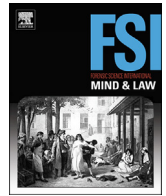


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## Original Research

## Dark shadow of the self: How the dark triad and empathy impact parental and intimate adult attachment relationships in women

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## ARTICLE INFO

## Keywords:

Dark triad  
Psychopathy  
Machiavellianism  
Narcissism  
Cognitive and affective empathy  
Attachment styles

## ABSTRACT

The current study examines the relationship between parental and intimate adult (best friend and partner) attachments with dark personality traits and empathy deficits in women. Participants (N = 262 females, M age = 26.65) completed self-report measures of the Dark Triad (DT) traits, cognitive and affective empathy, and attachment experiences in close relationships. Path model analysis showed that parental avoidant attachment predicted the dark dyad traits (Machiavellianism, psychopathy) while only parental anxious attachment predicted psychopathy. Psychopathy was the only dark trait directly and indirectly (via affective empathy) associated with intimate adult life attachment insecurity, whereas narcissism was associated with secure attachment through reduced anxious attachment towards best friends. Reduced affective empathy mediated the relationship between psychopathy and increased avoidant attachment, and also directly predicted lower anxious (best friend and partner) attachment. These findings are considered in the context of a possible route from parental to intimate adult life attachment difficulties in women with dark – in particular, psychopathic traits.

## 1. Introduction

How we emotionally attach to others has fundamental social psychological, mental health, and forensic implications. Attachment styles develop from birth and can become schematic over time through repeated learned experience, and, although modifiable (Baldwin & Fehr, 1995; Taylor, Rietzschel, Danquah, & Berry, 2015), they may persist throughout adulthood (Fraley, 2002; Hazan & Shaver, 1987; Mikulincer & Shaver, 2003). According to classical attachment theory (Bowlby, 1982/1969; Mikulincer & Shaver, 2003), attachment behaviour is developed and maintained through a cognitive system that creates internal working models of relationships with others through relational experience. This system is activated when there is a perceived threat to actual or imagined emotional or physical safety. Responses to its activation initially involve an attachment-related distress reaction that leads to behaviours, set up either to maintain relationship proximity or to develop distance from the significant other(s). Over time, these automatic responses and behaviours manifest into an individual's relational

working model, and default to a habitual secure, anxious, avoidant, or combined (disorganised/fearful<sup>1</sup>) orientation. However, which behavioural response occurs (and is maintained) is dependent on situational and individual factors, as well as real-life experiences.

Failure to emotionally attach to others in an emotionally regulated way is a key indicator of insecure attachment (Bowlby, 2005; Mikulincer & Shaver, 2012). For example, avoidant attachment is characterised by a strong compulsive self-reliance, a relational disconnection, and emotional overregulation. Anxious attachment reflects an excessively strong tendency to proximity-seek and a reduced tolerance for separation from the attachment figure, leading to emotional dysregulation (Mikulincer & Shaver, 2019; Mikulincer, Shaver, & Pereg, 2003).

The prototypical attachment bond, between the child and the caregiver, has been hypothesised to provide a template from which later life interactions develop (Bowlby, 1982/1969; Mikulincer & Shaver, 2003). Thus, attachment styles in later life close relationships may reflect styles of attachment to parents (e.g., Hazan & Shaver, 1987) and have been found to show some temporal stability throughout life (Doyle, Lawford,

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<sup>1</sup> Some researchers refer to fearful attachment as conceptually similar to disorganised attachment in that fearfully attached individuals have cognitively disorganised schemas (Simpson & Rholes, 2002).

<https://doi.org/10.1016/j.fsimpl.2021.100045>

Received 21 August 2020; Received in revised form 7 December 2020; Accepted 11 January 2021

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& Markiewicz, 2009; Zayas, Mischel, Shoda, & Aber, 2011). These relational schemas are thought to provide the child with a comparative baseline to negotiate other relationships in adolescence and adulthood. Thus, parental attachments may be particularly important in understanding adult attachment difficulties.

One constellation of personality traits implicated in insecure attachment styles is the Dark Triad (DT) – which comprises three socially aversive personality traits: Machiavellianism is characterised by an exploitative, deceitful, and cynical nature (Jakobwitz & Egan, 2006); narcissism by egocentricity, a sense of entitlement and grandiose thinking (Paulhus & Williams, 2002), and psychopathy by affective-interpersonal deficits, impulsivity, and erratic behaviours (Jones & Paulhus, 2014). Whilst these constructs evolved through assessments of forensic populations (e.g., Psychopathy Checklist - Revised/PCL-R, Hare, 2003),<sup>2</sup> dimensional assessments of psychopathic traits are typically used in the general population, (e.g., Levenson, Kiehl, & Fitzpatrick, 1995; Paulhus & Williams, 2002). Together, they (in particular, psychopathy and Machiavellianism) combine to indicate a ‘shadow side’ of personality that predicts maladaptive outcomes such as aggression (e.g., Heym, Firth, et al., 2019).

The DT traits have been associated with a preference for short-term mating styles/relationships (Jonason & Buss, 2012; Jonason, Luevano, & Adams, 2012) and an impaired ability to form meaningful long-term relationships (Koladich & Atkinson, 2016). Whilst studies have examined either childhood or adulthood attachment in relation to these traits, these have not been looked at simultaneously to establish a more comprehensive model including parental and intimate adult attachment difficulties through the lens of dark traits. In addition, little is known about what hallmark deficits might underpin attachment difficulties seen in the DT, such as empathic deficits. Thus, the current study aims to expand the current DT literature further by providing a model that examines (i) the relationship between parental attachment and DT traits, and (ii) their intimate adult attachment insecurities via the facets of cognitive and affective empathy.

