

REFLECTIVE FUNCTION AND BORDERLINE TRAITS IN ADOLESCENTS

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Despite the developmental roots of the relation between attachment-based reflective function (RF) and borderline pathology, there is a lack of empirical studies examining this link in youth. We examined this link taking into account potential relations between RF and internalizing and externalizing pathology. A total of 421 clinical adolescents between the ages of 12 and 17 completed the Child Attachment Interview (CAI; Shmueli-Goetz, Target, Fonagy, & Datta, 2008), which was coded using the Child and Adolescent Reflective Functioning Scale (CARFS; Ensink, Target, & Oandasan, 2013), alongside a self-report measure of borderline pathology and parent-reported measures of internalizing and externalizing pathology. Exploratory analyses revealed no direct relation between RF and borderline features or internalizing psychopathology but a negative relation with externalizing pathology. Moderation analyses showed that externalizing pathology moderated the relation between RF and borderline pathology. Implications for understanding the various ways in which impaired RF may present in adolescents with BPD are discussed.

Keywords: reflective function, borderline, adolescents, attachment

Reflective function (RF) refers to a particular approach to studying social cognition or mentalization introduced by Fonagy and colleagues (Fonagy, Steele, Moran, Steele, & Higgitt, 1991), where a developmental psychopathology and attachment perspective is emphasized (Ensink, Normandin, et al., 2015; Fonagy, Gergely, & Target, 2007; Fonagy & Target, 1996, 2006). RF is a multi-dimensional construct defined as the capacity to imagine and recognize mental states in self and others (Fonagy, Gergely, Jurist, & Target, 2002). It includes mentalization regarding both self and others (Ensink, Normandin, et al., 2015) and is seen to occur both implicitly (without conscious awareness) and explicitly (Fonagy & Luyten, 2009). Empirical research using the construct of RF has been increasing steadily over the last two decades, and the construct has shown high relevance and usefulness for parent-child attachment, psychopathology, and psychotherapy research (Katznelson, 2014). RF is generally measured in the context of attachment relationships,

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as it is within the family that RF is considered to have the most important implications for interpersonal functioning (Fonagy & Allison, 2012, 2014).

RF is most often assessed in adults using the Adult Reflective Function Scale (ARFS; Fonagy, Steele, Steele, & Target, 1997). Coding using the ARFS relies on the Adult Attachment Interview (AAI; George, Kaplan, & Main, 1985) transcripts, and includes the following dimensions: an awareness of the nature of mental states; the explicit effort to identify mental states associated with particular behaviors; the recognition of the developmental aspects of mental states; and mental states in relation to the interviewer (Fonagy, Target, Steele, & Steele, 1998; Katznelson, 2014). Ratings function on an 11-point scale that ranges from -1 (systematic dismissal, derogation, or hostility at any attempts at reflection) to 9 (exceptional sophistication in the understanding of complex mental states). A score of 5 indicates a coherent model of the mind, even if relatively simple. Robust validity has been reported for the ARFS (Berthelot et al., 2015; Ensink, Normandin, Plamondon, Berthelot & Fonagy, 2016; Katznelson, 2014; Taubner, White, Zimmermann, Fonagy, & Nolte, 2013).

