



# Direct and indirect effects of interpersonal callousness on aggression through empathy and moral disengagement

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## ABSTRACT

Interpersonal and callous traits in psychopathy have long been recognised as a precursor of antisocial and aggressive behaviour. While these traits commonly describe behaviours attributed to deficient empathy, research has not yet investigated to which extent different facets of empathy mediate the associations between interpersonal callousness and aggression. In the present paper, we seek to address this gap across two studies. In Study 1, we predicted and found that deficiencies in affective empathy, rather than cognitive empathy, were more strongly correlated with interpersonal callousness, and mediated the association of interpersonal callousness with proactive aggression and social deviance. Study 2 replicated these results and further revealed that the mediating effect of affective empathy on proactive aggression was amplified in participants with more tendencies to rationalise and morally disengage from immoral actions. These findings suggest that deficits in affective empathy and moral sensitivity play a more crucial role than cognitive empathy for the association of interpersonal callousness with proactive aggression and social deviance, indicating a critical avenue for targeted interventions aimed at mitigating these effects.

## 1. Introduction

The portrayal of psychopathic individuals as devoid of empathy, inherently cruel, and predisposed to criminal behaviour, has long characterised the clinical perspective on psychopathy (Cleckley, 1941; Hare & Hart, 1993; Hare & Neumann, 2008). However, developments in the field suggest that psychopathy is more accurately represented as a dimensional construct. That is, psychopathic traits are not confined to clinical inpatients and/or dangerous offenders; rather, they extend across a broader spectrum within the general population (Hare, 2003; Hart & Hare, 1994; Lilienfeld et al., 2014; Neumann & Hare, 2008; Sanz-García et al., 2021). This broad distribution challenges the conventional belief that all individuals possessing psychopathic traits are inherently cruel and criminal (Campos et al., 2022). Nonetheless, certain psychopathic traits (e.g., lack of empathy and remorse) do elevate the risk for recurring involvement in more severe forms of interpersonal harm, as often seen in criminal psychopaths (Neumann & Hare, 2008).

In the present research, we investigate how traits identified across the psychopathy spectrum – both directly and indirectly – drive aggressive and antisocial tendencies within a community sample of young adults. Our aim is to develop an increased understanding of the

specific traits linked to psychopathy that further the likelihood of interpersonal harm in non-adjudicated samples. Such insight has the potential to inform the development of targeted intervention strategies for at-risk groups.

### 1.1. Traits of psychopathic violence

Broadly, psychopathic traits can be categorised into two primary dimensions: affective/interpersonal and behavioural. The affective/interpersonal facet of psychopathy – also known as interpersonal callousness – encompasses traits such as deficient empathy, shallow affect, absence of guilt and remorse, superficial charm, and manipulative tendencies, whereas its behavioural facet comprises socially deviant behaviours like substance abuse and aggression (Hare, 2003; Paulhus, 2014).

Although both facets contribute to the overall construct of psychopathy, existing research suggests that traits comprising interpersonal callousness appear to be more central to psychopathy, and also hold greater significance in explaining aggressive behaviours associated with the disorder (Seibert et al., 2011). Specifically, interpersonal callousness has been consistently linked to predatory or proactive violence –

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calculated and controlled acts of physical harm inflicted on others for personal gain or gratification (Glenn & Raine, 2009; Hare & Neumann, 2008; Meloy et al., 2018; Saladino et al., 2021; Woodworth & Porter, 2002). While this type of violence is more common among serious offenders (Brugman et al., 2017), some scholars suggest that general forms of proactive aggression could indicate aggression severity in non-criminal samples (Bushman & Anderson, 2001; Frick et al., 2003).

Proactive aggression involves a deliberate intention to harm others, often displayed by individuals who exhibit reduced sensitivity to interpersonal harm and diminished empathy towards their victims. This lack of empathy is thought to facilitate interpersonal manipulation and exploitation with little remorse or guilt (Cleckley, 1941; Neumann & Hare, 2008). Therefore, understanding the precise contribution of empathic deficits characterising interpersonal callousness becomes imperative in identifying risk factors among individuals exhibiting these traits, both within and outside of criminal contexts.

### 1.2. The problem of empathy

Empathy represents a multifaceted construct encompassing both cognitive and affective dimensions. Cognitive empathy involves understanding others' thoughts and emotions, while affective empathy entails resonating with or placing value on those emotions (Preston & De Waal, 2002). In psychopathy, deficits in empathy can manifest in both dimensions, yet the expression of interpersonal callousness does not consistently involve impairments in cognitive empathy (Brook & Kosson, 2013; Chang et al., 2021; Dadds et al., 2009; De Ridder et al., 2016; Pfabigan et al., 2015).

In fact, psychopaths can be relatively good at understanding others' emotions and use such skills for manipulation and deception (Harris & Rice, 2006; Kiehl & Hoffman, 2014; Polaschek, 2014; Rice et al., 1992; Sutton et al., 1999). Conversely, individuals who present deficits in important aspects of cognitive empathy, such as perspective-taking, typically display more reactive forms of aggression (Blair, 2013; Chang et al., 2021; Jolliffe & Farrington, 2011; Vachon et al., 2014; White et al., 2015). This suggests that variations in cognitive empathy may be key to explain different aggressive outcomes among psychopathic cohorts. However, the precise impact of cognitive empathy on such outcomes remains unclear.

What seems to be more consistent, however, is the presence of affective empathy deficits among individuals exhibiting interpersonal callousness, which also plays a pivotal role in driving aggressive behaviour. The notion that resonating with others' emotions typically reduces the inclination to harm them suggests that individuals who struggle to care about and connect with others' emotions, such as those described as callous, may indeed be more prone to engage in interpersonal harm (Decety & Yoder, 2016; Marshall & Marshall, 2011; Miller & Eisenberg, 1988). This inability to empathise on an affective level may create a psychological distance that perpetuates the aggression despite acknowledging the suffering of their victims (Lovett & Sheffield, 2007).

Moreover, individuals who are capable of intentionally harming others for their own personal gain may even derive pleasure from others' pain (Glenn & Raine, 2009; Woodworth & Porter, 2002). This affective response – described as affective dissonance by Vachon and Lynam (Vachon & Lynam, 2016) – suggests a fundamental deviation from typical empathetic reactions; it highlights a willingness to actively seek out and relish in the suffering of others, signifying a profound disturbance in emotional and moral processing.

### 1.3. Look into moral disengagement

Those who prioritise achieving their goals at the expense of others, employing tactics like manipulation, may also find it easier to justify or dismiss the consequences of their immoral actions, even when they can recognise such actions as wrong (Gini et al., 2014). This phenomenon, known as moral disengagement, is typically facilitated by cognitive

dissonance strategies such as shifting blame to external factors, minimising the negative consequences of their actions and even dehumanising victims (Bandura, 1990; Bandura et al., 1996). In this sense, moral disengagement may serve as a defence or coping mechanism to mitigate feelings of guilt or emotional distress associated with engaging in immoral behaviours like aggression, thereby preserving a positive self-image (Caprara et al., 2014; Gini et al., 2015).

