



## Recalled parental bonding, current attachment, and the triarchic conceptualisation of psychopathy

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### ABSTRACT

The current investigation examined whether attachment functioning might mediate the effects of parenting on traits associated with psychopathy. Participants completed the Parental Bonding Instrument, the Experiences in Close Relationships Scale, and the Triarchic Psychopathy Measure within a cross-sectional design. Whilst several recalled parenting variables demonstrated significant correlations with the psychopathy subscales, mediation analyses confirmed that the majority of these effects were mediated by current attachment anxiety and avoidance. Only paternal overprotection maintained a significant direct effect on levels of disinhibition. These findings provide support for the argument that attachment dysfunction may represent a potential mechanism through which parenting practices contribute to the emergence of psychopathy-related traits. Inferences regarding causality and mechanisms of effect are naturally constrained by the cross-sectional design of the current investigation, but the preliminary findings presented warrant further examination within prospective designs.

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### 1. Introduction

Psychopathy represents a pathological form of personality characterised by impulsivity, antisocial tendencies, and a range of interpersonal/emotional deficits (Hare, 2003). It has strong associations with criminality and recidivism, (Harris, Rice, & Cormier, 1991), and those with high levels of psychopathy are likely to engage in both reactive and premeditated aggression, and to demonstrate little remorse for their actions (Hare, 2003). In addition, current treatments typically result in only small to moderate gains, with several aspects of the psychopathic disposition posing serious challenges to therapeutic progress (Salekin, Worley, & Grimes, 2010). As such, a great deal of empirical interest has been devoted to determining the causes and correlates of this distorted personality style, including the potential role of parenting experienced during childhood.

#### 1.1. Parenting and psychopathy

The quality of parent–child relationships has been shown to exert a lasting impact on social, emotional, and behavioural development, leading several eminent researchers to implicate such factors in the development of psychopathy (Hare, 1970; McCord & McCord, 1964). Indeed, several retrospective studies have found

that adolescents or adults who score highly on measures of psychopathy recall early family environments characterised by parental rejection, neglect or separation, inconsistent or severe punishment, and/or inadequate supervision (e.g., Campbell, Porter, & Santor, 2004; Gao, Raine, Chan, Venables, & Mednick, 2010; Kimbrel, Nelson-Gray, & Mitchell, 2007; Marshall & Cooke, 1999). Such observations have led to the suggestion that suboptimal parenting may play an aetiological role in the development of psychopathy.

Longitudinal studies have evidenced some provisional support for this argument, demonstrating prospective links between parenting practices and psychopathy-related traits. For example, chronically-elevated levels of callousness have been longitudinally related to harsh parenting in children aged 2–4 (Waller et al., 2012), as well as poor parent–child communication among male adolescents with symptoms of Oppositional Defiant Disorder/Conduct Disorder (Pardini & Loeber, 2008). In addition, McDonald, Dodson, Rosenfield, and Jouriles (2011) found that a parenting intervention successfully reduced levels of psychopathy-related traits among children aged 4–9, and that these effects were mediated by a reduction in levels of harsh and inconsistent parenting by mothers.

Whilst such findings are encouraging, some inconsistencies still remain. For example, whilst there is some evidence that parenting relates to certain affective features of psychopathy (e.g., callousness; Waller et al., 2012), other evidence suggests parenting practices are selectively related to the more behavioural features of psychopathy (i.e. impulsivity/antisociality; Kimbrel et al., 2007; Wootton, Frick, Shelton, & Silverhorn, 1997). In addition,

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longitudinal studies demonstrate the potential for reciprocal child–parent influences. For example, early levels of child conduct problems and hyperactivity have been found to elicit harsh parental discipline practices (Larsson, Viding, & Plomin, 2008), suggesting that the relationship between parenting and psychopathy may be more complex than initially conceived.

### 1.2. Attachment as a mediating mechanism

In order to better understand the relationship between parenting and psychopathy, researchers have begun to consider potential mechanisms of effect. One suggestion is that these links are mediated by the development and influence of maladaptive internal working models (IWMs) of attachment (e.g., Bowlby, 1944; Patrick, Fowles, & Krueger, 2009; Saltaris, 2002). According to attachment theory, in response to early interpersonal experiences, children develop a series of IWMs concerning the value of the self and significant others within relationships (Bowlby, 1969). These IWMs are essentially mental representations that are used to guide and interpret behaviour across a wide variety of interpersonal contexts. The functioning of these IWMs can be reliably assessed across the lifespan, and have demonstrated links with a wide variety of intra- and inter-personal behaviours (for a review, see Mikulincer & Shaver, 2007).

