THE INDEPENDENT CONTRIBUTIONS OF EMOTION DYSREGULATION AND HYPERMENTALIZATION TO THE “DOUBLE DISSOCIATION” OF AFFECTIVE AND COGNITIVE EMPATHY IN FEMALE ADOLESCENT INPATIENTS WITH BPD

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Harari, Shamay-Tsoory, Ravid, and Levkovitz (2010) demonstrated a “double dissociation” in empathy in borderline personality disorder (BPD), such that BPD patients had higher affective than cognitive empathy, whereas controls exhibited the opposite pattern. Two processes that may relate to this dissociation are emotion dysregulation (ER) and hypermentalization. However, these interrelated processes have not been studied concomitantly, and the dissociation of empathy types has not been examined in adolescents with BPD. This study examined the relations between ER, hypermentalization, and cognitive and affective empathy in 252 adolescent inpatients with and without BPD. Participants completed a computerized task of hypermentalization and measures of ER and empathy. Findings only partially replicated Harari et al.’s findings, with differential performance in cognitive and affective empathy demonstrated across groups. Multivariate analyses revealed that in both groups, ER related to increased affective empathy. Hypermentalizing related to decreased cognitive empathy in BPD patients, whereas hypermentalizing did not relate to either empathy type in non-BPD patients.

Borderline personality disorder (BPD) is a severe psychiatric disorder marked by treatment-refractory behavior and poor psychosocial outcomes (American Psychiatric Association, 2013). Though initially considered a disorder limited to adults, recent genetic and longitudinal findings have established BPD in adolescence as a valid diagnostic entity warranting empirical attention (Miller, Muehlenkamp, & Jacobson, 2008; Sharp & Romero, 2007). Furthermore, research suggests that adolescents with the disorder experience symptomatology similar to that of their adult counterparts (Sharp & Romero, 2007). For instance, much like BPD in adults, BPD in adolescents is a highly interpersonal...
disorder (Fonagy & Luyten, 2009; Gunderson, 2007; Linehan, 1993; Sharp, 2014), in that marked impairment in maintaining stable and healthy relationships is one of the most debilitating features of the disorder.

As such, several studies have explored social-cognitive processes that may relate to the interpersonal dysfunction individuals with BPD experience. One process is empathy, or the capacity to experience and understand the emotional and cognitive experiences of others (Eisenberg & Miller, 1987). Empathy can be conceptualized as a multifaceted construct consisting of cognitive empathy, or the ability to understand another’s perspective and experience (Davis, 1983, 1994; Eisenberg et al., 1994), and affective empathy, or the capacity to affectively respond in a way similar to what an observed person is feeling or expected to feel (Davis, 1983, 1994; Eisenberg et al., 1994).

Early clinical accounts (Carter & Rinsley, 1977; Krohn, 1974) refer to an “empathy paradox” in BPD to describe BPD patients’ apparent heightened attunement to others’ mental states, despite severe interpersonal dysfunction. However, empirical evidence for this phenomenon is lacking. This may be due, in part, to inconsistent definitions and measurement of empathy. Indeed, several studies purport to examine empathy (see Dinsdale and Crespi, 2013, for a review) but instead examine empathy-related components or skills (e.g., mentalization or theory of mind, emotion recognition and discrimination). For instance, recent research shows that patients with BPD amplify subjective perceptions of negative affect in others’ faces (Daros, Uliaszek, & Ruocco, 2014; Mitchell, Dickens, & Picchioni, 2014), suggesting a propensity toward hyperactive affective empathy in this population. On the other hand, meta-analytic work found BPD-related deficits in recognizing angry, disgusted, and neutral faces (Daros, Zaskzanis, & Ruocco, 2013).

Studies that have specifically examined empathy in BPD reveal mixed findings. For example, Guttman and Laporte (2002) used a self-report measure of empathy, the Interpersonal Reactivity Index (IRI; Davis, 1983), and found that compared with women with anorexia nervosa and healthy controls, women with BPD had higher mean levels of affective empathy, but lower mean levels of cognitive empathy. Harari, Shamay-Tsoory, Ravid, and Levkovitz (2010) elucidated these findings and demonstrated a “double dissociation” of cognitive and affective empathy in BPD such that, compared to healthy controls, BPD participants had higher self-reported (using the IRI) levels of affective empathy than cognitive empathy.