However, for individuals with callous traits, this moral detachment is compounded by their inherent empathy deficits, creating a deeper disconnection from societal values. Evidence shows that callous individuals do not affectively internalise immoral actions in a negative way (Blair, 2007). Notably, individuals who present callous psychopathic traits – even at a subclinical level – exhibit a greater tolerance to moral violations (Erzi, 2020; Gini et al., 2014, 2015; Risser & Eckert, 2016; Shulman et al., 2011; Wang et al., 2017). Over time, this tolerance may evolve into an indifference or habituation towards immoral actions, thereby reinforcing callous tendencies and potentially escalating them towards more severe forms of aggression (Hyde et al., 2010; Shulman et al., 2011). Therefore, while moral disengagement uniquely predicts the incidence of antisocial behaviour, moral disengagement that comes from an emotional dysfunction (e.g., failure to bond with others) may specifically predict antisocial behaviours that are more severe and cruel in nature.

### 1.4. The present research

Previous research suggests that the emotionally detached nature characterising callous individuals increases their risk for more severe aggressive behaviours, hence pointing to the relevance of deficits in affective over cognitive empathy for the expression of interpersonal callousness and its negative outcomes (e.g., Mullins-Nelson et al., 2006; Neumann & Hare, 2008). However, relatively few studies have investigated the extent to which different empathy facets facilitate antisocial and aggressive behaviours among individuals exhibiting interpersonal callousness (see Preston & Anestis, 2020 for an example). Moreover, while prior studies hint that moral disengagement may exacerbate the negative impact of empathy (or the lack thereof) on these behaviours (e.g., Wang et al., 2017), more research is needed to ascertain whether moral disengagement can influence the extent to which diminished empathy affects antisocial and aggressive behaviours in non-adjudicated samples exhibiting callous psychopathic traits.

To address these gaps, our study investigates the mediating role of various affective and cognitive empathic traits in the relationship between interpersonal callousness and aggression within a community sample of young adults. Unlike previous studies focusing solely on reactive and proactive aggression (Preston & Anestis, 2020), or more generalised aggressive tendencies (Wang et al., 2017), we additionally considered socially deviant behaviours associated with psychopathy, ranging from victimless offenses to more serious forms of aggression. This approach helps us capture a broader range of antisocial outcomes linked to interpersonal callousness, beyond mere aggression. Furthermore, we explored the mediation effects of empathy through the moderation of moral disengagement in a follow-up study.

Overall, we hypothesised that participants with higher levels of interpersonal callousness and proactive aggression would report lower affective empathy, specifically in terms of empathic concern, affective resonance, and affective dissonance (Chang et al., 2021; Pfabigan et al., 2015). Affective dissonance, due to its antagonistic nature, was expected to exhibit a stronger link to callousness and aggression compared to the other facets of affective empathy (Vachon & Lynam, 2016). Based on Preston and Anestis (2020), we also hypothesised that these facets of affective empathy would mediate the relationship between interpersonal callousness and proactive aggression. Furthermore, we predicted that moral disengagement would positively moderate this mediating effect, as it may amplify the already diminished empathic responses in individuals with interpersonal callousness, reducing their sensitivity to

interpersonal harm and thus increasing their risk for aggression (Wang et al., 2017). Furthermore, we anticipated that participants prone to reactive and physical aggression would exhibit lower perspective-taking skills, a trait of cognitive empathy (Chang et al., 2021; Vachon et al., 2014). This expectation is based on the idea that individuals with high levels of reactive and physical aggression often struggle to understand and consider others' viewpoints. The data and scripts used for this research are available at: [https://osf.io/c28n9/?view\\_only=f545e5192af940d69e693ab4b31afcd6](https://osf.io/c28n9/?view_only=f545e5192af940d69e693ab4b31afcd6)

## 2. Study 1

### 2.1. Methods

#### 2.1.1. Participants and procedure

This study was approved by our local Ethics Committee and advertised on a departmental undergraduate research portal, where students participate in for class credit. Outreach efforts also included email invitations and word-of-mouth referrals, involving recruitment of participants not affiliated with the university. External participants joined the survey as part of a broader online study, with the incentive of entering a cash prize raffle upon survey completion.

A power analysis revealed that, to detect a medium effect size of  $r = |0.34|$  with a power of 0.95, we needed 106 participants. Initially, we recruited 124 participants, although 11 participants did not complete the survey, and three failed at least 2 of the 4 attention checks. Excluding an additional participant aged 17 due to the study's exclusive focus on adults, the final analysis involved 109 participants aged 18 to 31 ( $M = 21.58$ ,  $SD = 2.55$ ). This sample comprised 33 men, 75 women, and one non-binary/third-gender participant. The majority were university students ( $N = 84$ ), and only 12 participants disclosed having a diagnosed mental health condition, including depression, anxiety, attention deficit and hyperactivity disorder/attention deficit disorder (ADHD/ADD), or borderline personality disorder. The potential confounding effects of these demographic variables were controlled for in our analyses. Following demographic information, participants completed self-report questionnaires, described below.

#### 2.1.2. Survey questionnaires

**Self-Report Psychopathy Scale – Short Form (SRP-SF).** The SRP-SF is a 29-item subset derived from the Self-Report Psychopathy Scale – 4th Edition (SRP-4; Paulhus et al., 2017), designed to align with the Psychopathy Checklist-Revised (PCL-R; Hare, 2003) factor structure to evaluate psychopathic traits in non-forensic and subclinical samples. Factor 1 includes the Interpersonal Manipulation and Callous Affect subscales ( $\alpha = 0.83$ ) to assess interpersonal callousness, and Factor 2 represents a measure social deviance through the Erratic Lifestyle and Antisocial Behaviour subscales ( $\alpha = 0.74$ ), with higher scores representing more psychopathic traits. While both factors represent facets of psychopathy, in this study we employed Factor 2 as an outcome measure of aggressive and antisocial behaviour. This approach is justified by the theoretical framework underlying the SRP-SF, which posits that Factor 2 captures the behavioural manifestations of psychopathy, such as impulsivity, aggression, and rule-breaking. These behaviours are often considered consequential outcomes of the interpersonal and affective traits measured by Factor 1. Thus, using Factor 2 as an outcome allows us to examine how the core personality traits associated with psychopathy (Factor 1) may predict observable antisocial behaviours (Factor 2). Additionally, this approach is consistent with previous research that has used similar constructs to investigate the relationship between personality traits and behavioural outcomes (see Seibert et al., 2011).

**Buss and Perry Aggression Questionnaire (BPAQ).** The BPAQ (Buss & Perry, 1992) is a 29-item scale often used as a generalised assessment of aggression, including measures of physical aggression, verbal aggression, anger, and hostility. In this study, we used the Physical Aggression subscale (e.g., "I have physically threatened people

I know",  $\alpha = 0.81$ ) as it directly reflects overt expressions of violence.