The development of the ARFS has spawned much research on the relation between RF and psychopathology in adults. Deficits in RF have been linked to various psychiatric problems, including autism, depression, psychosis, PTSD, eating disorders, substance abuse, and psychopathy (for a review, see Katznelson, 2014; Pajulo et al., 2012; Schechter et al., 2006; Toth, Rogosch, & Cicchetti, 2008). However, the paradigmatic disorder associated with the RF construct is borderline personality disorder (BPD) (Fonagy et al., 1991, 2016). In essence, BPD is viewed as a disorder of interpersonal relatedness (Bender & Skodol, 2007; Hopwood, Wright, Ansell, & Pincus, 2013; Sharp & Fonagy, 2008b), so the construct of RF is naturally of interest to researchers and clinicians wishing to empirically capture maladaptive representations of the self and significant others. Accordingly, Fonagy and colleagues (1996) demonstrated significantly lower RF, as measured using ARFS, in adult psychiatric inpatients with BPD ($M = 2.7$) than adult inpatients with other personality disorders ($M = 3.5$) and controls ($M = 5.2$). Chiesa and Fonagy (2014) similarly found a significant difference in the level of RF, as measured using the ARFS, between a group of adults with BPD ($M = 3.42$) and a non-psychiatric control group ($M = 5.11$), and demonstrated a significant negative correlation between borderline symptoms and RF. A low mean RF score in adults with BPD was also shown by Levy and colleagues (2006), who used the ARFS and found a mean RF of 3.0 in outpatient adults with BPD. In the context of the Kernberg (1967) model of BPD, RF has also been shown to correlate with borderline personality organization (Bouchard et al., 2008; Fischer-Kern et al., 2010; Muller, Kaufhold, Overbeck, & Grabhorn, 2006).

From a developmental perspective, low RF in BPD is thought to be associated with insecure and disorganized early attachments to caregivers and disturbances in early parent-child processes. The optimal development of mentalization is thought to partially depend on early parent-child communication in which the child is treated as an individual with a mind (Ensink, Normandin, et al., 2016; Sharp & Fonagy, 2008a). Sensitivity to the child's

mind is demonstrated through a particular type of non-verbal communication involving marked mirroring of the infant's peak affects and ostensive cuing (Fonagy et al., 2002). This is thought to contribute to early awareness of affect, mentalizing, and self in the child (Ensink & Mayes, 2010; Ensink, Normandin, et al., 2016) and instills epistemic trust (Bo, Sharp, Fonagy, & Kongerslev, 2015; Fonagy & Allison, 2014). Epistemic trust, in turn, facilitates the child's receptiveness to learning from the caregiver's mentalizing and pedagogical stance as a teacher about mental states, the self, and others. Consistent with this notion, there is evidence that parental RF predicts child and adolescent RF (Benbassat & Priel, 2012; Ensink, Normandin, et al., 2015). When children experience the benign interest of parents in their minds and feel safe to communicate their concerns in the context of secure attachment relationships, they develop mutually elaborated understanding of themselves, which supports mentalizing of the self (Ensink, Bégin, Normandin, & Fonagy, 2016; Fonagy et al., 2007; Fonagy & Target, 2006). There is converging developmental evidence of this natural pedagogy (see Ensink, Normandin, et al., 2015, for a summary) showing how parents help children acquire mentalizing skills by taking their perspectives and imagining their minds during the course of early childhood.

When the parent's capacity to treat the child as an individual with a mind is impeded for whatever reason (low parental RF, parental stress, parental trauma, difficult child temperament, poor caregiver-child fit), this undermines the child's development of mentalizing, increases the risk of psychopathology in general (Ensink, Bégin, et al., 2016), and in its severe form characterizes borderline pathology (Bender & Skodol, 2007; Hopwood et al., 2013; Sharp & Fonagy, 2008b). For example, when marked mirroring fails in the context of disorganized attachment and caregivers respond with anger and fear instead of helping infants regulate distress, children are theorized to internalize an alien self (Fonagy & Luyten, 2009). This is thought to contribute to the unbearable states of mental anguish experienced by individuals with BPD. In addition, in contexts where parents are unable to assume a pedagogical mentalizing stance and focus only on behavior, children may have few opportunities to develop mentalizing and learn about their minds or the minds of others. Further, interest in the minds of others may be inhibited in the context of abuse, because it is too disturbing to think of the minds of parents when they may contain malevolent intentions (Allen, 2013; Fonagy et al., 2002). Consistent with this, there is evidence that deficits in mentalizing, socio-cognitive abilities, and self-representation in children are associated with low parental mentalizing, abuse, and neglect (Allen, 2013; Cicchetti, Rogosch, Maughan, Toth, & Bruce, 2003; Ensink, Normandin, et al., 2015; Pears & Fisher, 2005; Schneider-Rosen & Cicchetti, 1991).

