THE BORDERLINE EMPATHY PARADOX: EVIDENCE AND CONCEPTUAL MODELS FOR EMPATHIC ENHANCEMENTS IN BORDERLINE PERSONALITY DISORDER

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Empirical evidence and therapeutic interactions have suggested that individuals with borderline personality disorder (BPD) may demonstrate enhancements in aspects of social-emotional cognition. To assess the empirical evidence for this phenomenon, and to comprehensively evaluate alternative hypotheses for its possible role in BPD etiology and symptoms, the authors systematically searched the literature for investigations of empathy in BPD and reviewed 28 studies assessing a range of empathic abilities. Considered together, these data demonstrated comparable levels of evidence for enhanced, preserved, and reduced empathic skills in individuals with BPD. Evidence for empathic enhancements is thus substantial but inconsistent across studies, being found mainly under more socially interactive experimental paradigms. Based on the results of the review and previous explanations for BPD symptoms, the authors propose a new model for explaining the borderline paradox: that a combination of increased attention to social stimuli and dysfunctional social information processing may account in part for the specific empathic enhancements and reduced overall social functioning in BPD.

Clinical anecdotes and recent empirical evidence have suggested that individuals with borderline personality disorder (BPD) may demonstrate enhanced empathy in spite of impaired interpersonal functioning, a paradox referred to as "borderline empathy" (Franzen et al., 2011; Krohn, 1974). Drawing from therapeutic interactions with borderline patients, the psychoanalyst Alan Krohn (1974) first identified the paradoxical nature of the diagnosis, describing how some individuals with BPD appear to possess an uncanny sensitivity to other people's subconscious mental content and

states, despite their inability to coherently integrate such information into stable concepts of self and other that are fundamental to healthy interpersonal functioning. Both Krohn (1974) and Carter and Rinsley (1977) proposed that enhanced empathic sensitivity develops in the borderline child in response to confusing or neglectful parenting, which motivates the child toward increased empathic functioning.

Aside from the models based on Krohn (1974), there have been few attempts to explain the causes underlying borderline empathy or its role in BPD etiology and symptoms. This general lack of study may be attributable in part to the questions of whether or not the phenomenon actually exists, and furthermore, if it can be clearly and reliably documented and explained. Recent studies have reported both enhanced (i.e., Fertuck et al., 2009; Franzen et al., 2011; Frick et al. 2012) and impaired (i.e., Preißler, Dziobek, Ritter, Heekeren, & Roepke, 2010) social cognition in BPD, but the evidence for borderline empathy has yet to be comprehensively reviewed and evaluated in the context of alternative hypotheses for causation. In this article, we evaluate the existing evidence for enhanced empathy in BPD by systematically searching the literature and providing an overview of the relevant studies with consideration of their varying methodological approaches. We synthesize these findings in the context of current theories that address the roles of empathy in psychiatric illness, develop a new, testable hypothesis based on increased attention to social stimuli, and suggest directions for future research in BPD based on our findings and model.

METHODS

Literature was reviewed using the online databases Web of Science and PubMed. For the purposes of this article, the term *empathy* refers to a range of skills that include both emotional and cognitive components (Gallup, 1979; Rankin, Kramer, & Miller, 2005; Singer, 2006; Smith, 2006). It is important to distinguish this definition of empathy and empathic skills from conceptualizations of empathy as positive social-emotional mental connections that foster cooperation, altruism, and well-being of the recipient (e.g., Baron-Cohen, 2011). Given the numerous definitions for describing empathizing and mentalizing in the literature, several search terms were used to ensure that all studies examining any domain of empathic skill were included. The following terms were chosen a priori and were searched in conjunction with "borderline personality disorder": empathy; theory of mind; mentalizing; borderline empathy; and emotion recognition. All references and cited articles from the selected studies were reviewed to check for additional relevant articles. For inclusion, articles needed to empirically assess an interpersonal empathic skill (e.g., facial emotion recognition, mental state attribution, using the definition of empathy described above) or self-reported empathy in a borderline population compared to appropriate controls, or as a function of borderline fea-

tures in a nonclinical sample. Because affective instability is a diagnostic criterion for BPD (American Psychiatric Association [APA], 2000), articles that assessed only affective regulation skills were excluded. Only peer-reviewed empirical studies were included; reviews, supplementary materials, and meeting abstracts were not.

RESULTS

The literature search yielded 131 articles, of which 28 met the criteria for inclusion. These articles assessed various aspects of empathy and were organized into categories based on the ability under study and the methodological approach. The six categories included: (1) nonverbal sensitivity; (2) emotion recognition; (3) self-reported empathic skills; (4) emotional intelligence; (5) inferring mental states from passive stimuli such as photographs, movies, cartoons, and stories; and (6) mentalizing in interactions with active stimuli. One study (Harari, Shamay-Tsoory, Ravid, & Levkovitz, 2010) investigated both self-reported empathic skills and mental state attribution from stimuli and was therefore included in both categories.

Table 1 summarizes the articles in each empathic category and the number of findings reporting enhanced, reduced, or comparable performance of borderline individuals relative to controls. Overall, the 28 studies employed 19 different empathic tests and reported 41 relevant findings: 14 reported enhanced skills, 13 reported reduced skills, and 14 reported similar skills. Evaluating the patterns and causes of variation among studies of empathy in BPD requires consideration of the procedures deployed and their findings in each category.

