Decision making in young children: The role of psychopathic traits

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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, including 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).

Lately, **impairments in executive functions (EF)** have been implicated in a range of problem behaviours, such as 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).

Although CU traits and impairments in EF both have been implicated in a range of negative outcomes, to date, only one study examined the relationship between psychopathy features and executive functions in preschool children, but did not use laboratory measures. Specifically, Ezpeleta and colleagues (2013) found that CU traits were negatively related to different executive functions, especially inhibitory self-control and metacognition. However, the aforementioned study was cross-sectional and, as a result, it is less clear whether CU traits prospectively predict impairments in EF.

AIMS

Based on the aforementioned issues, the **aim** of the present study is to
- examine the concurrent and prospective relationship between **CU traits** 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 **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.
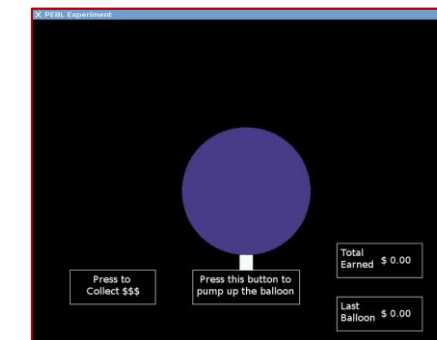
METHOD
Participants and measures

Children

Randomly selected 175 preschool children (51% boys; M_{ageT1}=5.28 years; $M_{age\,T3}$=8.74 years)

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

Parents and kindergarten teachers

- 175 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)

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

RESULTS

Using structural equation modelling:
- higher levels of CU traits were, above and beyond control variables (i.e., child's gender, intelligence and working memory), behavioral and interpersonal features of psychopathy, prospectively (T3; $\beta = -.23$, $p <.05$), but not concurrently (T1; $\beta = -.10$; $p > .05$) related to lower levels of responsivity to reward
  - children with higher levels of CU traits were less likely to increase their pumps following a successful bank of their money
- higher levels of CU traits were, above and beyond other included variables, were prospectively (T3) related to sensitivity to loss as measured by the HDT ($\beta = -.30$, $p <.01$)
  - specifically, children high on CU traits chose less often from the doors with infrequent but larger losses than from doors with smaller, more frequent losses, which in turn led them to accumulating more apples (i.e., rewards) in the long run
- interpersonal and behavior features of psychopathy were not significantly related to any of the decision-making indices included in the study

DISCUSSION

- Overall, results of the present study suggest that deficits in decision-making related to CU traits, similar to those found in adolescents and adults, can be observed in children as young as 6 ½ years of age

- Specifically:
  - CU traits were, above and beyond behavioral and interpersonal features of psychopathy, prospectively, but not concurrently associated with deficits in reward sensitivity
    - however, the significant relationship was found only for the early period of the task where children were learning how the task works suggesting that sensitivity deficits were influenced by the learning curve (Jackson, Trotman, Stephens, & Sellers, 2011)

  - similar to studies utilizing the BART in adolescents high on psychopathic traits (e.g., Marini & Stickle, 2010; Muñoz Centifanti & Modecki, 2013) CU traits were not significantly related to punishment responsivity

  - CU traits were related to greater sensitivity to loss (i.e., IFL index) suggesting that children who were rated higher on the affective dimension of psychopathic traits were making more advantageous choices

- **Do CU traits act as buffers against emotional distress and facilitate heightened rationality in responding to rewards?**

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