Despite these developmental roots, there is a lack of empirical studies evaluating the link between BPD features and RF, as measured through the coding of attachment-based interviews, in adolescents. Part of the paucity of research in this area has been the lack of measurement tools to assess RF using this gold standard approach. To address this gap, the Child and Adolescent Reflective Functioning Scale was developed (Ensink, Normandin, et al., 2015; Ensink, Target, Oandasan, & Duval, 2015). The scale is modeled on

the ARFS, but utilizes the Child Attachment Interview (CAI; Shmueli-Goetz et al., 2008) as the basis for coding. In children and teens, lower RF has been shown to be associated with more externalizing difficulties and depressive symptoms (Ensink, Bégin, et al., 2016). As yet, the CARFS has not been used to evaluate RF associations with borderline pathology in adolescents. If the RF theoretical framework of BPD holds water, an association should be apparent between RF and borderline features already earlier in development, especially against the background of the growing consensus regarding the validity of the construct of adolescent borderline pathology (Chanen, 2015; Chanen & Kaess, 2012; Fossati, 2014; Sharp, 2016, 2017; Sharp & Fonagy, 2015; Stepp, 2012).

Against this background, the aim of the current study was to evaluate the relation between RF as measured by the CARFS and borderline traits in adolescents. To ensure variability and representation in borderline traits, we utilized data collected from an inpatient sample. We chose a dimensional approach to examine the relationship between RF and BPD by utilizing a continuous measure of borderline traits rather than a dichotomous measure of BPD. This approach was taken to align with increasing interest in the field to conceptualize psychopathology (Cuthbert, 2014), and BPD specifically (Rothschild, Cleland, Haslam, & Zimmerman, 2003), dimensionally, and due to limited variability in RF in an inpatient sample with high psychiatric severity. In addition, we considered the specificity of the RF–borderline relation by including internalizing and externalizing problems, which have been shown to relate to RF in adults (Katznelson, 2014). To this end, we utilized parent-reported internalizing and externalizing symptoms so as not to inflate the relation between borderline symptoms due to shared method variance. Given the interview-based nature of the CARFS, shared method variance for the relation between RF, BPD, and internalizing and externalizing problems was not a concern.

METHOD

PARTICIPANTS

This study included a sample of 12–17 year olds admitted to the adolescent unit of a private psychiatric hospital. Adolescent patients were eligible for study inclusion if they were admitted to the adolescent unit and had sufficient fluency in English to complete all research assessments. Patients who were ineligible for study participation had a diagnosis of schizophrenia or any psychotic disorder, and/or met criteria for an intellectual disability. Parents provided informed consent and adolescents provided informed assent. Of the 456 consecutive admissions, 35 adolescents were excluded for various reasons, including that they declined or revoked consent, were not eligible due to autism spectrum disorder (ASD) diagnosis, active psychosis, $IQ < 70$, or to clinician determination, or were discharged before assessments could be completed, culminating in a final sample size of 421 adolescents for whom CARFS data were available. A total of 63.7% ($n = 268$) of the sample were female and the mean age was 15.35 years ($SD = 1.47$). Based on *DSM-IV*

criteria, 56.8% of participants met criteria for an anxiety disorder, 55.1% for a depressive disorder, 42.0% for an externalizing disorder, 9.0% for an eating disorder, and 6.9% for a bipolar disorder. Due to the high incidence of internalizing and externalizing disorders in the sample, both internalizing and externalizing symptoms were included in analyses.

