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RESEARCH PAPER

PSYCHOPATHIC TRAITS AND ROMANTIC ATTACHMENT: THE MEDIATING ROLE OF EMOTION DYSREGULATION

Flavia Spagnuolo, Antonella Somma, Andrea Fossati, Martin Sellbom, Carlo Garofalo

Abstract

Objective: Research so far has investigated the bivariate relationships between psychopathic traits, romantic attachment, and emotion dysregulation. However, no research thus far has examined these concepts in their interrelatedness. The aim of the present study was therefore to shed light on the possible linking mechanisms among these concepts, examining the mediating role of emotion dysregulation in the psychopathic traits-romantic attachment link.

Method: The present study was based on an undergraduate (N = 238, M age = 20.36 years) and a community sample (N = 521, M age = 35.27 years) from the Dutch population. Participants were administered self-report measures of psychopathic traits (measured with both the Self-Report Psychopathy Short-Form and the Triarchic Psychopathy Measure), emotion dysregulation (Difficulties in Emotion Regulation Scale – Brief Version) and romantic attachment (Experiences in Close Relationships–Revised). Correlation analyses and mediation analyses using a bootstrapping approach were conducted.

Results: Results showed that all the dimensions of psychopathic traits were related to both romantic attachment avoidance and anxiety, and that emotion dysregulation mediated all these associations (with only few exceptions). Except for boldness, all other dimensions of psychopathic traits were related to greater emotion dysregulation and, in turn, to insecure romantic attachment.

Conclusions: It is argued that the role of emotion regulation processes deserves more attention for the theoretical and clinical understanding of psychopathic traits and their correlates in the interpersonal domain, such as romantic attachment (in)security. When their interrelationships will be better understood, emotion regulation and attachment could represent relevant targets for intervention with individuals presenting psychopathic traits.

Key words: psychopathic traits, Self-Report Psychopathy Short-Form, Triarchic Psychopathy Measure, romantic attachment avoidance, romantic attachment anxiety, emotion dysregulation

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Psychopathic personality comprises a set of traits including deficits in moral emotions, antisocial behavior, and poor inhibitory control (C. S. Neumann et al., 2014). The present study focused on individual differences in psychopathic traits in two non-clinical samples, and was based on two widely adopted operationalizations of the construct of psychopathy. One is the 4-factor model based on the Psychopathy Checklist-Revised (Hare, 2003), wherein psychopathy encompasses four dimensions: affective (e.g., deficits in moral emotions); interpersonal (e.g., manipulation); lifestyle (e.g., deficits in inhibitory control), and antisocial (e.g., persistent and versatile antisocial tendencies, C. S. Neumann et al., 2014). The second is Patrick et al.'s (2009) triarchic psychopathy model, which includes three dimensions: meanness (i.e., disregard for others), disinhibition (i.e., poor impulse control), and boldness (i.e., a combination of social dominance, emotional resiliency, and venturesomeness). Although distinct, the models share considerable overlap (especially in the domains of

meanness / antagonism and disinhibition) and support the concept of psychopathy as multi-dimensional. Furthermore, and in line with the present study, both models emphasize interpersonal and emotional dysfunctions as important dimensions of psychopathic traits. Therefore, the present study will further elucidate on interpersonal and emotional dysfunctions related to psychopathic traits, by examining the associations between psychopathic traits and romantic attachment, as well as the mediating role of emotion dysregulation in these associations.

Psychopathic traits and attachment

Psychopathy has recently received attention in its relation with attachment theory (Bowlby, 1982). Attachment theory explains the nature and function of close interpersonal bonds in humans; the need for such bonds starts early in life where, based on the caregiver's responsiveness to the infant's expression of needs, the individual would develop certain attachment styles (Bowlby, 1982; Mikulincer & Shaver, 2007). Sensitive, reliable caregiving would promote the development of a secure attachment style, characterized by trust in the support from others and self-esteem in being worthy of that. Insensitive, inconsistent caregiving would instead promote insecure attachment styles (Ainsworth et al., 1978), which tend to be associated with poorer outcomes for the child (e.g., reduced empathy, difficulty in emotion regulation, Weinfield et al., 2008).

Specifically, two main styles of insecure attachments (which are not mutually exclusive) are avoidant and anxious (Ainsworth et al., 1978). Avoidant attachment presents a devaluation of the need for attachment bonds, a strong tendency for independence rather than for seeking and maintaining relationships, and distrust in others. In contrast, anxious attachment is characterized by constant worry for abandonment, excessive dependency in relationships, and at the same time anger for minor separations (Ainsworth et al., 1978).

Generated in the context of early care-giving experiences, these internal working models are conceived as the foundation from which individuals generalize their conception of close interpersonal bonds to other close relationships throughout life (Bowlby, 1969/1982; Main et al., 1985). Research suggests a relative continuity of attachment style from infancy through adulthood (Fraley, 2002; Groh et al., 2014; Pinquart et al., 2013). Further research, however, highlighted that attachment styles would vary across developmental stages and types of relationships (e.g., parental, friendship, romantic ones, Klohnen et al., 2005), and they would be revised – to a certain extent – based on new and significant relationship experiences or life events (Pierce & Lydon, 2001; Rothbard & Shaver, 1994; Waters, Hamilton, & Weinfield, 2000; Waters, Weinfield, & Hamilton, 2000), as well as due to natural development of the individual (Marszał & Jańczak, 2018). During adolescence and early adulthood, although parents remain important attachment figures, the fulfillment of attachment needs would be searched more in peer relationships (i.e., friends and romantic partners, Christian et al., 2018, 2019; Fraley & Davis, 1997; Hazan & Zeifman, 1994), thus shifting the focus to different types of attachment relationships. Conceptually, adult attachment shares similarities with early attachment (e.g., same differentiation of internal working models and attachment styles in both children and adults, Doherty & Feeney, 2004; Fraley & Davis, 1997; Fraley & Shaver, 1998; Trinke & Bartholomew, 1997). Nevertheless, a difference in the motivation behind these two attachment stages has been suggested (Hazan & Shaver, 1987; Zeifman & Hazan, 2008). From an evolutionary perspective, where early attachment would be activated to foster proximity and protection until reproductive age (Bowlby, 1982), adult attachment would foster not only proximity – e.g., to partners and offspring – for care and protection, but it would also promote an individual's physical and mental health more broadly (Zeifman & Hazan, 2008). Romantic relationships represent therefore one of the most important types of attachment relationships in adulthood (Mayer et al., 2019), and adult attachment (i.e., the affectional bond formed between two adult romantic partners, Mayer et al., 2019) appears fundamental for general well-being, relationship functioning in adult life, and general positive adjustment (Mikulincer & Shaver, 2003, 2007). In this regard, romantic attachment insecurity may be highly relevant for some of the detrimental relational impacts associated with psychopathic tendencies, repeatedly found as a strong predictor of negative relational outcomes, including relationship dissatisfaction (Mondor et al., 2011) and intimate partner violence (Oka et al., 2014).

Intertwined with the development and evolution of attachment styles over the life span, a parallel similar process takes place for emotion regulation abilities of the individual (Mikulincer & Shaver, 2008), which can undergo processes of evolution and change based on different attachment experiences over the life course (Feeney, 2008). Concerning the association between romantic attachment styles and emotion regulation, research so far has found that insecure anxious and avoidant romantic attachment styles are generally associated with higher emotion dysregulation (e.g., Marszał & Jańczak, 2018; Théorêt et al., 2020; Velotti et al., 2015).