As early as 1944, Bowlby argued that experiences of parental rejection or separation might disrupt attachment system functioning and give rise to a particular form of “affectionless” offending, seemingly akin to contemporary descriptions of psychopathy. Others have elaborated upon such claims, suggesting that sub-optimal parent–child interaction generates maladaptive IWMs that disrupt moral socialisation, and give rise to several characteristic features of psychopathy, such as negative dispositions towards others, and a lack of empathy, compliance, or self-control (e.g., Lykken, 1995; Patrick et al., 2009; Saltaris, 2002). In other words, parenting is assumed to relate to psychopathy *through* its impact on attachment IWMs.

Consistent with this argument, several studies have reported associations between psychopathy-related traits and two particular forms of attachment dysfunction; dismissive attachment (a distinct lack of attachment relationships) and disorganised attachment (lacking a coherent strategy for dealing with attachment-related distress; e.g., Bakermans-Kranenburg & van Ijzendoorn, 2009; Pasalich, 2011). Yet, some studies have failed to find attachment-related differences between individuals designated as high versus low in clinician-rated psychopathy (e.g., Frodi, Dernevik, Sepa, Philipson, & Bragesjo, 2001), whilst others report only modest attachment–psychopathy links among nonclinical samples (Brennan & Shaver, 1998). Such inconclusive findings may be due to such studies relying upon a categorical approach to attachment (where individual differences in IWM functioning are expressed in terms of discrete “attachment styles”), which has been criticised for discounting important within-category variation (Fraley & Shaver, 2000).

Studies utilising the conceptually preferred dimensional approach to attachment demonstrate that adolescents scoring highly on clinician-rated psychopathy demonstrate poor parental attachment (Flight & Forth, 2007; Kosson, Cyterski, Steuerwald, Neumann, & Walker-Matthews, 2002). With regards to attachment functioning within adults, Brennan, Clark, and Shaver (1998) proposed the now widely adopted two-dimensional model of attachment anxiety and avoidance. Attachment anxiety represents a person’s sensitivity to rejection, and degree of preoccupation with attachment figure availability. Attachment avoidance represents the degree to which individuals avoid versus approach attachment figures during times of distress, and their willingness to engage reciprocally in the functions of attachment relationships. Within

a nonclinical sample, Mack, Hackney, and Pyle (2011) demonstrated that both attachment anxiety and avoidance demonstrated independent relationships with the behavioural symptoms of psychopathy, and that an interaction between high levels of both attachment anxiety and avoidance predicted affective symptoms of psychopathy. Such findings suggest that, when adult attachment is measured in a conceptually accurate manner, theoretically consistent links can be drawn between attachment functioning and psychopathy. Such evidence supports the idea that attachment IWMs could function as the mechanism behind parenting–psychopathy links.

### 1.3. The present research

The current investigation sought to directly test such a prediction, using a cross-sectional design within a predominately student sample. Whilst it is acknowledged that use of a nonclinical sample may limit the applicability of findings to previous theorising among clinical samples (e.g., Bowlby, 1944), it is considered a useful first step in evaluating such links for two reasons. Firstly, the use of nonclinical participants affords recruitment of a much larger sample than typically achieved within clinical populations, enhancing the power of analyses to detect the presence of more complicated mediation effects. Secondly, modern conceptualisations of psychopathy acknowledge the dimensional nature of personality, such that all individuals can be placed somewhere upon a continuum of traits associated with a particular disorder (Hare & Neumann, 2005). Nonetheless, it should be noted that the effects reported currently may not necessarily generalise to clinical populations.

Within the current investigation, psychopathy was operationalised using the triarchic meta-conceptualisation proposed by Patrick et al. (2009). Within this conceptualisation, psychopathy is decomposed into three distinct facets. Disinhibition captures the behavioural deficits associated with psychopathy, such as a tendency towards impulsivity, focus on immediate gratification, and impaired regulation of affect/behaviour. Meanness represents the affective/interpersonal deficits, including lack of empathy and emotional bonds to others, and a propensity towards exploitation/cruelty. Finally, boldness captures the more functional, social efficacious aspects of psychopathy, such as self-assurance, and high tolerance for stress, danger or unfamiliarity. Whilst these facets may sometimes inter-relate empirically, Patrick et al. (2009) stress the importance of considering them as “distinctive phenotypic identities” (p. 925), which should be assessed and interpreted separately.

