Psychiatry Research 245 (2016) 340–345

Contents lists available at ScienceDirect

Psychiatry Research

journal homepage: www.elsevier.com/locate/psychres

Callous unemotional traits, autism spectrum disorder symptoms and empathy in boys with oppositional defiant disorder or conduct disorder

Jarla Pijper [a,*], Minet de Wied [a], Sophie van Rijn [b], Stephanie van Goozen [b,c], Hanna Swaab [b], Wim Meeus [a,d]

[a] Adolescent Development, Utrecht University, Utrecht, The Netherlands
[b] Clinical Child and Adolescent Studies, Leiden University, Leiden, The Netherlands
[c] School of Psychology, Cardiff University, Cardiff, United Kingdom
[d] Developmental Psychology, Tilburg University, Tilburg, The Netherlands

ARTICLE INFO

Article history:
Received 11 September 2015
Received in revised form
15 August 2016
Accepted 15 August 2016
Available online 24 August 2016

Keywords:
ODD
CD
Affective empathy
Cognitive empathy
CU traits
ASD symptoms

ABSTRACT

This study examined additive and interactive effects of callous unemotional (CU) traits and autism spectrum disorders (ASD) symptoms in relation to trait empathy, in boys with oppositional defiant disorder (ODD) or conduct disorder (CD). Participants were 49 boys with ODD/CD, aged between 7–12 years. Boys completed a questionnaire measure of empathic sadness and a broader questionnaire measure of affective and cognitive empathy. Parents and teachers reported on CU traits, and parents reported on ASD symptoms. In agreement with predictions, results reveal a negative association between CU traits and empathic sadness, particularly strong for ODD/CD boys with low levels of ASD symptoms. Results also reveal a negative association between ASD symptoms and cognitive empathy. Findings suggest that CU traits and ASD symptoms are associated with distinct empathy deficits with poor empathic sadness being more typical of CU traits than ASD symptoms.

1. Introduction

Lack of empathy is a core feature of callous unemotional (CU) traits. CU traits are closely related to the interpersonal-affective dimension of adult psychopathy, and identify a particular severe and violent subgroup of individuals with oppositional defiant disorder (ODD) and conduct disorder (CD; for a review see Frick et al. (2013)). Research suggests that ODD/CD individuals with CU traits are impaired in affective empathy (sharing others' emotions) rather than cognitive empathy (understanding others' emotions; Blair, 2013; Blair et al., 2014). This impairment has been linked to amygdala dysfunction, potentially reducing emotional responsiveness (Blair, 2013) and/or attention (White et al., 2012) to another person's distress.

Lack of empathy is also a defining feature of autism spectrum disorders (ASD; Baron-Cohen et al., 1985). Individuals with ASD show persistent deficits in social interactions and communication together with rigid and repetitive behavior (APA, 2013). Empathy problems in ASD seem to be related to aspects of cognitive empathy rather than affective empathy (Blair, 2005). The social deficits that characterize ASD have been explained by deficits in Theory of Mind (ToM; Baron-Cohen et al., 1985). ToM is conceptually linked to cognitive empathy (Baron-Cohen and Wheelwright, 2004), and involves the ability to understand that people have mental states, such as thoughts, believes and desires that are different to one's own (Baron-Cohen et al., 1985). Multiple studies have demonstrated that individuals with ASD indeed have deficits in aspects of cognitive empathy (for reviews see Boucher (2012), Hill and Frith (2003)).

Some behavioral overlap exists between CU traits and ASD, as both are linked to disruptive behaviors (Frick et al., 2013; Kaat and Lecavalier, 2013) and reduced empathic responsiveness (APA, 2013). Accordingly, it seems important to account for both conditions while studying associated empathy deficits. Until now, only four studies have done this in clinical samples. Two studies have compared empathic profiles in boys with severe conduct problems and CU traits, ASD, and controls, revealing distinct profiles: boys with CU traits showed less affective empathy, whereas boys with ASD showed less cognitive empathy (Jones et al., 2010; Schwenck et al., 2012). One study compared profiles of aggressive ASD male adolescents with high or low CU traits (Rogers et al., 2006). Both groups showed impaired cognitive empathy, those with CU traits

* Corresponding author.
E-mail address: j.pijper@uu.nl (J. Pijper).

http://dx.doi.org/10.1016/j.psychres.2016.08.053
0165-1781/

also showed impairments in aspects of affective empathy. The fourth study examined additive and interactive effects of CU traits and ASD symptoms in relation to empathy in ODD/CD boys and girls between 3 and 9 years of age (Pasalich et al., 2014). Findings revealed negative associations between CU traits and affective empathy and negative associations between ASD symptoms and cognitive empathy. Rather unexpected, higher CU traits were also related to lower levels of cognitive empathy, and a 'double hit' of high CU traits and high ASD symptoms tended to predict the lowest levels of affective empathy. Starting from the work of Rogers and colleagues (2006), Pasalich and colleagues (2014) took these results to suggest that high levels of both CU traits and ASD symptoms may be associated with serious conduct problems and therefore also with low levels of affective empathy. Yet, based on studies suggesting that ASD individuals are actually quite sensitive (Schwenck et al., 2012), perhaps even overly sensitive to another person's distress (Smith, 2008), ASD symptoms might as well be expected to confound the "true" relationship between CU traits and affective empathy. If so, antisocial individuals with high levels of CU traits may show particularly low levels of affective empathy at low rather than high levels of ASD symptoms. By lack of empirical evidence we can only speculate about the role of ASD symptoms in the relationship between CU traits and affective empathy.

