RESEARCH ARTICLE

Attachment-related mentalization moderates the relationship between psychopathic traits and aggression in adolescence

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ABSTRACT

Objective: The lack of affective responsiveness to others' mental states – one of the hallmarks of psychopathy – is thought to give rise to increased interpersonal aggression. Recent models of psychopathy highlight deficits in attachment security that may, in turn, impede the development of relating to others in terms of mental states (mentalization). Here, we aimed to assess whether mentalization linked to attachment relationships may serve as a moderator for the relationship between interpersonal aggression and psychopathic traits in an adolescent community sample. Method: Data from 104 males and females from the community with a mean age of 16.4 years were collected on mentalization capacities using the Reflective Functioning Scale on the Adult Attachment Interview (AAI). Psychopathic traits and aggressive behavior were measured via self-report. Results: Deficits in mentalization were significantly associated with both psychopathic traits and aggression. As predicted, mentalization played a moderating role, such that individuals with increased psychopathic tendencies did not display increased proactive and reactive aggression when they had higher mentalizing capacities. Conclusions: Psychopathic traits alone only partially explain aggression in adolescence. Mentalization may serve as a protective factor to prevent the emergence of aggression in spite of psychopathic traits and may provide a crucial target for intervention.

Keywords: Mentalization, Aggression, Adolescence, Psychopathy, Reflective Functioning

Introduction

Psychopathy is linked to chronic criminality, lifelong antisocial behaviors and recidivism in adults (Gretton, Hare, & Catchpole, 2004; Leistico, Salekin, DeCoster, & Rogers, 2008; Skeem, Miller, Mulvey, Tiemann, & Monahan, 2005), and is characterized by shallow affect, egocentricity, lack of remorse, superficial charm, impulsivity, and manipulativeness (Cleckly, 1941; Hare, 1990/91). One of the most harmful consequences of psychopathy for society is the predisposition towards excessive interpersonal aggression, especially cold, premeditated aggression as a means to attain one's goals at the expense of others' wellbeing ("proactive aggression"; Blair, Mitchell, & Blair, 2005). Of particular concern is the repeated finding of low levels of treatment responsiveness for individuals with psychopathic traits (Hawes & Dadds, 2005), although some recent findings have emerged for psychosocial interventions in young children (McDonald, Dodson, Rosenfield, & Jouriles, 2011). Nevertheless, in light of the findings that psychopathy itself may prove somewhat intractable to conventional treatments, especially later in development (Harris & Rice, 2006), one alternative port of entry may be to identify targets for intervention that may buffer against the damaging consequences of psychopathy (e.g., proactive aggression). One such target area for treatments might be attachment-related mentalization. This concept integrates cognitive theory of mind (ToM), the capacity to infer the inner psychological state of another, and emotional empathy, the capacity to affectively respond to the emotional display of another (Blair, 2005; 2008), within the framework of attachment theory (Fonagy, Gergely, Jurist, & Target, 2002).

While research has demonstrated that individuals with psychopathic traits match or even outperform controls in tests of cognitive ToM, they appear to have impairments in emotional empathy, potentially giving rise to a relative deficit in a functional violence inhibition mechanism (Blair, 1999; Blair et al., 1996; Griffin & Gross, 2004; Kosson, Suchy, Mayer, & Libby, 2002; Richell, et al., 2003; Stevens, Charman, & Blair, 2001; Sutton,

Reeves, & Keogh, 2000). It follows that they may represent the emotions of their victims (ToM), but fail to *respond emotionally* to these representations (Sharp & Venta, 2012). In turn, such a failure to resonate with others' emotional states is thought to lower the threshold for committing aggressive acts against others. Neuroscientists have attributed this to a neurobiological dysfunction at the level of an underactive amygdala and impaired fronto-limbic circuitry, for example, in response to others' distressed facial expressions (Jones, Laurens, Herba, Barker, & Viding, 2009). Resonating with others' distress is thought to put a "brake" on aggression because potential pain inflicted on the victim is also "felt" by the perpetrator (Blair, 1995; Feshbach, 1987). Deficits in this domain may disinhibit individuals with psychopathic traits in their use of proactive aggression as a means of achieving their goals.