Unlike previous factorial solutions, within this conceptualisation no one component focuses exclusively on the overtly antisocial traits associated with more criminal manifestations of psychopathy (e.g., delinquency, predatory violence). As such, it offers a potentially more appropriate way to examine psychopathic traits within nonclinical populations (Patrick et al., 2009). Recent findings demonstrate provisional support for the three-factor structure of this triarchic conceptualisation, along with evidence of convergent and concurrent validity by virtue of its associations with established psychopathy measures, and other psychopathy-relevant traits (such as Machiavellianism, narcissism, and low empathy; Sellbom & Phillips, 2013).

Several hypotheses were tested. First, it was predicted that recollections of suboptimal parenting practices (indexed by lower care and higher overprotection) would be positively related to disinhibition, yet negatively related to boldness (as this represents the more socially efficacious elements of psychopathy). Given that previous investigations have reported an inconsistent relationship between parenting and affective deficits associated with psychopathy, no firm predictions were made for the meanness

subscale. Second, it was predicted that current levels of attachment anxiety and avoidance would mediate the relationships between each index of recalled parenting and each subscale of psychopathy. Such findings would be consistent with the proposition that attachment IWMs act as the mechanism of effect between suboptimal parenting and traits associated with psychopathy.

## 2. Method

### 2.1. Participants

A convenience sample of 214 participants (153 female, 61 male) responded to an online study advert in return for course credit or cash payment. The majority of participants were undergraduate students (89%) with the remaining participants representing postgraduate students (9%) and staff (2%). Ninety-five percent of the sample described themselves as White-Caucasian, with the remaining sample describing themselves as Chinese (1.5%), Mixed-Race (1.5%), Arab (<1%), Asian (<1%) and Indian (<1%). After seven extreme scores were trimmed to within three standard deviations of the mean, the average age of participants was 20.30 (SD = 1.79).

### 2.2. Measures and procedure

Within the same experimental session, participants completed the following self-report measures in the order specified.

#### 2.2.1. Recalled parental bonding

The Parental Bonding Instrument (PBI; Parker, Tupling, & Brown, 1979) is a 25 item questionnaire which assesses retrospective levels of parental care and overprotection experienced during the first 16 years of life. It has been shown to demonstrate strong psychometric properties (e.g., split-half correlations Care  $r = .88$  Care, Overprotection  $r = .74$ ; Parker et al., 1979). Participants completed the questionnaire separately for both their mother and father.

#### 2.2.2. Current attachment

The Experiences in Close Relationships scale (ECR; Brennan et al., 1998) is a 36-item questionnaire which assesses current levels of attachment anxiety and avoidance. The ECR was selected due to its strong psychometric properties (e.g., Anxiety  $\alpha = .91$ , Avoidance  $\alpha = .94$ ; Brennan et al., 1998) and focus on the two dimensions currently considered to best conceptualise adult attachment dynamics (Roisman et al., 2007).

#### 2.2.3. Psychopathy

The Triarchic Psychopathy Measure (TriPM; Patrick, 2010) is a 58-item questionnaire that provides scores for boldness, meanness and disinhibition. Recent studies demonstrate convergence with more established measures of psychopathy (such as the PCL-R and Psychopathic Personality Inventory), and evidence of good internal consistency (Boldness  $\alpha = .82$ , Meanness  $\alpha = .88$ , Disinhibition  $\alpha = .84$ ; Sellbom & Phillips, 2013).

### 2.3. Statistical analyses

All variables were screened for their adherence with the assumptions of multivariate parametric analyses. Any violations were corrected and extreme scores trimmed to within three standard deviations of the mean before formal analysis proceeded. Descriptive statistics were calculated for the sample as a whole and for each gender separately. MANOVA analyses were used to determine whether it was necessary to control for participant gen-

der as a covariate within subsequent mediation analyses. The first MANOVA grouped together ECR and PBI scores, whilst the second grouped the three TriPM subscales.