NONVERBAL SENSITIVITY

In the first study to explicitly investigate the borderline empathy phenomenon, Frank and Hoffman (1986) used the Profile of Nonverbal Sensitivity (PONS; Depaulo & Rosenthal, 1979) in a sample of 10 female borderline patients and 14 sex- and education-matched neurotic control subjects and reported that individuals with BPD demonstrated a heightened sensitivity to nonverbal cues relative to the clinical controls in the study.

EMOTION RECOGNITION

Emotion recognition has received the most empirical attention of all empathic skills in borderline populations. Based on a review of six studies, Domes, Schulze, and Herpertz (2009) concluded that individuals diagnosed with BPD demonstrate subtle impairments in basic emotion recognition, a heightened sensitivity to detecting negative emotions, and a negativity bias when appraising ambiguous stimuli. Five of these six studies used similar facial stimuli (Pictures of Facial Affect; Ekman, 1993; Ekman & Friesen, 1976, 1979), so although the results may be reliable, they may

not be generalizable to studies that employ tasks and stimuli more closely resembling realistic social interactions.

Dyck et al. (2009) assessed facial emotion recognition abilities in 19 borderline personality patients (17 females) with and without comorbid posttraumatic stress disorder and in sex-matched healthy controls using two different tasks with colored facial stimuli (from Gur et al., 2002). The Fear Anger Neutral (FAN) test asks subjects to rapidly discriminate between negative and neutral facial expressions, and the Emotion Recognition (ER) test involves the precise identification of an emotion out of five possibilities (sadness, happiness, anger, fear, and neutral) with no time limits. When time was constrained, borderline subjects performed more poorly than did the control group, misinterpreting neutral faces as negative significantly more often. In the absence of time limits, the borderline subjects performed as well as the controls, suggesting that individuals with BPD may process complexly integrated emotional stimuli more slowly than healthy controls; a similar conclusion was supported by Minzenberg, Poole, and Vinogradov (2006; reviewed in Domes et al., 2009).

Guitart-Masip et al. (2009) compared the emotion discrimination abilities of 10 patients with BPD (5 females) and 10 nonclinical sex-matched controls by presenting pairs of neutral and emotional faces (happiness, fear, disgust, anger) from the Ekman and Friesen (1979) series. Stimuli were presented for 700 ms and subjects were instructed to press a button corresponding to the emotional face. Patients demonstrated a reduced performance relative to controls when identifying fear and disgust but performed as well as control subjects for happy and angry faces. Similarly, Unoka, Fogd, Füzy, and Csukly (2011) investigated patterns of accuracy and error in emotion recognition using the Ekman 60 Faces test in 33 BPD inpatients (29 females) and 32 (30 females) matched healthy controls; BPD individuals did not demonstrate impairments in recognizing happy emotions, but did show reduced accuracy in discriminating negative emotions as well as a tendency to overattribute surprise and disgust and underattribute fear, compared with the control subjects. Conversely, in a sample of 11 females with BPD and 9 nonclinical female controls, Merkl et al. (2010) assessed facial expression recognition using Ekman's (1993) stimuli set and reported superior performance of borderline subjects in identifying fear.

Two of the articles investigating emotion recognition studied the relationship of these skills to borderline personality features in nonclinical populations; this kind of sampling method is particularly useful in revealing the skills and deficits associated with a borderline personality profile in the absence of significant interpersonal impairment. In a sample of 150 adults sampled from university students and the wider community (70% female), Gardner, Qualter, Stylianou, and Robinson (2010) reported a significant interaction between borderline features and executive control with respect to decoding angry facial expressions, such that high borderline features combined with low executive control predicted poor recogni-

TABLE 1. Studies Reporting Enhanced, Reduced, or Comparable Empathic Skills in BPD

Empathic Domain	N	Study	Task	Sex Difference on Task in Nonclinical Populations	Subjects	BPD Performance Relative to Controls		
						Enhanced	Reduced	Comparable
Nonverbal sensitivity	1	Frank & Hoffman, 1986	Profile of Nonverbal Sensitivity	Female advantage (1)	10 BPD patients & 14 non-BPD clinical controls (100% female)	$p < .02$		
Emotion recognition	11	Levine et al., 1997	Pictures of Facial Affect (PFA)	Female advantage (1)	30 BPD patients (67% female) & 30 nonclinical controls (50% females)		$p < .001$	
		Wagner & Linehan, 1999	Japanese and Caucasian Facial Express. of Emotion	Female advantage (1)	21 BPD subjects with history of sexual abuse & 41 non-BPD subjects with and without history of abuse (100% female)	$p < .05$ (fear)	$p < .05$ (neutral)	$p = ns$ (happy)
		Bland et al., 2004	PFA	Female advantage (1)	35 BPD patients & 35 nonclinical controls (100% female)		$p = .007$	
		Lynch et al., 2006	PFA	Female advantage (1)	20 BPD patients (85% female) & 20 nonclinical controls (85% female)	$p < .05$		
		Minzenberg et al., 2006	PFA, BLERT[a]	Female advantage (1)	43 BPD patients (88% female) & 26 nonclinical controls (89% female)		$p = .02$	
		Domes et al., 2008	PFA	Female advantage (1)	25 BPD patients & 25 nonclinical controls (100% female)			$p = .925$
		Dyck et al., 2009	FAN test[b], ER Test[c]	Female advantage (1)	19 BPD patients (89% female) & 19 nonclinical controls (89% female)			$p = .50$, $p = .58$
		Guitart-Masip et al., 2009	PFA	Female advantage (1)	10 BPD patients (50% female) & 10 nonclinical controls (50% female)		$p = .01$ (disgust)	$p = ns$ (happy & angry)
		Merkl et al., 2010	PFA	Female advantage (1)	11 BPD patients and 9 nonclinical controls (100% female)	$p = .04$ (fear)		$p = ns$ (other emotions)