### 1.1. The DT and attachment difficulties

The DT traits have been explored in the context of dysfunctional attachment relationships – either combined or individually, and usually in the context of either parental or romantic adult partner attachment. In terms of parental bonding, Machiavellianism has been linked to less parental care and parental dependence (Connor, Spark, & Kaya, 2020), poorer quality of parental care and insecure attachment, particularly disorganised/fearful attachment - a combination of both anxious and avoidant attachment difficulties (Jonason, Lyons, & Bethell, 2014). This suggests that those with high Machiavellianism may experience greater conflict between *pushing away* from (high dismissing avoidance) and *pulling towards* (preoccupation for) their attachment figures, possibly reflecting a disorganised/fearful attachment style (Bartholomew & Horowitz, 1991). In romantic relationships, Machiavellian individuals show greater emotional detachment and lower levels of commitment (Ali & Chamorro-Premuzic, 2010; Jonason & Buss, 2012). In attachment research, Machiavellianism has been associated with anxious and avoidant adult attachment orientations (Nickisch, Palazova, & Ziegler, 2020), and dismissing-avoidant attachment in partner relationships (Ináncsi, Lang, & Bereczkei, 2015). Specifically, avoidant attachment has been highlighted for Machiavellian women in intimate partner relationships (Brewer et al., 2018). Given the strategic nature of Machiavellianism, individuals may *push away* from partner attachments due to their need

for independence, self-reliance, and fear of being exploited by another.

Insecure parental attachment has been shown in male criminal psychopathy (Bailey & Shelton, 2014). Likewise, subclinical psychopathic traits show a positive association with parental dependence, with some sex differences (father alone for women, both parents for men; Connor et al., 2020). Insecure attachment mediates the relationship between lack of parental care and primary psychopathy, characterised by affective-interpersonal deficits/callousness (Jonason et al., 2014). Prior research has also indicated a distinction between partner attachment orientations in different psychopathic variants. Notably, primary psychopathy has been associated with anxious attachment (Mayer, Savard, Brassard, Lussier, & Sabourin, 2020), whereas secondary psychopathic traits (marked by impulsive and antisocial behaviour) have been associated with both anxious and avoidant attachment styles (Brewer et al., 2018; Mack, Hackney, & Pyle, 2011; Mayer et al., 2020; Nickisch et al., 2020; Unrau & Morry, 2019). Moreover, sex differences have been evidenced. For example, Blanchard and Lyons (2016) report primary (but not secondary) psychopathic traits was predicted by both avoidant and anxious attachment in women, whilst avoidant (but not anxious) attachment predicted both primary and secondary psychopathic traits in men. However, in a study of women in romantic relationships, Brewer et al. (2018) show that both primary and secondary psychopathy (along with machiavellianism), predicted avoidant attachment. Anxious attachment, on the other hand, was predicted by higher secondary psychopathy and lower narcissism (see below). Therefore, the failure to establish meaningful interpersonal relationships appears to be associated with different aspects of psychopathy and reflects conflict between *pushing away* from and *pulling towards* others, with some potential sex differences emerging.

Narcissism has been linked to greater paternal dependence, parental care, and less maternal overprotection, in women, but not men (Connor et al., 2020). In romantic relationships, (grandiose) narcissism has been associated with more secure (reduced anxious) attachment for women (Brewer et al., 2018). This may be because grandiose narcissism is associated with greater self-esteem and self-confidence (Krizan & Herlache, 2018), which may prompt an over-estimation of relationship security. However, narcissism also comprises different facets and phenotypes (Pincus & Lukowitsky, 2010; Rohmann, Neumann, Herner, & Bierhoff, 2012). For example, whilst grandiose (exploitative, superiority, entitlement) phenotype has been associated with more secure adult attachment (Jonason et al., 2014), the vulnerable (feelings of inferiority, anxiety, fragile self-confidence) phenotype shows greater anxious attachment in relationships – in particular in women (Smolewska & Dion, 2005). As such, vulnerable narcissists - underpinned by greater anxiety levels in general - are more likely to experience feelings of being unworthy of affection, which may contribute to increased relationship anxiety (Smolewska & Dion, 2005). Thus, discrepant findings for narcissism and attachment (in)security, may be a result of the different phenotypes or facets measured. As the DT typically measures the grandiose phenotype, this suggests that narcissism should express greater relationship security in the context of the DT.

Finally, though studies have alluded that parental care can impact the ability to attach securely in adulthood (Jonason et al., 2014), limited research has explored these associations directly, with parental and intimate adult life attachments examined in the same model, and with DT traits as an intermediate variable. In order to further understand the dynamic relationships between the dark personalities and attachment insecurities, we examine parental attachment as a predictor of DT traits, and consequently, to what extent both of these might impact intimate adult relationships. Moreover, in terms of intimate adult attachment, DT studies have almost exclusively focused on romantic partner relationships. Friend relationships are often neglected despite the capacity of friends for emotional support and proximity seeking, especially in the absence of a partner (Doherty & Feeney, 2004). Therefore, this study will differentiate between two types of intimate adult life attachment relationships: attachment to best friends and romantic partners, to

<sup>2</sup> The PCL-R (Hare, 2003) is considered the ‘gold standard’ of psychopathy assessment in forensic populations. Even though psychopathy is generally conceptualised as a dimensional construct (Edens, Marcus, Lillienfeld, & Poythress, 2006), cut-offs are frequently used in clinical practice (PCL-R cut off  $\geq 30$ ; though Europe standard cut-off score  $\geq 25$ ; Florez et al., 2020).

incorporate a broader sense of adult attachment experience in a DT context. In same sex friendships, women reported greater symmetrical reciprocity (trust, loyalty, genuineness) relative to men, as well as less tolerance to non-reciprocation of these attributes (Hall, 2011). As DT traits are marked by deceitfulness and dishonesty, insecure friend relationships may be therefore particularly pronounced in women. Therefore, this study will examine parental and intimate adult attachment difficulties to best friends and romantic partners in women with elevated DT traits.