Zero-order correlations were calculated between all parenting, attachment, and psychopathy variables. Given the use of concurrent measurement, and the known degree of inter-relation between parenting and attachment variables, shared variance was expected to contribute to these correlations. Such shared variance was subsequently accounted for within the regression analyses used to explore potential mediating effects. Within these analyses, all attachment and parenting variables were considered simultaneously, facilitating examination of the amount of unique variance accounted for by each individual variable. Separate mediation analyses were conducted for each TriPM subscale in turn, with paternal and maternal care and overprotection entered as independent variables, and attachment anxiety and avoidance as mediating variables within each analysis.

Mediation effects were analysed using an SPSS macro designed to examine the effect of multiple mediators within the same analysis (MEDIATE; Hayes & Preacher, submitted for publication). This macro was based on the ordinary least squares method of estimation and applied a bootstrapping sampling procedure for the assessment of mediation effects, as recommended by Preacher and Hayes (2008). Within the current investigation, 5000 samples were drawn and 95% bias-corrected confidence intervals were used to determine the significance of mediation effects. All variables were standardised before being entered into each mediation model. Based on the theoretical reasoning of Patrick et al. (2009), a key aim of the current investigation was to explore potentially unique relationships between parenting/attachment and each distinct triarchic psychopathy subscale. As such, separate regression-based mediation analyses were conducted for each TriPM subscale, rather than attempting to composite subscale scores using some form of latent variable analysis.

## 3. Results

### 3.1. Sample averages

One participant failed to complete the maternal PBI and five participants did not complete the paternal PBI. These values were found to be missing completely at random ( $\chi^2(14) = 6.33, p < .05$ ) and were deleted listwise from subsequent analyses. Table 1 contains average scores for each variable, both across the sample as a whole, and according to gender. MANOVA analyses indicated that several significant gender differences were present across the grouped parenting/attachment variables ( $V = 0.11, F(6,201) = 4.18, p < .001, \eta_p^2 = 0.11$ ) and grouped psychopathy subscales ( $V = 0.18, F(3,210) = 15.15, p < .001, \eta_p^2 = 0.18$ ). Table 1 displays the results of a series of follow-up univariate ANOVAs, which demonstrate that males were found to report significantly higher attachment avoidance, TriPM boldness, meanness, and disinhibition, and lower paternal overprotection, confirming the need to control for gender as a covariate within subsequent mediation analyses.

### 3.2. Correlational analyses

Table 2 displays the zero-order correlations between all current variables of interest. In line with predictions, parental care was found to relate positively to boldness but negatively to disinhibition. Parental overprotection demonstrated the expected positive relationship with disinhibition, but failed to demonstrate the expected negative relationship with boldness. In addition, parental care was found to relate negatively to meanness, whilst maternal overprotection demonstrated a positive relationship with

**Table 1**  
One-way ANOVAs comparing scores for all variables between males and females.

Variable	Total sample		Male		Female		ANOVA	
	M	SD	M	SD	M	SD	F	$\eta_p^2$
Maternal care	30.04	6.99	29.57	6.00	30.22	7.35	2.66	.01
Maternal overprotection	11.10	6.65	10.82	6.03	11.20	6.89	0.00	.00
Paternal care	26.33	7.75	25.02	7.56	26.85	7.79	3.62	.02
Paternal overprotection	8.87	6.02	7.60	5.77	9.38	6.06	4.51*	.04
Attachment anxiety	3.76	1.07	3.52	1.06	3.86	1.06	3.29	.02
Attachment avoidance	2.95	1.10	3.23	1.07	2.84	1.09	6.01*	.03
Boldness	46.65	8.01	48.96	9.00	45.73	7.41	7.31**	.03
Meanness	30.05	6.74	34.55	7.34	28.25	5.58	42.40***	.17
Disinhibition	35.01	7.87	38.05	8.96	33.80	7.06	12.22***	.06

Note: Parenting and attachment variables  $df(1,206)$ ; TriPM subscales  $df(1,212)$ .

\*  $p < .05$ .

\*\*  $p < .01$ .

\*\*\*  $p < .001$ .