Mentalization – as indexed by reflective functioning (RF) on the Adult Attachment Interview (AAI; Fonagy, Target, Steele, & Steele, 1998; George, Kaplan, & Main, 1996) – may serve as a protective factor against the consolidation of antisocial behavior. Mentalizing is defined as the capacity to relate to others (especially attachment figures) by grasping their behaviors as the product of mental states, while bearing in mind the necessarily inferential nature of this process (Fonagy, Gergely, & Target, 2007). The ability to feel others' distress as one's own also forms a crucial aspect of mentalization and is thought to develop in part within the early attachment relationship through verbal and nonverbal channels in interactions with caregivers in infancy and childhood (Gergely & Unoka, 2008; Sharp & Venta, 2012). Previous research indicates that early attachment relationships characterized by violence, abuse, and neglect may entail an inhibition of mentalizing or only fragmentary use of intentional attributions (Fonagy & Moran, 1991). Crucially, access to mental processes such as empathizing or attributing intentionality is thought to vary as a function of the concurrent attachment-related distress as well as the felt attachment security of an individual (Fonagy & Target, 2005; Grienenberger, Kelly, &

Slade, 2005; Hill, Fonagy, Lancaster, & Broyden, 2007; Hill, Murray, Leidecker, & Sharp, 2008; Luyten, Mayes, Fonagy, & Van Houdenhove, submitted; Nolte, Guiney, Fonagy, Mayes, & Luyten, 2011). Recent evidence suggests that the experience of attachment-related (i.e. interpersonal) stress has an adverse impact on activation patterns in brain areas underpinning mentalizing (Nolte et al., submitted). Given that emerging evidence documents links of psychopathic tendencies in children with disorganized attachment relationships (Pasalich, Dadds, Hawes, & Brennan, 2012), maladaptive interactive patterns in families (Dadds et al., 2012), and severe institutional deprivation (Sonuga-Barke, Schlotz, & Kreppner, 2010), it is conceivable that mentalization is similarly affected during ontogeny.

Accordingly, in behavioral studies, children's intentionality – portraying characters in attachment-related narratives as subjects whose behaviors are determined by mental states – was related to cognitive empathy (ToM) under "cold" conditions (low distress, offline mentalizing), but this association did not hold for "hot" conditions (high distress; Hill et al., 2008). By contrast, low intentionality under high-distress ("hot") conditions predicted levels of conduct disorder (Hill et al., 2007) and mediated the prospective link for at-risk children between insecure attachment in infancy and increased risk of externalizing symptoms at preschool age (Hill et al., 2008). This lends further support to the relevance of attachment-related mentalizing deficits to increases in aggression, although conclusive data for adolescence are still lacking. In adults, preliminary findings demonstrate that violent offenders show reduced RF in comparison to nonviolent offenders or individuals with respective personality disorders (Levinson & Fonagy, 2004). However, despite the conceptual parallels in relation to inhibited mentalization and psychopathy, no studies to date have attempted to integrate these concepts. In conjunction with Blair and colleagues' work on empathy (2005, 2008), paradigms are needed that measure emotional empathy under "hot" conditions. In an attempt to fill these gaps empirically, in the present cross-

sectional study we set out first to assess whether deficits in attachment-related mentalization are associated with psychopathic traits and interpersonal aggression during the transition to adulthood. Secondly, given its possible role in inhibiting aggression, we investigated whether intact mentalization despite high levels of psychopathy would serve as a protective factor for interpersonal aggression.

Hypotheses

We predicted that aggressive behavior and psychopathic personality traits would be inversely associated with RF, in keeping with the assumed deficit in empathic responding of psychopathic individuals. Furthermore, we expected that RF would play a moderating role in the relationship between psychopathy and aggressive behavior. The moderator hypothesis is based on the assumption that RF has an inhibitory effect on the expression of psychopathic personality traits in terms of aggression. More specifically, adolescents with marked psychopathic tendencies should not engage in aggressive behavior in the presence of higher RF.