The link between psychopathic traits and romantic attachment has been established both at a conceptual and an empirical level. Conceptually, some of the core features of psychopathy (e.g., empathy deficits, egocentricity) are clearly at odds with the establishment and maintenance of healthy attachment relationships. At an empirical level, previous research (Schimmenti et al., 2014) highlighted the importance of looking at past and current attachment styles and representations, to better understand psychopathy. Schimmenti et al. (2014) showed that individuals with more extreme levels of psychopathic traits consistently presented either insecure (i.e., anxious or avoidant) or disorganized / dual attachment styles (i.e., contradicting characteristics of both anxious and avoidant attachment, and inconsistent responses to attachment-related stimuli). More recently, psychopathic traits have been further investigated in relation to adult attachment insecurity and were found consistently associated with attachment insecurity in adult relationships, including romantic attachment (Christian et al., 2017, 2019; Mack et al., 2011; Savard et al., 2015; Van der Zouwen et al., 2018). In this context, more specifically, behavioral features of psychopathic traits were consistently positively associated with insecure attachment styles, both avoidance and anxiety (Mack et al., 2011; Savard et al., 2015). A more recent study, however, indicated that the behavioral features of psychopathic traits (i.e., disinhibition, antisocial facet) were more specifically positively related to anxious attachment (Christian et al., 2017), suggesting a tendency for frustration, worry, easy escalation, and need for reassurance in the attachment context. In the same study, affective features of psychopathic traits (i.e., meanness, callousness), in

contrast, have been found positively associated with attachment avoidance (Christian et al., 2017), indicating a tendency for suppression of intimacy and emotional responses in the adult attachment context. Interpersonal features of psychopathic traits have shown inconclusive associations with attachment insecurity, possibly due to the fact that the affective-interpersonal dimension was examined altogether in some previous studies, whereas it would be more appropriate to consider the affective and interpersonal dimensions separately (Christian et al., 2019). Lastly, boldness showed negative associations with attachment insecurity, both avoidance and anxiety (Christian et al., 2017), as also in line with its theoretical conceptualization as a non-maladaptive feature per se in the triarchic psychopathy model (Patrick et al., 2009).

Therefore, previous research highlighted the presence of associations between specific dimensions of both psychopathic traits and attachment (Christian et al., 2017, 2019; Van der Zouwen et al., 2018). However, no research to date addressed possible mechanisms for such associations. One candidate factor may be emotion regulation, given its differential associations with psychopathic traits (Garofalo, Neumann, Kosson, & Velotti, 2020; Garofalo et al., 2018) and its central role in attachment styles (Cassidy, 1994).

Emotion regulation as a possible factor to explain the psychopathy-attachment link

In the present study, emotion regulation was conceptualized as a broad construct involving the awareness, understanding, and acceptance of emotions; the ability to refrain from impulsive behavior and to pursue desired goals when distressed; and the ability to employ adaptive emotion regulation strategies to achieve desired emotional states (Gratz & Roemer, 2004).

Mikulincer and Shaver (2003) proposed a model of adult attachment that emphasizes the relevance of emotion regulation. This model consists of three phases. In the first phase, the appearance of threatening events, and the monitoring and appraisal of these, activates the attachment behavioral system. In the second phase, the monitoring and appraisal of the attachment figure's availability and responsiveness takes place. This component would account for individual differences in the attachment (in)security, shaped by repeated past experiences – about effective or ineffective caregiving responses – and consolidated through adulthood. In the third phase, the individual monitors and appraises the feasibility and utility of seeking proximity to an attachment figure as a way of coping with the threatening events. This component would account for individual differences in the insecure attachment styles and in the related emotion regulation strategies, named as "hyperactivation" and "deactivation" (Cassidy & Kobak, 1988). Where proximity seeking would be the primary attachment strategy adopted, hyperactivation and deactivation would be secondary attachment strategies adopted when proximity seeking would not be experienced as effective. Thus, hyperactivation and deactivation work as attachment-related emotion regulation strategies as a defense against the distress caused by the perceived unavailability or unresponsiveness of the attachment figures. When consolidated over time, hyperactivating and deactivating strategies lead to the development of an anxious or avoidant attachment style respectively (Ainsworth et al., 1978) in adolescence and adulthood. Although being attempts for adaptation in adverse social circumstances, hyperactivation and deactivation become maladaptive when used in later relationship situations where secure strategies would be more effective (Mikulincer & Shaver, 2007). Notably, hyperactivating and deactivating strategies lead to opposite patterns of emotional expression (intensification vs. suppression), and both of them result in a form of maladaptive emotion regulation, or emotion dysregulation (i.e., focusing on disruptive aspects of emotional experience for the anxious style and blocking conscious access to emotions for the avoidant style, Mikulincer & Shaver, 2007).

In addition, empirical evidence supports emotion regulation as playing a central role in attachment styles (Cassidy, 1994). On the one hand, an adaptive emotion regulation capacity has been found consistently associated with secure attachment style (Mikulincer & Shaver, 2007). On the other hand, a maladaptive emotion regulation capacity appears also to be at the core of hyperactivation and deactivation strategies (Mikulincer & Shaver, 2007), which characterizes insecure attachment styles (i.e., an anxious or avoidant attachment style respectively, Ainsworth et al., 1978) and has been linked to both attachment anxiety and attachment avoidance (Mikulincer & Shaver, 2007; Velotti et al., 2015). Given the centrality of emotion regulation for attachment, emotion regulation could also explain links that individual characteristics (here, psychopathic traits) have with attachment styles.

With regard to psychopathy, emotion regulation is emerging more and more as a valuable framework for a better understanding of psychopathy (which seems to involve not only a reduced experience of certain emotions, but also a dysregulation of emotional experiences, especially negative emotions like anger, Baskin-Sommers et al., 2016; Garofalo et al., 2018; Harenski & Kiehl, 2010). Emotion dysregulation has shown different associations with different dimensions of psychopathic traits. Specifically, emotion dysregulation has been found consistently positively associated with the behavioral dimension (e.g., Malterer et al., 2008; Visser et al., 2010) and the affective dimension of psychopathic traits (e.g., Garofalo, Neumann, Kosson, & Velotti, 2020; Garofalo et al., 2018). The interpersonal dimension of psychopathic traits, instead, was found unrelated or negatively related to emotion dysregulation (e.g., Garofalo et al., 2018).

The pattern of associations between emotion dysregulation and psychopathic traits appears therefore to mirror that between adult romantic attachment styles and psychopathic traits. Specifically, the behavioral and affective dimensions of psychopathic traits appear associated with insecure romantic attachment styles and greater emotion dysregulation; the interpersonal and boldness dimensions of psychopathic traits show instead either no association or a negative association with insecure romantic attachment styles and emotion dysregulation. There are therefore conceptual and empirical grounds for examining the mediation of emotion regulation between psychopathic traits and romantic attachment, as a plausible mechanism linking these two concepts.

The present study

The present study investigated the associations between psychopathic traits and romantic attachment, and examined the mediating role of emotion dysregulation in these associations. Given the cross-

sectional nature of our data, we clarify that the term "mediation" was here meant as an a-temporal mediation analysis (Winer et al., 2016), examining whether emotion dysregulation could partly account for some of the shared variance (i.e., conceptual overlap) between psychopathic traits and romantic attachment styles.

Our hypotheses concerning the 4-factor model (Hare, 2003) were that:

(1a) the affective facet of psychopathic traits would be positively associated with avoidant romantic attachment style;

(1b) the lifestyle and

(1c) antisocial facets would be positively associated with anxious romantic attachment style.

For the interpersonal facet, we did not formulate a specific a-priori hypothesis, given the inconclusive findings from previous work.

The hypotheses concerning the triarchic model (Patrick et al., 2009) were that:

(2a) meanness would be positively associated with avoidant romantic attachment style;

(2b) boldness would be negatively associated with both avoidant and anxious romantic attachment styles;

(2c) disinhibition would be positively associated with anxious romantic attachment style.

Furthermore, it was hypothesized that:

(3) emotion dysregulation would be a mediator between psychopathic traits and romantic attachment styles, expected to mediate all the aforementioned associations.

The present study has been pre-registered in Open Science Framework (see link: *https://doi.org/10.17605/OSF.IO/YMDK6*)[1].

Method

Participants

Participants were recruited from two non-clinical samples (i.e., undergraduate psychology students and general community) and were addressed separately in the study to probe the robustness of the findings in two independent samples.

Sample 1

Two hundred and sixty-one participants were initially recruited and provided consent to take part in the study, however 23 of them (8.81%) did not complete the survey and where therefore excluded. Two participants (0.77%) did not complete demographic information but completed all of the questionnaires and were thus included in the analyses. The remaining participants were therefore 238 first-year undergraduate psychology students at a Dutch university (*M* age = 20.36 years, *SD* = 2.82, range = 17–45; of the reported data, 182 were females, 54 males, and the remaining 25 missed data about their gender). The students provided informed consent and participated in exchange for course credits. From the valid responses (i.e., excluding missing responses), the majority of the participants indicated to have a Dutch nationality (N = 162, 62.07%) or to be native Dutch speakers with other nationality, namely Turkish (N = 4, 1.53%), Moroccan (N = 2, 0.77%), Dutch Antilles (N = 2, 0.77%), and Surinamese (N = 1, 0.38%). Of the remaining participants, 7 indicated other nationalities (2.68%) and 83 were missing information on their nationality (but they were international students following the international English-taught psychology program at the same university and completed the survey in English).