Consistent with Harari et al.’s (2010) findings are studies that have found that BPD patients exhibit difficulty with perspective taking, but higher levels of personal distress, or “self-oriented” anxious or tense feelings (Harari, Shamay-Tsoory, Ravid, & Levkovitz, 2010; New et al., 2012). Providing neurobiological confirmatory support for Harari et al.’s “dissociation” in cognitive and affective empathy, Dziobek et al. (2011) included fMRI data and found that BPD patients, compared with controls, had less activation during cognitive empathy tasks in the Superior temporal Sulcus (STS), an area associated with inference of others’ mental states (Zaki, Weber, Bolger, & Ochsner, 2009), but increased activation during affective empathy tasks in the mid insular cortex (Jackson, Bruent, Meltzoff, & Decety, 2006), an area associated with personal distress.
Harari et al.’s findings provide a useful model for understanding problems of empathy in BPD. However, no studies have expanded upon these findings and attempted to examine whether certain underlying psychological processes that are also related to empathy may account for this dissociation. Considering such processes would point to a broader, more comprehensive model of empathic functioning in this disorder. Two psychological processes central to borderline pathology, difficulties in emotion regulation (highly uncontrolled emotional reactivity; Gratz, Rosenthal, Tull, Lejuez, & Gunderson, 2006; Linehan, 1993) and hypermentalization (incorrect, overinference of thoughts and feelings in self and others; Sharp et al., 2011, 2013), may contribute to this empathic dysfunction, as discussed here, and should be considered when studying empathy in BPD.

Emotion dysregulation is defined by Gratz and Roemer (2004) as the failure to modulate internal emotions, resulting in inappropriate emotional and behavioral responses. Linehan’s (1993) biosocial theory places problems with emotion regulation at the forefront of the development and maintenance of BPD. The empirical literature supports Linehan’s model, as studies using behavioral-, experimental-, and neurobiological-based methods demonstrate how difficulties with emotion regulation underlie borderline pathology in both adults and adolescents (Chapman, Leung, & Lynch, 2008; Donegan et al., 2003; Ebner-Priemer et al., 2007; Glenn & Klonsky, 2009; Gratz, Dixon-Gordon, Breetz, & Tull, 2013; Gratz & Roemer, 2004; Gratz et al., 2006; Rathus & Miller, 2002; Sharp et al., 2011).

Research has demonstrated a relation between emotion dysregulation and empathy. For example, Eisenberg et al. (1994) demonstrated a negative relation between emotion regulation and level of self-reported personal distress in reaction to an empathy-inducing film. That is, the more emotionally regulated the participants were, the less likely they were to report feeling sadness and sympathy in response to empathy-inducing stimuli. In addition, several findings have demonstrated that empathy is positively correlated with a dispositional tendency to experience emotions, or emotional sensitivity (Eisenberg et al., 1999; Eisenberg & Fabes, 1992), intensity and frequency of negative emotions (Davis, 1994), a relation that has been extended to both toddlers and young children (Robinson, Zahn-Waxler, & Emde, 2001; Rothbart, Ahadi, & Hershey, 1994). Eisenberg (2005) further stated that while low-to-moderate levels of sadness are associated with greater levels of empathy, individuals with high levels of negative emotionality may become overwhelmed by their own personal distress in empathy-inducing situations.

The other putative process that may affect relationships between empathy and BPD relates to difficulties in mentalization, or the capacity to accurately infer others’ mental states. Specifically, Fonagy and colleagues (Fonagy, 1989; Fonagy & Luyten, 2009; Fonagy, Steele, Steele, Moran, & Higgitt, 1991; Sharp & Fonagy, 2008) explain how insecure attachment leads to maladaptive mentalizing in which the reflection on self–other relatedness becomes distorted, thereby disrupting the development of a coherent self. Empirical evidence supports Fonagy’s theory, with a large body of research pointing to atypical mentalizing capacity in adults with BPD (Dziobek et al., 2011; Flury, Ickes, & Schweinle, 2008; Ghiassi, Dimaggio, & Brüne, 2010; Schilling
et al., 2012; Sharp et al., 2011). More recently, researchers have extended this research downward by examining mentalizing in adolescents with the disorder. Recent studies conducted by Sharp et al. (2011, 2013) demonstrated that adolescent inpatients with BPD exhibited a tendency to “hypermentalize,” or make overly complex inferences about others’ mental states. That is, they overinferred others’ mental states by reaching far beyond what the observable social cues indicate, ultimately leading to misinterpretation of social information. For example (Sharp, 2014; Sharp et al., 2013), person A invites person B to dinner, but B quickly replies that she is unavailable because of a previously scheduled engagement. A then assumes that B does not wish to spend time with her because of a misunderstanding that she recalls from several years ago, in which A did not attend B’s birthday party. A then generates a complex narrative about B being “overly sensitive” and “unable to forgive.” This is referred to as hypermentalizing because although A was using mental states to explain B’s actions, these mental states were overattributed and heavily dependent on assumption. Rather, they reflected A’s own mental states at the time of the original misunderstanding.

The relation between mentalization and empathy is apparent, with research suggesting that mentalization may approximate cognitive empathy, or the process of understanding another person’s perspective (Blair, 2008; De Waal, 2008; Shamay-Tsoory, Aharon-Peretz, & Perry, 2009). Neurobiological research supports these findings, as lesions in the medial frontal lobes (a brain area implicated for processes related to mentalization) have been linked with impairment of cognitive empathy (Eslinger, 1998; Shamay-Tsoory, Tomer, Berger, & Aharon-Peretz, 2003).