						High ATQ & high BPD positively predict anger recognition, p < .001	Low ATQ & high BPD negatively predict anger recognition, p < .001
		Gardner et al., 2010	PDQ-4-BPD[d], ATQ[e], PFA	Female advantage (1)	150 nonclinical adults (70% females)	High ATQ & high BPD positively predict anger recognition, p < .001	Low ATQ & high BPD negatively predict anger recognition, p < .001
Self-reported empathy	2	Unoka et al., 2011	Ekman 60 Faces Test	Female advantage (1)	33 BPD patients (88% female) & 32 nonclinical controls (94% female)		p < .0001
		Guttman & Laporte, 2000	Interpersonal Reactivity Index	Female advantage (2, 3)	27 BPD patients & 28 clinical controls & 27 nonclinical controls (100% female)	p < .01 (affective empathy)	p < .01 (cognitive empathy)
		Harari et al., 2010	Interpersonal Reactivity Index	Female advantage (2, 3)	20 BPD patients (90% female) & 22 nonclinical controls (86% female)		p = .038 (cognitive p = .205 (affective empathy)
Emotional intelligence	4	Park et al., 1992	Derived scale from Gardner's personal intelligence concept	Unknown; task designed specifically for this study	23 BPD patients (78% female) & 38 outpatients with other PD diagnoses (61% female)	p < .01	
		Hertel et al., 2009	Mayer-Salovey-Caruso Emotional Intelligence Test (MS-CEIT)	Female advantage (4)	19 BPD patients (100% female) & 66 patients with other mental disorders (45% female) & 94 nonclinical controls (67% female)		p < .01
		Gardner & Qualter, 2009	Multiple BPD measures, MSCEIT, Schutte Emotional Intelligence Scale (SEIS)	Female advantage (4, 5)	523 nonclinical adults (78% female)		Overall BPD score negatively predicted overall trait and ability EI, p < .001
		Beblo et al., 2010	MSCEIT, Test of Emotional Intelligence (TEMINT)	Female advantage (4, 6)	19 BPD patients (84% female) & 20 nonclinical controls (85% female)	Ability to perceive emotions not related to BPD score, p = ns	p = .264, p = .10

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TABLE 1. Continued

Empathic Domain	N	Study	Task	Sex Difference on Task in Nonclinical Populations	Subjects	BPD Performance Relative to Controls		
						Enhanced	Reduced	Comparable
Mentalizing skills using passive stimuli	7	Arntz et al., 2009	Advanced Theory of Mind Test	Mixed (7, 8)	16 BPD patients & 16 cluster-C PD subjects and 28 nonclinical controls (100% female)	$p < .07$		
		Fertuck et al., 2009	Reading the Mind in the Eyes Test (RMET)	Female advantage (9)	30 BPD patients (87% female) & 25 nonclinical controls (60% females)	$p < .001$		
		Frick et al., 2012	Reading the Mind in the Eyes Test (RMET)	Female advantage (9)	21 BPD patients (100% female) & 20 nonclinical controls (100% female)	$p < 0.01$		
		Ghiassi et al., 2010	Mental State Attribution Task-Sequencing and Questionnaire	Unknown for this particular task	50 BPD patients (92% female) & 20 nonclinical controls (85% females)			$p = ns$
		Harari et al., 2010	Faux-Pas Task	Female advantage (10)	20 BPD patients (90% female) and nonclinical controls		Cognitive understanding, $p = .027$	Affective understanding, $p = .423$
		Preißler et al., 2010	Movie for Assessment of Social Cognition (MASC), RMET	Females = males (11), Female advantage (9)	64 BPD patients & 38 nonclinical subjects (100% female)		$p = .001$	$p = .58$

Mentalizing skills using interactive stimuli	3	Scott et al., 2011	MSI-BPD[f], RMET	Female advantage (9)	46 undergraduate students (76% females)	High BPD group more accurate for negative emotions, $p < .05$	No group differences for positive and neutral emotions, $p = ns$
		Ladisich & Feil, 1988	Gieben Test (GT), Unpleasant Person Hierarchy Test (UPHT)	Unknown, Task designed specifically for this study	20 BPD patients & 39 non-BPD psychiatric patients (sex composition not reported)	$p < .05$	
		Flury et al., 2008	Infer states of partner in dyadic interactions	Unknown	76 undergraduate students (61% female)	High BPD group more accurately, $p < .01$	
		Franzen et al., 2011	Simulated interaction game with monetary exchange	Unknown	30 BPD patients (73% female) & 30 non-clinical controls (73% female)	$p < .003$	

Notes: [a]Bell-Lysaker Emotion Recognition Test; [b]Fear-Anger-Neutral Test; [c]Emotion Recognition Test; [d]Personality Diagnostic Questionnaire-fourth ed.-BPD Scale; [e]Adult Temperament Questionnaire-Short Form; [f]McLean Screening Instrument for BPD.
References: (1) Geary, 2010; (2) Mestre et al., 2009; (3) Berthoz et al., 2008; (4) Day & Carroll, 2004; (5) Schutte et al., 1998; (6) Amelang & Steinmayr, 2006; (7) Bosacki, 2000; (8) Russell et al., 2007; (9) Baron-Cohen et al., 2001; (10) Baron-Cohen et al., 1999; (11) Smeets et al., 2009.