Sample 2

Participants were 521 individuals from the general community (*M* age = 35.27 years, *SD* = 16, range = 18–87; of the reported data, 209 were males, 295 females, and the remaining 17 missed data about their gender). Participants were recruited by 20 bachelor's- or master's-level psychology students (each recruiting approximately 25 participants). Participants were selected by following a quota sampling procedure as much as possible, trying to balance across main demographic characteristics (age, sex, and occupation), and by applying two inclusion criteria of being at least 18 years old and to have sufficient knowledge of the Dutch language. Participants provided informed consent and participated voluntarily in the study. From the valid responses (i.e., excluding missing responses), the majority of the participants indicated to have a Dutch nationality (N = 259, 49.71%), followed by other nationalities namely Dutch Antilles (N = 3, 0.58%), Moroccan (N = 1, 0.19%), and Surinamese (N = 1, 0.19%). Of the remaining participants, 8 indicated other nationalities (1.54%) and 249 were missing information on their nationality.

Instruments[2]

Self-Report Psychopathy Short-Form (**SRP-SF**, Paulhus et al., 2016). Psychopathic traits assessment based on the model by Hare was done using the SRP-SF, a self-report inventory modeled after the PCL-R (Hare, 2003). The SRP-SF provides scores on four facets: Interpersonal (involving maladaptive interpersonal characteristics, e.g., manipulation, '*I have already pretended to be someone else to get something*'),Affective (involving deficits in moral emotions, empathy, sense of guilt, e.g., '*I never feel guilty when I hurt others*'), Lifestyle (involving impulsivity, recklessness, deficits in inhibitory control, e.g., '*I always get in trouble for the same things*'), and Antisocial (involving persistent antisocial tendencies, e.g., '*I assaulted a police officer or emergency worker*'). This measure consists of 29 items rated on a 5-point Likert scale (from "*completely disagree*" to "*completely agree*"). Items are averaged to provide scores on each facet as well as the SRP-SF total score, with greater scores indicating higher levels of psychopathic traits. For the present study, a Dutch translation was used, and prior studies indicated good reliability and construct validity of the SRP-SF for both its original and Dutch versions (Gordts et al., 2015; C.

[1] In the Pre-Registration, the hypothesis on SRP-SF interpersonal facet was initially formulated as showing negligible associations with any romantic attachment style. Based on further discussion among co-authors (still before performing the analyses), this hypothesis has been later formulated more accurately with the term "inconclusive" (inconclusive findings from the existing literature concerning the interpersonal facet).

[2] Internal consistency coefficients for all measures are displayed in **table 1.**

S. Neumann & Pardini, 2014).

Triarchic Psychopathy Measure (**TriPM**, Patrick, 2010). The TriPM provides scores on three dimensions: Boldness (involving social dominance, emotional resiliency, and venturesomeness, e.g., '*I fear far fewer things than most people*'), Meanness (involving disregard and lack of concern towards others, e.g., '*I don't have much sympathy for people*'), and Disinhibition (involving poor impulse control, e.g., '*I get into trouble because I don't think about the consequences of my actions*'). The TriPM, a self-report inventory consisting of 58 items rated on a 4-point Likert scale ("*true*", "*somewhat true*", "*somewhat false*", "*false*"), was used to operationalize the triarchic psychopathy model. For the present study, a validated Dutch translation was used (van Dongen et al., 2017). Recent work supports the validity of this scale (see Sellbom et al., 2018, for a review).

Experiences in Close Relationships–Revised (**ECR-R**, Fraley et al., 2000). The ECR-R was used to measure adult romantic attachment style. The questionnaire provides scores on two dimensions: Anxiety (or Hyperactivation, from the adult model of attachment by Mikulincer & Shaver, 2003), involving intense worry about one's romantic relationship, over-involvement in the relationship, fear of abandonment, and frequent seeking of the partner's attention and care (e.g. '*I'm afraid that once my partner gets to know me better, he or she won't like the way I really am*'); Avoidance (or Deactivation, Mikulincer & Shaver, 2003), involving difficulties in establishing a deep intimate connection with the partner and a tendency to feel discomfort with intimacy (e.g., '*I don't feel comfortable sharing my thoughts and feelings with my partner*'). This self-report inventory consists of 36 items assessing the attachment style of the individual in the context of romantic relationships. Participants are asked to rate their feelings concerning their romantic relationships on a 7-point Likert scale (from "*strongly disagree*" to "*strongly agree*"). Several studies have investigated the validity and reliability of this measure and supported its adequate psychometric properties (Sibley et al., 2005). For the present study, a validated Dutch version of the ECR-R has been used (Kooiman et al., 2013).

Difficulties in Emotion Regulation Scale – Brief Version (**DERS-16**, Bjureberg et al., 2015). Emotion dysregulation was measured with the DERS-16, a 16-item version of the DERS. This instrument was developed to capture difficulties in six interrelated dimensions: non-acceptance of emotional responses (Non-acceptance, e.g., '*When I'm upset, I'm annoyed at myself for feeling this way*'); difficulties engaging in goal-directed behavior when distressed (Goals, e.g., '*When I'm upset, I have trouble getting my work done*'); difficulties refraining from impulsive behavior when upset (Impulse, e.g., '*When I am upset, I have difficulty controlling my behavior*'); lack of awareness of and attention for emotions (Awareness, e.g., '*I pay attention to how I feel* (reversed)'); limited access to effective emotion regulation strategies (Strategies, e.g., '*When I'm upset, I think there's nothing I can do to feel better*'); and lack of emotional clarity (Clarity, e.g., '*I have trouble understanding my feelings*'). The DERS-16 is rated on a 5-point Likert scale (from "*almost never*" to "*almost always*"). Greater scores indicate greater difficulties in emotion regulation. Prior studies suggest that, while the six sub-scales have shown weak evidence of discriminant validity (John & Eng, 2014), the DERS total score represents a reliable global index of overall emotion regulation difficulties that shows meaningful associations with physiological, behavioral, and neural indices of emotion regulation (John & Eng, 2014). For the present study, a Dutch version of the DERS was used (A. Neumann et al., 2009).

Data analysis approach

The set of analyses was performed in the statistical software R (R Core Team, 2017). The statistical model used was SEM (Structural Equation Modeling). Mediated regression analyses were performed (using the *sem* function in lavaan, Rosseel, 2012), where emotion regulation was examined as the mediator between psychopathic traits and romantic attachment. Separate analyses were performed on the two samples and for each of the two psychopathic traits measures (i.e., SRP-SF and TriPM). Therefore, four main sets of mediated regression analyses were performed in total (i.e., on SRP-SF and TriPM scales, each on both undergraduate and community sample). As a first step, preliminary analyses were performed (i.e., checking descriptive statistics, outliers, missing values). As a next step, correlations were calculated between the variables of interest. As a final step, the sub-sets of mediated regression models were estimated separately for each psychopathy facet / dimension derived from the SRP-SF and the TriPM. Total, direct, and indirect effects were estimated (Bollen & Pearl, 2013). A bootstrapping approach was adopted, estimating path coefficients and 95% confidence intervals (CIs) based on 5,000 re-samples of the original data.

Results

Preliminary analyses and correlations in both undergraduate and community samples

As a first step, preliminary analyses were performed. The descriptive statistics indicated a non-normal distribution of all the variables, which appeared mostly positively skewed (understandable for non-clinical samples, usually with low levels of maladaptive features – see **tables 1** and **2** for skewness values of each variable in both samples). However, the bootstrapping approach used for the analyses can handle non-normality of the data, which was therefore left untransformed[3]. Some outliers were observed across some of the variables. Analyses were performed with and without outliers for the hypothesized mediation models, with a few differences in the significance of the results (see footnotes in the next paragraphs and supplementary material); the results here reported refer to the analyses with outliers included, since some extreme scores are conceptually understandable given the constructs examined in general population samples. Little's MCAR test was performed to test for patterns of missingness; in the community sample missingness resulted to be not MCAR, while it was for the undergraduate sample. Full Information Maximum Likelihood (FIML) was used to address missing data in both samples. Cronbach's

[3] Furthermore, the boldness dimension in the TriPM model was negatively skewed, thus pointing at a different direction of the distribution compared to the other facets. A single transformation could therefore not have been applied to the data.