MEASURES

Reflective Function. The Child and Adolescent Reflective Functioning Scale (CARFS; Ensink et al., 2013) was adapted from the ARFS (Fonagy et al., 1997) and was used to rate videotaped and transcribed data gathered using the CAI (Shmueli-Goetz et al., 2008; Target, Fonagy, Shmueli-Goetz, Datta, & Schneider, 1998). The CAI is a 13-question interview-based assessment protocol developed to activate the attachment system and to elicit narratives about the self and relationships with attachment figures. The CARFS manual enables trained raters to make an objective assessment of children's ability to provide reflective accounts of themselves and their key attachment relationships in response to the CAI questions. The manual contains descriptions and examples of different levels and types of CRF. Following the adult scale, children's narratives are coded on an 11-point scale (-1 to 9) descriptively anchored in terms of their tendency to discuss interpersonal interactions and personal reactions in mental state terms. In middle class samples of children, a mean RF score of 5 is expected (Ensink, Bégin, et al., 2016). Examples of the different levels of child RF as rated by the CARFS include: "I don't know, it just is" (absence of RF, rated 0); "I like it, it is fun" (unelaborated mental states when discussing relationships, rated 3); "When she gets angry, she shouts, and I don't like it, but I know she does not really mean what she says and that I am a little bit to blame" (solid, but fairly simple understanding of mental states, rated 5); "When he gets angry, I also get angry at first, but then I feel guilty, because I know he helps me a lot, and when I forget my books at school it takes much longer, and he gets tired and has work to do too" (more sophisticated understanding of others' mental states, rated 7-9) (Ensink, Bégin, et al., 2016).

Inter-rater intraclass correlation coefficients (ICCs) ranging from .60 to 1.00, with a median of .93, have been reported (Ensink et al., 2013). Temporal stability of children's RF has been shown to be high over a 3-month period and adequate over 12 months (Ensink, Normandin, et al., 2015). Coding for the current study was carried out by six raters trained by the last author to 85% agreement. This level of reliability was achieved after 12 hours of training. Coders were blind to the status of the case.

To obtain a general indicator of the children's RF (global RF), the mean RF of all the coded responses was used. In the current study, the scale alpha was .93, and item-total correlations ranged from .61 to .73.

Borderline Personality Features. Borderline features were measured using the Borderline Personality Features Scale for Children (BPFSC; Crick, Murray-Close, & Woods, 2005). The BPFSC is based on the Personality Assessment Inventory (PAI; Morey, 2007) BPD scale and includes four subscales assess-

ing core BPD symptoms: emotional instability, identity problems, negative relationships, and self-harm. The 24-item self-report measure was designed specifically for youth and includes items such as: “I go back and forth between different feelings, like being mad or sad or happy” and “I get upset when my parents or friends leave town for a few days.” Items are rated on a 5-point Likert scale, with 1 indicating “not true at all” and 5 indicating “always true.” Item scores are summed to give a total score, with higher scores showing greater levels of borderline features. The BPFSC has demonstrated good validity, test-retest, and internal consistency reliability (Crick et al., 2005). In the current sample, Cronbach’s alpha for the BPFSC was .90.

Internalizing and Externalizing Symptoms. Parents completed the Child Behavior Checklist (CBCL; Achenbach & Rescorla, 2001), a 112-item questionnaire on which parents rate their adolescent’s problem behaviors in the past six months. Items are scored on a 3-point scale (0 *not true*; 1 *somewhat or sometimes true*; 2 *very or often true*). The CBCL is a widely used assessment of child and adolescent behavior and emotional problems with well-established reliability and validity (Achenbach & Rescorla, 2001). The measure yields several scales, including two broad subscales—internalizing problems and externalizing problems—which were the scales used for the current study. In the current sample, the internal consistency of the CBCL was $\alpha = .92$.

RESULTS

DESCRIPTIVE RESULTS

The mean CARFS global score was 3.2 ($SD = 1.09$; range $-1-8$). Twenty-five percent of the sample had a mean CARFS global score below 3, with 60% scoring below 4, and 99% scoring below 5—the latter considered indicative of a solid capacity to link one’s own behaviors and reactions, as well as that of others, to underlying affects and motivations, thus making it comprehensible. This means that only 1% of the sample scored in the good-to-excellent RF range.