Methods

Participants

The sample of this study consisted of a total of 104 adolescent males and females recruited from the community in two large cities in Germany. Participants were recruited from local schools. Inclusion criteria were (a) male and female adolescents with (b) no neurological impairment, (c) no acute substance abuse and (d) sufficient language knowledge. All assessments took place at the University of Bremen and the University of Kassel. The study was approved by the ethics committee of the University of Kassel; participants gave written and informed consent. If a study participant was aged below 18

years, a parent or legal guardian gave an additional written and informed consent. All participants were paid €30 for participation.

The sample comprised 59 male and 45 female participants aged from 15 to 24 years with a mean age of 16.4 years (SD = 1.8). Forty-three participants (41.3%) were immigrants, mainly from Turkey or Arabic countries. Level of education was very homogeneous; participants in late adolescence were visiting grade 12 in vocational schools and participants in middle adolescence were visiting grade 10 in comprehensive schools.

Measures

Reflective Functioning. The capacity to mentalize was measured using the Adult Attachment Interview (AAI; George, et al., 1996). RF was coded according to the RF Scale (Fonagy et al., 1998) from AAI transcripts. The AAI consists of 20 questions asked in a set order with standardized probes. Individuals are asked to describe their childhood relationship with their parents, choosing five adjectives to characterize each relationship and substantiating these descriptors with specific memories. To elicit attachment-related information, they are asked how their parents responded to them when they were in physical or emotional distress (e.g., during times when they were upset, injured, or sick as children). They are also asked about memories of separation, loss, experiences of rejection, and times when they might have felt threatened, including, but not limited to, those involving physical and sexual abuse. The interview requires that participants reflect on their parents' styles of parenting and that they consider how childhood experiences with their parents may have influenced their personality. The RF Scale assesses whether participants understand attachment-related experiences in terms of mental states (Fonagy et al., 1998). Statements are coded on an 11-point scale from anti-reflective (-1) to exceptionally reflective (9). Qualitative markers of RF are the acknowledgement of opacity of mental states, separateness of minds, developmental aspects, and efforts to understand

behavior in terms of mental states. Scoring focuses on eight questions from the AAI that are considered "demand questions" that explicitly probe for RF. The global score is obtained by individually weighting and aggregating the ratings of the individual questions. The RF Scale has been validated with the coherence scale of the AAI and shows a good interrater reliability after training (Fonagy, Steele, Steele, Moran, & Higgitt, 1991; Taubner, et al., in press). All interviews were administered by trained students. Interviews were audiotaped, transcribed verbatim, and coded by two trained and reliable assessors. Interrater reliability for 30% of the sample had an acceptable Spearman correlation of r = .82.

Aggressive Behavior. Level of aggression was recorded via the Reactive–Proactive-Aggression Questionnaire (RPQ; Raine et al., 2006), which consists of 23 items that load on to two scales: reactive and proactive aggression. The questionnaire assesses the frequency of aggressive behavior by asking the participant to score certain acts (e.g., "Had fights with others to show who was on top" or "Damaged things because you felt mad") between 0 (never) and 2 (often). For the current analysis, subscales were used. The proactive aggression subscale can range from 0 to 24 and the reactive aggression subscale from 0 to 22. In the current sample, both scales showed good internal consistencies, with Cronbach's Alpha (α) = .83 for proactive aggression and α = .80 for reactive aggression.

Psychopathy. Psychopathic tendencies were assessed with the German version of the Psychopathic Personality Inventory-Revised (PPI-R; Alpers & Eisenbarth, 2008; Lilienfeld & Widows, 2005). The PPI-R is an 154-item questionnaire, scored from 1 (never) to 4 (very often), which yields eight subscales on a two-factor structure: (1) "Fearless dominance", with the subscales fearlessness, stress immunity, and social potency, and (2) "Impulsive antisociality" with the subscales impulsive nonconformity, blame externalization, Machiavellian egocentricity, carefree lack of planning, and coldheartedness. In contrast to

the RPQ, the PPI-R focuses on psychopathic personality traits. Since the two-factor structure of the PPI-R has recently been called into question (Uzieblo, Verschuere, Van den Bussche, & Crombez, 2010), we used the composite score in the current analyses. The composite score can range between 154 and 616. In the current sample, the internal consistency of the composite score was very good, with α = .88.