Table 1. *Averaged Mean, SD, min-max values, range, raw Cronbach's Alpha, skewness for each variable in the undergraduate sample (N = 238)*

Variable	Mean (SD)	Min-Max Values (Range)	Cronbach's Alpha	Skewness
SRP-SF Affective facet	1.86 (.60)	1 – 3.86 (2.86)	.75	.84
SRP-SF Interpersonal facet	1.91(.69)	1 – 4 (3)	.85	.72
SRP-SF Lifestyle facet	2.17 (.65)	1 – 3.86 (2.86)	.74	.42
SRP-SF Antisocial facet	1.16 (.35)	1 – 3.71 (2.71)	.82	3.65
TriPM Meanness facet	.63 (.41)	0 – 2.56 (2.56)	.92	1.02
TriPM Disinhibition facet	.73 (.39)	.05 – 2.55 (2.50)	.90	1.10
TriPM Boldness facet	1.46 (.47)	.16 – 2.53 (2.37)	.87	-.32
DERS Emotion dysregulation	2.44 (.78)	1 – 4.75 (3.75)	.93	.36
ECR-R Romantic attachment avoidance	2.76 (1.08)	1 – 6 (5)	.95	.40
ECR-R Romantic attachment anxiety	3.37 (1.17)	1 – 6.67 (5.67)	.93	.07

Table 2. *Averaged Mean, SD, min-max values, range, raw Cronbach's Alpha, skewness for each variable in the community sample (N = 521)*

Variable	Mean (SD)	Min-Max Values (Range)	Cronbach's Alpha	Skewness
SRP-SF Affective facet	1.76 (.57)	1 – 4.57 (3.57)	.77	.99
SRP-SF Interpersonal facet	1.81(.66)	1 – 5 (4)	.88	1.15
SRP-SF Lifestyle facet	1.95 (.67)	1 – 4.86 (3.86)	.82	.75
SRP-SF Antisocial facet	1.13 (.37)	1 – 5 (4)	.93	5.52
TriPM Meanness facet	.55 (.42)	0 – 2.94 (2.94)	.93	1.30
TriPM Disinhibition facet	.61 (.36)	.05 – 2.65 (2.60)	.92	1.45
TriPM Boldness facet	1.60 (.44)	0 – 2.68 (2.68)	.86	-.26
DERS Emotion dysregulation	2.09 (.72)	1 – 4.69 (3.69)	.94	.91
ECR-R Romantic attachment avoidance	2.56 (.98)	1 – 6.83 (5.83)	.95	.62
ECR-R Romantic attachment anxiety	2.76 (1.14)	1 – 7 (6)	.95	.68

Alpha through polychoric correlations was calculated for each sub-scale and overall scale in both samples, and showed good reliability (see **tables 1** and **2**).

As a next step, correlations were performed between all the dimensions of psychopathic traits of the SRP-SF and TriPM, emotion dysregulation, and romantic attachment anxiety and avoidance (see **table 3**). The pattern of correlations reflected the general hypothesized relationships between the variables, with only few exceptions. Specifically, in the undergraduate sample, we found no significant associations between: SRP-SF antisocial and emotion dysregulation; TriPM boldness and avoidant romantic attachment; TriPM meanness and emotion dysregulation. Given the non-significant associations between both SRP-SF antisocial and TriPM meanness with the hypothesized mediator emotion dysregulation, further analyses on such mediation models in the undergraduate sample were not conducted (Kenny et al., 1998). In addition, some non-hypothesized positive correlations emerged in both samples between: SRP-SF affective and anxious romantic attachment; SRP-SF lifestyle and antisocial and avoidant romantic attachment; SRP-SF interpersonal and both anxious and avoidant romantic attachment; TriPM meanness and anxious romantic attachment; TriPM disinhibition and avoidant romantic attachment. Given the significance of such non-hypothesized associations, alternative mediation models were also tested, in order to have a more comprehensive view of other possible significant mediations, enabling

Table 3. *Correlations between the variables in the undergraduate and community samples*

	SRP-SF Interpersonal	SRP-SF Affective	SRP-SF Lifestyle	SRP-SF Antisocial	TriPM Boldness	TriPM Meanness	TriPM Disinhibition	DERS	ECR-R Anxiety	ECR-R Avoidance
SRP-SF Interpersonal	–	.65***	.57***	.49***	.20**	.59***	.46***	.17*	.26***	.26***
SRP-SF Affective	.62***	–	.59***	.45***	.24***	.67***	.43***	.13*	.16*	.21**
SRP-SF Lifestyle	.60***	.62***	–	.48***	.30***	.58***	.64***	.19**	.15*	.21**
SRP-SF Antisocial	.44***	.42***	.52***	–	.15*	.40***	.39***	.05	.16*	.18**
TriPM Boldness	.16***	.13**	.24***	.07	–	.29***	.04	-.36***	-.28***	-.11
TriPM Meanness	.57***	.68***	.64***	.46***	.18***	–	.49***	.09	.13*	.30***
TriPM Disinhibition	.47***	.47***	.61***	.45***	-.07	.56***	–	.36***	.30***	.28***
DERS	.22***	.21***	.26***	.15**	-.42***	.19***	.46***	–	.42***	.28***
ECR-R Anxiety	.24***	.28***	.22***	.19***	-.26***	.28***	.38***	.46***	–	.46***
ECR-R Avoidance	.18***	.30***	.18***	.15***	-.14**	.31***	.30***	.24***	.65***	–

Note. DERS = Difficulties in Emotion Regulation Scale. Correlations calculated using Spearman's method (given the non-normal distributions of the variables) and listwise method (using only complete cases). The pattern of correlations between listwise and pairwise method was the same; the ones with listwise method are reported in the table. Upper and lower diagonal parts contain correlation coefficient estimates for the undergraduate and community sample respectively.
$^{*}p = .05$. $^{**}p < .01$. $^{***}p < .001$

a more complete and appropriate interpretation of the overall findings.

Mediation analyses in the undergraduate sample

Table 4a shows a summary of the direct, indirect, and total effects in the undergraduate sample. As for the SRP-SF, the mediation models for the affective, interpersonal, and lifestyle facet of psychopathic traits emerged as significant for both romantic attachment avoidance and anxiety. The original hypotheses concerning such facets were therefore supported; however, the significance of the alternative mediation models also needed to be taken into account for a more complete interpretation of the results. The hypothesis concerning the antisocial facet was instead not supported, due to a lack of association between this facet and emotion dysregulation. As for the TriPM, from the testing of both hypothesized and alternative models, the mediation models for boldness and disinhibition emerged as significant for both romantic attachment avoidance and anxiety (with opposite sign). The original hypotheses concerning boldness and disinhibition were therefore supported; however, also in this case, the significance of the alternative mediation model for disinhibition also needed to be taken into account for a more complete interpretation of the results. The mediation hypothesis for meanness was instead not supported, due to a lack of association between meanness and emotion dysregulation[4].

Mediation analyses in the community sample

Table 4b shows a summary of the direct, indirect, and total effects in the community sample. As for the SRP-SF, all the mediation models for the affective, interpersonal, lifestyle, and antisocial facet of psychopathic traits emerged as significant for both romantic attachment avoidance and anxiety. As for the TriPM, from the testing of both hypothesized and alternative models, all the mediation models of meanness, boldness, and disinhibition emerged as significant for both romantic attachment avoidance and anxiety. Specifically, boldness was related to better emotion regulation and in turn, lower romantic attachment insecurity; meanness and disinhibition, in contrast, were related to poorer emotion regulation and in turn, greater romantic attachment insecurity. The original hypotheses concerning all the sub-scales of the SRP-SF and the TriPM were therefore supported; however, the significances of the alternative models also needed to be taken into account for a more complete interpretation of the results[5].

[4] When excluding the outliers, the mediation hypotheses on SRP-SF affective and lifestyle were not supported.