### 1.2. Attachment and empathy in the DT

Attachment orientations have conceptual links to empathy, where studies indicate that good relationship quality between child and the caregiver (as a requirement for a secure attachment) is a key aspect of compassion (e.g., Mikulincer & Shaver, 2005) and empathic development (e.g., Bowlby, 1982/1969; McDonald & Messinger, 2011). Empathy is an aspect of prosocial behaviour that requires a stable and safe developmental experience to flourish - without this experience of a secure base, people have limited cognitive and emotional resources to devote to the feelings of others (Mikulincer & Shaver, 2005). As with a secure attachment style, the expression and experience of empathy facilitates the development and maintenance of emotional connections in relationships. Thus, empathic feelings are concomitant with a healthy attachment system and may function best when thoughts and feelings are emotionally regulated. If the attachment system is destabilised, anxious or avoidant strategies could ensue, which may subsequently impair empathic functioning.

A key hallmark of the DT involves the role of impaired empathy (Heym, Firth, et al., 2019; Wai & Tiliopoulos, 2012), and is at the heart of a dark side to the self, where psychopathy and Machiavellianism seem especially connected (Heym, Firth, et al., 2019). Empathy is a core aspect of developing and maintaining prosocial behaviour because it promotes a mutual understanding and a felt sense of what it is like to be in 'someone else's shoes'. As such, affective empathy is shown by an individual's emotionally resonant response to another individual and involves the vicarious sharing of someone else's feelings (emotional contagion), responding to the emotional cues of others (proximal responsivity), and responding to emotional cues in immersive situations (peripheral responsivity). Cognitive empathy, on the other hand, is shown in an individual's knowing and understanding of another's position, without necessarily experiencing a visceral reaction. It involves the capacity to understand other people's internal mental states (perspective taking) and the ability to understand another's situation by imagining what they might be feeling (online simulation). Clinical studies have typically highlighted affective empathy as the main hallmark deficit in psychopathy, whereas cognitive empathy appears to be intact (e.g., Blair et al., 1996; Dadds et al., 2009; Dolan & Fullam, 2004; Richell et al., 2003; Shamay-Tsoory, Harari, Aharon-Peretz, & Levkovitz, 2010). In the context of the DT, both, affective and cognitive empathy have been found to be reduced, in particular in individuals with psychopathic traits once shared variance with the other two dark traits is accounted for (e.g., Heym, Firth, et al., 2019; Jonason & Krause, 2013; Wai & Tiliopoulos, 2012). Cognitive empathy appears to be spared, or even increased, in the case of Narcissism only (Heym, Firth, et al., 2019; Wai & Tiliopoulos, 2012). Thus, whilst affective empathy deficits have been more strongly and consistently implicated in psychopathy in particular, the links between the DT and cognitive empathy deficits are less consistent. More recently, a study using latent profile analysis has indicated different subgroups of DT - the traditional DT with low levels of empathy and the Dark Empath with high levels of empathy, and the latter being associated with fewer maladaptive outcomes in terms of general personality traits, aggression and well-being (Heym et al., 2020).

From an attachment perspective then, emotional dysregulation at the physiological level is likely to impact affective empathy the most, because affective empathy is an ability to resonate in an embodied way

with another individual outside of the self. Cognitive empathy may also be impacted, as insecure individuals are less able to engage in perspective taking (Henschel, Nandirino, & Doba, 2020). This may be due to their own internal biases: the need to be self-reliant and deactivate from others, or to be hyperactivated and to excessively proximity-seek in order to stabilise their attachment (Mikulincer & Shaver, 2003). Despite these proposed links between attachment and the different types of empathy, no studies to date have examined these simultaneously within one model in relation to the DT. Therefore, the current study will assess the mediating role of affective and cognitive empathy in the associations of the three dark traits with adult attachment.

### 1.3. Present study

Previous studies show that at least two DT traits, namely Machiavellianism and psychopathy, are implicated in parental and intimate adult attachment insecurities, most notably in terms of romantic relationships, whereas Narcissism (the grandiose type at least) does not seem to show the same connections. This thinking is in line with other research suggesting that amongst the dark traits, narcissism is typically less maladaptive than the other two dark dyad traits (e.g., Heym, Firth, et al., 2019). The following study investigates the inter-relationships of the DT, and its unique trait associations with parental and intimate adult (best friend/partner) attachment difficulties, alongside the mediating role of empathic deficits. Extant research has explored each of these topics separately or in some combination, though a hypothetical relationship of parental attachment and intimate adult attachment, through the influencing lens of DT traits and cognitive and affective empathy, has not been explored to date.

Moreover, studies have highlighted the role of sex differences in the DT, attachment, and empathy literatures. Men and women can experience socialisation and relationships in different ways (Eisenberg & Fabes, 1998), and empathy tends to be higher in women (Eisenberg & Lennon, 1983; Toussaint & Webb, 2005). Moreover, a meta-analysis of sex differences in romantic relationships demonstrated that women report lower avoidant but higher anxious attachment, relative to men (Del Giudice, 2011). In addition, DT traits are typically explored in mixed or male only samples, as males tend to have higher DT scores than females (Jonason & Webster, 2012; Jonason, Lyons, Bethrell, & Ross, 2013), but less is known about exclusive female expression of DT traits. Dark traits are not an inherently male phenomenon, indeed, prior research has shown that reduced empathy moderates greater psychopathic traits in men, while in contrast, greater narcissism in women (Jonason, Lyons, Bethell, & Ross, 2013). This indicates that studies with a mixed sex sample have the potential to predominantly account for antagonistic characteristics of men, whilst neglecting the manifestation of dark personalities in women. Moreover, there appear to be different styles of parental bonding in men and women in the context of the DT (Connor et al., 2020). From a life history perspective, DT traits have been linked to an accelerated mating strategy in women, beneficial in terms of acquiring more partners, resources, and offspring (Jonason & Lavertu, 2017). From this perspective, women with higher psychopathic traits and reduced affective empathy may contribute to avoidant partner attachment, whereby they engage in romantic relationships for psychosocial benefits rather than emotional involvement. Moreover, dark traits are related to greater masculinity or limited femininity (Jonason & Davis, 2018). Therefore, women with elevated dark traits may express more masculine attributes (e.g., self-interested, self-reliant), and be less likely (or willing) to form secure attachments with best friends. In order to examine the expression of DT traits further in women, we adopt a single-sex study approach and focus on DT related attachment difficulties in women only.