General Intelligence. Intelligence (IQ) was controlled in all subsequent statistical analyses. IQ was assessed with the Cultural Fair Test (CFT-3; Cattell & Weiß, 1971), which measures general intelligence and yields results unaffected by verbal competence under time-controlled conditions. CFT-3 has proven high validity in assessing fluid and general intelligence in international studies (Neitzke & Röhr-Sendelmeier, 1996; Sternberg, 2004).

Statistical Analyses

Statistical analyses were performed using the Statistical Package for the Social Sciences (SPSS 19.0). The data were analyzed in the following three steps[1]: First, we computed raw correlations between key variables including age and immigration background. Second, we conducted two hierarchical regression analyses, predicting reactive and proactive aggression from age, gender, immigration status, and general intelligence in the first step, psychopathic personality traits in the second step, and RF in the third step. All continuous predictors were centered to their mean prior to regression analyses (Cohen, Cohen, West, & Aiken, 2003). We conducted these analyses in order to prove whether RF is associated with aggressive behavior above and beyond other variables measured in this study. Finally, we tested two moderation models using PPI-R as the independent variable, RF as the moderation variable, and RPQ scales as the dependent variable. To that end, we generated a new variable by multiplying the (centered) PPI-R and RF scores, and

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[1] Following the recommendations by Fidell and Tabachnick (2003), we checked for outliers prior to hypothesis testing. By this means, two data points in RPQ-Pro, one data point in RPQ-Re, and one data point in PPI-R were identified as representing absolute z-values > 2.5. However, we did not correct for these outliers as they did not affect any of the results presented below.

added this variable into the aforementioned hierarchical regression analyses in the fourth step. We probed for significant interactions by depicting simple regression lines for adolescents with low (-1 *SD*), moderate (*M*), and high (+1 *SD*) RF (Hayes & Matthes, 2009).

Results

Means and correlations

[Insert Table 1 about here]

Table 1 presents descriptive characteristics, effects of gender, age, and immigration status, and intercorrelations of key variables. RF ranged from 1 to 7 (*M* = 3.99, *SD* = 1.40), which is below an expected mean of 5 for non-clinical adult populations (Fonagy et al., 1996). IQ ranged from 79 to 142 (*M* = 108.6, *SD* = 13.5) and can therefore be considered as in the normal range. Psychopathy traits (total score of the PPI-R) ranged from 279 to 451 (*M* =348.0, *SD* = 29.2), which is above mean values for nonclinical German adult populations (Eisenbarth & Alpers, 2007). Proactive aggression measured by the RPQ ranged from zero to 20 (*M* = 3.35, *SD* = 3.50), whereas reactive aggression had a range from 1 to 21 (*M* = 7.68, *SD* = 4.08). Gender, age, and immigration status were related to key variables and therefore included as covariates in all following analyses (see Table 1). Specifically, psychopathic traits were higher in males, general intelligence was positively correlated with age, and immigrants had somewhat lower RF values. Correlations of key variables were in the expected directions. There were negative correlations between RF and levels of psychopathy and aggression, with moderate effect sizes. Whereas intelligence and RF had a positive correlation, levels of proactive aggression correlated negatively with IQ. Psychopathy and proactive aggression were correlated with a higher effect size than psychopathy and reactive aggression, *z* = 2.66, *p* < .01 (Steiger, 1980). Both forms of aggression, proactive and reactive, were correlated strongly (see Table 1).

Incremental Association of Reflective Functioning and Aggression

[Insert Table 2 about here]

Table 2 summarizes the results of the two hierarchical regression analyses. In the first analysis, RF remained significant in predicting proactive aggressive behavior, $\beta = -.22$, $p < .05$, $\Delta R^2 = .038$, even when controlling for confounding variables in the first step and for psychopathy in the second step, $F(6, 97) = 12.10$, $p < .001$, $R^2 = .43$. In contrast, the second analysis revealed that RF was no longer predictive of reactive aggressive behavior, $\beta = -.11$, $p = .26$, when entered into the regression model in the third step, $F(6, 97) = 4.49$, $p < .001$, $R^2 = .22$.