[5] When excluding the outliers, the mediation hypothesis on SRP-SF antisocial was not supported. However, we included the outliers in our main analyses as we considered

Table 4a. *Summary of bootstrapping analyses examining the hypothesized (and alternative) indirect effect of psychopathy dimensions (from both Hare's and Patrick's models) on attachment avoidance and anxiety through the role of emotion dysregulation (undergraduate sample, N = 238; 5,000 bootstrap samples)*

Independent variable (IV)	Mediating variable (M)	Dependent variable (DV)	Effect of IV on M (*a*)	Effect of M on DV, controlling for the IV (*b*)	Total effect (*c*)	Direct effect (*c'*)	Indirect effect (bias corrected intervals)		R square of the total sub-model
SRP-SF & TriPM (sub-scales)	DERS (total score)	ECR-R (sub-scales)					(*a* × *b*)	95% CI	
Affective	Emotion dysregulation	Attachment avoidance	.21*	.34***	.43**	.36**	.07*	[.02, .15]	.11
Affective	Emotion dysregulation	Attachment anxiety	.21*	.62***	.30*	.17	.13*	[.03, .24]	.19
Interpersonal	Emotion dysregulation	Attachment avoidance	.19*	.33***	.40***	.34**	.06*	[.02, .14]	.12
Interpersonal	Emotion dysregulation	Attachment anxiety	.19*	.60***	.39***	.27**	.12*	[.02, .23]	.21
Lifestyle	Emotion dysregulation	Attachment avoidance	.21**	.35***	.31**	.24*	.07*	[.02, .16]	.10
Lifestyle	Emotion dysregulation	Attachment anxiety	.21*	.63***	.23*	.10	.13*	[.03, .26]	.18
Disinhibition	Emotion dysregulation	Attachment avoidance	.66***	.30**	.70***	.50**	.20**	[.08, .36]	.11
Disinhibition	Emotion dysregulation	Attachment anxiety	.66***	.59***	.67**	.28	.39***	[.23, .62]	.19
Boldness	Emotion dysregulation	Attachment avoidance	-.66***	.36***	-.34*	-.11	-.23**	[-.40, -.11]	.08
Boldness	Emotion dysregulation	Attachment anxiety	-.66***	.54***	-.77***	-.41**	-.36***	[-.55, -.21]	.20

Note. SRP-SF = Self-Report Psychopathy-Short Form. TriPM = Triarchic Psychopathy Model. DERS = Difficulties in Emotion Regulation Scale. ECR-R = Experiences in Close Relationships-Revised. CI = Confidence Intervals. All coefficients are listed as unstandardized estimates.
* $p < .05$. ** $p < .01$. *** $p < .001$

Table 4b. *Summary of bootstrapping analyses examining the hypothesized and (alternative) indirect effect of psychopathy dimensions (from both Hare's and Patrick's models) on attachment avoidance and anxiety through the role of emotion dysregulation (community sample, N = 521; 5,000 bootstrap samples)*

Independent variable (IV)	Mediating variable (M)	Dependent variable (DV)	Effect of IV on M (*a*)	Effect of M on DV, controlling for the IV (*b*)	Total effect (*c*)	Direct effect (*c'*)	Indirect effect (bias corrected intervals)		R square of the total sub-model
SRP-SF & TriPM (sub-scales)	DERS (total score)	ECR-R (sub-scales)					(*a* × *b*)	95% CI	
Affective	Emotion dysregulation	Attachment avoidance	.27***	.28***	.48***	.41***	.08**	[.03, .14]	.12
Affective	Emotion dysregulation	Attachment anxiety	.27***	.66***	.50***	.32***	.18***	[.10, .28]	.23
Interpersonal	Emotion dysregulation	Attachment avoidance	.22***	.32***	.27***	.20**	.07**	[.03, .13]	.08
Interpersonal	Emotion dysregulation	Attachment anxiety	.22***	.67***	.40***	.25**	.15***	[.08, .24]	.22
Lifestyle	Emotion dysregulation	Attachment avoidance	.29***	.31***	.25***	.16*	.09***	[.05, .15]	.08
Lifestyle	Emotion dysregulation	Attachment anxiety	.29***	.68***	.35***	.15*	.20***	[.13, .28]	.21
Antisocial	Emotion dysregulation	Attachment avoidance	.29**	.34***	.31*	.22	.10*	[.04, .21]	.07
Antisocial	Emotion dysregulation	Attachment anxiety	.29**	.70***	.35*	.15	.20*	[.08, .39]	.21
Meanness	Emotion dysregulation	Attachment avoidance	.30**	.29***	.70***	.62***	.09*	[.03, .16]	.13
Meanness	Emotion dysregulation	Attachment anxiety	.30**	.67***	.63***	.43**	.20**	[.09, .34]	.23
Disinhibition	Emotion dysregulation	Attachment avoidance	.85***	.22**	.78***	.59***	.19**	[.07, .34]	.10
Disinhibition	Emotion dysregulation	Attachment anxiety	.85***	.60***	1.03***	.53**	.51***	[.34, .69]	.23
Boldness	Emotion dysregulation	Attachment avoidance	-.72***	.32***	-.37**	-.14	-.23***	[-.35, -.11]	.07
Boldness	Emotion dysregulation	Attachment anxiety	-.72***	.65***	-.72***	-.25*	-.47***	[-.62, -.35]	.21

Note. SRP-SF = Self-Report Psychopathy-Short Form. TriPM = Triarchic Psychopathy Model. DERS = Difficulties in Emotion Regulation Scale. ECR-R = Experiences in Close Relationships-Revised. CI = Confidence Intervals. All coefficients are listed as unstandardized estimates.

* $p < .05$. ** $p < .01$. *** $p < .001$.

In summary, considering altogether the findings from both hypothesized and alternative models in both samples, almost all of the SRP-SF and the TriPM sub-scales were related to romantic attachment insecurity (both anxiety and avoidance) through the mediation of emotion dysregulation, with different directions for boldness compared to all the other SRP-SF and TriPM sub-scales as expected. The only exceptions were in the undergraduate sample for the models of the SRP-SF antisocial facet and the TriPM meanness dimension, which did not reach significance.

Discussion

The present study aimed to investigate the associations between specific psychopathic traits and attachment styles in romantic relationships, and to examine whether emotion dysregulation could be a mediator in such associations[6]. The general pattern of findings, including both hypothesized and non-hypothesized relationships, supports a link between the different facets / dimensions of psychopathic traits (both from SRP-SF and TriPM) and romantic attachment insecurity – both avoidance and anxiety – through the mediation of emotion dysregulation. The only two exceptions to this pattern were in the undergraduate sample for the mediation models involving the antisocial facet and meanness.

Such results point at a more complex picture than previously hypothesized in which psychopathic traits emerge as related to both romantic attachment avoidance and anxiety, through the mediation of emotion dysregulation. Our hypotheses were based on the recent study by Christian et al. (2017), who also used two different psychopathy scales, the TriPM and Expanded-Levenson Self-Report Psychopathy (E-LSRP). The E-LSRP is a different scale from the SRP-SF, however still allowing some comparability as the affective and interpersonal dimensions were examined separately. However, in examining the overall results pattern, our findings appear more in line with the studies by Mack et al. (2011) and Savard et al. (2015) in which all psychopathy factors were positively related to both romantic attachment anxiety and avoidance. Mack et al. (2011) found a positive interaction between avoidant and anxious romantic attachment in predicting higher primary psychopathy traits (affective-interpersonal), but not for secondary psychopathy traits (impulsive-antisocial) where they only found main effects of avoidant and anxious romantic attachment in predicting higher secondary psychopathy traits. Mack et al. (2011) interpreted these findings referring to a previous study by Gillath et al. (2009), who found that in a general attention task, individuals with high levels of anxiety showed ability to control their attention only when they presented also high levels of avoidance. Mack et al. (2011) suggested that this pattern could be extended to the attachment context, by suggesting that typical behaviors of individuals high in attachment anxiety might become controllable in co-occurrence with avoidance strategies. In this regard, Mack et al. (2011) suggested a mechanism in which a maladaptive effort, related to the cognitive conflict / energy necessary for the deactivation system to override the hyperactivation system, might be related to higher levels of primary psychopathy traits. Possibly a similar maladaptive mechanism could apply not just to primary but also to secondary psychopathy traits and could lead to a careless impulsive and antisocial behavior. Savard et al. (2015) also pointed out that high scores in both romantic attachment avoidance and anxiety is consistent with the notion that "antisocial behavior, impulsivity, and irresponsibility are related to the development of attachment insecurity, both in terms of dependency and fear of rejection but also withdrawal from situations involving intimacy". Future studies could replicate and expand on this line of research, to provide stronger evidence and better insight concerning such proposed underlying mechanisms involving both types of insecure (romantic) attachments and their possible interaction, in (primary and secondary) psychopathy traits. From a converging research line, it is noteworthy that romantic attachment avoidance and anxiety as measured with the ECR-R typically do correlate with each other (Ehrenthal et al., 2008; Sibley et al., 2005). Even further, Ehrenthal et al. (2008) found that in a clinical sample with personality disorders the ECR-R showed higher scores in both romantic attachment avoidance and anxiety compared to a clinical sample without personality disorders, and even less in a non-clinical sample. This finding seems to give further support to the presence of heightened romantic attachment insecurity of both types (avoidance and anxiety) in psychopathy as a personality disorder and possibly also for psychopathic traits present in non-clinical samples as in the present study. Along the same direction, future research could further investigate other maladaptive attachment styles as well, such as disorganized attachment (Paetzold et al., 2015; Schimmenti et al., 2014). This form of attachment seems to share a conceptual and empirical overlap with high avoidance and/or high anxiety, but appears as a distinct form of attachment (e.g., Beeney et al., 2017). Furthermore, it also shows to be related to negative impacts in adult romantic relationships (e.g., problematic externalizing behaviors, such as anger and hostility, potentially leading to increased chance of aggression, violence, abuse, and sexual manipulation towards the partner, Paetzold et al., 2015).