The mean BPFSC total score was 71.07 ($SD = 15.76$; range 32–112), with 61.8% of the sample scoring at or above the clinical cutoff of 66 (Chang, Sharp, & Ha, 2011). This fairly high percentage of adolescents in the clinical range for borderline traits likely reflects some false positives, which is typical for self-report screening measures like the BPFSC. However, this dichotomous cutoff on the BPFSC was not used in analyses; only dimensional scores from the BPFSC were included in analysis. The mean CBCL internalizing problems t -score was 71.70 ($SD = 6.72$; range 47–90; 65% above clinical cutoff) and mean CBCL externalizing score was 63.95 ($SD = 9.36$; range 2–86; 52% above clinical cutoff) (Achenbach & Rescorla, 2001).

TABLE 1. Regression Model Testing Interaction Between Borderline Traits and Externalizing Problems in Association With Reflective Function

	<i>b</i>	<i>SE</i>	β	<i>p</i>	95% CI	Adjusted <i>R</i> ²
DV: Reflective Function						
Age	.01	.003	.24***	.000	[.14, .33]	0.10***
Gender	-.50	.11	-.22***	.000	[-.32, -.13]	
Borderline Traits	.05	.03	-.01	.828	[-.11, .09]	
Externalizing Problems	.04	.03	-.13**	.007	[-.23, -.04]	
Borderline Traits × Ext Problems	-.001	.0004	-.10*	.038	[-.21, -.01]	

Note. *n* = 396. Reflective Function: Global RF scores from the CARFS; Borderline Traits: total scores from the BPFSC; Externalizing Problems: CBCL Externalizing *t*-Scores. ***, *p* < .001; **, *p* < .01, **p* < .05

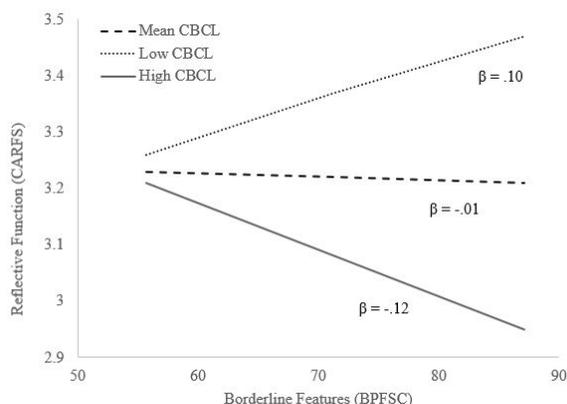


FIGURE 1A. Results of simple slopes analyses show the associations between RF and BPD at low (-1 SD), mean, and high ($+1$ SD) levels of externalizing problems.

THE RELATION BETWEEN REFLECTIVE FUNCTION AND BORDERLINE TRAITS

CARFS was not significantly correlated with BPFSC ($r = -.03$; $p = .50$) or internalizing problems ($r = .03$; $p = .48$), but was significantly correlated with externalizing problems ($r = -.20$; $p = .02$), age ($r = .21$; $p < .001$), and gender ($r = -.19$; $p < .001$), with small correlation strengths. This somewhat surprising result, against the background of relatively robust theoretical and empirical basis for the BPD–RF link and data suggesting BPD to be a confluence of both internalizing and externalizing pathology (Eaton et al., 2011; James & Taylor, 2008), raised the question of whether a relation between borderline features and RF may emerge as a function of externalizing problems. Therefore, the relation between BPD and RF was evaluated, taking into consideration the potential role of externalizing problems as a moderator.