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tion of angry faces while high borderline features and high executive control predicted enhanced recognition of angry faces. Executive control describes the ability to regulate attentional resources and is often impaired in psychiatric patients, including individuals with a BPD diagnosis (Ayduk et al., 2008). The interaction of borderline features with decreased attentional resources may thus be responsible for mediating deficits in emotion recognition in BPD.

SELF-REPORTED EMPATHY

Two studies examined self-reported empathy in individuals with BPD using the Interpersonal Reactivity Index (IRI; Davis, 1980, 1983). Employed extensively in personality research, the IRI is a multidimensional self-report measure of empathy assessing the related but dissociable cognitive and affective components of empathic skill across four subscales: perspective taking; fantasy; empathic concern; and personal distress. Using this instrument, Guttman and Laporte (2000) reported reduced cognitive empathy and increased affective empathy in 27 females with BPD relative to clinical and nonclinical control subjects. In a sample of 20 individuals with BPD (18 females), Harari et al. (2010) found significantly reduced cognitive empathy but comparable levels of affective empathy in individuals with BPD relative to nonclinical controls.

EMOTIONAL INTELLIGENCE

Four studies have measured emotional or personal intelligence in BPD; in these studies, the definitions of personal and emotional intelligence describe essentially identical skills. For example, emotional intelligence describes the capacity to perceive, understand, and regulate emotion in addition to using emotions to facilitate mental processes (Mayer & Salovey, 1997). Personal intelligence involves the ability to access one's emotions as well as the ability to perceive and distinguish among another person's motivations and intentions (Gardner, 1983).

Prompted by clinical accounts of the borderline empathy paradox, Park, Imboden, Park, Hulse, and Unger (1992) hypothesized that borderline individuals are endowed with enhanced personal intelligence that could interact with abusive childhood environments to play a key causal role in the development of BPD. To test this idea, the authors evaluated the personal intelligence and history of past abuse of 23 borderline patients (18 females) from their own clinical work and 38 outpatients with other personality disorder diagnoses. For the purpose of this study, Park et al. (1992) derived a rough scale of personal intelligence from Gardner's (1983) research. Patients were categorized as "gifted" in the domain of personal intelligence if they clearly demonstrated at least three of the following: (1) intense preoccupation with and/or access to feelings of self and others; (2)

at least three perceptive observations about other people as expressed during therapy sessions; (3) evidence of empathic concern; and (4) the absence of pervasive envy, grandiosity, or devaluation of others. Preoccupation with feelings was included because the authors reasoned that if individuals with BPD are indeed endowed with emotional giftedness, but these abilities are not realized due to poor environments, the giftedness may manifest as a drive to access and understand emotions. The authors reported that 74% of the borderline patients demonstrated both enhanced personal intelligence and a history of abuse, significantly greater than the 13% of the nonborderline controls. Though intriguing, these results must be interpreted cautiously because of the lack of independent validation for their method of assessing personal intelligence and the potential for clinician bias.

Beblo et al. (2010) assessed emotional intelligence in a sample of 19 borderline patients (16 females) and 20 nonclinical control subjects (17 females) using the Mayer-Salovey-Caruso emotional intelligence test (MSCEIT; Mayer, Salovey, & Caruso, 2002) and the Test of Emotional Intelligence (TEMINT; Schmidt-Atzert & Buehner, 2002). These tests assess performance in four domains of emotional intelligence (perceiving, understanding, and regulating emotion, and applying emotions to mental processes) across a variety of tasks. No difference between BPD individuals and control subjects was found for any domain of emotional intelligence. Using only the MSCEIT, Hertel, Shütz, and Lammers (2009) assessed emotional intelligence performance in 19 female borderline patients as well as other clinical and nonclinical individuals and reported a reduced overall emotional intelligence score of the borderline group relative to the nonclinical control group. Specifically, the borderline patients were reduced in their ability to understand emotional information and to regulate emotions, but they performed as well as the nonclinical controls in perceiving emotions and using emotions to facilitate thought. In contrast to Beblo et al. (2010), Hertel et al. (2009) did not control for general intelligence and therefore the reduced emotional intelligence performance of the BPD patients may be attributable to group differences in cognitive ability. Variation in borderline symptom severity may also differentially affect emotional intelligence ability in these two studies, but there is insufficient data to evaluate this claim.

In a nonclinical sample of 523 adults (78% female), Gardner and Qualter (2009) studied the relationship of borderline personality features to both trait and ability emotional intelligence using the Schutte Emotional Intelligence Scale (SEIS; Schutte et al., 1998) and the MSCEIT, respectively. Most of the assessed borderline personality features negatively predicted MSCEIT scores for the abilities of understanding, managing, and facilitating emotions. The ability to perceive emotions was not related to BPD features. The overall SEIS score, which measures the trait-based ability to manage, perceive, and utilize emotions, was negatively related to borderline features.

MENTALIZATION USING PASSIVE STIMULI

Given the recent interest in mentalization-based approaches to treating BPD (Fonagy & Luyten, 2009) and the availability of instruments from autism research for assessing theory of mind skills, recent work has begun to assess "mindreading" skills in borderline populations. Results from these five studies are mixed. For example, using Happé's Advanced Theory of Mind Test, Arntz, Bernstein, Oorschot, and Schobre (2009) assessed mentalizing skills in 16 female patients with BPD, 16 female patients with cluster-C personality disorder diagnoses, and 28 female nonclinical control subjects; study participants were matched for both age and intelligence. The test was translated into Dutch for the purpose of the Arntz et al. study and included stories involving white lies, persuasion, bluffs, and mistakes in addition to nonmental stories for control purposes. After hearing the stories, individuals were asked questions about the characters' mental states. Patients with BPD performed significantly better than the healthy controls, although cluster-C patients had the highest scores overall.