Concerning our findings on the separate associations between romantic attachment and emotion dysregulation on one hand, and emotion dysregulation and psychopathic traits on the other hand, these are generally in line with previous work (Garofalo, Neumann, Kosson, & Velotti, 2020; Garofalo et al., 2018; Malterer et al., 2008; Marszał & Jańczak, 2018; Théorêt et al., 2020; Velotti et al., 2015; Visser et al., 2010). As for these associations observed altogether in our mediation models, the analyses revealed that the overlap between psychopathic traits and romantic attachment could be explained at least in part by individual differences in emotion dysregulation. This general pattern of findings is also in line with previous work (Garofalo et al., 2018) suggesting that emotion dysregulation can help understand psychopathic traits and their association with relevant correlates (in this case, romantic attachment).

them potentially indicative of individuals genuinely scoring higher than average given the nature of the traits, and we did not have reasons to ascribe them to careless responding.

[6] From a developmental perspective, adult attachment strategies are rooted in the caregiver-child relationship and can generally be conceived as an indication of earlier attachment experiences in childhood, which would affect emotion regulation strategies later in life. Conceptually, the directions of such cross-sectional relationships could therefore be inverted as well. In our study, we wanted to look at psychopathic traits in adults as predictive of insecure attachment strategies in their adult romantic relationships (through the mediation of emotion dysregulation) without inferring a strict temporal ordering between the two.

The two non-significant mediations in the undergraduate sample, concerning the antisocial facet and meanness, appear in contrast with existing literature. A possible explanation concerning meanness could be that emotion dysregulation may show a significant relation with this construct when examining more externalized negative affective states (e.g., irritability, frustration, anger), rather than a general feeling of upset as mentioned in the DERS items. However, the association was still observed in the community sample but not in the undergraduate sample. Another possible explanation could therefore be that the undergraduate sample had less variability in meanness traits and a lower maximum value for meanness (see also range values in **tables 1** and **2**), compared to the more varied community sample which showed more variability in meanness and a higher maximum value for it. For this reason, the associations might have therefore not emerged in the undergraduate sample. At any rate, the lack of associations involving the SRP-SF antisocial facet and the TriPM meanness scale suggests that these might be less robust, also raising questions about the practical importance of these scales in relation to romantic attachment.

Theoretical implications of the present findings suggest that the SRP-SF facets may have more uniform associations with emotion dysregulation and romantic attachment, likely reflecting their shared variance and the overarching psychopathy construct. In contrast, the three dimensions of the triarchic model appear to have more specific associations with emotion dysregulation and romantic attachment, largely consistent with conceptual expectations. That is, boldness captures psychopathic traits related to better emotion regulation and lower romantic attachment insecurity (both anxiety and avoidance); disinhibition is associated with poorer emotion regulation and higher romantic attachment insecurity; and meanness is associated with higher romantic attachment insecurity but not due to the mediating role of emotion dysregulation – at least not in the undergraduate sample. In contrast with conceptual expectations, these findings did not show differential links with romantic attachment avoidance and anxiety.

Allowing some degree of speculations into more severe forms of psychopathology than captured in non-clinical samples, we advance that clinical implications could concern the role of emotion regulation as one of the connecting links between psychopathic traits and romantic attachment insecurity. Hence, targeting emotion regulation in interventions could have beneficial effects in fostering more adaptive romantic attachment strategies, as suggested for the link between psychopathy and aggression as well (Garofalo, Neumann, & Velotti, 2020). Promoting more adaptive emotional, interpersonal, and behavioral patterns in romantic relationships appears fundamental as these constitute one the most important type of attachment relationships in adulthood (Mikulincer & Shaver, 2003, 2007). In turn, improving emotion regulation and fostering attachment security in romantic relationships may be helpful to reduce intimate partner violence perpetration in individuals with psychopathy (Robertson et al., 2020) or presenting psychopathic traits.

The present study had some strengths, such as the dual emphasis on the SRP-SF and TriPM models of psychopathy, which allows for theoretical reflections on different conceptualizations of psychopathy that still showed comparable pattern of associations with emotion dysregulation and romantic attachment styles, and the internal replication of the findings in two independent samples that showed comparable findings that speaks to their robustness. As for limitations and recommendations for future research, first of all, replication of such findings is recommended. Next to that, these replications should aim at obtaining more comparable sample sizes as well as involving samples characterized by higher levels of psychopathic traits. The exclusive reliance on self-report measures may also have inflated the reported associations due to shared method variance, stressing the importance of multi-method assessment of the key constructs when possible. Finally, the present study was cross-sectional in nature, limiting the interpretation of the findings to a conceptual overlap among the concepts involved, and not to causal inferences. Our findings can nevertheless yield useful information in terms of setting the first basis for future longitudinal designs, which can further investigate the potential "true" mediation of such concepts and their causal effects.

Conclusion

The general pattern of findings supported a consistent association between psychopathic traits and romantic attachment insecurity – both avoidance and anxiety – which was partly explained by emotion dysregulation. We argue that the role of emotion regulation processes deserves more attention for the theoretical and clinical understanding of the psychopathy construct and its correlates in the interpersonal domain. Future research is recommended to focus on replication of the present findings, involving comparable sample sizes, longitudinal designs, and multi-method assessments. Moreover, a further investigation is warranted into possible underlying (maladaptive) mechanisms involving the presence and deployment of both types of insecure romantic attachments, and their interaction, in predicting psychopathic traits. Improving emotion regulation and attachment security in romantic relationships is of foremost importance to reduce intimate partner violence perpetration in individuals with psychopathy or presenting psychopathic traits.

References

Ainsworth, M. D., Blehar, M. C., Waters, E., & Wall, S. N. (1978). *Patterns of attachment: A psychological study of the strange situation*. Psychology Press.

Baskin-Sommers, A., Stuppy-Sullivan, A. M., & Buckholtz, J. W. (2016). Psychopathic individuals exhibit but do not avoid regret during counterfactual decision making. *Proceedings of the National Academy of Sciences*, *113*(50), 14438-14443. https://doi.org/10.1073/pnas.1609985113

Beeney, J. E., Wright, A. G., Stepp, S. D., Hallquist, M. N., Lazarus, S. A., Beeney, J. R., Scott, L. N., & Pilkonis, P. A. (2017). Disorganized attachment and personality functioning in adults: A latent class analysis. *Personality Disorders: Theory, Research, and Treatment*, *8*(3), 206-216. https://doi.org/10.1037/per0000184

Bjureberg, J., Ljótsson, B., Tull, M. T., Hedman, E., Sahlin, H., Lundh, L., Bjärehed, J., DiLillo, D., Messman-Moore, T., Gumpert, C. H., & Gratz, K. L. (2015). Development and validation of a brief version of the difficulties in emotion regulation scale: The DERS-16. *Journal of Psychopathology and Behavioral Assessment*, *38*(2), 284-296. https://doi.org/10.1007/s10862-015-9514-x

Bollen, K. A., & Pearl, J. (2013). Eight myths about causality and structural equation models. *Handbooks of Sociology and Social Research*, 301-328. https://doi.org/10.1007/978-94-007-6094-3_15

Bowlby, J. (1982). *Attachment and Loss, Volume 1, Attachment.* New York: Basic Books. (Original work published 1969)

Bowlby, J. (1982). *Attachment (2nd ed.).* New York, NY: Basic Books.

Cassidy, J. (1994). Emotion regulation: Influences of attachment relationships. *Monographs of the Society for Research in Child Development*, *59*(2/3), 228. https://doi.org/10.2307/1166148

Cassidy, J., & Kobak, R. R. (1988). Avoidance and its relation to other defensive processes. *Clinical implications of attachment*, *1*, 300-323.