Taken together, this research points to a relation between empathy and core BPD-related processes of hypermentalizing and emotion dysregulation. However, no studies have endeavored to examine these interrelated processes concomitantly within the same study, allowing for the discovery of potential differential and unique relations. In addition, no studies have been conducted to determine whether the dissociation between cognitive and affective empathy extends downward to adolescents.

Against this background, the aim of the current study was to address this gap in the literature by examining how core processes central to borderline pathology relate to empathy in adolescent inpatients with BPD. Specifically, the cross-sectional relations between emotion dysregulation, hypermentalization, and cognitive and affective empathy were examined. On the basis of the previously reviewed literature, we hypothesized that hypermentalizing would relate to decreased cognitive empathy, and that emotion dysregulation would relate to increased affective empathy. In addition, we sought to examine the specificity of these relations for BPD by examining the moderating effects of BPD status on the relations between emotion dysregulation, hypermentalization, and cognitive and affective empathy. Demonstrating unique relations among these variables would not only expand upon Harari et al.’s (2010) findings, but would also provide a preliminary step toward the development of more comprehensive understanding of empathy in BPD, thus laying the groundwork for understanding mechanisms of empathic functioning in this disorder. Because a large body of research points to differential social cognitive
functioning across gender (Baron-Cohen & Wheelwright, 2004) as well in BPD prevalence rates (Paris, 2004), only adolescent inpatient females were included.

**METHODS**

**PARTICIPANTS**

Adolescent females admitted to an inpatient psychiatric hospital were recruited for participation in an ongoing research study. Exclusion criteria included severe aggression, active psychosis, IQ < 70, and/or non-English speaking. Adolescents who had history of severe violent behavior were screened by admissions and were not admitted to the hospital because the hospital lacks infrastructure to accommodate severely aggressive behavior. At the time of admission, licensed clinicians were consulted to assess whether patients were stable enough to participate. If there was evidence of cognitive deficits or psychosis, neuropsychological testing was completed by a licensed staff psychologist to determine whether that adolescent should be excluded from the study. Of 319 consecutive female admissions to the hospital, 15 were excluded based on the aforementioned criteria. Of the remaining patients who were approached for consent, 27 declined participation, one revoked consent, and 15 were excluded based on information obtained after consent was given. In addition, seven participants were excluded due to missing data on main study variables. These data were missing at random because adolescents refused to complete assessments or were discharged from the hospital before assessments were completed.

A total of 252 adolescent inpatients were given an interview-based measure of BPD, and 107 met criteria for DSM-IV BPD. For the main aim of this study, all female patients (ages 12–17) meeting criteria for BPD were included \((n = 107; M_{age} = 15.11, SD = 1.51)\). In total, 145 \((M_{age} = 15.35, SD = 1.40)\) female adolescents did not meet criteria for BPD and constituted the non-BPD psychiatric control group. Psychiatric comorbidity was assessed with a computerized diagnostic interview at the time of admission, and rates are presented in Table 1.

**MEASURES**

*Borderline Personality Disorder Diagnosis: Childhood Interview for DSM-IV Borderline Personality Disorder* (CI-BPD). The CI-BPD (Zanarini, 2003) is a semistructured interview adapted from the borderline module of the Diagnostic Interview for DSM-IV Personality Disorders (DIPD-IV; Zanarini, Frankenburg, Sickel, & Yong, 1996) and developed specifically for use with adolescents to assess BPD. The CI-BPD assesses the nine DSM-IV criteria: symptoms of inappropriate anger, affective instability, chronic feelings of emptiness, identity disturbance, transient stress-related paranoid ideation or severe dissociative symptoms, fears of abandonment, recurrent suicidality or self-harm behavior, impulsivity, and intense interpersonal relationships. Trained interviewers rated symptoms using 0 for absence of symptom, 1 if the symptom is probably present, or 2 if the symptom is definitely present. A minimum of five criteria
scored at a 2 is required for a full diagnosis of BPD. A dichotomous score on the CI-BPD was used in the analyses to determine a diagnosis of BPD. In the current study, interrater reliability was conducted with 12% of the sample, with two raters, with kappas ranging from good ($\kappa = 0.77; p < .001$) to very good ($\kappa = 0.89; p < .001$) agreement.

Psychiatric Diagnoses: The Computerized Diagnostic Interview Schedule for Children (C-DISC). The C-DISC (Shaffer et al., 2000) was used to diagnose psychiatric disorders. This measure covers DSM-IV, DSM-III-R, and ICD-10, assessing more than 30 diagnoses. For the purposes of this study, only current positive diagnoses that met all DSM criteria on the clinical report of the C-DISC were considered.