We hypothesize that insecure parental attachment will predict Machiavellianism and psychopathic traits, in particular (H1). Both psychopathy and Machiavellianism, as the most severe DT traits, will be associated with insecure intimate adult attachment styles (best friend/partner) (H2). Narcissism, on the other hand, will be associated with

more secure parental and intimate adult attachments (H3). Finally, reduced affective empathy will mediate the relationships between the DT and attachment insecurities to best friends and partners. (H4).

## 2. Method

### 2.1. Participants and procedures

Two hundred and sixty-two females (as assessed through biological sex) participated in this study. Ages ranged from 18 to 71 years old ( $M = 26.65$ ;  $SD = 11.65$ ). The majority of the sample were White British (42.4%) followed by White Other (31.7%), Asian (8.4%), Hispanic or Latino (5.0%), Black or African American (2.7%), Native American (1.1%), Other (5%) and 'Prefer not to say' (3.8%). Participants were recruited through two University research credit schemes in the United Kingdom, and also via general online participation through snowball sampling. Ethics were obtained from the respective University Ethics Committees.

### 2.2. Measures

Attachment style was measured using an adapted version of the 36-item Experiences in Close Relationships-Revised (ECR-R; Fraley, Waller, & Brennan, 2000). The ECR-R assessed attachment to the mother, father,<sup>3</sup> partner, and best friend<sup>4</sup> on two dimensions: attachment anxiety (18 items, asked once in the context of each relationship) (e.g., "I'm afraid I will lose my partner's love") and attachment avoidance (18 items, asked once in the context of each relationship, e.g., "I prefer not to show my partner how I feel deep down"). Each item is rated on a visual analogue Likert 7-point scale where 1 = "strongly disagree" and 7 = "strongly agree". The ECR-R is regularly used and has shown good reliability (e.g., alphas for anxiety (0.95) and avoidance = (0.93) are consistent (Brennan, Clark, & Shaver, 1998; Fraley et al., 2000; Sibley & Liu, 2004)). As we used an adapted measure where participants were asked about multiple relationships rather than one, Cronbach's alpha were calculated for each relationship attachment (see Table 1 in results).

The Dark Triad (Machiavellianism, narcissism, and psychopathy) was measured using the 27-item Dark Triad of Personality – Short Version (SD3, Jones & Paulhus, 2014). Items were scored on a 5-point Likert scale where 1 = "strongly disagree" and 5 = "strongly agree". The SD3 is a reliable, practical and brief measure of the dark traits and the subscales correlate with longer measures of the DT, for example MACH-IV (Christie & Geis, 1970), Narcissistic Personality Inventory (NPI-16; Ames, Rose, & Anderson, 2006) and Levenson's Self-Report Psychopathy (LSRP; Levenson et al., 1995; Ozsoy, Rauthmann, Jonason, & Ardic, 2017). Volmer, Koch, and Wolff (2019) found moderate to strong correlations between the SD3 and longer measures of the DT ( $r = 0.66$  for psychopathy,  $r = 0.73$  for narcissism, and  $r = 0.57$  for Machiavellianism scales). The SD3 psychopathy subscale incorporates items that combine statements related to both primary and secondary psychopathy, though mostly aligns with secondary psychopathic traits (Miller et al., 2012; Muris, Merckelbach, Otgaar, & Meijer, 2017). The SD3 has shown consistently reliable scores with Cronbach's alphas ranging from 0.77 to 0.80 (Muris et al., 2017).

Empathy was measured using the 31-item Questionnaire of Cognitive and Affective Empathy (QCAE; Reniers, Corcoran, Drake, Shrvane, & Völlm, 2011). Cognitive empathy is considered to be a combination of perspective taking (10 items) and online simulation (9 items) and affective empathy items included the concepts of emotional contagion (4

items), proximal responsivity (4 items), and peripheral responsivity (4 items). Previous Cronbach's alphas ranged from 0.65 to 0.85 (Reniers, Corcoran, Drake, Shrvane, & Völlm, 2011). To achieve a more parsimonious model, these subscale scores of cognitive and affective empathy, respectively, were combined. The cognitive and affective empathy facets have been validated in prior research with alphas of 0.89 and 0.78, respectively (Powell, 2018).

### 2.3. Statistical analyses

Zero-order correlations were conducted in order to clarify the associations between parental and intimate adult attachments, DT traits and empathy. Following this, three path models were conducted to examine the direct and indirect relationships between parental and intimate adult attachment, the DT traits, and empathy. The first model assessed the unique contributions of parental anxious and avoidant attachment on best friend/partner anxious and avoidant attachments, as a baseline only. The second model included DT traits as mediators between parental and intimate adult attachment, in order to address hypotheses 1–3 (relationships between attachment and DT traits). The third model included cognitive and affective empathy as further mediators between DT traits and intimate adult insecure attachment, in order to address Hypothesis 4. All analyses were undertaken in Mplus (Muthén & Muthen, 2010); estimates reported are based on STDYX standardization (where coefficients are standardised using the variance of predictor/covariate variables as well as the outcome variable), and all analyses include age as a covariate.