Moderating Effect of Reflective Functioning

Table 2 presents the results of the interaction term of PPI-R and RF in the fourth step of the hierarchical regression analyses. The interaction term was significant in predicting both proactive aggressive behavior, $\beta = -.35$, $p < .001$, $\Delta R^2 = .106$, and reactive aggressive behavior, $\beta = -.23$, $p < .05$, $\Delta R^2 = .046$. Figure 1 visualizes the interactions by plots of simple regression lines for adolescents with low (RF = 2.59), average (RF = 3.99), and high (RF = 5.39) RF.

[Insert Figure 1 about here]

As hypothesized, the relationship between psychopathy and aggressive behavior was strongest when RF was low (-1 *SD*), with simple slopes of $\beta = .86$, $p < .001$, for proactive aggression, and $\beta = .54$, $p < .001$. for reactive aggression, respectively. That is, in adolescents with low RF, psychopathy was highly predictive of aggressive behavior. Conversely, when RF was high (+1 *SD*), the relationship between psychopathy and aggressive behavior was nonsignificant, both for proactive aggression, $\beta = .16$, $p = .15$, and for reactive aggression, $\beta = .09$, $p = .51$. This means that in adolescents with high RF, psychopathy was unrelated to aggressive behavior.

Discussion

In sum, the results from this adolescent sample confirmed our hypotheses: Deficits in mentalization were significantly associated with both psychopathic traits and aggression. Moreover, deficits in RF were associated with aggressive behavior over and above psychopathic personality traits. However, this incremental association held only for proactive and not reactive aggression when controlling for confounding variables. The moderating effect of RF on the relationship between psychopathic traits and aggression was found for both proactive and reactive aggression, but, again, effect sizes were stronger for proactive than reactive aggression. Results from moderation analyses suggested that individuals with psychopathic traits acted aggressively mainly when they had average or low levels of RF. Conversely, high RF seemed to have an inhibitory effect on the aggressive expression of psychopathic personality traits.

In contrast to the reported relationship between psychopathic traits and superior levels of ToM, in our sample psychopathic traits were associated with lower levels of RF. We attribute this result to the conceptual differences between ToM and RF. The latter is conceived as an ability closely linked to the ability to mentalize affective relationships as attachment relationships ("hot" social cognition), whilst the former captures false-belief reasoning and strategic planning characterized by a much smaller emphasis on the affective context. As such, our data are consistent with a growing literature demonstrating links between insecure and disorganized attachment with the related cascading mentalizing deficits and psychopathic traits in childhood (e.g. Pasalich et al., 2012). Although more evidence is needed, it is conceivable that some of the core processes of psychopathy (e.g., the lack of affective empathy) are partly attributable to such a pathway.

Empirical studies have repeatedly demonstrated that psychopathic traits have a stronger relationship with proactive than reactive aggression, with moderate effect sizes (e.g., Wilson, Miller, Zeichner, Lynam, & Widiger, 2011). The incremental association between

RF and proactive aggression, as well as the higher effect size for proactive aggression in the moderation analysis, support the key role of RF in facilitating attention to the mental states of others and therefore abstaining from the *proactive* use of aggression in the absence of threat (in line with Blair's violence inhibition mechanism). Once fight–flight responses are triggered in the context of threat cues, however, individuals may engage in *reactive* aggressive behavior, representing an evolutionary adaptive response that may be more automatic and less influenced by mentalizing[2].

This study is the first to attempt to empirically integrate the literature on the roles of psychopathy and mentalization in the development of aggressive behavior (Blair, 1995; Fonagy, Target, Steele, & Steele, 1997). Despite conceptual links, both accounts make somewhat distinct assumptions about the etiology of aggressive psychopathology. In the case of psychopathy, numerous twin studies in childhood and adolescence now document that the overlap between psychopathic tendencies or callous unemotional traits and concurrent disruptive and antisocial behavior appears to be largely attributable to genetic influence (Larsson, Andershed, & Lichtenstein, 2006; Taylor, Loney, Bobadilla, Iacono, & McGue, 2003; Viding, Blair, Moffitt, & Plomin, 2005; Viding, Frick, & Plomin, 2007; Viding, Jones, Frick, Moffitt, & Plomin, 2008). However, Viding and colleagues (Viding et al., 2005, 2007) stress that this overlap may also be accounted for by gene–environment interactions or evocative gene–environment correlations. Moreover, approximately one-third of the variance in psychopathic tendencies in childhood are attributable to nonshared environmental influences (Viding et al., 2005). Mentalization therefore, with its ties to attachment (Fonagy, Redfern, & Charman, 1997; Fonagy, Steele, Steele, & Holder, 1997; Hill, et al., 2008), largely mediated by shared and nonshared environmental factors