**Table 2**  
Zero-order correlations between parenting, attachment and psychopathy variables.

Variable	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
(1) Maternal care	–	–.35***	.36***	–.20**	–.28***	–.42***	.16*	–.23***	–.29***
(2) Maternal overprotection		–	–.13	.59***	.31***	.28***	–.07	.17*	.34***
(3) Paternal care			–	–.18**	–.33***	–.27***	.16*	–.19**	–.23***
(4) Paternal overprotection				–	.34***	.16*	–.05	.11	.31***
(5) Attachment anxiety					–	.29***	–.36***	.09	.40***
(6) Attachment avoidance						–	–.20**	.27***	.34***
(7) Boldness							–	.20**	–.08
(8) Meanness								–	.56***
(9) Disinhibition									–

Note:  $N = 208$ .

\*  $p < .05$ .

\*\*  $p < .01$ .

\*\*\*  $p < .001$ .

meanness. Each parenting variable was significantly related to current attachment anxiety and avoidance in a theoretically consistent manner. Specifically, recalled parental care demonstrated a significant negative relationship with both anxiety and avoidance, whereas parental overprotection demonstrated a significant positive relationship with both indices of attachment insecurity. Finally, attachment anxiety and avoidance also demonstrated relationships with the TriPM subscales. Specifically, both attachment subscales demonstrated a negative relationship with boldness and positive relationship with disinhibition, yet only attachment avoidance demonstrated a significant positive relationship with meanness. Given that the majority of variables demonstrated at least some degree of inter-relation, it was considered appropriate to continue with planned mediation analyses.

### 3.3. Mediation analyses

Results for each of the three mediation analyses are summarised graphically in Fig. 1. To aid interpretability, only significant pathways are currently presented<sup>1</sup>. As can be seen, once shared variance had been accounted for, maternal care, paternal care, and paternal overprotection continued to demonstrate a relationship with attachment anxiety, but maternal overprotection did not. Only maternal care continued to demonstrate a unique relationship with attachment avoidance. Similarly, once shared variance had been accounted for, attachment anxiety continued to demonstrate a significant negative relationship with boldness and a significant positive relationship with disinhibition. Attachment avoidance only retained a significant positive relationship with disinhibition.

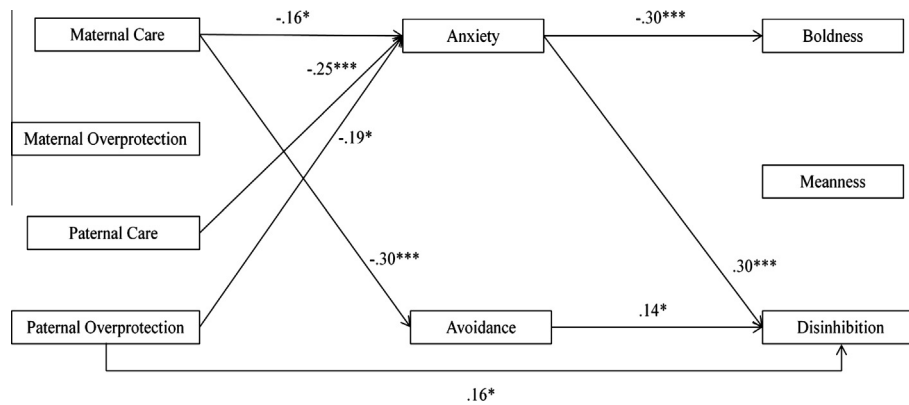
Examination of indirect pathways from parenting to each TriPM subscale through attachment variables revealed that attachment anxiety significantly mediated the effects of maternal care ( $\beta = .05$ , 95% CI [.00, .10]), paternal care ( $\beta = .07$ , 95% CI [.03, .13]), and paternal overprotection ( $\beta = -.06$ , 95% CI [–.12, –.01]) on boldness. Anxiety also mediated the effects of maternal care ( $\beta = -.05$ , 95% CI [–.10, –.00]), paternal care ( $\beta = -.07$ , 95% CI [–.13, –.02]), and paternal overprotection ( $\beta = .05$ , 95% CI [.01, .11]) on disinhibition. Attachment avoidance was only seen to mediate the effect of maternal care on disinhibition ( $\beta = -.04$ , 95% CI [–.10, –.00]). Paternal overprotection maintained a significant direct effect on disinhibition, even after current attachment functioning had been accounted for. Once shared variance and current attachment functioning had been accounted for parenting variables failed to demonstrate any significant effects on meanness.