Of the 421 adolescents, 25 were missing one of the three measures included in the regression analysis, leaving a sample of 396 used in these analyses. The PROCESS SPSS (Model 1) computational tool (Hayes, 2013) was used to test a multiple linear regression model that included borderline traits, externalizing problems and their interaction as independent variables, and RF as the dependent variable. Gender and age (in months) were included as covariates, as both were significantly related to RF in bivariate analyses. Results and parameter estimates from the regression analyses are shown in Table 1. The overall model was significant, with an adjusted R^2 value of .10 suggesting that 10% of variance in RF scores was explained by the independent variables. In the model, a significant interaction between borderline traits and externalizing problems was noted ($\beta = -.10$, $p = .04$). This term had a semi-partial correlation of $r = -.10$, indicative of a small size of association between RF and the interaction of borderline and externalizing traits.

To understand the nature of this interaction, the results of the simple slopes analyses are displayed in Figure 1a, which shows that at levels of ex-

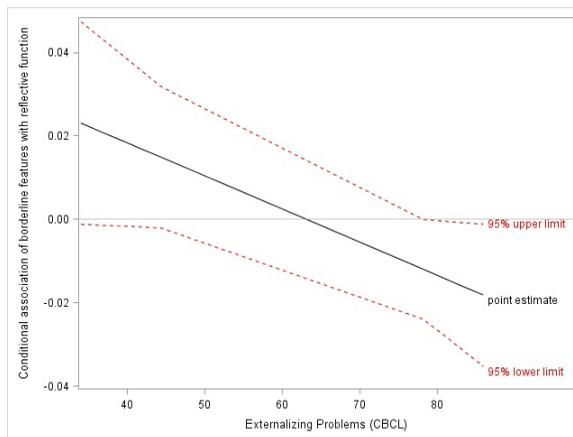


FIGURE 1B. Results of Johnson-Neyman analyses show that the association between BPD and RF is only significant at CBCL externalizing scores above 77.54.

ternalizing problems of 1 SD above the mean, the relation between borderline symptoms and RF is negative, while at levels of 1 SD below the mean, this relationship was positive. We also conducted follow-up analysis using the Johnson-Neyman technique to demonstrate the interaction results in terms of exact externalizing levels. These results showed that when CBCL externalizing problems *t*-scores were 77.54 or higher, greater borderline traits were significantly associated with lower RF scores. At lower levels of externalizing problems, however, the association between borderline traits and RF was not significant. In other words, results indicated that borderline traits were related to RF only at high levels of externalizing symptoms. These results are visually presented in Figure 1b.

Given the significant correlation with gender, post-hoc analyses were conducted to determine whether there were any differences in study findings by gender. Specifically, gender was tested as moderator of the two-way interaction between externalizing problems and borderline features by testing a three-way interaction between gender, externalizing problems, and borderline features in association with RF, controlling for age. This three-way interaction was not significant ($p = .86$). Additionally, gender was tested as a moderator of the association between borderline pathology and RF and as a moderator of the association between externalizing problems and RF, controlling for age. These two-way interactions were also not significant ($p = .76$ and $p = .12$, respectively). In sum, there was no evidence for gender as a significant moderator of relations.

DISCUSSION

The aim of the current study was to explore the relation between RF, regarding self and attachment figures, and borderline traits in adolescent inpatients, while taking into account potential relations between RF and internalizing

and externalizing difficulties, as well as gender. The findings show that there was a significant inverse relationship between borderline features and RF, but only in the presence of high externalizing pathology. At low levels of externalizing pathology, no relation between borderline features and RF emerged. Gender did not moderate any of these relations. In sum, these findings indicate that the relationship between BPD and RF is moderated by externalizing difficulties.

The failure to demonstrate relations between RF and internalizing pathology, while a correlation was found for externalizing pathology, suggests that there is something about externalizing pathology in particular that impedes an adolescent's capacity to be reflective in highly charged interpersonal situations. While our data cannot answer this question definitively, a sensible hypothesis is that externalizing pathology, due to its strong relation to executive function and impulsivity (Frick, 2012), fails to "put the brake on" metacognitive processing. Presumably then, adolescents with high borderline features, but low levels of externalizing pathology, are able to still engage in cognitive mentalizing—that is, have the ability to stop and think about the effects their behavior may have on others.