**Reactive and Proactive Aggression Questionnaire (RPQ).** The RPQ scale (Raine et al., 2006) is a 23-item self-report used to assess the functions of aggression, including reactive aggression, triggered in response to provocation (e.g., "Yelled at others when they have annoyed you",  $\alpha = 0.81$ ), and proactive aggression, characterised by premeditation and goal-oriented actions (e.g., "Yelled at others so they would do things for you",  $\alpha = 0.69$ ). Notably, the RPQ also includes items reflecting violent behaviour (e.g., "Used physical force to get others to do what you want").

**Interpersonal Reactivity Index (IRI).** The IRI (Davis, 1980) is a widely used 28-item self-report questionnaire that measures cognitive empathy via perspective-taking and affective empathy via empathic concern. Additionally, the IRI includes two supplementary constructs (i.e., Fantasy and Personal Distress subscales) assumed to be associated with dispositional levels of empathy. However, given the study's focus on affective and cognitive empathy facets, we only considered participants' responses in the Perspective Taking (e.g., "When I'm upset at someone, I usually try to put myself in their shoes",  $\alpha = 0.81$ ) and Empathic Concern (e.g., "I am often quite touched by things that I see happen.",  $\alpha = 0.77$ ) subscales for our analysis. Items for each measure were reverse-coded, such that higher scores represent lower levels of empathy (Levitán & Vachon, 2021).

**Affective and Cognitive Measure of Empathy (ACME).** As an additional assessment of empathy, we incorporated the ACME scale (Vachon & Lynam, 2016), including cognitive empathy items related to empathic accuracy and emotion understanding (e.g., "I can usually tell how people are feeling",  $\alpha = 0.90$ ), and affective empathy items representing both affective resonance (e.g., "I feel awful when I hurt someone's feelings",  $\alpha = 0.83$ ) and affective dissonance (e.g., "It's funny to see people get humiliated",  $\alpha = 0.91$ ). Items in the Cognitive Empathy and Affective Resonance subscales were reverse-coded, such that higher scores represent lower levels of empathy (Levitán & Vachon, 2021).

### 2.2. Results

#### 2.2.1. Bivariate correlations

Zero-order correlations were calculated to evaluate the unique associations between empathy and aggression measures, using the IBM SPSS software package (IBM SPSS Statistics for Windows, Version 28.0). A priori normality tests indicated that most variables significantly deviated from a normal distribution ( $p \leq .05$ ), revealing positive skewness in affective dissonance (skewness = 1.90, kurtosis = 5.33) and proactive aggression (skewness = 2.20, kurtosis = 5.18) (see Table S1 in Supplementary Information). Therefore, we opted for nonparametric correlations, using Spearman's rho.

Additionally, we used Bonferroni corrections to avoid the potential of a type I error due to our high number of comparisons ( $N = 45$ ), setting the alpha level at 0.0 (Armstrong, 2014). Subsequent family-wise error rate (FWER) calculations, which control for the accumulation of type I errors in multiple comparisons by adjusting the significance threshold, indicated a Bonferroni-corrected  $p$ -value of 0.001 for approximately a 10 % error rate in our comparisons.

As shown in Table 1, interpersonal callousness positively correlated aggression overall ( $r$  values between 0.48 and 0.64). Moreover, participants with more interpersonal callousness also reported lower affective empathy ( $r$  values ranging from 0.54 to 0.71). Regarding our cognitive empathy measures, interpersonal callousness was correlated with lower perspective-taking ( $r = 0.39$ ), although it did not exhibit a significant correlation with emotion understanding.

On the other hand, lower affective empathy was associated with higher aggression ( $r$  values 0.35 and 0.59), although the correlation between empathic concern and reactive aggression was no longer significant after applying the Bonferroni correction ( $r = 0.29$ ,  $p = .002$ ). Furthermore, consistent with our hypothesis, participants reporting lower levels of perspective-taking also reported being more predisposed

**Table 1**  
Mean, standard deviation, and bivariate correlations for main variables.

Variables	M	SD	1	2	3	4	5	6	7	8	9	10
1.F1	2.30	0.68	–									
2.F2	1.88	0.49	0.63*	–								
3.React	0.61	0.35	0.62*	0.55*	–							
4.Proact	0.09	0.14	0.48*	0.53*	0.52*	–						
5.Phys	2.46	0.77	0.64*	0.60*	0.57*	0.51*	–					
6.PT	1.43	0.76	0.39*	0.25	0.36*	0.23	0.37*	–				
7.COG	2.25	0.64	–0.08	–0.02	0.14	–0.01	0.02	0.28	–			
8.EC	1.25	0.69	0.54*	0.28	0.29	0.35*	0.36*	0.55*	0.17	–		
9.RES	1.89	0.59	0.62*	0.37*	0.38*	0.37*	0.44*	0.53*	0.13	0.74*	–	
10.DIS	1.68	0.69	0.71*	0.54*	0.59*	0.59*	0.56*	0.50*	0.01	0.53*	0.57*	–

Note. F1 = Interpersonal Callousness; F2 = Social Deviance; React = Reactive Aggression; Proact = Proactive Aggression; Phys = Physical Aggression; PT = Perspective Taking; COG = Emotion Understanding; EC = Empathic Concern; RES = Affective Resonance; DIS = Affective Dissonance. Higher scores in empathy scales denote larger deficits.

Bonferroni correction was applied to account for multiple comparisons \* $p \leq .001$ .

to reactive ( $r = 0.36$ ) and physical ( $r = 0.37$ ) aggressive behaviours. In contrast, we found no significant associations between emotion understanding and aggression.