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[2] Nonetheless, mentalizing may potentially protect against mistaking harmless but ambiguous social signals for threat cues, which, in turn, trigger aggressive acts that may appear unprovoked and proactive to an outside observer, but biologically function according to reactive patterns.

(Fearon, et al., 2006; Roisman & Fraley, 2008), may add to the understanding of etiological factors in psychopathy.

This perspective on the pertinence of environmental factors for psychopathy also dovetails with recent demonstrations of efficacy in tackling psychopathic traits in childhood using psychosocial interventions (McDonald et al., 2011; Pasalich et al., 2012). Inasmuch as mentalization may help to inhibit aggression against conspecifics in the presence of psychopathic traits, impairments in this capacity may facilitate excessive levels of aggression, especially the proactive type. Our findings demonstrate that attachment-based RF – the awareness of others' mental states in understanding their behavior – may serve as a protective factor for the expression of aggression. In turn, our findings highlight mentalization as one potential target for treatments for psychopathy in adolescence. In particular, as randomized controlled trials suggest that this social cognitive capacity may be amenable to psychosocial interventions for other disorders (Levy, et al., 2006) or predict distinct outcome pathways (Gullestad, Johansen, Høglend, Karterud &Wilberg, 2012), such treatments may show promise, if not for reducing psychopathic traits themselves, then at least for inhibiting the associated aggression. If an interventional focus on improving RF, as is the case in mentalization-based treatments (Bateman & Fonagy, 2008, 2011), leads to less or no aggressive behavior, this would be an important step in the prevention of further aggressive crime. In addition, mentalizing capacities should be taken into account in designs of future twin and adoption studies.

Bearing in mind the limitations of cross-sectional analyses, these findings extend previous evidence of deficits in the empathic responding of individuals with psychopathic tendencies to an ecologically valid, affectively charged, narrative-based attachment context. In contrast to the majority of previous empirical investigations on the nature of psychopathy, the current sample comprised both male and female participants from a community sample and may therefore have wider implications for generalizability. A further strength of

the study lies in the design, which combined both self-report and observer-rated instruments. At the same time, several limitations deserve consideration. The findings of the study require replication and application to larger-scale, longitudinal designs with community and clinical populations to test the robustness and generalizability of these preliminary results. Furthermore, this study would have been improved by the inclusion of some measure of psychopathy or aggression that was not self-report, to enhance validity and reduce the possibility of shared method variance. Due to the cross-sectional design, it can be argued that the interpretation of the direction of the moderation effects is limited. However, the identified effects are in line with our a priori hypotheses, supporting mentalization as a protective factor for the expression of one of the core behavioral traits of psychopathy, proactive aggression.

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Table 1

Descriptive statistics and raw correlations of key variables

	Descriptive			Correlations						
	Range	*M*	*SD*	Gender	Age	IS	RF	PPI-R	Pro	Re
Reflective functioning (RF)	1–7	3.99	1.40	-.13	.01	-.32**				
Psychopathy (PPI-R)	279–451	348.0	29.2	.28**	.03	-.04	-.22*			
Proactive aggression (RPQ-Pro)	0–20	3.35	3.50	.11	-.13	.08	-.36***	.59***		
Reactive aggression (RPQ-Re)	1–21	7.68	4.08	.16	-.12	.01	-.22*	.40***	.63***	
Intelligence (CFT-3)	79–142	108.6	13.5	.12	.24*	-.18	.25*	-.07	-.21*	-.18

Note. *N* = 104. * *p* < .05. ** *p* < .01. *** *p* < .001. Gender was dummy-coded with 0 = females and 1 = males. Immigration status (IS) was dummy-coded with 0 = no and 1 = yes.