We did not replicate the findings of Chiesa and Fonagy (2014) who found a significant relation between RF and BPD symptoms in adults. This result was surprising, and we now offer possible interpretations of this finding. From a developmental perspective, one interpretation of this finding is that for some adolescents BPD symptoms are transitory and that over time, adolescents with higher RF consolidate and stabilize their personalities and sense of self and others, so that the relationship between low RF and higher BPD symptoms only becomes apparent in adulthood rather than in adolescence. Another explanation for the lack of significant findings for the direct link between RF and borderline traits may also be due in part to the fact that, unlike Chiesa and Fonagy (2014), we did not include non-psychiatric participants, but focused only on adolescents in an inpatient setting. It is thus possible that the relationship between RF and BPD symptoms may only be evident in more heterogeneous samples, as when a comparison group with generally higher RF and lower or no BPD symptoms is included. In inpatient samples where mean RF is generally low like in the present study, a more complex relationship between RF and BPD may be present. Indeed, the findings of the present study are not the first to suggest a more complicated picture of the relationship between RF and BPD. BPD is a complex disorder and best conceived of as a confluence of internalizing and externalizing pathology (Eaton et al., 2011; James & Taylor, 2008), and its relations to key correlates are unlikely to always be straightforward. In this case, our findings suggest that the relation between BPD and RF may be driven by the externalizing features of BPD rather than its internalizing features. In general, more research has been conducted evaluating the relation between mentalizing and externalizing pathology compared to internalizing pathology (Sharp & Venta, 2012). While the link between mentalizing difficulties and externalizing pathology is quite robust (Ensink, Bégin, et al., 2016; Sharp, Croudace, & Goodyer, 2007; Taubner et al., 2013), results for internalizing pathology are more mixed. Taubner, Kessler, Buchheim, Kachele, and Staun (2011), for in-

stance, found no significant differences in RF between chronically depressed individuals and healthy controls, while Fischer-Kern and colleagues (2013) demonstrated significantly lower RF scores in chronically depressed females compared to healthy adults. These findings and our own may be explained in the negative findings that are beginning to emerge in meta-analytic studies of the relation between attachment and internalizing psychopathology. Groh and colleagues (2012) used data from 42 independent samples ($n = 4,614$) and showed that the relationship between attachment insecurity and internalizing symptoms was small, yet significant and much less robust than the relationship with externalizing psychopathology. Given that RF is an attachment-based concept, it makes sense therefore that the externalizing components of borderline pathology may be driving the relation between the latter and RF.

An additional, not mutually exclusive interpretation of our results, which did not replicate the direct association between RF and BPD as found in adults (e.g., Chiesa & Fonagy, 2014), relates to a finding by Ensink, Bégin, Normandin, and Fonagy (2016) who demonstrated a negative correlation between RF measured with the CARFS and self-reported depressive symptoms in elementary school age children, of whom approximately half had a history of sexual abuse. Indeed, it is possible that a history of maltreatment or trauma constitutes an additional important moderating factor in examining the relation between RF and borderline pathology. Our study did not include an assessment of traumatic experience to further explore this hypothesis, but reported that physical or sexual abuse has previously been shown to moderate the association between low RF and BPD diagnosis in inpatient adults (Fonagy et al., 1996). A final interpretation of our findings is that the relationship between RF and psychopathology observed in children is obscured during adolescence in the context of other challenges, or that other dimensions of RF, rather than RF regarding attachment figures or the self, become more important during this period.

At a descriptive level and consistent with the hypothesis that low mentalizing is a general risk factor for psychopathology, the mean RF of 3.2 in this sample of adolescent inpatients was low, with 25% having mean RF scores below 3 and 60% with mean RF scores below 4, suggesting that they do not link behaviors to underlying affects and intentions and do not consider the contextual influences on emotional and interpersonal reactions. It is generally in line with the mean RF ranging from 2.7 to 3.4 previously reported in adults with BPD (Chiesa & Fonagy, 2014; Fonagy et al., 2016; Levy et al., 2006), and it is substantially below the mean RF of 5 generally reported in middle class community samples of children (Ensink, Bégin, et al., 2016) and adults (Chiesa & Fonagy, 2014).