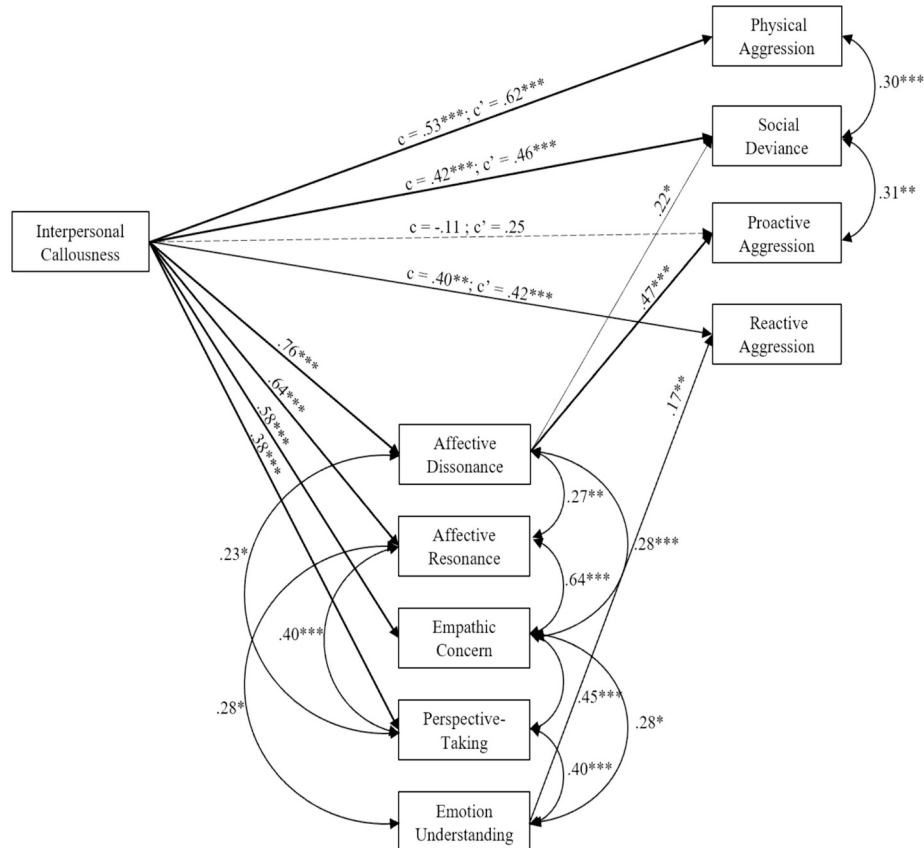
Notably, while both F1 and F2 constructs of psychopathy, as well as various aggression measures, exhibited some correlations with empathy facets, the patterns were not entirely uniform. F1 showed distinct correlations with perspective-taking and affective empathy measures compared to F2, suggesting a more nuanced relationship between interpersonal callousness and empathy facets.

2.2.2. Mediation analysis

Finally, we examined the mediating effects of empathy via Structural Equation Modelling (SEM), using the *lavaan* package in R programming language (Rosseel, 2012). For this analysis, we employed a multivariate

approach, including empathy variables as mediators, interpersonal callousness as a predictor and aggression variables as outcomes. We additionally accounted for the covariance among empathy variables and aggression variables, resulting in a just-identified model – i.e., with degrees of freedom, *df*, equal to 0 (see Fig. 1).

Mediation was assessed by examining the direct (*c'*) and indirect (*ab*) effects of interpersonal callousness on aggression through each empathy mediator. The total effect (*c*) was the sum of the indirect effects through the mediators and the direct effect of the predictor. Significant interactions were probed using 1000 bootstrap samples from the original dataset, along with 95 % bias-corrected bootstrap confidence intervals (BCCIs) that did not include zero (MacKinnon et al., 2007). The results, detailed in Table 2, revealed that affective dissonance exhibited a partial indirect effect on the link between interpersonal callousness and social



**Fig. 1.** Standardised path estimates.  
Note. \* $p \leq .05$ , \*\* $p \leq .01$ , \*\*\* $p \leq .001$ .

**Table 2**  
Direct and indirect effect estimates in univariate models.

Path estimates	$\beta$	$p$	95 % BCCI
<i>Reactive Aggression</i>			
Direct Effect	<b>0.41</b>	<b>0.001</b>	<b>0.15,0.65</b>
via Affective Dissonance	0.13	0.159	-0.06,0.29
via Affective Resonance	-0.10	0.183	-0.23,0.06
via Empathic Concern	-0.07	0.270	-0.20,0.06
via Perspective-Taking	0.07	0.129	-0.01,0.16
via Emotion Understanding	-0.02	0.384	-0.06,0.01
Total Effect	<b>0.42</b>	<b>&lt;0.001</b>	<b>0.19,0.61</b>
<i>Proactive Aggression</i>			
Direct Effect	-0.15	0.392	-0.39,0.14
via Affective Dissonance	<b>0.35</b>	<b>0.001</b>	<b>0.24,0.65</b>
via Affective Resonance	0.05	0.568	-0.16,0.23
via Empathic Concern	-0.02	0.813	-0.21,0.07
via Perspective-Taking	-0.03	0.467	-0.11,0.06
via Emotion Understanding	-0.00	0.864	-0.03,0.01
Total Effect	0.25	0.103	-0.06,0.51
<i>Physical Aggression</i>			
Direct Effect	<b>0.53</b>	<b>&lt;0.001</b>	<b>0.29,0.77</b>
via Affective Dissonance	0.10	0.390	-0.11,0.34
via Affective Resonance	-0.03	0.754	-0.21,0.15
via Empathic Concern	-0.02	0.766	-0.17,0.13
via Perspective-Taking	0.04	0.277	-0.04,0.11
via Emotion Understanding	-0.01	0.701	-0.04,0.02
Total Effect	<b>0.62</b>	<b>&lt;0.001</b>	<b>0.53,0.72</b>
<i>Social Deviance</i>			
Direct Effect	<b>0.42</b>	<b>&lt;0.001</b>	<b>0.20,0.63</b>
via Affective Dissonance	<b>0.17</b>	<b>0.014</b>	<b>0.07,0.34</b>
via Affective Resonance	0.02	0.765	-0.15,0.16
via Empathic Concern	-0.13	0.075	-0.28,0.00
via Perspective-Taking	-0.01	0.642	-0.11,0.08
via Emotion Understanding	-0.01	0.596	-0.03,0.01
Total Effect	<b>0.46</b>	<b>&lt;0.001</b>	<b>0.27,0.63</b>

Note. Significant estimates ( $p \leq .05$ , 95 % BCCI does not include 0) are in **bold**. Reported direct effects estimates account for indirect effects through empathy.

deviance ( $\beta = 0.17$ , 95%BCCI = [0.04, 0.31],  $p = .014$ ), and a full indirect effect on the link between interpersonal callousness and proactive aggression ( $\beta = 0.35$ , 95%BCCI = [0.16, 0.57],  $p = .001$ ). No other empathy measures exhibited significant mediation effects.

Additional analyses revealed no issues of multicollinearity among our mediators and predictor, with all variance inflation factors (VIF) below 2.71.

### 2.3. Discussion

Study 1 supports the notion that deficits in affective empathy, rather than cognitive empathy, play a more relevant role in the expression of callous psychopathic traits and their association with aggression (Mullins-Nelson et al., 2006). Our findings specifically highlight the importance of affective dissonance over other aspects of affective empathy in fostering socially deviant behaviours and premeditated aggression among individuals exhibiting these traits, which is consistent with prior investigations (see Vachon & Lynam, 2016).