Empathy: Basic Empathy Scale (BES). The BES (Jolliffe & Farrington, 2006) is a 20-item self-report measure with two factors: cognitive empathy (9 items; e.g., “I find it hard to know when my friends are frightened” [reverse coded]) and affective empathy (11 items; e.g., “I don’t become sad when I see other people crying” [reverse coded]). Items were rated on a 5-point Likert-type scale ranging from 1 (Strongly disagree) to 5 (Strongly agree), such that high scores indicated greater empathy. The sum of the ratings for cognitive empathy items and affective empathy items yielded cognitive and empathy scale scores, respectively. The sum of the two subscales yielded a total empathy score. Internal consistency for the total empathy score in this study was $\alpha = 0.85$. Internal consistency was $\alpha = 0.75$ for the cognitive empathy scale and $\alpha = 0.83$ for the affective empathy scale.

Hypermentalizing: Movie for the Assessment of Social Cognition (MASC). The MASC (Dziobek, et al., 2006) is a computerized, performance-based task for the assessment of mentalizing abilities and is designed to simulate
real-world social cognitive demands. In this task, participants were asked to watch a 15-minute film about four characters getting together for a dinner party. During task administration, the film was stopped at various points and participants answered questions about the characters’ mental states (feelings, thoughts, and intentions). For example, one scene in the film involves a character, Michael, complimenting another character, Sandra, on her hair, although Sandra appears somewhat reserved in her reaction. Response options reflect four levels of mentalizing: (a) a hypermentalizing response (e.g., “She is exasperated about Michael coming on too strong”), (b) an undermentalizing response (e.g., “She is pleased about his compliment”), (c) a nonmentalizing response (e.g., “Her hair does not look that nice”), and (d) an accurate mentalizing response (e.g., “She is flattered but somewhat taken by surprise”). The sum of each response type yielded four scale scores, reflecting the respective level of mentalizing. In this study, only the hypermentalizing scale was used. The reliability and validity of the MASC has been supported in previous studies (Preißler, Dziobek, Ritter, Heekeren, & Roepke, 2010; Sharp et al., 2011, 2013).

Emotion Dysregulation: Difficulties in Emotion Regulation Scale (DERS). The DERS (Gratz & Roemer, 2004) is a 36-item self-report measure. Items are rated on a 5-point Likert scale from 1 (almost never [0–10%]) to 5 (almost always [91–100%]), with higher scores indicating greater difficulties in emotion regulation. The DERS assesses six aspects of emotion regulation: nonacceptance of emotion responses, difficulties in engaging in goal-directed behavior, impulse control difficulties, lack of emotion awareness, limited access to emotion regulation strategies, and lack of emotional clarity. Each subscale yields a separate score. In this study, the total score was used. Internal consistency for this study was α = 0.96.

Psychiatric Severity: Child Behavior Checklist (CBCL). The CBCL (Achenbach, 1991) is a 120-item parent-reported broadband measure of psychopathology that has been standardized and normed in children and adolescents ages 6 to 18. Items are rated on a 3-point scale from 0 (not true), 1 (somewhat or sometimes true), to 2 (very or often true) for the past 6 months. A total composite T score was used to control for psychiatric severity in the main analyses of the current study.

PROCEDURES

Approval for this study was obtained from local institutional review boards. On admission day, after meeting with research staff, families provided informed consent and adolescents provided assent to participate in the study. The adolescents had been consecutively admitted to an inpatient unit of a tertiary care hospital. Adolescent patients completed assessments during the first 2 weeks of their hospitalization. Trained research coordinators and clinical psychology graduate students administered self-report assessments and conducted interviews. The principal investigator of the study met monthly with the research team to review interview-based assessments for reliability and training.
DATA ANALYTIC STRATEGY

The data analyses involved several steps. First, descriptive analyses on main study variables, including calculations of means and standard deviations, were performed. Next, to examine the bivariate relations among main study variables (MASC Hypermentalizing, DERS Emotion Dysregulation, BES Affective Empathy, and BES Cognitive Empathy), Pearson zero-order correlations were conducted. Then, to determine whether there were differences in cognitive and affective empathy in BPD and non-BPD patients, a repeated measures ANOVA was conducted with empathy type (cognitive/affective) as the within-subjects factor and group (BPD diagnostic status) was the between-subjects factor. In order to rule out the possibility that differences in Cognitive and Affective Empathy scores were due to differential item numbers across the subscales, item averages for both scales were computed prior to performing study analyses. To ensure that differences in empathy across groups were not due to differential psychiatric severity level, total psychiatric severity, as measured by the CBCL total psychiatric problems score, was entered as a covariate in the repeated measures ANOVA.

