



The relationship between problematic personality traits, executive functions and conduct problems in preschool children

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INTRODUCTION

Recently, **callous-unemotional (CU) traits** have gained empirical support as a clinically useful construct for assessing a range of behaviors in preschool children. Positive associations have been found between CU traits and teacher-reported proactive and total aggression, and teacher-reported conduct problems and aggression (Ezpeleta, de la Osa, Granero, Penelo, & Domènech, 2013; Kimonis et al., 2006; Kimonis et al. 2008). In addition, Kimonis and colleagues (2016) found that preschool children high on CU traits were less accurate in recognizing facial expressions, as well as less attentionally engaged by images of others in distress when they also scored high on conduct problems. Finally, CU traits have been linked to a disruptive behavior disorder diagnosis (ODD or CD) (Ezpeleta et al., 2013; Willoughby, Willoughby, Mills-Koonce, Waschbusch, & Gottfredson, 2015).

Lately, **impairments in executive functions (EF)** have been implicated in a range of problem behaviours, including aggressive and antisocial behaviour, and psychopathy. For instance, children exhibiting high levels of aggressive behaviour have been found to experience difficulties with disinhibition (Coolidge, DenBoer, & Segal, 2004), sequential and recall memory, and cognitive perseveration (Séguin, Arseneault, Boulerice, Harden, & Tremblay, 2002). Similarly, Ezpeleta and colleagues (2013) found that CU traits were negatively related to different executive functions, especially inhibitory self-control and metacognition.

Although numerous studies have examined risk factors for development of childhood behaviour problems, there are a **number of limitations in this research.**

- All of the aforementioned studies have highlighted only the role of CU traits. However, psychopathy is a multifaceted construct with dimensions that are theoretically likely to relate differentially to conduct problems and executive functions.
- Only one study examined the relationship between psychopathy features and executive functions in preschool children, but did not use laboratory measures.

AIMS

Based on the aforementioned issues, the purpose of the present study is to

- examine the relationship between **separate psychopathy dimensions** and **different aspects of executive functions** using laboratory measures (i.e., Hungry Donkey Task and Balloon Analogue Risk Task) in a community sample of preschool children.

PRESENT STUDY

The present study uses data from the first wave of the **ECLAT-study** (Problem behaviors in elementary school-aged children: The role of Executive funCtioning, individuL, familiAl, and geneTic factors), a prospective longitudinal research project aiming to better understand correlates, determinants, and the heterogeneity of the development of children's behavior, social adjustment, and psychological health.

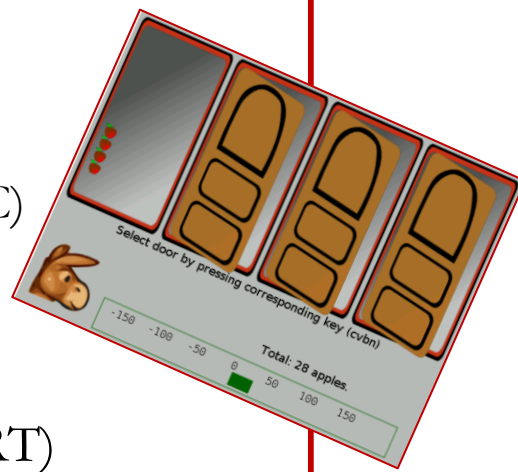
The target population of the ECLAT-study was randomly selected 10% of all the children born between 2009 and 2010 attending local kindergartens during the winter of 2015 in a mid-sized Croatian town. The demographics of this town are, in terms of proportion, similar with the rest of Croatia with regard to age, sex, education level, and the mixture between urban and rural areas.

METHOD

Participants and measures

Children

- Randomly selected 165 children
- (mean age = 5.28 years; 51% of boys) from 15 public kindergartens
- **Executive functions**
- Hungry Donkey Task (HDT)
- Long term consequences index (LTC)
- Bias for infrequent loss index (IFL)



- Balloon Analogue Risk Task (BART)
- Reward responsivity
- Punishment responsivity
- Cost/benefit ratio



Parents and kindergarten teachers

- 165 parents (87% mothers)
- 15 kindergarten teachers (have known children for at least 2 years)
- **Psychopathic traits**
- Child Problematic Traits Inventory
- Grandiose-deceitful dimension (GD)
- Callous-unemotional dimension (CU)
- Impulsive-Need for stimulation dimension (INS)
- **Conduct problems**
- Strengths and Difficulties Questionnaire
- overall score

Combined parent and teacher scores (i.e., resolved score)!

RESULTS

Correlational and hierarchical regression analysis (HRA) postdicting **conduct problems**

Predictors	<i>r</i>	β	<i>R</i> ²
Step 1			.04
Control variables ^a			
Step 2-Executive functions (EFs)			.06
BART-Punishment responsivity	-.22**	-.13	
BART-Reward responsivity	.19**	.10	
HDT-LTC	-.21**	-.12	
HTD-IFL	.20**	.11	
Step 3-Psychopathic traits			.13***
GD	.25***	.23**	
CU	.40***	.39***	
INS	.32***	.30***	

Note. ^aControl variables = child's sex, age, intelligence and working memory (WISC-IV-HR; Block design and Digit span)
p* < .05; *p* < .01; ****p* < .001

DISCUSSION

- Similar to past studies in preschool children (e.g., Ezpeleta et al., 2013; Colins et al., 2014; Kimonis et al., 2016), children high on psychopathic features were rated by parents and teachers as exhibiting more conduct problems
 - future studies need to be open for the use of all psychopathy dimensions in order to predict conduct problems
- Children exhibiting more conduct problems showed less reward and punishment responsivity, and were more likely to make long-term disadvantageous choices. In addition, conduct problems were negatively related to the cost-benefit ratio suggesting that children who exhibit behavioural problems tend to make riskier decisions during the BART task. These results are in keeping with a key component of the somatic marker hypothesis proposed by Damasio et al. (1991).
- Although conduct problems were related to deficits in executive functions (EFs), once psychopathic traits were entered into a model the EFs did not predict conduct problems-**possible interplay between EFs and psychopathic traits?**
 - in the present study, GD and CU traits were related to greater sensitivity to loss (i.e., IFL index), and better cost-benefit ratio (BART). Taken together, children who were rated higher on the affective and interpersonal dimensions of problematic personality traits were making more advantageous choices-**do GD and CU traits act as buffers against emotional distress and facilitate heightened rationality in responding to rewards?**
 - in contrast, the Impulsive-Need for Stimulation dimension was negatively associated with the long-term consequences index (i.e., LTC).