Christian, E., Sellbom, M., & Wilkinson, R. B. (2017). Clarifying the associations between individual differences in general attachment styles and psychopathy. *Personality Disorders: Theory, Research, and Treatment*, *8*(4), 329-339. https://doi.org/10.1037/per0000206

Christian, E., Sellbom, M., & Wilkinson, R. B. (2018). Is psychopathy associated with deficits in bonding in an adult noninstitutionalized sample? The association between intimate social network size, attachment behavior, and psychopathy. *Journal of Social and Personal Relationships*, *36*(7), 1996-2014. https://doi.org/10.1177/0265407518775239

Christian, E., Sellbom, M., & Wilkinson, R. B. (2019). Evaluating the association between psychopathy and specific attachment models in adults. *Journal of Personality Disorders*, *33*(1), 1-S16. https://doi.org/10.1521/pedi_2018_32_325

Doherty, N. A., & Feeney, J. A. (2004). The composition of attachment networks throughout the adult years. *Personal Relationships*, *11*(4), 469-488. https://doi.org/10.1111/j.1475-6811.2004.00093.x

Ehrenthal, J., Dinger, U., Lamla, A., Funken, B., & Schauenburg, H. (2008). Evaluation Der deutschsprachigen version des Bindungsfragebogens, Experiences in close relationships – Revised" (ECR-RD). *PPmP - Psychotherapie · Psychosomatik · Medizinische Psychologie*, *59*(06), 215-223. https://doi.org/10.1055/s-2008-1067425

Feeney, J. A. (2008). Adult romantic attachment: Developments in the study of couple relationships. In J. Cassidy & P. R. Shaver (Eds.), *Handbook of attachment: Theory, research, and clinical applications* (2nd ed., pp. 456–481). The Guilford Press.

Fraley, R. C. (2002). Attachment stability from infancy to adulthood: Meta-analysis and dynamic modeling of developmental mechanisms. *Personality and Social Psychology Review*, *6*(2), 123-151. https://doi.org/10.1207/s15327957pspr0602_03

Fraley, R. C., & Davis, K. E. (1997). Attachment formation and transfer in young adults' close friendships and romantic relationships. *Personal Relationships*, *4*(2), 131-144. https://doi.org/10.1111/j.1475-6811.1997.tb00135.x

Fraley, R. C., & Shaver, P. R. (1998). Airport separations: A naturalistic study of adult attachment dynamics in separating couples. *Journal of Personality and Social Psychology*, *75*(5), 1198-1212. https://doi.org/10.1037//0022-3514.75.5.1198

Fraley, R. C., Waller, N. G., & Brennan, K. A. (2000). An item response theory analysis of self-report measures of adult attachment. *Journal of Personality and Social Psychology*, *78*(2), 350-365. https://doi.org/10.1037/0022-3514.78.2.350

Garofalo, C., Neumann, C. S., Kosson, D. S., & Velotti, P. (2020). Psychopathy and emotion dysregulation: More than meets the eye. *Psychiatry Research*, *290*, 113160. https://doi.org/10.1016/j.psychres.2020.113160

Garofalo, C., Neumann, C. S., & Velotti, P. (2018). Difficulties in emotion regulation and psychopathic traits in violent offenders. *Journal of Criminal Justice*, *57*, 116-125. https://doi.org/10.1016/j.jcrimjus.2018.05.013

Garofalo, C., Neumann, C. S., & Velotti, P. (2020). Psychopathy and aggression: The role of emotion dysregulation. *Journal of Interpersonal Violence*, 088626051990094. https://doi.org/10.1177/0886260519900946

Gillath, O., Giesbrecht, B., & Shaver, P. R. (2009). Attachment, attention, and cognitive control: Attachment style and performance on general attention tasks. *Journal of Experimental Social Psychology*, *45*(4), 647-654. https://doi.org/10.1016/j.jesp.2009.02.011

Gordts, S., Uzieblo, K., Neumann, C., Van den Bussche, E., & Rossi, G. (2015). Validity of the self-report psychopathy scales (SRP-III full and short versions) in a community sample. *Assessment*, *24*(3), 308-325. https://doi.org/10.1177/1073191115606205

Gratz, K. L., & Roemer, L. (2004). Multidimensional assessment of emotion regulation and dysregulation: Development, factor structure, and initial validation of the difficulties in emotion regulation scale. *Journal of Psychopathology and Behavioral Assessment*, *26*(1), 41-54. https://doi.org/10.1023/b:joba.0000007455.08539.94

Groh, A. M., Fearon, R. P., Bakermans-Kranenburg, M. J., Van IJzendoorn, M. H.,Steele, R. D., & Roisman, G. I. (2014). The significance of attachment security for children's social competence with peers: A meta-analytic study. *Attachment & Human Development*, *16*(2), 103-136. https://doi.org/10.1080/14616734.2014.883636

Hare, R. D. (2003). Hare psychopathy checklist–revised (2nd edition) (PCL–R). *Encyclopedia of Psychology and Law*. https://doi.org/10.4135/9781412959537.n134

Harenski, C. L., & Kiehl, K. A. (2010). Reactive aggression in psychopathy and the role of frustration: Susceptibility, experience, and control. *British Journal of Psychology*, *101*(3), 401-406. https://doi.org/10.1348/000712609x471067

Hazan, C., & Shaver, P. (1987). Romantic love conceptualized as an attachment process. *Journal of Personality and Social Psychology*, *52*(3), 511-524. https://doi.org/10.1037//0022-3514.52.3.511

Hazan, C., & Zeifman, D. (1994). Sex and the psychological tether. In K. Bartholomew & D. Perlman (Eds.), *Attachment processes in adulthood* (pp. 151–178). Jessica Kingsley Publishers.

John, O. P., & Eng, J. (2014). Three approaches to individual differences in affect regulation: Conceptualizations, measures, and findings. In J. J. Gross (Ed.), *Handbook of emotion regulation* (2nd ed., pp. 321–345). New York, NY: Guilford Press.

Kenny, D. A., Kashy, D. A., & Bolger, N. (1998). Data analysis in social psychology. In D. T. Gilbert, S. T. Fiske, & G. Lindzey (Eds.), *The handbook of social psychology* (pp. 233–265). McGraw-Hill.

Klohnen, E. C., Weller, J. A., Luo, S., & Choe, M. (2005). Organization and predictive power of general and relationship-specific attachment models: One for all, and all for one? *Personality and Social Psychology Bulletin*, *31*(12), 1665-1682. https://doi.org/10.1177/0146167205278307

Kooiman, C. G., Klaassens, E. R., Van Heloma Lugt, J. Q., & Kamperman, A. M. (2013). Psychometrics and validity of the Dutch experiences in close relationships–revised (ECR–R) in an outpatient mental health sample. *Journal of Personality Assessment*, *95*(2), 217-224. https://doi.org/10.1080/00223891.2012.740540

Mack, T. D., Hackney, A. A., & Pyle, M. (2011). The relationship between psychopathic traits and attachment behavior in a non-clinical population. *Personality and Individual Differences*, *51*(5), 584-588. https://doi.org/10.1016/j.paid.2011.05.019

Main, M., Kaplan, N., & Cassidy, J. (1985). Security in infancy, childhood, and adulthood: A move to the level of representation. *Monographs of the Society for Research in Child Development*, *50*(1/2), 66. https://doi.org/10.2307/3333827

Malterer, M. B., Glass, S. J., & Newman, J. P. (2008). Psychopathy and trait emotional intelligence. *Personality and Individual Differences*, *44*(3), 735-745. https://doi.org/10.1016/j.paid.2007.10.007

Marszał, M., & Jańczak, A. (2018). Emotion dysregulation,

Mentalization and romantic attachment in the nonclinical adolescent female sample. *Current Psychology*, *37*(4), 894-904. https://doi.org/10.1007/s12144-017-9573-0

Mayer, J., Savard, C., Brassard, A., Lussier, Y., & Sabourin, S. (2019). Subclinical psychopathic traits and romantic attachment in treatment-seeking couples. *Journal of Marital and Family Therapy*, *46*(1), 165-178. https://doi.org/10.1111/jmft.12387

Mikulincer, M., & Shaver, P. R. (2003). The attachment behavioral system in adulthood: Activation, psychodynamics, and interpersonal processes. *Advances in Experimental Social Psychology*, 53-152. https://doi.org/10.1016/s0065-2601(03)01002-5

Mikulincer, M., & Shaver, P. R. (2007). *Attachment in adulthood: Structure, dynamics, and change.* New York, NY: Guilford Press.