## 3. Results

### 3.1. Descriptive statistics and zero-order correlations

Mean, standard deviations, Cronbach's alphas and zero-order correlations for the DT traits, attachment and cognitive and affective facets of empathy are displayed in Table 1. All variables show good reliability with alphas ranging from 0.72 to 0.98.

Both anxious and avoidant parental attachment styles were positively correlated with psychopathy, whereas only parental attachment avoidance with Machiavellianism. Both Machiavellianism and psychopathy correlated positively with anxious and avoidant adult attachment (best friend/partner). Narcissism was the only DT trait that was not correlated with any of the attachment variables. Cognitive empathy negatively correlated with Machiavellianism and psychopathy, while affective empathy was associated (negatively) with all DT traits. Cognitive and affective empathy correlated negatively with avoidant attachment, whereas affective empathy was positively associated with anxious attachment for best friend relationships. Likewise, affective empathy was related negatively to avoidant attachment and positively to anxious attachment for partner relationships.

### 3.2. Path models testing the relationships of DT traits, attachment and empathy

The *Baseline Model 1* (Fig. 1) confirmed that direct paths between parental attachment to intimate adult attachments were significant. Specifically, parental avoidant attachment was related to avoidant intimate adult attachment (best friend and partner); whereas parental anxious attachment was related to both anxious and avoidant intimate adult attachments (best friend and partner).

**Hypothesis 1.** Model 2 shows that insecure parental attachment predicted the DT, Machiavellianism and psychopathy in particular. As can be seen in Fig. 2, both avoidant and anxious parental attachment was related to Machiavellianism and psychopathy only. While avoidant parental attachment (weakly positively) predicted both Machiavellianism and psychopathy; anxious parental attachment (weakly) predicted psychopathy only. These findings hold for the fully mediated model 3 (Fig. 3) as

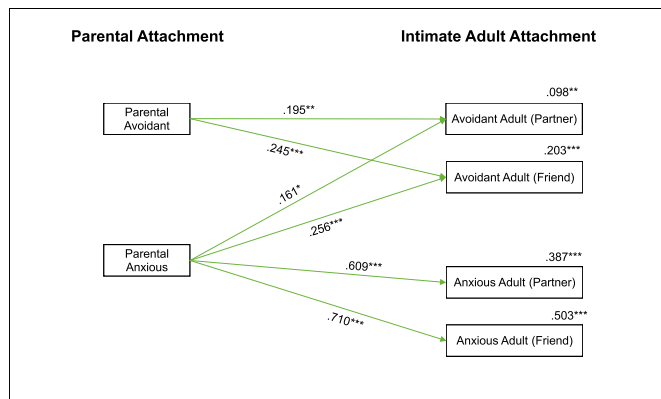
<sup>3</sup> We combined mother and father responses to combined parental/caregiver attachment to achieve a parsimonious and robust model.

<sup>4</sup> We measured "best friend", not any friend or peer so participants would chose/reflect on a friend they were most emotionally close to but who is different from a romantic (sexual) partner.

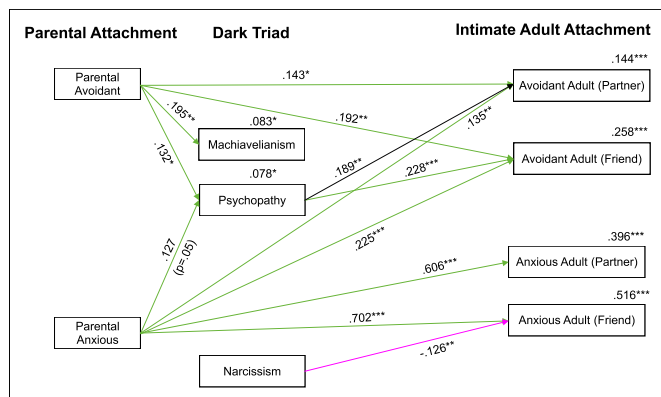
**Table 1**  
Descriptive statistics and zero-order correlations for all variables.

| Measures                | alpha | Mean  | SD   | 1       | 2        | 3      | 4       | 5       | 6       | 7        | 8       | 9     | 10     |
|-------------------------|-------|-------|------|---------|----------|--------|---------|---------|---------|----------|---------|-------|--------|
| <b>Dark Triad</b>       |       |       |      |         |          |        |         |         |         |          |         |       |        |
| 1. Machiavellianism     | .81   | 2.86  | .68  | 1       |          |        |         |         |         |          |         |       |        |
| 2. Psychopathy          | .75   | 2.04  | .59  | .496*** | 1        |        |         |         |         |          |         |       |        |
| 3. Narcissism           | .72   | 2.63  | .59  | .350*** | .346***  | 1      |         |         |         |          |         |       |        |
| <b>Attachment</b>       |       |       |      |         |          |        |         |         |         |          |         |       |        |
| 4. Avoidant parental    | .98   | 3.52  | 1.55 | .157*   | .164**   | -.079  | 1       |         |         |          |         |       |        |
| 5. Anxious parental     | .96   | 2.63  | 1.24 | .107    | .183**   | -.050  | .471*** | 1       |         |          |         |       |        |
| 6. Avoidant partner     | .95   | 2.74  | 1.28 | .150**  | .204***  | -.063  | .324*** | .282*** | 1       |          |         |       |        |
| 7. Avoidant best friend | .93   | 2.55  | 1.12 | .155*   | .248***  | -.095  | .439*** | .405*** | .626*** | 1        |         |       |        |
| 8. Anxious partner      | .94   | 3.60  | 1.43 | .164**  | .181**   | -.059  | .250*** | .600*** | .387*** | .242***  | 1       |       |        |
| 9. Anxious best friend  | .94   | 3.04  | 1.30 | .128*   | .191**   | -.104  | .300*** | .703*** | .266*** | .424***  | .726*** | 1     |        |
| <b>Empathy</b>          |       |       |      |         |          |        |         |         |         |          |         |       |        |
| 10. Affective           | .85   | 35.29 | 6.55 | -.144*  | -.221*** | -.153* | -.052   | 0.093   | -.121*  | -.205*** | .252*** | .168* | 1      |
| 11. Cognitive           | .91   | 60.47 | 8.67 | -.161** | -.310*** | .058   | -.039   | -.019   | -.098   | -.186**  | 0.006   | -.079 | -.29** |

Note: \*p < .05, \*\*p < .01, \*\*\*p < .001.