However, a note of caution is warranted in interpreting these findings due to the overrepresentation of women in the study sample. This raises questions about the generalisability of the results, particularly considering documented gender differences in empathy (e.g., Lui et al., 2016; Van Hazebroek et al., 2017), psychopathy (e.g., Ciucci & Baroncelli, 2014; Colins et al., 2017), and aggression (e.g., Berkout et al., 2011; Knight et al., 2002). Moreover, the reliance on a predominantly student-based sample further restricts the applicability of our conclusions to broader demographics (Hanel & Vione, 2016). Additionally, while the study was adequately powered, previous research suggests that correlation coefficients derived from samples smaller than 250 may exhibit less stability (Schönbrodt & Perugini, 2013). Therefore, we conducted a follow-up study aiming to address these limitations and extend the scope of our investigation.

## 3. Study 2

### 3.1. Method

#### 3.1.1. Participants and procedure

This study was also part of a larger online study and received approval from our local Ethics Committee. We aimed to recruit at least 250 participants to obtain more robust effects (Schönbrodt & Perugini, 2013). To this aim, participants' recruitment was carried out via Prolific, a crowdsourcing platform for online research ([www.prolific.co](http://www.prolific.co)). In total, we recruited 319 participants. To ensure consistency with Study 1 and to minimise age-related variability, we exclusively focused on young adults aged 18 to 25. After excluding 9 participants due to timeout, attention check failure, or missing age information (given the study's exclusive focus on young adults), the final sample consisted of 310 participants aged 18 to 25 ( $M = 22.75$ ,  $SD = 1.75$ ). All participants received a £7 reimbursement upon successful completion of the study.

Of the final sample, 161 participants identified as men, 146 as women, and 3 as non-binary/third gender. Employment status varied, with 140 participants being employed, 87 students, and 55 unemployed. Other categories included 18 self-employed, 3 homemakers, and 1 participant both studying and working. Additionally, 68 participants reported a mental health diagnosis, encompassing various disorders including anxiety, depression, ADHD/ADD, bipolar disorder, post-traumatic stress disorder, Tourettes syndrome, derealization disorder, emotionally unstable personality disorder, obsessive compulsive disorder, and anorexia. The potential effects of these demographic variables were controlled for in our analyses.

#### 3.1.2. Survey questionnaires

This study employed the same survey questionnaires as in Study 1, including scales measuring interpersonal callousness, social deviance, aggression, and empathy. Overall, these scales demonstrated good internal consistency, with alpha coefficients ranging from 0.79 to 0.89 (the reliability coefficients of each scale are reported in Table S2 in the Supplementary Information). Additionally, we measured moral disengagement with the *Moral Disengagement Scale* (MDS; Bandura et al., 1996). This is a 32-item self-report questionnaire that includes various facets of moral disengagement, presenting participants with statements such as "Damaging some property is no big deal when you consider that others do worse" or "People who get mistreated usually do things that deserve it" ( $\alpha = 0.87$ ). The cumulative average of all items was calculated to yield a composite score, with higher scores indicating higher levels of moral disengagement.

### 3.2. Results

#### 3.2.1. Bivariate correlations

Zero-order correlations were conducted using Spearman's rho due to non-normal distributions across most variables (Table S2 in Supplementary Information). We also employed the Bonferroni method at  $\alpha = 0.05$  to control for the problem of multiple comparisons ( $N = 55$ ) (Armstrong, 2014). FWER calculations indicated a Bonferroni-corrected  $p$  value of 0.0009 with approximately a 5 % error rate.

Correlation coefficients are reported in Table 3 below. Consistent with Study 1, higher interpersonal callousness correlated with lower affective empathy ( $r$  values between 0.49 and 0.65) and perspective-taking ( $r = 0.30$ ), while the correlation with emotion understanding became nonsignificant after Bonferroni correction ( $r = 0.14$ ,  $p = .017$ ). Moreover, interpersonal callousness correlated positively with aggressive and antisocial behaviour ( $r$  values between 0.45 and 0.65).

On the other hand, we observed significant correlations between aggression and affective empathy but not cognitive empathy. Specifically, lower affective empathy was correlated with higher aggression ( $r$  values between 0.26 and 0.49), except for the correlation between empathic concern and reactive aggression, which was not significant

**Table 3**  
Mean, standard deviation, and bivariate correlations for main variables.

Variables	M	SD	1	2	3	4	5	6	7	8	9	10
1.F1	2.03	0.64	–									
2.F2	1.70	0.50	0.65*	–								
3.React	0.50	0.33	0.45*	0.42*	–							
4.Proact	0.06	0.16	0.46*	0.45*	0.49*	–						
5.Phys	2.33	0.84	0.63*	0.54*	0.49*	0.36*	–					
6.PT	1.28	0.69	0.30*	0.19	0.21	0.13	0.20	–				
7.COG	2.51	0.67	0.14	0.03	0.05	0.03	0.05	0.39*	–			
8.EC	1.06	0.66	0.49*	0.37*	0.16	0.29*	0.38*	0.49*	0.33*	–		
9.RES	1.74	0.56	0.55*	0.40*	0.26*	0.36*	0.43*	0.51*	0.40*	0.78*	–	
10.DIS	1.45	0.48	0.65*	0.48*	0.36*	0.47*	0.49*	0.37*	0.16	0.57*	0.57*	–
11. MD	2.06	0.49	0.55*	0.47*	0.34*	0.36*	0.52*	0.23*	0.11	0.35*	0.36*	0.56*

Note. F1 = Interpersonal Callousness; F2 = Social Deviance; React = Reactive Aggression; Proact = Proactive Aggression; Phys = Physical Aggression; PT = Perspective Taking; COG = Emotion Understanding; EC = Empathic Concern; RES = Affective Resonance; DIS = Affective Dissonance; MD = Moral Disengagement. Higher scores in empathy scales denote larger deficits.

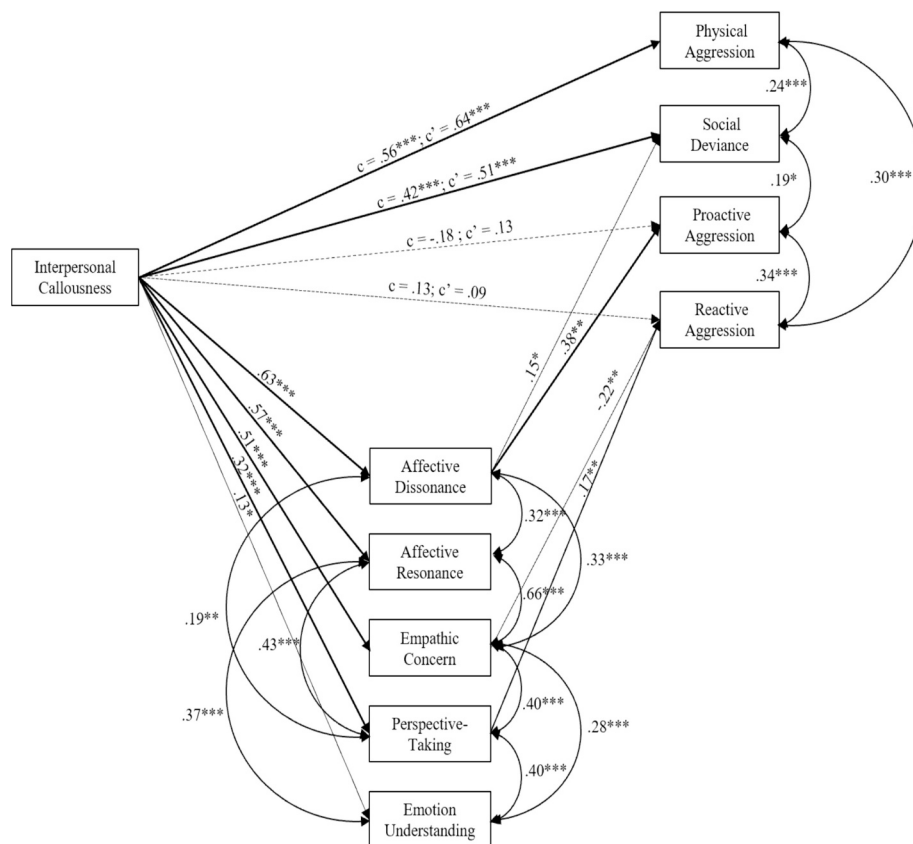
Bonferroni correction was applied to account for multiple comparisons \* $p \leq .0009$ .