The bivariate analyses informed the multivariate analyses by identifying relevant independent variables to be entered in a multivariate regression analysis with empathy type as the dependent variable(s). To determine whether multivariate relations were specific to borderline personality pathology, the moderating effect of BPD status (as assessed by the CIBPD) on the relation between hypermentalizing and emotion dysregulation and cognitive and affective empathy was tested. To statistically evaluate the differences in path coefficients across the groups, we performed tests of invariance with a chi-square difference test. A chi-square corresponding to a probability level of less than .05 was the criterion by which the null hypothesis that the relevant parameters were equal across the two groups was rejected. The effects of total psychiatric severity (as measured by the CBCL total psychiatric problems score) on cognitive and affective empathy were controlled for statistically to ensure that differences in paths across models were not due to differential psychiatric severity level.

All variables were treated as continuous variables. Maximum likelihood estimation was used to analyze the data with Amos 4.0 (Arbuckle & Wothke, 1999), which computes full information maximum likelihood estimates in the presence of missing data. In the BPD group, a total of two participants were missing data on the DERS, seven participants were missing data on the MASC, and two participants were missing data on the Affective and Cognitive scales of the BES. In the non-BPD group, a total of three people were missing data on the MASC.

RESULTS

PRELIMINARY ANALYSES

In the BPD group, the mean score for emotion dysregulation (DERS Total) was 122.81 (SD = 23.53) and the mean score for hypermentalizing (MASC Hypermentalizing) was 8.16 (SD = 4.19). The mean total empathy score was
3.84 (SD = .53). The means for cognitive empathy (BES Cognitive) and affective empathy (BES Affective) were 4.01 (SD = .54) and 3.70 (SD = .70), respectively. The mean for CBCL total psychiatric problems (CBCL) was 71.56 (SD = 3.13). In the non-BPD group, the mean total score for emotion dysregulation was 99.03 (SD = 29.99) and the mean total score for hypermentalizing was 7.09 (SD = 3.48). The mean total empathy score was 3.75 (SD = .49) and the mean scores for cognitive empathy and affective empathy were 4.08 (SD = .43) and 3.48 (SD = .65), respectively. The mean for CBCL total psychiatric problems was 68.62 (SD = 6.40) All data were normally distributed.

BIVARIATE RELATIONS AMONG EMOTION DYSREGULATION, HYPERMENTALIZING, AND EMPATHY

To examine the bivariate relations among main study variables within the BPD group, zero-order Pearson's correlations were conducted. Results revealed that cognitive empathy was correlated with affective empathy, \( r = .40, p < .00 \). Hypermentalizing was negatively correlated with cognitive empathy, \( r = -.23, p < .02 \), but was not significantly correlated with affective empathy, \( r = -.05, p = .65 \), or total empathy, \( r = -.14, p = .16 \). Emotion dysregulation was correlated with affective empathy, \( r = .22, p = .02 \), but was not significantly correlated with cognitive empathy, \( r = .03, p = .75 \), or total empathy, \( r = .18, p = .07 \). Hypermentalizing and emotion dysregulation were not significantly correlated, \( r = .19, p = .06 \).

Within the non-BPD group, cognitive empathy was positively correlated with affective empathy, \( r = .52, p < .00 \). Hypermentalizing was not correlated with cognitive empathy, \( r = -.06, p = .47 \), affective empathy, \( r = .00, p = .98 \), or total empathy, \( r = -.02, p = .79 \). Emotion dysregulation was correlated with affective empathy, \( r = .23, p = .01 \), but was not correlated with cognitive empathy, \( r = -.02, p = .79 \), or total empathy, \( r = .16, p = .06 \). Emotion dysregulation and hypermentalizing were correlated, \( r = .25, p = .00 \).

AFFECTIVE AND COGNITIVE EMPATHY IN ADOLESCENT INPATIENT FEMALES WITH AND WITHOUT BPD

We computed a repeated measures ANOVA, shown in Figure 1, with empathy type (affective and cognitive) as the within-subjects factor and group (BPD diagnostic status) as the between-subjects factor. Total psychiatric problems was included as a covariate. A significant group-by-empathy type interaction effect was revealed, \( F(1, 239) = 10.32, p = .00, \eta_p^2 = .04 \), such that the difference between cognitive and affective empathy was more pronounced in the non-BPD group. There was also a significant main effect of empathy type, \( F(1, 239) = 4.62, p = .03, \eta_p^2 = .02 \), such that across groups, cognitive empathy was greater than affective empathy. However, there was not a significant main effect of group, \( F(1, 239) = 2.18, p = .14, \eta_p^2 = .01 \).