Mikulincer, M., & Shaver, P. R. (2008). Adult attachment and affect regulation. In J. Cassidy & P. R. Shaver (Eds.), *Handbook of attachment: Theory, research, and clinical applications* (2nd ed., pp. 503–531). The Guilford Press.

Mondor, J., McDuff, P., Lussier, Y., & Wright, J. (2011). Couples in therapy: Actor-partner analyses of the relationships between adult romantic attachment and marital satisfaction. *The American Journal of Family Therapy*, *39*(2), 112-123. https://doi.org/10.1080/01926187.2010.530163

Neumann, A., Van Lier, P. A., Gratz, K. L., & Koot, H. M. (2009). Multidimensional assessment of emotion regulation difficulties in adolescents using the difficulties in emotion regulation scale. *Assessment*, *17*(1), 138-149. https://doi.org/10.1177/1073191109349579

Neumann, C. S., Hare, R. D., & Pardini, D. A. (2014). Antisociality and the construct of psychopathy: Data from across the globe. *Journal of Personality*, *83*(6), 678-692. https://doi.org/10.1111/jopy.12127

Neumann, C. S., & Pardini, D. (2014). Factor structure and construct validity of the self-report psychopathy (SRP) scale and the youth psychopathic traits inventory (YPI) in young men. *Journal of Personality Disorders*, *28*(3), 419-433. https://doi.org/10.1521/pedi_2012_26_063

Oka, M., Sandberg, J. G., Bradford, A. B., & Brown, A. (2014). Insecure attachment behavior and partner violence: Incorporating couple perceptions of insecure attachment and relational aggression. *Journal of Marital and Family Therapy*, *40*(4), 412-429. https://doi.org/10.1111/jmft.12079

Paetzold, R. L., Rholes, W. S., & Kohn, J. L. (2015). Disorganized attachment in adulthood: Theory, measurement, and implications for romantic relationships. *Review of General Psychology*, *19*(2), 146-156. https://doi.org/10.1037/gpr0000042

Patrick, C. J. (2010). *Operationalizing the triarchic conceptualization of psychopathy: Boldness, meanness, and disinhibition.* Unpublished manual.

Patrick, C. J., Fowles, D. C., & Krueger, R. F. (2009). Triarchic conceptualization of psychopathy: Developmental origins of disinhibition, boldness, and meanness. *Development and Psychopathology*, *21*(3), 913-938. https://doi.org/10.1017/s0954579409000492

Paulhus, D. L., Neumann, C. S., & Hare, R. D. (2016). *The SRP-4: Self-report psychopathy scale* (4th ed.). Toronto, Canada: Multi-Health Systems.

Pierce, T., & Lydon, J. E. (2001). Global and specific relational models in the experience of social interactions. *Journal of Personality and Social Psychology*, *80*(4), 613-631. https://doi.org/10.1037//0022-3514.80.4.613

Pinquart, M., Feußner, C., & Ahnert, L. (2013). Meta-analytic evidence for stability in attachments from infancy to early adulthood. *Attachment & Human Development*, *15*(2), 189-218. https://doi.org/10.1080/14616734.2013.746257

R Core Team (2017) R: A Language and Environment for Statistical Computing. R Foundation for Statistical Computing, Vienna, Austria. http://www.R-project.org/

Robertson, E. L., Walker, T. M., & Frick, P. J. (2020). Intimate partner violence perpetration and psychopathy: A comprehensive review. *European Psychologist*, *25*(2), 134-145. https://doi.org/10.1027/1016-9040/a000397

Rosseel, Y. (2012). lavaan: An R Package for Structural Equation Modeling. *Journal of Statistical Software, 48*(2), 1-36. URL http://www.jstatsoft.org/v48/i02/.

Rothbard, J. C., & Shaver, P. R. (1994). Continuity of attachment across the life span. In M. B. Sperling & W. H. Berman (Eds.), *Attachment in adults: Clinical and developmental perspectives* (pp. 31–71). Guilford Press.

Savard, C., Brassard, A., Lussier, Y., & Sabourin, S. (2015). Subclinical psychopathic traits and romantic attachment in community couples: A dyadic approach. *Personality and Individual Differences*, *72*, 128-134. https://doi.org/10.1016/j.paid.2014.08.014

Schimmenti, A., Passanisi, A., Pace, U., Manzella, S., Di Carlo, G., & Caretti, V. (2014). The relationship between attachment and psychopathy: A study with a sample of violent offenders. *Current Psychology*, *33*(3), 256-270. https://doi.org/10.1007/s12144-014-9211-z

Sellbom, M., Lilienfeld, S. O., Fowler, K. A., & McCrary, K. L. (2018). The self-report assessment of psychopathy: Challenges, pitfalls, and promises. In C. J. Patrick (Ed.), *Handbook of psychopathy* (pp. 211–258). The Guilford Press.

Sibley, C. G., Fischer, R., & Liu, J. H. (2005). Reliability and validity of the revised experiences in close relationships (ECR-R) self-report measure of adult romantic attachment. *Personality and Social Psychology Bulletin*, *31*(11), 1524-1536. https://doi.org/10.1177/0146167205276865

Théorêt, V., Lapierre, A., Blais, M., & Hébert, M. (2020). Can emotion dysregulation explain the association between attachment insecurities and teen dating violence perpetration? *Journal of Interpersonal Violence*, *37*(1-2), 743-763. https://doi.org/10.1177/0886260520915547

Trinke, S. J., & Bartholomew, K. (1997). Hierarchies of attachment relationships in young adulthood. *Journal of Social and Personal Relationships*, *14*(5), 603-625. https://doi.org/10.1177/0265407597145002

Van der Zouwen, M., Hoeve, M., Hendriks, A. M., Asscher, J. J., & Stams, G. J. (2018). The association between attachment and psychopathic traits. *Aggression and Violent Behavior*, *43*, 45-55. https://doi.org/10.1016/j.avb.2018.09.002

van Dongen, J. D. M., Drislane, L. E., Nijman, H., Soe-Agnie, S. E., & van Marle, H. J. C. (2017). Further evidence for reliability and validity of the Triarchic Psychopathy Measure in a forensic sample and a community sample. *Journal of Psychopathology and Behavioral Assessment, 39*, 58 – 66. http://dx.doi.org/10.1007/s10862-016-9567-5

Velotti, P., D'Aguanno, M., De Campora, G., Di Francescantonio, S., Garofalo, C., Giromini, L., Petrocchi, C., Terrasi, M., & Zavattini, G. C. (2015). Gender moderates the relationship between attachment insecurities and emotion dysregulation. *South African Journal of Psychology*, *46*(2), 191-202. https://doi.org/10.1177/0081246315604582

Visser, B. A., Bay, D., Cook, G. L., & Myburgh, J. (2010). Psychopathic and antisocial, but not emotionally intelligent. *Personality and Individual Differences*, *48*(5), 644-648. https://doi.org/10.1016/j.paid.2010.01.003

Waters, E., Hamilton, C. E., & Weinfield, N. S. (2000). The stability of attachment security from infancy to adolescence and early adulthood: General introduction. *Child Development*, *71*(3), 678-683. https://doi.org/10.1111/1467-8624.00175

Waters, E., Weinfield, N. S., & Hamilton, C. E. (2000). The stability of attachment security from infancy to adolescence and early adulthood: General discussion. *Child Development*, *71*(3), 703-706. https://doi.org/10.1111/1467-8624.00179

Weinfield, N. S., Sroufe, L. A., Egeland, B., & Carlson,

E. (2008). Individual differences in infant-caregiver attachment: Conceptual and empirical aspects of security. In J. Cassidy & P. R. Shaver (Eds.), *Handbook of attachment: Theory, research, and clinical applications* (pp. 78–101). The Guilford Press.

Winer, E. S., Cervone, D., Bryant, J., McKinney, C., Liu, R. T., & Nadorff, M. R. (2016). Distinguishing Mediational models and analyses in clinical psychology: Atemporal associations do not imply causation. *Journal of Clinical Psychology*, *72*(9), 947-955. https://doi.org/10.1002/jclp.22298

Zeifman, D., & Hazan, C. (2008). Pair bonds as attachments: Reevaluating the evidence. In J. Cassidy & P. R. Shaver (Eds.), *Handbook of attachment: Theory, research, and clinical applications* (2nd ed., pp. 436–455). The Guilford Press.