after Bonferroni correction ( $r = 0.16, p = .004$ ). Similarly, moral disengagement was positively associated with interpersonal callousness, aggression, and lower empathy ( $r$  values between 0.23 and 0.53), although its correlation with emotional understanding was not significant after Bonferroni correction ( $r = 0.11, p = .044$ ).

These results highlight that while both F1 and F2 constructs of psychopathy and various aggression measures share some similarities in their correlations with empathy facets, there are important distinctions. For example, the unique correlation between F1 and perspective-taking, which is not evident with F2, suggests that interpersonal callousness has a more specific relationship with certain empathy facets compared to general antisocial conduct. Additionally, the stronger correlations between F1 and affective empathy compared to F2 underscore the distinct nature of F1-related traits. These patterns are further elaborated in the

general discussion.

Furthermore, we conducted a supplementary analysis to examine gender differences across these variables via independent-samples  $t$ -tests. On average, men exhibited more interpersonal callousness ( $t_{(305)} = 5.64, p < .001, d = 0.64$ ), socially deviant behaviours ( $t_{(305)} = 5.71, p < .001, d = 0.65$ ), physical aggression ( $t_{(305)} = 7.11, p < .001, d = 0.81$ ) and morally disengaged attitudes ( $t_{(305)} = 4.55, p < .001, d = 0.52$ ) than women. Additionally, significant gender differences emerged for affective but not cognitive empathy, with men reporting lower levels of empathic concern ( $t_{(305)} = 4.40, p < .001, d = 0.50$ ) and affective resonance ( $t_{(305)} = 5.06, p < .001, d = 0.57$ ), and more affective dissonance ( $t_{(305)} = 4.87, p < .001, \text{Cohen's } d = 0.55$ ) (please refer to Table S3 in Supplementary Information for further details).



**Fig. 2.** Standardised path estimates.  
Note. \* $p \leq .05$ , \*\* $p \leq .01$ , \*\*\* $p \leq .001$ .

### 3.2.2. Mediation analysis

For mediation, we conducted SEM tests using the *lavaan* package in R (Rosseel, 2012). Path estimates, depicted in Fig. 2, show the indirect effects of affective and cognitive empathy variables on the links between interpersonal callousness and aggression variables.

The results, detailed in Table 4, revealed that affective dissonance exhibited a partial indirect effect on link between interpersonal callousness and social deviance ( $\beta = 0.09$ , 95%BCCI = [0.01, 0.17],  $p = .033$ ), and a full indirect effect on proactive aggression ( $\beta = 0.24$ , 95% BCCI = [0.09, 0.36],  $p = .003$ ). Additionally, the effect of interpersonal callousness on reactive aggression was partially mediated by empathic concern ( $\beta = -0.11$ , 95%BCCI = [-0.19, -0.03],  $p = .012$ ) and perspective-taking ( $\beta = 0.05$ , 95%BCCI = [0.02, 0.10],  $p = .019$ ).

Additional analyses revealed no issues of multicollinearity among our mediators and predictor ( $VIF < 2.71$ ).

### 3.2.3. Interaction effects

Lastly, we conducted moderated mediation tests to delve deeper into the influence of moral disengagement on the mediating effects of empathy, while controlling for age, gender, mental diagnosis, and occupation. For this analysis, we used PROCESS macro in R, employing a customised script obtained from: <https://www.processmacro.org/download.html> (Hayes, 2012). This script offers a comprehensive suite of models tailored for different types of moderated mediation tests. For our investigation, we selected model 14, designed specifically to assess the interaction between the mediator and the moderator in predicting the outcome. Moreover, we applied 10,000 bootstrapping iterations to the original data. The criterion for determining significant moderated mediation was set at an interaction effect of  $\alpha \leq 0.05$ , with a 95 % BCCI that did not include zero. For significant effects, we report the conditional indirect effects of the mediator using the Johnson-Neyman

**Table 4**  
Direct and indirect effect estimates in path models.

	$\beta$	$p$	95 % BCCI
<i>Reactive Aggression</i>			
Direct Effect	0.13	0.122	-0.04,0.28
via Affective Dissonance	-0.00	0.940	-0.11,0.12
via Affective Resonance	0.02	0.700	-0.01,0.14
via Empathic Concern	<b>-0.11</b>	<b>0.012</b>	<b>-0.19,-0.03</b>
via Perspective-Taking	<b>0.05</b>	<b>0.019</b>	<b>0.02,0.10</b>
via Emotion Understanding	-0.00	0.667	-0.02,0.01
Total Effect	0.09	0.268	-0.06,0.24
<i>Proactive Aggression</i>			
Direct Effect	-0.18	0.133	-0.38,0.05
via Affective Dissonance	<b>0.24</b>	<b>0.003</b>	<b>0.09,0.36</b>
via Affective Resonance	0.12	0.079	-0.00,0.24
via Empathic Concern	-0.03	0.452	-0.13,0.05
via Perspective-Taking	-0.00	0.908	-0.04,0.03
via Emotion Understanding	-0.01	0.284	-0.03,0.00
Total Effect	0.13	0.133	-0.03,0.32
<i>Physical Aggression</i>			
Direct Effect	<b>0.56</b>	<b>&lt;0.001</b>	<b>0.45,0.66</b>
via Affective Dissonance	0.04	0.280	-0.04,0.12
via Affective Resonance	0.02	0.582	-0.07,0.11
via Empathic Concern	0.02	0.635	-0.06,0.10
via Perspective-Taking	-0.00	0.991	-0.04,0.04
via Emotion Understanding	-0.01	0.258	-0.03,0.00
Total Effect	<b>0.64</b>	<b>&lt;0.001</b>	<b>0.57,0.70</b>
<i>Social Deviance</i>			
Direct Effect	<b>0.42</b>	<b>&lt;0.001</b>	<b>0.31,0.55</b>
via Affective Dissonance	<b>0.09</b>	<b>0.033</b>	<b>0.01,0.17</b>
via Affective Resonance	-0.01	0.863	-0.08,0.07
via Empathic Concern	0.00	0.933	-0.06,0.07
via Perspective-Taking	0.00	0.754	-0.03,0.04
via Emotion Understanding	-0.01	0.344	-0.02,0.01
Total Effect	<b>0.51</b>	<b>&lt;0.001</b>	<b>0.39,0.62</b>

Note. Reported direct effects estimates account for indirect effects through empathy. Significant estimates ( $p \leq .05$ , 95 % BCCI does not include 0) are in bold.

method. This approach provides a range of values of the moderator at which the slope of the predictor goes from non-significant to significant at the  $p \leq .05$  level.