Partially replicating Harari et al.’s (2010) findings, post-hoc independent samples \( t \) tests revealed that adolescents with BPD had greater affective empathy (\( M = 3.70, SD = .70 \)) than non-BPD (\( M = 3.48, SD = .65 \)) adolescents, \( t(1, 248) = -2.66, p = .01 \). However, there was no difference between the groups in cognitive empathy, \( t(1, 248) = 1.12, p = .27 \).
THE MODERATING EFFECT OF BPD DIAGNOSTIC STATUS ON THE UNIQUE MULTIVARIATE RELATIONS BETWEEN HYPERMENTALIZING AND EMOTION DYSREGULATION AND COGNITIVE AND AFFECTIVE EMPATHY

To evaluate whether hypermentalizing and emotion dysregulation related to cognitive and affective empathy in adolescent inpatient females with and without BPD, hypermentalizing and emotion dysregulation and CBCL total psychiatric problems were entered as independent variables and cognitive and affective empathy were entered as dependent variables into a multigroup multivariate regression model using Amos 21.0. A test of the moderating effect of BPD status (as assessed by the CIBPD) was performed on the relation between hypermentalizing and emotion dysregulation, controlling for psychiatric severity, and cognitive and affective empathy. All indicators were treated as manifest, and to determine the regression model, the individual pathway coefficients for the residual error variances were set at 1, whereas the significance level of the individual pathways was set at alpha < .05. The covariance between hypermentalizing and emotion dysregulation was constrained to 0. Given the moderate correlation between cognitive and affective empathy (shown in the bivariate analyses), the error residuals of cognitive and affective empathy were unconstrained. Similarly, all other parameters were freely estimated.

As shown in Figure 2, results demonstrated that among adolescent females with BPD, emotion dysregulation was related to affective empathy...
(β = .01, SE = .00, p = .01), but was not related to cognitive empathy (β = .00, SE = .00, p = .43). Hypermentalizing related to cognitive empathy (β = −.03, SE = .01, p = .01), but did not relate to affective empathy (β = −.02, SE = .02, p = .28). CBCL total psychiatric problems was not related to affective empathy (β = −.01, SE = .01, p = .53) or cognitive empathy (β = .01, SE = .01, p = .60).

Among adolescent females without BPD, emotion dysregulation related to affective empathy (β = .01, SE = .00, p = .003), but did not relate to cognitive empathy (β = .00, SE = .00, p = .87); however, hypermentalizing was not related to either affective empathy (β = −.01, SE = .02, p = .43) or cognitive empathy (β = .00, SE = .01, p = .74). Finally, CBCL total psychiatric problems was related to cognitive empathy (β = −.01, SE = .01, p = .02) but not affective empathy (β = .01, SE = .01, p = .39).

To evaluate the differences in path coefficients statistically, we conducted chi-square difference tests between the BPD and non-BPD groups. For the main study pathways, we compared the full model with the restricted model, including the equality constraints for four paths: (a) emotion dysregulation to affective empathy, (b) emotion dysregulation to cognitive empathy, (c) hypermentalizing to affective empathy, and (d) hypermentalizing to cognitive empathy. According to the results, the null hypothesis that coefficients were equal across the two groups was not rejected in all four cases: (a) χ² = .34, p = .56; (b) χ² = .61, p = .33; (c) χ² = .05, p = .83; and (d) χ² = 2.90, p = .09. Hence, there was no statistically significant difference between the groups on any of the main study pathways.
We also compared the full model with the restricted model, including the equality constraints for two paths: (a) total psychiatric problems to cognitive empathy and (b) total psychiatric problems to affective empathy. Results revealed a statistically significant difference between the groups on the pathway from total psychiatric problems to cognitive empathy ($\chi^2 = 3.38, p = .05$) but not affective empathy ($\chi^2 = 1.08, p = .29$).

DISCUSSION

The aim of the current study was to examine how core processes central to borderline pathology, emotion dysregulation, and hypermentalization relate to empathy in female adolescent inpatients with BPD. This study therefore takes a preliminary step toward a broader goal of characterizing empathic functioning in BPD. Partially replicating Harari et al.’s (2010) findings, results revealed that female adolescents with BPD exhibited significantly higher affective empathy than non-BPD inpatient female adolescents. There were, however, no differences in cognitive empathy between the two groups. Furthermore, although there was a dissociation in cognitive and affective empathy in BPD, cognitive empathy was greater than affective empathy in both BPD and non-BPD groups. Multigroup moderation analyses revealed that in adolescents both with and without BPD, emotion dysregulation was associated with increased affective empathy. However, in the BPD group, hypermentalizing was associated with decreased cognitive empathy, whereas in the non-BPD group, hypermentalizing was not related to either empathy type.

The current study’s finding that cognitive empathy was significantly higher than affective empathy in BPD supports Harari et al.’s (2010) contention that there is a dissociation of cognitive and affective empathy in this disorder. However, the fact that cognitive empathy was higher than affective empathy stands in contrast to Harari et al.’s findings of higher affective than cognitive empathy in adults with the disorder. Furthermore, in this study the dissociation of empathy types was demonstrated in both BPD and non-BPD groups, with an even greater dissociation in non-BPD than in BPD adolescents. Therefore, it is possible that the dissociation of empathy types is a feature of empathic processing in adolescents with psychiatric disorders in general, rather than those with BPD specifically. This possibility is bolstered by findings of discrepancies across affective and cognitive empathy in other psychiatric disorders (Dziobek et al., 2011; Maurage et al., 2011; Shamay-Tsoory et al., 2007) and evidence of the existence of two neurobiological systems for empathy: a basic emotional contagion system, and a more advanced cognitive perspective-taking system (Shamay-Tsoory et al., 2009).