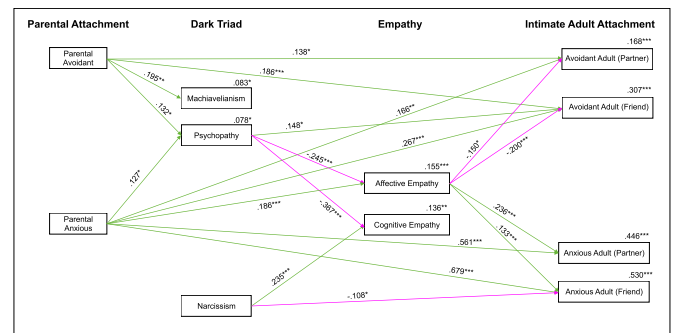
**Fig. 1.** Model 1 looking at parental attachment to adult attachment. Note: Values are STDYX standardised beta values (coefficients are standardised using the variance of predictor/covariate variables as well as the outcome variable). Values on top right of exogenous variables are R-squared values. Age is included as covariate in the model. Path model is just identified, no fit statistics are given.



**Fig. 2.** Model 2 looking at parental attachment and adult attachment, with dark triad traits as mediators. Note: Values are STDYX standardised beta values. Values on top right of exogenous variables are R-squared values. Age is included as covariate in the model. Path model is just identified, no fit statistics are given. Darker path (between psychopathy and avoidant partner) denotes that it is no longer significant in model three.

well. This supports the first hypothesis that insecure parental attachment (both avoidant and anxious) is particularly related to the dark dyad, Machiavellianism and psychopathy, but not Narcissism.

**Hypotheses 2 and 3.** Machiavellianism and psychopathy predicted



**Fig. 3.** Model 3 looking at parental attachment and adult attachment, with dark triad traits and empathy facets as mediators. Note: Values are STDYX standardised beta values. Values on top right of exogenous variables are R-squared values. Age is included as covariate in the model. Path model is just identified, no fit statistics are given.

insecure adult attachment, whereas Narcissism was associated with secure adult attachment. Model 2 (Fig. 2) shows that only psychopathy had a weak positive relationship to insecure adult attachment (namely avoidant best friend and partner, but not anxious adult attachment). In the fully mediated model 3 (Fig. 3), this finding reduces to psychopathy only directly predicting avoidant best friend attachment (weakly and positively), whereas avoidant partner becomes non-significant. This offers some support for H2, in that only psychopathy (but not Machiavellianism) directly predicted avoidant adult attachment only. With regards to Narcissism (H3), it was solely (weakly and negatively) related to anxious best friend attachment in both, models 2 (Figs. 2) and 3 (Fig. 3), supporting that Narcissism is linked to more secure adult attachment (particularly for not being anxiously attached to best friends).

**Hypothesis 4.** The DT negatively predicted affective empathy, which in turn was associated with insecure adult attachment, confirming the hypothesised specific role of affective empathy, rather than cognitive empathy, in DT-related adult attachment difficulties (model 3 – Fig. 3). However, only psychopathy (but not Machiavellianism) was negatively related to affective empathy (weakly to moderately). Machiavellianism was not related to either empathy facet and Narcissism was positively related to cognitive empathy. Affective empathy was (weakly) negatively related to avoidant, but (weakly) positively to anxious friend and partner attachment. In relation to H4, while only psychopathy negatively predicted affective empathy, and that in turn, predicted greater avoidant attachment (friend and partner) as expected; the decreased affective empathy in psychopathy also related in turn to a decrease in anxious intimate adult attachment (friend and partner), which was unexpected.

Taken together, the direct paths between parental and intimate adult

attachment of the baseline model 1 held for model 2 and model 3, showing that no full mediation between parental and intimate adult attachment took place by either DT and/or empathy variables. The direct positive relationship between psychopathy and avoidant partner attachment in model 2 (Fig. 2), however, was fully mediated by affective empathy (Fig. 3), whereas the direct positive relationship between psychopathy and avoidant best friend attachment (Fig. 2) was only partially mediated by affective empathy (Fig. 3).

#### 4. Discussion

In this study, we examined how parental attachments impact the darker sides of personality in women and, in turn, how they affect intimate adult attachment styles, as the dark triad concept implies a lack of desire or ability to connect with others. We also examined both cognitive and affective empathy as potential underpinning mechanisms in driving these associations.

Our findings show that insecure parental attachment has an impact on psychopathic and Machiavellian traits in women. In particular, both anxious and avoidant parental attachment were implicated in psychopathy, whereas only avoidant parental attachment was implicated in Machiavellianism. In the context of a hypothetical developmental model for DT related attachment difficulties, these findings could suggest that a more disorganised/fearful *push-pull* attachment conflict may drive the development of psychopathic traits perhaps underpinning the development of shallow affective-interpersonal deficits and reckless/oppositional behavioural traits, whereas a more organised *pushing away* from parents in early life might reinforce a need for independence, self-reliance, and emotional discomfort seen in Machiavellianism. The concept of *push-pull* attachment is conceptually aligned with disorganised/fearful attachment, which have been related to more complex problems in clinical (Allen, Coyne, & Huntoon, 1988) and forensic (Timmerman & Emmelkamp, 2006) contexts. Alternatively, it can be argued that a child who exhibits darker traits from an early age would make it difficult for parents or caregivers to form stable emotional bonds (Hawes, Dadds, Frost & Hasking, 2011), thus, reinforcing a *push-pull* relationship process (e.g., “I want to love my child, but my child is bad”). However, due to the retrospective and cross-sectional nature of parental attachment measured in this study; we cannot determine here a precise developmental trajectory of this relationship.