Our first model explored empathic concern and perspective-taking as mediators of interpersonal callousness and reactive aggression. The analysis revealed that moral disengagement did not significantly moderate the indirect effects of either empathic concern ( $p = .972$ ) nor perspective-taking ( $p = .590$ ) on reactive aggression. However, a noteworthy finding was the positive effect of mental diagnosis on reactive aggression ( $\beta = 0.09$ ;  $p = .038$ ). Yet, subsequent tests showed that mental diagnosis did not significantly alter the indirect effects of empathic concern ( $p = .755$ ) and perspective-taking ( $p = .877$ ) on reactive aggression either.

Next, we examined the influence of moral disengagement on the mediation effect of affective dissonance on proactive aggression. The model revealed that moral disengagement positively influenced the relationship between affective dissonance and proactive aggression ( $\beta = 0.15$ ,  $p < .001$ , 95%BCCI = [0.05,0.27]). As illustrated in Fig. 3, this moderating effect was mostly significant at higher values of moral disengagement (e.g., at 1.10 standard deviations above the mean,  $\beta = 0.25$ ,  $p < .001$ ) and at average levels of moral disengagement ( $\beta = 0.09$ ,  $p > .001$ ), but lost significance at  $<0.25$  standard deviations below the mean ( $\beta = 0.05$ ,  $p = .079$ ), as indicated by Johnson-Neyman estimates (refer to Table S4 in Supplementary Information for more details). Importantly, the biased-corrected confidence intervals of the index of moderated mediation did not contain zero (95%BCCI = [0.02,0.13]), thereby confirming significant moderated mediation.

### 3.3. Discussion

Study 2 replicated our initial findings, reaffirming the significance of affective dissonance over other empathy facets in mediating the relationship between interpersonal callousness and both social deviance and proactive aggression. This replication strengthens the reliability of our conclusions from Study 1. Moreover, our investigation identified a partial mediation effect through empathic concern and perspective-taking on reactive aggression. This outcome aligns with our initial hypothesis, indicating that deficiencies in perspective-taking might heighten the likelihood of reactive aggression. Additionally, it implies that, while proactive forms of aggression among individuals exhibiting callous psychopathic traits are primarily driven by deficits in affective empathy, a combination of cognitive and affective empathy deficits may contribute to reactive aggression in such individuals.

On the other hand, we explored the moderating role of moral disengagement in empathy mediation. Our findings indicate that moral disengagement amplifies the mediating effect of affective dissonance on proactive aggression. This suggests that individuals prone to interpersonal callousness, and who experience discordance with others' emotions, may be more susceptible to the adverse effects of such affective deficits if they exhibit lower moral sensitivity. Conversely, we found no evidence of moral disengagement moderating the mediation effects of empathic concern and perspective-taking on reactive aggression, which suggests that empathic responses might be more relevant than moral considerations in the context of reactive aggression.

A more comprehensive discussion of these findings is provided in the following section.

## 4. General discussion

Across two studies, we investigated how different aspects of empathy relate to interpersonal callousness and its association with aggression. Broadly, our findings indicate that deficits in affective empathy, rather than cognitive empathy, play a stronger role in the relationship between interpersonal callousness and aggression. Specifically, in both studies, affective dissonance was the only measure of affective empathy to show a full mediating effect on the relationship between interpersonal

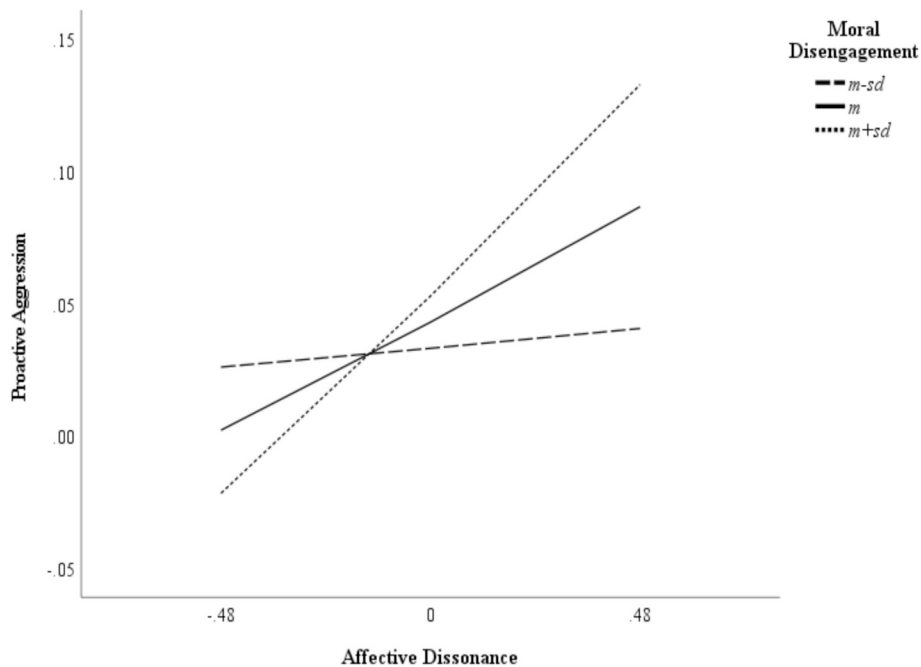


Fig. 3. Interaction effects of affective dissonance and moral disengagement on proactive aggression.

Note. The analysis revealed a significantly positive slope in the mean score of proactive aggression in relation to affective dissonance at higher values of moral disengagement ( $m + sd$ ), as well as at mean levels of moral disengagement ( $m$ ), but not for below average moral disengagement ( $m - sd$ ).

callousness and proactive aggression. This result aligns with theories proposing that individuals with psychopathic traits experience a disconnect between their emotional experiences and those of others (Cleckley, 1941; Hare & Neumann, 2008), and further indicate that this emotional detachment/disconnect make them more prone to exploiting or harming others for personal gain (Harris & Rice, 2006). Consequently, affective dissonance may identify a specific subgroup within the psychopathy spectrum characterised by heightened callousness and predatory tendencies (see Paulhus, 2014 for a discussion). However, whether affective dissonance is a feature of or a consequence of interpersonal callousness warrants further investigation.