Ghiassi, Dimaggio, and Brune (2010) studied mentalizing and parent-rearing behavior in 50 borderline patients (46 females) and 20 nonclinical control subjects (13 females) using two mental state attribution tasks that have been employed in psychoses research: the Mental State Attribution Task-Sequencing and the Mental State Attribution Task-Questionnaire (MSAT-S and MSAT-Q; Brüne, 2005). Individuals were asked to logically sequence a variety of cartoon pictures into coherent stories and then answer first, second, and third order mentalizing questions about the characters' beliefs and intentions. The authors did not control for intellectual functioning, and the control group had a significantly higher proportion of males than did the patient group. Performance on the mentalizing tasks did not differ between the patients and the controls, and sex showed no effects on mentalizing ability; however, the authors did find that higher levels of maternal rearing behavior that involved rejection and punishment were associated with lower mentalizing ability in the BPD patients only.

Preißler et al. (2010) assessed social-cognitive skills in 64 females with BPD and 38 nonclinical female subjects using two tasks: the "Movie for Social Cognition" (MASC; Dziobek et al., 2006) and the "Reading the Mind in the Eyes" Test (RMET; Baron-Cohen, Wheelwright, Hill, Raste, & Plumb, 2001). The MASC involves watching a film and then assessing the emotions, thoughts, and mental states of the characters, providing multidimensional social-cognitive stimuli that can detect subtle difficulties in mentalizing abilities. The RMET asks individuals to infer mental states from the eye regions of photographed faces, and it has been shown to reliably discriminate between people with and without high-functioning autism. For the MASC, Preißler et al. (2010) found that borderline patients demonstrated reduced skill relative to healthy controls, while the RMET results suggested comparable skills in both groups. Consistent with some

of the facial expression recognition research, Preißler et al. (2010) argued that the higher sensitivity of the MASC reveals a reduction in the ability of individuals with BPD to integrate complex social information, especially when time is constrained. In contrast, Fertuck et al. (2009) reported higher RMET scores in 30 individuals with BPD (26 females) relative to 25 control subjects (15 females), and Frick et al. (2012) reported higher RMET scores in 21 females with BPD compared with 20 control females. These divergent findings cannot easily be attributed to differences in intellectual functioning, because Preißler et al. (2010) matched the controls and borderline individuals on fluid IQ, and Fertuck et al. (2009) and Frick et al. (2012) matched their control and borderline groups by education level. Preißler et al. (2010) pointed out, however, that the increased proportion of males in the Fertuck et al. (2009) control group may have reduced control scores to a lower end of the range than is normally reported in control subjects, and therefore increased the probability of detecting group differences.

Scott, Levy, Adams, and Stevenson (2011) assessed mental state attribution as a function of borderline traits using the RMET in a nonclinical sample of undergraduate students. Based on a modified version of the McLean Screening Instrument for BPD (MSI-BPD; Zanarini et al., 2003), 46 subjects (31 females) were assigned to the low-borderline condition and 38 subjects (25 females) were assigned to the high-borderline condition. The authors reported no difference in mental state decoding ability between the two groups for positive or neutral RMET stimuli, but for negative stimuli, the high-BPD group performed better than the low-BPD group. This difference was not attributable to group differences in response bias or affective state.

In addition to the empathy data discussed in the previous section, Harari et al. (2010) studied cognitive and affective components of theory of mind skills in the same study using the Faux-Pas Task (Baron-Cohen, O'Riordan, Stone, Jones, & Plaisted, 1999). In this task, cognitive theory of mind represents the understanding that within an interaction, a speaker and listener have different mental states. The affective component taps into a participant's appreciation of the emotional impact of a speaker's statement on a listener. Individuals listen to 20 stories and then answer questions that are designed to test their ability to detect a faux pas. The borderline patients were impaired in their detection and cognitive understanding of a faux pas relative to the control subjects, but performed equally well in their affective understanding. Based on the combined results of both the Faux-Pas Task and the IRI, Harari et al. (2010) concluded that control subjects demonstrate higher cognitive empathy relative to affective empathy while patients with BPD show the reverse pattern.

MENTALIZATION USING INTERACTIVE STIMULI

Two studies have assessed borderline empathy in real social interactions between individuals with and without BPD. In a clinical setting, Ladisich

and Feil (1988) had 20 borderline patients and 39 nonborderline psychiatric patients interact with one another and subsequently report on the feelings and qualities of themselves and other group members, using the Giessen Test (GT; Beckmann & Richter, 1972) and the Unpleasant Person Hierarchy Test (UPHT), a task designed specifically for this study. The composition of sex in the study groups was not reported. Empathic accuracy was assessed by comparing how closely perceivers could predict the self-ratings of other group members. Patients with BPD were more accurate in inferring the feelings of other patients than all other study subjects, including the participating psychiatrist.