Partially replicating Harari et al.’s (2010) findings, affective empathy was higher in BPD than in non-BPD psychiatric inpatients. However, there was no difference in cognitive empathy levels between the two groups. This deviation may arise from use of different empathy measures (the BES in the current study, and the IRI [Davis, 1983] in Harari et al., 2010). These measures operationalize cognitive empathy differently, with scales reflecting related, but not identical, concepts. For example, the BES cognitive empathy scale includes
statements like “When someone is feeling ‘down’ I can usually understand how they feel” and “I can often understand how people are feeling even before they tell me.” Inherent in these items is a sense of certainty regarding knowing what others are experiencing. Instead of true cognitive empathy, which would be the capacity to understand what others are feeling and thinking, the cognitive empathy scale of the BES may instead reflect the level of conviction regarding knowing how others are feeling or thinking. This pattern of increased certainty about others’ thoughts was demonstrated in an emotion recognition task conducted by Schilling et al. (2012), with findings that although BPD participants performed similarly to healthy controls, they nonetheless rated themselves as more confident and certain than did healthy controls.

On the other hand, the IRI cognitive empathy scale (used in Harari et al., 2010) consists of the Perspective Taking and Fantasy scales, with the former appearing to approximate level of curiosity and reflection of others’ mental states (e.g., “When I’m upset at someone, I usually try to ‘put myself in his shoes’ for a while,”) and the latter reflecting an ability to cognitively insert oneself into abstract scenarios (e.g., “When I watch a good movie, I can very easily put myself in the place of a leading character”). Both aforementioned abilities have been found to be impaired in individuals with BPD (Fonagy, 1991; Ha, Sharp, Ensink, Fonagy, & Cirino, 2013; Katznelson, 2014; Sharp et al., 2011), and hence the IRI scale may be more sensitive to BPD-related cognitive empathy deficits than the BES scale.

At the bivariate level, significant correlations between hypermentalizing and cognitive empathy in the BPD group, but nonsignificant findings between cognitive empathy and hypermentalizing in the non-BPD group, preliminarily suggest differential group-specific relations among these processes. Multivariate analyses support this interpretation, as path analyses revealed that emotion dysregulation related to increased affective empathy but was not related to cognitive empathy, and that hypermentalizing related to decreased cognitive empathy but was not related to affective empathy. A test of the moderating effect of BPD status was included to determine the specificity of these relations to BPD pathology. Although there were no statistically significant differences in the path estimates between samples, the path from hypermentalizing to cognitive empathy was significant only in the BPD group.

The fact that the hypermentalizing to cognitive empathy path was significant only in the BPD group may indicate increased relevance of this process in empathy to BPD; however, given the nonsignificant moderation, this interpretation is tempered significantly. Instead, these findings may suggest that this process is important to empathy in adolescent psychiatric populations in general, with potentially enhanced importance to BPD. Therefore, these effects may be transdiagnostic rather than BPD-specific. This nonsignificant finding also may have arisen from the use of the DSM-IV BPD cutoff score. Rather than performing a multigroup moderation, it may have been useful to examine the moderating effect of a continuous BPD features score. This would not only have increased power, but also would have allowed for the investigation of these pathways across the full range of BPD pathology. However, we chose to use BPD diagnosis as a categorical moderator due to the severity of the sample. Given the study’s aims of investigating the mechanisms of
dysfunctional empathic processing in BPD, considering the full presentation of the disorder was central to the design of the study. Although conclusions regarding causality cannot be generated due to the cross-sectional design of the study, findings tentatively provide evidence for unique and differential relations among these processes. That is, emotion dysregulation may relate specifically to overactive affective empathy, and hypermentalizing may relate specifically to impaired accuracy of cognitive empathy in BPD.

Two interpretations, the first one offered by Harari et al. (2010), may help contextualize the present study’s findings. Because affective empathy is akin to vicariously experiencing others’ emotions (Gallese & Goldman, 1999), and because individuals with BPD have shown heightened sensitivity to others’ emotional expressions in some previous studies (Lynch et al., 2006; Wagner & Linehan, 1999), affective empathy may be more readily activated in those with the disorder. This interpretation falls in line with previous findings of a negative relation between regulated emotions and empathy (Eisenberg, 2000) and may suggest that high affective empathy in BPD is a by-product of chronic dysregulated mood. Eisenberg et al.’s (1988) distinction between sympathy and personal distress may help further contextualize these findings. According to Eisenberg, whereas sympathy is an other-oriented response that arises out of general interest and concern for another, personal distress is a self-focused response to emotion induction. In the case of adolescents with BPD, high affective empathy may reflect the latter. The current study’s finding of a unique link between emotion dysregulation and supports this interpretation.