Table 2

Hierarchical regression analyses predicting aggressive behavior

	RPQ-Proactive				RPQ-Reactive			
	B	SE	β	ΔR^2	B	SE	β	ΔR^2
Step 1				.088				.089
Gender	1.392	0.726	.20		1.990	0.846	.24*	
Age	-0.300	0.205	-.16		-0.385	0.239	-.17	
Immigration status	0.299	0.695	.04		-0.228	0.810	-.03	
General intelligence (CFT)	-0.050	0.026	-.19		-0.052	0.030	-.17	
Step 2				.303				.118
Psychopathy (PPI-R)	0.069	0.010	.58***		0.050	0.013	.36***	
Step 3				.038				.010
Reflective functioning (RF)	-0.543	0.215	-.22*		-0.332	0.294	-.11	
Step 4				.106				.046
PPI-R × RF	-0.030	0.006	-.35***		-0.023	0.009	-.23*	

Note. N = 104. * p < .05. ** p < .01. *** p < .001. Gender was dummy-coded with 0 = females and 1 = males. Immigration status (IS) was dummy-coded with 0 = no and 1 = yes.
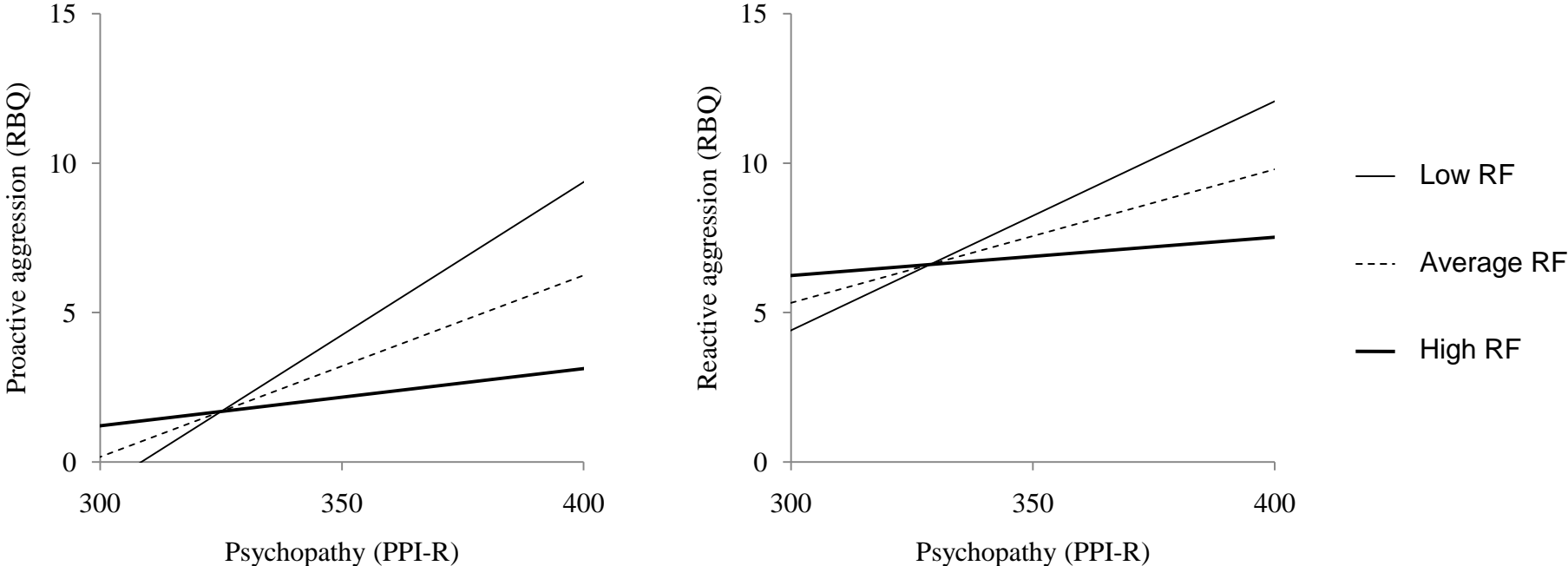
Figure 1. RF moderates the relationship between psychopathy and aggression