Flury, Ickes, and Schweinle (2008) assessed the association between borderline personality features and empathic accuracy in a sample of 76 undergraduate students (46 females) recruited from a larger sample of students who completed the Borderline Syndrome Index (BSI; Conte, Plutchik, Karasu, & Jerrett, 1980); only those individuals scoring in the upper and lower quartiles were included. Using a paradigm developed by Ickes (1993) and similar to Ladisich and Feil's study, Flury et al. (2008) estimated empathic accuracy by measuring each subject's ability to infer the thoughts and feelings of a partner in dyadic interactions between one high-borderline individual and one low-borderline individual. The authors reported significantly increased accuracy in ratings of the high-borderline group relative to the low-borderline group. To test for alternative explanations for this difference, the authors statistically controlled for stereotypical responding style and found that the borderline advantage disappeared, although there was no significant difference in stereotypical responding between the two groups. After further analyses, the authors concluded that low-borderline participants tended to project their own personality characteristics onto those of their interaction partner, resulting in higher error rates due to the more unusual personality profile of the high-borderline subjects. Conversely, the high-borderline participants accurately assumed that their more atypical personality was not generalizable to their partner, and were therefore more accurate in their ratings. The authors concluded that the borderline advantage was attributable to differences in partner "readability" and not empathic skill. These novel results provide an alternative interpretation of borderline empathy and also indicate the possibility of enhanced self-insight in individuals with borderline personality features.

In a third study using interactive stimuli, Franzen et al. (2011) compared the mentalizing processes of 30 BPD patients (22 females) with 30 nonpatients in a simulated social interaction game developed for research in behavioral economics and decision making. In a multiround virtual trust game involving monetary unit exchanges between human and virtual (computer-screen) players, the researchers were able to experimentally manipulate the fairness and emotional cues exhibited by virtual players as well as the congruency between cues and actual behavior. For some rounds of the game, players' emotional cues signaled fair behavior (i.e.,

smiles) while in other rounds the cues were inconsistent with level of fairness. The authors found that participants with BPD adjusted their playing strategy according to the objective fairness rather than the emotional cues of the virtual players. This finding could not be explained by group differences in emotion recognition or perceived fairness because both borderline patients and control subjects assessed these elements comparably. These authors concluded that individuals with BPD may thus process social information in a more controlled and deliberate manner, whereas control individuals may process emotional cues, especially salient facial expressions, more automatically.

DISCUSSION

This review and synthesis has assessed the evidence for the borderline empathy phenomenon across a range of empathic skills. The degree to which empathic abilities are enhanced, comparable, or reduced among individuals with BPD compared to controls was highly variable across studies. However, a sufficient number of studies (14) and different tests (8) showed enhanced empathic skills in BPD to indicate that this phenomenon is worthy of further attention, and additional research effort designed to explain both the causes of borderline empathy and the among-study variation in results.

One possible cause of variation in results among studies is the nature of the empathic test deployed. Thus, in all three studies where empathic skills were examined in interactive social environments, individuals with BPD demonstrated increased abilities to accurately infer mental states and respond appropriately to the behavior of others, relative to control subjects (Flury et al., 2008; Franzen et al., 2011; Ladisich & Feil, 1988). By contrast, in tasks requiring mental state attributions from passive stimuli, individuals with BPD demonstrated enhanced skills in three tests from four studies (Happé's Advanced ToM test, Arntz et al., 2009; RMET for negative emotions only, Scott et al., 2011; overall RMET score, Fertuck et al., 2009 and Frick et al., 2012), conserved skills for three tests from four studies (MSAT, Ghiassi et al., 2010; affective understanding of faux pas, Harari et al., 2010; RMET, Preißler et al., 2010; RMET for positive and neutral emotions, Scott et al., 2011), and reduced skills for two tests from two studies (cognitive understanding of faux pas, Harari et al., 2010; MASC, Preißler et al., 2010). This apparent contrast in results between studies using interactive and passive stimuli suggests that interactive stimuli may be relatively more sensitive in demonstrating the skills of individuals with BPD, and therefore highlights the need for future research to examine borderline social cognition through interactive study environments and relatively realistic social interactions.

For other categories of empathic skills, results were notably mixed. Assays of emotional intelligence suggested enhanced, reduced, or conserved abilities in borderline subjects (Beblo et al., 2010; Hertel et al., 2009; Park

et al., 1992). This variation in reported emotional intelligence may vary, in part, as a function of borderline symptom severity or overall cognitive ability. Taken together, findings from facial expression recognition studies suggest that borderline individuals may have an increased sensitivity to negatively valenced emotional stimuli, and that factors such as reduced executive control may impair performance, especially in tasks requiring quick responses. Given that psychopathology is almost always associated with reduced performance in facial affect recognition (for one exception in schizophrenia research, see Davis & Gibson, 2000), the observation of enhanced borderline performance in four studies is especially noteworthy.

Studies comparing cognitive and affective empathic skills in BPD revealed a consistent and interesting pattern. Harari et al. (2010) reported reduced cognitive empathy but conserved affective empathy among individuals with BPD for measures assessing both empathizing and mentalizing abilities. Control subjects were characterized by higher cognitive empathy relative to affective empathy, whereas individuals with BPD demonstrated the reverse pattern; given that the groups were matched for intellectual functioning, this pattern could not be attributed to group differences in intelligence. Similarly, Guttman and Laporte (2000) reported reduced cognitive empathy and enhanced affective empathy in individuals with BPD relative to control subjects. These studies are limited in that the ability of borderline subjects to accurately rate their own empathic skills is unknown, so results warrant a conservative interpretation. Given that both studies reported reduced cognitive empathy and either normal or enhanced affective empathy, it is possible that borderline empathy is characterized by a dissociation or asymmetry between these different facets of empathic skill (Harari et al., 2010).