According to classic attachment theory (Bowlby, 1982/1969), a child exposed to emotionally unavailable parents would internalise such interpersonal schemas, and in turn may replicate a similar pattern of relationship difficulties in adulthood. However, contrary to previous findings (Brewer et al., 2018; Nickisch et al., 2020), *pushing away* from emotional parental attachment was not in turn transferred to adult attachment insecurities in the context of Machiavellianism. Indeed, once the shared variance between the DT traits was accounted for, psychopathy was the only DT trait to be directly and indirectly (via affective empathy) related to insecure intimate adult attachments. This finding indicates that, among the DT, psychopathic traits are the most detrimental to forming secure relationships or emotional bonds with close peers (in our case, best friends) and partners. Thus, it is interesting that, controlling for psychopathic traits, Machiavellian traits in women do not appear to demonstrate (or self-report) any insecure attachment to their friends or partners despite their parental attachment difficulties. In this regard, our results are in line with Brewer et al. (2018) with regards to psychopathy, but diverge with regards to Machiavellianism predicting partner attachment avoidance.

Narcissism was the only DT trait unrelated to insecure parental attachment, and indeed, reported more secure (i.e., reduced anxious) attachment in adult best friendships. This finding indicates that women with grandiose narcissistic traits experience less anxiety in best friend relationships, whilst also not reporting any insecure attachments for partner relationships. These findings emphasise the adaptive qualities of grandiose narcissism (greater levels of confidence and self-esteem) in

relation to their adult relationships, and questions if narcissism is really part of the DT once the dark core is removed (Heym, Firth, et al., 2019). Narcissism was also uniquely associated with increased cognitive empathy, indicating that narcissistic women are relatively good at understanding the perspectives of others. This skill would be an asset to a narcissist, enabling them to make a favourable impression on their closest friends, and consequently gaining their attention and admiration. Though the results point to secure attachment as a foundation for narcissism, arguably, here narcissism is not pathological but likely reflects a conjunction of emotional stability and sociability, which is also associated with positive social support (Egan & Bull, 2020).

In relation to a hypothetical developmental model, the current findings suggest that insecure parental attachment might be more pertinent in the dark dyad of Machiavellianism and psychopathy, but not narcissism. However, this would need to be more directly tested using a developmental longitudinal study design. Psychopathy was the DT trait that showed the strongest relationships with parental and intimate adult attachment styles – where there were indirect relationships from parental attachment to avoidant adult attachment to best friends via psychopathy. This finding suggests that women who express more avoidant, deactivation strategies towards parental attachment figures, may be more likely to present both Machiavellian and psychopathic traits, and that these traits might work through the lens of psychopathy to impact intimate adult relationships in a similarly avoidant way. Avoidant adult attachment is in line with the notions of an accelerated mating strategy in women with psychopathic traits (Jonason & Lavertu, 2017) and more self-reliant masculine attributes (Jonason & Davis, 2018) hampering their capacity to form secure attachments with others. Cognitive and affective (physiological) deactivation and self-reliance strategies are qualities arguably common to both an avoidant attachment orientation to relationships and also to psychopathic behaviour.

##### 4.1. Role of empathy in DT related attachment difficulties

All three models tested in the current study together revealed a complex picture as to the interplay between the DT and empathy as potential steps in-between parental and adult attachment. The central role of psychopathy and affective empathy were also highlighted. Psychopathy was the only dark trait (directly and indirectly) related to insecure intimate adult attachment styles, whereas affective empathy demonstrated a mediating effect. Thus, reduced affective empathy in psychopathy might at least partially underpin adult attachment avoidance. The role of avoidant attachment is to emotionally regulate when in any close relationship with an ‘other’. An individual with an avoidant attachment is likely to present behaviourally as avoiding proximity, not engaging in intimate relationships, and being compulsively self-reliant. It therefore makes sense that an individual who is not able to resonate with themselves, may experience difficulty resonating with another person – and thus, avoid emotional bonds all-together, including in the context of a therapeutic environment and relationship.

However, unexpectedly, reduced affective empathy in psychopathy was related to reduced attachment anxieties. In other words, while reduced affective empathy in psychopathy increased avoidant adult attachment, it indirectly protected psychopathy from anxious attachment. The latter may simply reflect a lack of caring about potential separation or seeking proximity to others. In general, it is not surprising that affective empathy might increase anxious attachment, since it has been linked to internalised emotions such as anxiety and depression (cf. Heym, Heasman, et al., 2019), though presence of empathy in the DT does not simply determine greater vulnerability to anxiety (Heym et al., 2020).

Though the SD3 measure does not explicitly distinguish between subtypes of psychopathy, the psychopathy scale comprises items of both affective-interpersonal deficits (3-items) and erratic lifestyle/antisocial behaviours (6-items). As such, it has been considered to represent more strongly secondary psychopathy (Miller et al., 2012; Muris et al., 2017), a

psychopathic variant characterised by an affective disturbance and higher levels of anxiety (Skeem, Johansson, Andershed, Kerr, & Loudon, 2007). However, affective deficits such as callousness and lack of empathy are core components of primary psychopathy, which have been related to avoidant attachment in friendships, whereas the behavioural domain (impulsivity, antisocial behaviours) was uniquely linked to anxious attachment (Christian, Sellbom, & Wilkinson, 2019). The current findings mirror more strongly the pattern of findings for primary psychopathy, which could suggest that the SD3 psychopathy construct is more closely aligned with this variant as it was, directly and indirectly, through the lack of affective empathy, related to increased avoidant but reduced anxious attachment. However, it should be noted that SD3 psychopathy was never intended to reflect primary/secondary variants of psychopathy, rather a generally malevolent personality (Muris et al., 2017). Nevertheless, future studies should aim to replicate the current findings using more specifically tailored measures of psychopathy reflecting its different subtypes and conceptualisations.