## 4. Discussion

Overall, the current findings demonstrated support for the prediction that attachment-related IWMs could mediate the effects of parenting on psychopathy. Whilst several parenting variables demonstrated theoretically consistent correlations with the triarchic subscales of psychopathy, mediation analyses revealed that the majority of these effects operated indirectly via the influence of current attachment anxiety or avoidance.

Current attachment anxiety was found to mediate the relationships between parental care and both boldness and disinhibition, as well as the relationship between paternal overprotection and disinhibition. Such findings suggest that parenting that lacks warmth and affection results in higher levels of attachment

<sup>1</sup> Non-significant beta values can be obtained from the first author on request.



**Fig. 1.** Mediation of the effects of recalled parenting variables on TriPM subscales through current attachment anxiety and avoidance (controlling for participant gender). Note: \* $p < .05$ , \*\*\*  $p < .001$ .  $N = 208$ .

anxiety, which in turn reduces self-assurance and impairs affective/behavioural regulation. In addition, exposure to high levels of paternal intrusion may result in increased attachment anxiety as the individual fails to develop the ability to independently regulate attachment system activation. High levels of attachment anxiety are thought to produce chronic attachment-system hyperactivation and hypervigilance for rejection cues (Fraley & Shaver, 2000). Such difficulty in attachment system regulation may result in a failure to develop adequate coping and support-seeking strategies (Scott, Levy, & Pincus, 2009), increasing their level of affective/behavioural dysregulation and reducing their sense of mastery and interpersonal confidence.

In contrast to all other parenting effects, paternal overprotection continued to demonstrate a direct influence on disinhibition levels even after current attachment functioning had been accounted for. Such findings suggest that certain aspects of parenting influence affective/behavioural regulation via additional mechanisms that are independent of the attachment system, yet exert similarly persistent effects over the course of development. For example, overprotective parenting may alternatively lead to poorly regulated affect/behaviour through the process of parental “niche picking”, whereby overly intrusive parents limit their child’s exposure to emotion inducing situations, thus reducing the number of opportunities the child has to develop adaptive self-regulation strategies (Morris, Silk, Steinberg, Myers, & Robinson, 2007).

Attachment avoidance was only found to mediate the relationship between recalled maternal care and disinhibition. Parenting that is low in affection or warmth is argued to result in defensive deactivation of the attachment system, leading to a consistent preference for autonomy over inter-dependence (Main, 1990). Such individuals might engage in more reckless and poorly considered actions due to their reluctance to seek the advice and assistance of others. Their lack of interpersonal attachments may also contribute to affective dysregulation, as they fail to benefit from potential sources of external regulation in the form of close significant others.

Finally, once shared variance and gender were accounted for within the mediation model, parenting failed to demonstrate any direct or indirect effects upon meanness. Such findings are consistent with the results of several other retrospective investigations, and suggest that factors other than parenting/attachment are implicated in the emergence of the more affective/interpersonal deficits associated with psychopathy (e.g., biological influences; Blair, 2003). Alternatively, as the current sample size remained relatively small given the number of variables under investigation, such null findings may simply be the product of reduced statistical power. Indeed, replication among larger samples appears war-

ranted before firm conclusions can be made about the role of parenting and attachment in psychopathy based on this type of analysis.

Several other limitations should also be discussed. First, the current study relied solely on self-report measures, which are often limited by factors such as social desirability and lack of insight. As such, it would be useful to replicate the present findings using more objective indices of parenting, attachment, and psychopathy. The current investigation is also limited by the use of a cross-sectional design, as recalled parenting experiences may have been influenced by current functioning and/or memory biases. In addition, previous studies have also demonstrated the influence of reciprocal child-parent effects on supposed determinants of psychopathy (e.g., Larsson et al., 2008). As such, firm conclusions regarding the direction of causality, or mechanisms of effect, cannot be made without longitudinal corroboration.

Finally, whilst the dimensional nature of psychopathy suggests that investigations among nonclinical samples *might* be useful for testing theoretical predictions about this disorder, it remains possible that certain inter-variable relationships may only emerge at the extremes of trait expression. As such, replication within clinical samples would also be desirable before firm conclusions can be drawn. Should such studies replicate the current findings, it would provide more definitive support for the proposed aetiological links between parenting, attachment and psychopathy (Bowlby, 1944; Patrick et al., 2009) and encourage the development of therapeutic interventions designed to exploit such links to bring about affective, cognitive, and behavioural change in those at risk of developing, or already displaying, elements of psychopathy.

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