Empathic deficits are often implicated as etiologically central to psychopathology, due to the impaired social functioning characteristic of individuals with psychiatric diagnoses (Cameron, 2009). Indeed, a substantial body of literature indicates reduced social competency for individuals with the Axis I disorders that share psychotic-affective symptoms with BPD, including major depression, bipolar disorder, and schizophrenia (e.g., Barnow et al., 2010; Glaser, Van Os, Thewissen, & Myin-Germeys, 2010; Hooley, 2010; Lieb, Zanarini, Schmahl, Linehan, & Bohus, 2004; Perugi, Fornaro, & Akiskal, 2011). Although it is reasonable to assume that social interactions are facilitated through the effective use of both basic empathic skills such as emotion recognition and more complex skills such as mental state attribution, impairments to overall social functioning may, in principle, result from either reductions or increases in specific abilities from normative levels (Crespi & Badcock, 2008; Montag et al., 2010; Sharp et al., 2011). For example, Langdon, Corner, McLaren, Coltheart, and Ward (2006) studied attentional orienting as a function of gaze shifting in people with and without schizophrenia and found that individuals with schizophrenia were hyperresponsive to gaze, reflexively shifting their attention in the direction indicated by another's gaze at a lower threshold

than did subjects without schizophrenia. This automatic and increased sensitivity to gaze may be linked to the tendency of individuals with schizophrenia to overperceive intentionality and experience paranoia, both of which may contribute to the social difficulties observed in schizophrenia. Similarly, excessive levels of empathy may potentiate or exacerbate depression, anxiety, and borderline features, especially among females (Dammann, 2003; O'Connor et al., 2007; Zahn-Wexler, Crick, Shirtcliff, & Woods, 2006; Zahn-Wexler, Shirtcliff, & Marceau, 2008). The observation of general social deficits in individuals with psychotic-affective conditions is thus not necessarily sufficient to indicate reductions in the empathic skills that underlie social functioning, because such deficits could result from qualitatively distinct alterations. Whether alterations involve reductions or enhancements in specific empathic domains may thus be useful in forming hypotheses for the causes of these conditions. But how might enhanced empathic abilities be related to severe deficits in interpersonal functioning in BPD?

RESOLVING THE BORDERLINE EMPATHY PARADOX

Psychoanalytic accounts attribute borderline empathy to environmental causes, such that in response to inconsistent or neglectful parenting and in an effort to maintain a constant view of the caregiver object, the borderline individual develops enhanced sensitivity to the subtle, subconscious cues indicating the mental states of the parent (Carter & Rinsley, 1977; Krohn, 1974). The tendency to perceive and respond to subconscious drives, combined with a learned distrust of conscious behavior, thus disrupts the ability of the borderline individual to develop enduring and stable experiences of others in interpersonal contexts, which leads to lasting social dysfunction. This model is supported by evidence suggesting a relationship between maternal neglect and enhanced nonverbal decoding abilities, whereby increased reports of maternal neglect positively predicted scores on the PONS in borderline subjects (Frank & Hoffman, 1986). Linehan (1993) similarly proposed that BPD is characterized by a heightened sensitivity to, and keen awareness of, emotional cues, especially negative cues signaling rejection or abandonment, in the social environment. The origins of this enhanced sensitivity are suggested to be biological in nature, although emotionally invalidating environments—such as the childhood abuse and neglect that is often reported in BPD cases—are expected to exacerbate innate empathic sensitivity. Under this hypothesis, the social difficulties characteristic of BPD result from low thresholds of emotional reactivity and insecure appraisals of emotional events based on accurate perceptions of social cues (Wagner & Linehan, 1999).

Park et al. (1992) also attributed borderline empathy and its role in BPD development to interacting biological and environmental factors, although these researchers emphasized the positive aspects of enhanced empathic skills and referred to them as cognitive "gifts" involving the desire and

ability to understand the thoughts and feelings of others, which, in the absence of abuse, would contribute to an individual's well-being and not result in BPD. Fertuck et al. (2009) suggested that enhanced mentalizing in BPD engenders reduced interpersonal functioning through a combination of negative expectations upon entering social interactions and reduced executive cognitive control, resulting in the inability to modify incorrect appraisals of social situations. Similarly, Arntz et al. (2009) suggested that impulsivity, emotional reactivity, and working memory deficits observed in BPD may inhibit the borderline individual's ability to apply intact mentalizing skills in emotionally charged situations, therefore contributing to social dysfunction.