With regard to limitations of the current study, first, the sample consisted entirely of women (predominantly British Caucasian students), and as such, the attachment model established here, only pertains to this demographic. It has limited generalisability to other contexts (non-students, across cultures and ethnicities, to men or to a non-binary context). In a similar vein, we did not measure same-sex romantic attachments or examine the impact of the biological sex or refined gender of the best friend. Second, this study used exclusively self-report assessments, which require participants to have sufficient metacognitive awareness to accurately self-report (see Murphy & Lilienfeld, 2019). There is an assumption that participants will self-report truthfully; however, we know that dark personalities are prone to dishonesty and manipulation. In the case of grandiose narcissism, such individuals are known to exaggerate their abilities, which may have led to the positive relationship with cognitive empathy and apparent lack of attachment insecurities. Indeed, the SD3 measures grandiose (rather than vulnerable) narcissism, and as a result, participants with increased levels of this trait may have over-estimated their capacity to understand others or their relationship security. Therefore, these findings must be treated with caution and within their specific research context, where more detailed trait-based assessments, alongside clinical judgement and a deeper exploration of idiographic qualities of any given individual would expand knowledge about the conceptual associations reported here. Finally, it is important to note that the current study assessed parental attachment from a retrospective position and this study was not longitudinal. Although attachment styles do seem to have some consistency over time (Doyle et al., 2009; Zayas et al., 2011), they can also change through external influence and real-life experience during development (Baldwin & Fehr, 1995; Davila, Burge, & Hamman, 1997). Therefore, our approach only offers a hypothetical interpretation of insecure attachment earlier in life and the shown associations may not persist in the same way over time.

#### 4.2. Clinical considerations

In line with the current findings, it appears that the 'dark dyad' (psychopathy and Machiavellianism) has the strongest connection to parental attachment insecurity, with the most notable impact on DT psychopathic characteristics. Although the assessment we used to assess psychopathy and the DT was a brief self-report measure of general traits, these findings may nevertheless raise some further clinical questions. The forensic arena, has a longstanding debate, though not necessarily sex or gender specific, around treatability issues, such as non-compliance in psychopathy (e.g., Polaschek, 2010). Here, the findings may raise aetiological and treatment questions about how psychopathic traits and multiple attachment styles relate in women specifically. It is possible that the inter-relationships illustrated in this study could in part represent a defensive *push pull* process in women which might be worth exploring in the context of borderline personality disorder (BPD), which has been linked to both attachment insecurities (e.g., Agrawal, Gunderson, Homes,

& Lyons-Ruth, 2004), and psychopathy in women (De Vogel & Lancel, 2016). Indeed, studies exploring sex differences in psychopathy in more depth suggest that women are different from men in terms of their behaviour and interpersonal characteristics (Forouzan & Cooke, 2005), and research in women college students have indicated a relationship between both types of psychopathy (primary/secondary) and BPD (Sprague, Javdani, Sadeh, Newman, & Verona, 2012).

In a more (male predominant) forensic context, it has been generally highlighted that incorporating concepts of Betrayal Trauma Theory (Freyd, 1996) and early attachment-related maladaptive schemas (DeYoung, Klosko, & Weishaar, 2003) would enhance treatment outcomes in clinical psychopathy where problems with relational connection are prominent (deRuiter, Chakhssi, & Bernstein, 2015). Schimmenti et al. (2014) showed that PCL-R items, relating to devaluation of attachment bonds, were linked to more severe levels of psychopathy in men, and that those men who had the highest scores, had also experienced significant early childhood adversity and indicators of disorganised attachment. Thus, they emphasise the relevance of attachment difficulties in the development of psychopathy and that it is an important factor in the treatment of psychopathy in violent offenders. It would be fruitful for future studies to examine these concepts in greater depth in the context of women specifically. It is possible that deep-rooted attachment difficulties in women may be expressed as behavioural challenges akin to those seen in psychopathy, as implied by the research on BPD and psychopathy (e.g., De Vogel & Lancel, 2016). Thus, further research on women (in terms of sex, gender roles, and identity), that examines psychopathy in more depth, together with borderline personality traits, empathy, and attachment styles may reveal more nuanced data that would have additional theoretical and clinical use.

#### 5. Conclusion

Our findings support a model that connects psychopathic traits as a potential intermediary between parental and intimate adult attachment relationships (the latter through the route of affective empathy). We demonstrated that parental attachment avoidance was significantly related to the dark dyad (Machiavellianism and psychopathy), and psychopathy was the main trait directly and indirectly (via affective empathy) related to avoidant (but not anxious) intimate adult attachment insecurity. It is also important to highlight that it was affective, not cognitive, empathy that had the main and opposite associations with attachment styles – whilst affective empathy is associated with reduced attachment avoidance, it is also related to increased attachment anxiety. From the dark traits, narcissism was uniquely unrelated to parental attachment insecurities, and indeed, demonstrated direct associations with lower anxious attachment in best friendships. Taken together, our findings were discussed in the context of a hypothetical developmental route, however, due to the retrospective nature of the study, further (more direct) support is needed to explore the underlying developmental aetiology of psychopathic traits through the lens of attachment and affective empathy using a longitudinal design.

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