The absence of a direct relationship between RF and both internalizing pathology and BPD (not taking into account its externalizing features) could also be interpreted against the background of the fact that mentalizing in general and RF in particular are multicomponent constructs with specific measures tapping into different components of the construct. It is possible that the current scoring system of attachment-based RF largely captures impairments in mentalizing associated with increased risk of mental health dif-

faculties in general, but is not optimized to capture the specific impairments in mentalizing associated with the disturbances in self and other that are characteristic of BPD. Recent research has begun to suggest that borderline pathology relates more specifically to hypermentalizing, as well as uncertainty/ confusion regarding mental states. Hypermentalizing, which has also been referred to as excessive theory of mind (Dziobek et al., 2006) or biased mindreading (Sharp, 2000), involves making assumptions about other people's mental states that go beyond observable data (Crespi & Badcock, 2008; Sharp, 2014; Sharp et al., 2011; Sharp & Vanwoerden, 2015). As such, it involves overattribution of mental states and intentions to others, their likely misinterpretation, and the urge to act in response to the assumed mental states of others. While the CARFS and ARFS identify hypermentalizing and preoccupied mentalizing apparent in the narratives of adolescents about their attachment figures and themselves, and the ARFS has a specific code for hypermentalizing (Code 3(b); Fonagy et al., 1997), the coding scheme of the CARFS does not currently explicitly differentiate hypermentalization from other failures in mentalization. Instead, both hypermentalizing and undermentalizing are considered and coded as poor mentalizing. The CARFS covers the following domains of RF: awareness of qualities of mental states (e.g., the recognition of the opaqueness of mental states); an explicit effort to understand mental states underlying behavior (e.g., attribution of mental states to one's own and others' behavior); recognizing that mental states develop in the context of developmental, psychological, and social processes (e.g., taking and intergenerational perspective); and mental states in relation to the interviewer (e.g., emotional attunement during the interview). A hypermentalizing response may emerge in any of these domains; the coding scheme of CARFS does not currently contain descriptions of hypermentalizing. Further elaboration is needed to optimize the current CARFS coding system to evaluate hypermentalizing and other disturbances in mentalizing so as to test hypotheses regarding whether disorder-specific disturbances in mentalizing can be identified.

Of course, the lack of straightforward findings may also be due to some of the methodological limitations in the current study. First, the sample that this study used was drawn from a primarily Caucasian population of middle class families making use of an inpatient setting. It is therefore unclear whether these results generalize to other inpatient populations with different demographic characteristics, such as higher levels of socioeconomic risk and trauma, as well as less severe samples. The lack of a matched comparison group is a further limitation. The fact that IQ was not controlled for in the present study could also be considered a limitation, although correlations between RF and IQ are generally weak. Further, the restricted range of RF in our sample is a limitation of the study. This restricted range may be due to overall low RF in inpatient samples compared to community youth. Or, this may be due to normative brain changes in adolescence in which the prefrontal cortex is slow to mature (Blakemore & Choudhury, 2006), which may result in overall lower RF ability and restricted range of scores among teens. Future research should further examine the psychometric properties of the

CARFS in order to confirm its ability to detect individual differences among youth. In addition, and as noted above, the CARFS does not currently differentiate hypermentalizing from other failures in mentalizing, which presents another limitation of the current study.

Notwithstanding these limitations, this is the first study using adolescents to examine the relation between attachment-related RF using the CARFS and borderline personality disorder features. That this relation was significant only in the presence of externalizing pathology has implications not only for understanding the various ways in which RF may be impaired in BPD, but also for the assessment of RF using the CARFS.

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