychiatry, 20*, 261–269. https://doi.org/10.1007/s00787-011-0172-6

Muthén, L. K., & Muthén, B. O. (1998–2017). Mplus user's guide (8th ed.). Muthén & Muthén.

Najman, J. M., Williams, G. M., Nikles, J., Spence, S., Bor, W., O'Callaghan, M., . . ., & Andersen, M. J. (2000). Mothers' mental illness and child behavior problems: Cause–effect association or observation bias? *Journal of the American Academy of Child & Adolescent Psychiatry, 39*, 592–602.https://doi.org/10.1097/00004583-200005000-00013

Pačić-Turk, Lj., & Gajski, M. (2014). The self-report psychopathy scale SRP-III and its correlation with the five factor model. *Journal for General Social Issues, 23*, 155–175. https://doi.org/10.5559/di.23.1.08

Pardini, D. A., & Loeber, R. (2008). Interpersonal callousness trajectories across adolescence: Early social influences and adult outcomes. *Criminal Justice and Behavior, 35*, 173–196. https://doi.org/10.1177/0093854807310157

Raymond, M. R., & Viswesvaran, C. (1993). Least squares models to correct for rater effects in performance assessment. *Journal of Educational Measurement, 30*(3), 253–268. http://www.jstor.org/stable/1435046. Accessed 15 May 2022.

Reyno, S. M., & McGrath, P. J. (2006). Predictors of parent training efficacy for child externalizing behavior problem-a meta-analytic review. *Journal of Child Psychology and Psychiatry, 47*, 99–111. https://doi.org/10.1111/j.1469-7610.2005.01544.x

Robinson, B. A., Azores-Gococo, N., Brennan, P. A., & Lilienfeld S. O. (2016). The roles of maternal psychopathic traits maternal antisocial personality traits and parenting in the development of child psychopathic traits. *Parenting, 16*(1), 36–55. https://doi.org/10.1080/15295192.2016.1116894

Rohner, R., & Khaleque, A. (2010). Testing central postulates of parental acceptance-rejection theory (PARTheory): A meta-analysis of crosscultural studies. *Journal of Family Theory & Review, 2*, 73–87. https://doi.org/10.1111/j.1756-2589.2010.00040.x

Rowe, D. C., & Farrington, D. P. (1997). The familial transmission of criminal convictions. *Criminology, 35*, 177–201. https://doi.org/10.1111/j.1745-9125.1997.tb00874.x

Ručević, S., & Andershed, H. (2021). Are psychopathic traits predictive of conduct problems and aggression when other risk factors are considered? A longitudinal test among Croatian children. *Journal of Criminal Justice*. https://doi.org/10.1016/j.jcrimjus.2020.101777.

Salekin, R. T., Andershed, H., Batky, B. D., & Bontemps, A. P. (2018). Are callous unemotional (CU) traits enough? *Journal of Psychopathology and Behavioral Assessment, 40*, 1–5. https://doi.org/10.1007/s10862-018-9663-9

Salihović, S., Kerr, M., Özdemir, M., & Pakalniskiene, V. (2012). Directions of effects between adolescent psychopathic traits and parental behavior. *Journal of Abnormal Child Psychology, 40*, 957–969. https://doi.org/10.1007/s10802-012-9623-x

Seagrave, D., & Grisso, T. (2002). Adolescent development and the measurement of juvenile psychopathy. *Law and Human Behavior, 26*, 219–239. https://doi.org/10.1023/a:1014696110850

Silva, P. A., & Stanton, W. R. (1996). *From child to adult: The Dunedin Multidisciplinary Health and Development Study*. Oxford University Press.

Smith, C. A., & Farrington, D. P. (2004). Continuities in antisocial behaviour and parenting across three generations. *Journal of Child Psychology and Psychiatry, 45*, 230–247. https://doi.org/10.1111/j.1469-7610.2004.00216.x

Smith, C. V., Hadden, B. W., Webster, G. D., Jonason, P. K., Gesselman, A. N., & Crysel, L. C. (2014). Mutually attracted or repulsed? Actor-partner interdependence models of dark triad traits and relationship outcomes. *Personality and Individual Differences, 67*, 35–41. https://doi.org/10.1016/j.paid.2014.01.044

Smith, D. E. (1986). Training programs for performance appraisal: A review. *The Academy of Management Review, 11*(1), 22–40. https://doi.org/10.2307/258329

Somma, A., Andershed, H., Borroni, S., & Fossati, A. (2016). The validity of the child problematic trait 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

Steele, K. R,, Townsend, M. L., Grenyer, B. F. S., & Mughal, M. A. Z. (2019). Parenting and personality disorder: An overview and meta-synthesis of systematic reviews. *PLOS ONE, 14*(10), e0223038. https://doi.org/10.1371/journal.pone.0223038

Tatalović Vorkapić, S., Slaviček, M., & Vlah, N. (2017). Strengths and difficulties in Croatian preschool children: Validation of the strengths and difficulties questionnaire. *Hrvatska Revija Za Rehabilitacijska Istraživanja, 53*(Supplement), 226–238.

Thomas, A., & Chess, S. (1984). Genesis and evolution of behavioral disorders: From infancy to early adult life. *The American Journal of Psychiatry, 141*, 1–9. https://doi.org/10.1176/ajp.141.1.1

Tuvblad, C., Bezdjian, S., Raine, A., & Baker, L. A. (2014). The heritability of psychopathic personality in 14- to 15-year-old twins: A multirater, multimeasure approach. *Psychological Assessment, 26*, 704–716. https://doi.org/10.1037/a0036711

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

Vučković, S., Ručević, S., & Ajduković, M. (2021). Parenting style and practices and children's externalizing behaviour problems: Mediating role of children's executive functions. *European Journal of Developmental Psychology, 18*, 313–329. https://doi.org/10.1080/17405629.2020.1768067

Waller, R., Gardner, F., & Hyde, L. W. (2013). What are the associations between parenting, callous-unemotional traits, and antisocial behavior in youth? A systematic review of evidence. *Clinical Psychology Review, 33*, 593–608. https://doi.org/10.1016/j.cpr.2013.03.001

Weijers, D., van Steensel, F., & Bögels, S. M. (2018). Associations between psychopathology in mothers, fathers and their children: A structural modeling approach. *Journal of Child and Family Studies, 27*(6), 1992–2003. https://doi.org/10.1007/s10826-018-1024-5

Woehr, D. J. (1994). Understanding frame-of-reference training: The impact of training on the recall of performance information. *Journal of Applied Psychology, 79*(4), 525–534. https://doi.org/10.1037/0021-9010.79.4.525