On the other hand, in Study 2, we also found that deficits in perspective-taking, an aspect of cognitive empathy, partially contributed to reactive forms of aggression among participants reporting more callous interpersonal traits. This suggests that while affective dissonance may increase the likelihood of proactive aggression, difficulties in understanding others' perspectives can predispose individuals to reactive aggression (Blair, 2013; Chang et al., 2021). Reactive aggression typically arises in response to perceived threats or provocations, wherein the ability to accurately perceive others' perspectives becomes crucial (Mohr et al., 2007). Therefore, individuals lacking in perspective-taking skills are more likely to misinterpret social situations, which can lead to hostile reactions in self-defence or retaliation. The absence of this effect in Study 1 could be attributed to the smaller sample size, which might have limited the variability in perspective-taking skills and, consequently, the ability to detect these small effects. The larger sample size in Study 2 likely provided a more accurate picture of the relationship between perspective-taking deficits and reactive aggression, which suggests that a more powered sample could be needed to observe the influence of perspective-taking on aggression. We propose that future research should consider these factors and possibly incorporate larger sample sizes to further elucidate the role of cognitive empathy in aggression.

Additionally, in Study 2, the relationship between interpersonal callousness and reactive aggression was also partially mediated by empathic concern. Specifically, the data indicated that participants with more callous psychopathic traits tended to report higher levels of

reactive aggression at higher levels of empathic concern. Although this result seems counterintuitive at first, it is consistent with the view of empathy as a “double edge sword”. That is, while higher concern for others might encourage prosocial behaviour, it can also induce personal distress, hence leading to more reactive responses (Lovett & Sheffield, 2007; Miller & Eisenberg, 1988). Consequently, individuals with sub-clinical levels of callous traits may still experience discomfort or distress due to empathic concern, potentially elevating their propensity for reactive aggression. These findings are in line with the view that deficits in affective empathy heighten the risk of proactive aggression, whereas increased emotional sensitivity may amplify the risk of reactive aggression (Blair, 2013).

Furthermore, the moderating effects of moral disengagement on each function of aggression suggest differences in the cognitive processes underlying proactive and reactive aggression, with the latter being more closely tied to immediate emotional responses rather than moral considerations. As previously discussed, moral disengagement involves the justification of unethical behaviours through cognitive restructuring, allowing individuals to distance themselves from the moral implications of their actions (Bandura, 1990; Gini et al., 2015). In the context of proactive aggression, moral disengagement may exacerbate the effects of affective empathy deficits by rationalising and justifying harmful behaviours towards others (Gini et al., 2014). In this sense, individuals with more tendencies to morally disengage may perceive acts of aggression as acceptable or even desirable – especially when they derive pleasure from others' pain –, which could ultimately facilitate future engagement in aggression (Hyde et al., 2010; Shulman et al., 2011).

It is worth noting, however, that recent longitudinal research suggests that empathy deficits and morally disengaged attitudes may stem from repeated engagement in aggression, rather than the other way around (Falla et al., 2021). Similarly, antisocial behaviour has been found to predict the expression of dark affective traits but not vice versa (Sijtsema et al., 2019). This underscores the complexity of the interactions between empathy deficits, moral disengagement, and aggression. Conducting longitudinal research is therefore crucial to better understand the interplay between these constructs in order to



develop more effective strategies for intervention. Follow-up investigations in normative populations may also inform the development of preventative measures.

Moreover, in our analyses interpersonal callousness correlated more strongly with empathy measures than social deviance and aggression measures. This finding reflects the higher relevance of empathy deficits in interpersonal callous traits over more externalising aspects of psychopathy, reflected by Factor 2 in the SRP-SF. In other words, while social deviance and aggression are important facets of psychopathy, they seem less indicative of the core empathy-related deficits that define interpersonal callousness. This insight helps refine our understanding of psychopathy by highlighting the distinctiveness of empathy-related traits compared to more externally visible behaviours. Nevertheless, it is important to bear in mind that empathic and moral deficits merely represent a fraction of the socio-affective problems underlying interpersonal callousness (Shulman et al., 2011). In fact, interpersonal callousness still exhibits unique effects on aggression. These unique effects indicate that there are certain aspects underlying the link between callous interpersonal traits (as measured by the SRP-SF) and aggression that cannot be explained by empathy deficits or morally disengaged attitudes. Therefore, follow-up research including other measures associated with interpersonal callousness such as direct measures of guilt and manipulation could render more informative effects on these patterns. Lastly, it should also be noted that engagement in aggressive and antisocial behaviour is not solely determined by the individual's characteristics. Indeed, research shows that other psychosocial factors such as family, socioeconomic background and mental health condition highly predict future and continued engagement in crime (e.g., Kingston et al., 2016; Caspi et al., 2002; Dallaire, 2007; Farrington, 2000; Koli-voski & Shook, 2016). While we attempted to control for the potential effects of mental health diagnoses in our analyses, this examination may not fully capture the genuine impact of mental health conditions on the discussed associations, given that these participants were underrepresented. Therefore, follow-up research including more at-risk individuals like clinical and/or forensic samples is needed.

## 5. Conclusion

Despite the acknowledged limitations, this research shows that even within educated populations with seemingly subclinical levels and no criminal records, the expression of interpersonal callousness involves affective and moral deficits that are key for understanding its link with aggression (Brugman et al., 2017). These patterns align with the notion that while low empathy might facilitate the expression of cruelty and criminal behaviour in psychopathy, it does not inevitably lead to such outcomes, hence confirming that psychopathy does indeed exist within a spectrum. Consequently, it is important to study the expression of psychopathic traits like interpersonal callousness across diverse sample types. We posit that understanding this spectrum can inform the development of tailored interventions to target specific traits and behaviours before they escalate into criminal actions. Specifically, our findings underscore the importance of addressing emotional incongruence as a potential means to prevent or mitigate aggressive outcomes among individuals exhibiting interpersonal callousness.

## CRedit authorship contribution statement

**Célia F. Camara:** Writing – original draft, Visualization, Resources, Project administration, Methodology, Investigation, Formal analysis, Data curation, Conceptualization. **Alejandra Sel:** Writing – review & editing, Supervision, Resources, Funding acquisition. **Carina C.J.M. de Klerk:** Supervision. **Paul H.P. Hanel:** Writing – review & editing, Validation, Supervision, Project administration, Methodology.

## Declaration of competing interest

The authors declare that they have no known competing financial interests or personal relationships that could have appeared to influence the work reported in this article.

## Data availability

Data will be made available on request.

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## Appendix A. Supplementary data

Supplementary data to this article can be found online at <https://doi.org/10.1016/j.paid.2024.112836>.

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