The aim of this study is to investigate additive and interactive effects of CU traits and ASD symptoms in relation to trait empathy in a clinical sample of ODD/CD boys. To the best of our knowledge this study tests the effects for the first time in boys with ODD/CD between 7 and 12 years of age. To examine the unique relationship between CU traits and empathic sadness, the current study includes a measure of empathic sadness in addition to broader measures of affective and cognitive empathy. Starting from the hypothesis that children with CU traits are selectively less emotionally responsive to distress cues (fear and sadness; Blair, 2013), we expect to find inverse relationships between CU traits and affective empathy, in particular with empathic sadness. Based on the hypothesis that children with ASD are poor in ToM (Baron-Cohen et al., 1985), we expect to find an inverse association between ASD symptoms and cognitive empathy. By lack of evidence we cannot formulate strong hypotheses about interaction effects. The work of Pasalich and colleagues (2014) suggests that the lowest levels of affective empathy could be expected in boys who have high levels of CU traits and ASD symptoms. By contrast, there is reason to expect lowest levels of affective empathy in ODD/CD boys high on CU traits but particularly *low* on ASD symptoms because ASD symptoms may confound the "true" association between CU traits and affective empathy.

2. Method

This study was approved by the Medical Ethical Committee of Leiden University Medical Centre (LUMC), and parents gave written consent prior to participation according to the declaration of Helsinki.

2.1. Participants

An initial group of 56 ODD/CD boys aged between 7–12 years were recruited via clinical health centers ($n=21$) and special education schools ($n=35$) in the Netherlands. The presence of ODD or CD, as set out by the Diagnostic and Statistical Manual of Mental Disorders (DSM-IV-TR, APA, 2000), was determined by the parent-version of the Diagnostic Interview Schedule for Children (DISC-IV; Dutch version; Ferdinand and Van der Ende, 2002). A researcher in clinical child psychopathology carried out the interview. Exclusion criteria for the sample included estimated intelligence quotient (IQ) below 70 ($n=2$), or no data on IQ ($n=3$). Estimated IQ was assessed by Dutch versions (Kort et al., 2005) of the subtests Block Design and Vocabulary of the Wechsler Intelligence Scale for Children (WISC-III; Wechsler, 1991) administered by trained students. The subtests have a correlation of 0.90 with the full-scale intelligence quotient (Sattler, 1992). Two boys were additionally excluded from the sample because of no data on CU traits ($n=1$) or ASD symptoms ($n=1$).

Our sample obtained 49 boys with ODD ($n=32$) or CD ($n=17$) with a mean age of 10.28 ($SD=1.31$). All boys had an estimated IQ in the normal range ($M=96.51$, $SD=13.01$; range 74–129). Comorbidity included attention deficit hyperactivity disorder (ADHD; $n=36$), anxiety ($n=32$) and depression ($n=8$). Mean raw ASD symptoms, measured with the Social Responsiveness Scale (SRS; Constantino and Gruber, 2005), are listed in Table 1. In total, 18 boys scored in the clinical range, 18 in the subclinical range, and 13 in the normal range of ASD symptoms. To verify ODD/CD diagnoses, we checked aggressive and externalizing problem behavior using the Dutch versions of the Child Behavior Checklist (CBCL/6–18) and Teacher Report Form (TRF/6–18; Verhulst and Van der Ende, 2013) completed by parents and teachers, respectively. All boys scored in the clinical range of aggressive ($T>65$) and externalizing problem behavior ($T>60$) on the CBCL and TRF. Twenty-three boys used psycho-pharmalogical treatment: 21 used psycho-stimulants, one used anti-psychotics, and one used both. There were no differences between boys with or without psycho-pharmalogical treatment on main study variables. Table 1 includes descriptive characteristics of the sample.

2.2. Measures

2.2.1. Dispositional empathy

All boys completed the Empathy Index for Children and Adolescents (IECA; Bryant, 1982) and the Basic Empathy Scale (BES; Jolliffe and Farrington, 2006). Affective empathy was assessed using the 7-item empathic sadness scale of the IECA (De Wied et al., 2007), which reflects emotional responsiveness to another person's sadness (e.g., 'Seeing a (girl/boy) cry makes me feel like crying') and the 11-item affective empathy scale of the BES, which reflects emotional responsiveness to a broader range of emotions (e.g., 'Other people's feelings do not affect me'). Cognitive empathy was assessed using the 9-item cognitive empathy scale of the BES (e.g., 'I can often understand how people are feeling even before they tell me'). The original binary (yes/no) response format was employed for the IECA and a 5-point Likert scale for the BES. Consequently, a sum-score was calculated for the IECA scale (range 0–7) and mean scores for the BES scales (range 1–5). Higher scores on all scales represented higher levels of dispositional empathy. Correlations between empathic sadness and affective empathy and both scales of the BES were significantly positive. Correlation between empathic sadness and cognitive empathy (BES) was marginally significant (Table 2). Sufficient psychometric properties have been found in previous studies for the empathic sadness scale of the IECA (De Wied et al., 2007) and both scales of the BES (Jolliffe and Farrington, 2006). In the current study internal consistency was good for the empathic sadness scale ($\alpha=0.80$) and acceptable for the affective ($\alpha=0.77$) and cognitive ($\alpha=0.72$) subscales of the BES.

2.2.2. CU traits and Impulsivity/Conduct Problems

Parents and teachers completed the Dutch version (De Wied et al., 2014) of the Antisocial Process Screening Device (APSD; Frick and Hare, 2001) designed to measure psychopathic tendencies in children and adolescents. The scale includes three subscales: CU, narcissism and impulsivity. A 3-point Likert scale was used.