A second interpretation, by Fonagy and Luyten (2009), is that the dissociation of affective and cognitive empathy may be explained by a lack of integration between higher- and lower-order social-cognitive systems, such that transitions between the two systems are not flexible, especially under conditions of high emotional arousal or stress, leading to incorrect mentalizing. This is also consistent with Sharp’s (2014) hypermentalizing approach to BPD, which suggests that failure to integrate higher- and lower-order social-cognitive systems results in hypermentalizing.

Although both of these interpretations are plausible, they are merely hypotheses because they remain untested by the current study. Furthermore, empathic functioning in BPD is likely more complex than what is offered by these interpretations, as a fully comprehensive model of BPD would likely incorporate both explanations. As such, future studies should aim toward the development of comprehensive understanding of empathic functioning in BPD, using the present study’s findings of differential relations among these constructs to guide model development. Specifically, future research that can tease apart these processes through context-specific tasks may augment these findings. For example, the impact of emotion dysregulation on affective empathy may be especially pronounced in situations of high stress or of high personal relevance to the individual. It is also possible that the capacity to affectively empathize with others may differentially depend on the valence of others’ emotions. That is, individuals with BPD may have the capacity to experience emotional contagion in response to others’ negative emotions, but they may not experience the same levels of affective empathy for nonnegative
emotions. Findings from a recent meta-analysis that adults with BPD display a tendency to attribute negative emotions to neutral faces (Mitchell et al., 2014) suggest that this may be a possibility.

The findings of the present study are limited by several factors. Most importantly, the cross-sectional design of this study, as previously discussed, limits the interpretation of these findings by excluding causal explanations. Although this study makes a valuable first step toward understanding the interrelations among emotion dysregulation, hypermentalizing, and cognitive and affective empathy, a broad theory of empathic functioning in BPD cannot be tested with this study design. Furthermore, the relations among the variables are likely more complex than the statistical analyses tested. For example, bidirectional relations likely exist among hypermentalizing, emotion regulation, and cognitive and affective empathy. Future research should make use of structural equation modeling to test these relations.

Second, the conceptual definition of empathy has not been agreed upon in the empirical literature. Although our study takes a broad view of empathy by operationalizing both affective emotional contagion and perspective taking as empathy, we acknowledge that precisely what defines empathy is still a matter of debate in the field. Many would argue in favor of a narrow conceptualization of empathy, including only affective response to others’ emotional states as true empathy, and regarding cognitive empathy as mentalizing, a distinct process altogether (De Vignemont & Singer, 2006). However, given the findings of the present study, this definition may be problematic, as findings suggest that it is difficult to disentangle affective empathy from the effects of dysregulated mood.

Along this line, we acknowledge that including a measure of mentalizing as a predictor of cognitive empathy may appear redundant to some who consider these constructs as synonymous (Shamay-Tsoory et al., 2009). Others, however, consider mentalization as a unique and complex process that represents a culmination of multiple affective and cognitive systems operating synergistically (Sharp, 2014). The aim of our study was not to settle the debate regarding how to define these constructs. However, parsing out these complex interrelations is crucial if future models of empathic functioning in BPD are to be developed.

Another notable limitation is that measures of empathy and emotional dysregulation were both self-report questionnaires and were therefore subject to shared method variance and the effects of social desirability bias. Future research could improve upon this limitation by using experimental- and neurobiological-based measures of emotion dysregulation (Bornovalova, Hicks, Iacono, & McGue, 2009; Gratz et al., 2006) and empathy (Dziobek et al., 2011; Hagenhoff et al., 2013; New et al., 2012). In addition, the use of a female-only, not severely aggressive, sample of inpatient adolescents limits the generalizability of the study findings.

Notwithstanding these limitations, the present study has several important strengths. First, the use of an interview-based measure of BPD bolsters the validity of the BPD diagnosis. Second, the use of an in vivo mentalization-based task is particularly valuable because it better approximates the everyday demands of social interactions than do traditional self-report measures.
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Third, our findings add to a growing body of literature which has identified that adolescents with BPD hypermentalize, strengthening the assertion that adolescents with BPD utilize alternative, unusual forms of mentalizing to understand others’ mental states rather than exhibiting a deficit or failure to mentalize (Sharp et al., 2011, 2013). Most importantly, this study is the first to consider core BPD-related constructs of emotion dysregulation and hyper-mentalizing in the investigation of empathy in BPD. It is also the first study to consider cognitive and affective empathy separately in adolescents with BPD. By including these constructs in the same analyses and demonstrating differential relations among the variables, we suggest that in order to improve empathic functioning in adolescents with this disorder, both mood-related and social-cognitive processes must be considered and therapeutically targeted. Taking into consideration the preliminary nature of the findings, this study lays the groundwork for future work in this area and a more comprehensive understanding of social-cognitive functioning in adolescents with this severe disorder.

REFERENCES


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