Drawing from the reviewed studies, we suggest that the borderline empathy paradox may be attributable in part to a combination of enhanced attention to, and perception of, social stimuli with dysfunctional processing. Under this model, many individuals with BPD may exhibit increased attention to social stimuli, and thus develop an enhanced ability to perceive social information. Such enhanced attention and perception may become pathological if they interact with deficits in other domains such as attentional control, emotion regulation, and regulation of the attachment system, such that the inferences drawn from social information become amplified and distorted toward negative, self-referential emotional states. This model is consistent with previous evidence of hypersensitivity to the social environment in BPD (Goodman & Siever, 2011; Gunderson & Lyons-Ruth, 2008; Lynch et al., 2006), which involves constant vigilance to anticipated rejection (Fertuck et al., 2009) and difficulties in regulating emotion due to low thresholds for stress-related activation of the attachment system and deactivation of controlled mentalization (Fonagy, Luyten, & Strathearn, 2011). Such stress- and emotion-mediated deactivation of controlled mentalization should be unlikely to reduce performance on the laboratory-based empathic-skill tests analyzed here, which could help to explain preservation of empathic abilities in individuals with BPD but cannot explain enhancements. High sensitivity and attention to social cues may also engender hypermentalizing (overly complex inferences based on social cues), which can interact in a vicious cycle with dysregulated emotionality through anxious, uncontrolled rumination (Sharp et al., 2011). Finally, to the extent that conscious or unconscious mental states of social interactants indeed reflect negatively upon individuals with BPD but remain verbally unexpressed, highly sensitive and accurate empathic inferences that reveal such states may also exacerbate BPD symptoms by instigating emotional dysregulation and dysfunctional interactions. This model based on enhanced attention to, and perception of, social stimuli in BPD is conceptually analogous to models of autism spectrum disorders, where increases have been observed in attention to, and perception of, nonsocial compared to social stimuli (Baron-Cohen, Ashwin, Ashwin, Tavassoli, & Chakrabarti, 2009; Klin, Lin, Gorrindo, Ramsay, & Jones, 2009; Mottron & Burack, 2001; Mottron, Dawson, Souli-

eres, Hubert, & Burack, 2006; Pierce, Conant, Hazin, Stoner, & Desmond, 2011).

Findings from Gardner et al. (2010) and Lynch et al. (2006) are also consistent with this general model for helping to explain the borderline paradox. Thus, in the former study, BPD traits predicted enhanced recognition of anger, but only when executive control was also high; in the latter study, individuals with BPD correctly identified the emotion of morphing facial expressions earlier than did healthy controls, suggesting enhanced perception of emotional cues. The dissociation between cognitive and affective empathy observed by Harari et al. (2010) and Guttman and Laporte (2000) may also be concordant with the model, in that affective empathy may be more closely linked to the automatic and immediate perception of social-emotional cues and accompanying physiological responses, whereas cognitive empathy involves higher order cognitive functions (Shamay-Tsoory, 2011). Borderline empathy may thus involve dysregulation to the integrated social cognitive-affective system, resulting in a characteristic asymmetry or splintering of empathic skills (Fonagy et al., 2011). Gaining an understanding of the specific pattern of cognitive-affective enhancements and reductions in individuals with BPD, and their interactions with social attention and perception, attentional control, and emotion regulation, should clarify the relationship between borderline and normal social cognition, as well as elucidate the role of enhanced empathy in BPD etiology and symptoms.

Also salient to a model of BPD involving, in part, a maladaptive enhancement of attention to social stimuli is evidence for enhanced performance of individuals with BPD on tasks that typically demonstrate female superiority in nonclinical populations, and corresponding reduced performance in tasks with a male advantage (Table 1). It is important to note that most tasks in Table 1 are linked to a female advantage, given that overall females appear to outperform males in the general domain of social cognition (i.e., Geary, 2010). Females thus outperform males in facial emotion recognition for a variety of tasks and stimuli (reviewed in Geary, 2010); four studies reported superior performance of borderline subjects in this domain (Gardner et al., 2010; Lynch et al., 2006; Merkl et al., 2010; Wagner & Linehan, 1999). For self-reported affective empathy assessed by the IRI (Davis, 1980, 1993), Guttman and Laporte (2000) reported enhanced scores for borderline patients relative to controls while Harari et al. (2010) reported no difference. Studies using the IRI in nonclinical samples of both adolescents and adults have found a female advantage in the subscales composing the affective empathy score (Berthoz, Wessa, Kedia, Wicker, & Grezes, 2008; Mestre, Samper, Frias, & Tur, 2009). Females also outperform males on tasks requiring the attribution of mental states from photographs of the eyes (RMET; Baron-Cohen, Jolliffe, Mortimore, & Robertson, 1997; Baron-Cohen et al., 2001). For this task, Preißler et al. (2010) found no group differences whereas Fertuck et al. (2009) and Frick et al. (2012) reported enhanced performance of the

borderline subjects relative to non-BPD controls. Scott et al. (2011) reported higher RMET scores for negative emotional stimuli in healthy adults with borderline personality features compared to adults without borderline personality features.

For higher order theory of mind tasks, female superiority is often assumed, although performance of the sexes is dependent on the specific task employed. For example, Russell, Tchanturia, Rahman, and Schmidt (2007) reported a male advantage for Happé's cartoon task, but Bosacki (2000) reported female superiority on a similar task in healthy preadolescents. With respect to BPD, Arntz et al. (2009) found enhanced performance of the borderline group relative to nonclinical control subjects on Happé's (1994) Advanced ToM task. Interpretation of these results is severely limited by the relative lack, or absence, of male subjects in most studies of BPD. Future research would benefit from comparing male and female performance in both borderline and nonclinical populations in order to advance understanding of borderline phenotypes in the context of sex differences in social cognition.

CONCLUSIONS

By critically examining the evidence bearing on enhanced empathic skills in borderline populations, we have provided the groundwork for future tests of hypotheses concerning both the causes of borderline empathy and the role of empathic enhancements in BPD etiology, symptoms, and therapy. Given the evidence regarding the borderline empathy phenomenon, we have suggested that the causal bases underlying BPD may involve, in part, a pathological and selective enhancement of normally adaptive empathic abilities, especially with regard to increased attention to social stimuli. More generally, increased understanding of the role that social brain adaptations play in mediating human psychiatric disease risk may help to explain maladaptations of human social interactions, especially for conditions such as borderline personality disorder that centrally involve interpersonal relationships.

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