Letter to the Editor

Psychotherapy and Psychosomatics

Received: September 17, 2010
Accepted after revision: February 17, 2011
Published online: September 28, 2011

Psychother Psychosom 2011;80:383–385
DOI: 10.1159/000325828

Alexithymic Traits and Facial Emotion Recognition in Borderline Personality Disorder

Gregor Domes [a], *Hans Jörgen Grabe* [b], *Daniela Czieschnek* [c], *Markus Heinrichs* [a], *Sabine C. Herpertz* [d]

Departments of [a]Psychology, Laboratory for Biological and Personality Psychology, University of Freiburg, Freiburg, [b]Psychiatry, University of Greifswald, Greifswald, [c]Psychiatry, University of Rostock, Rostock, and [d]General Psychiatry, Center of Psychosocial Medicine, University of Heidelberg, Heidelberg, Germany

Alexithymia has been described as a difficulty in recognizing and expressing emotions, distinguishing between emotions and somatic sensations, a limited imaginative capacity, and a literal, externally oriented style of thinking [1, 2]. Although the concept of alexithymia was originally introduced to describe the difficulties of psychosomatic patients [3], numerous studies have provided evidence for high alexithymic traits in psychiatric conditions, including borderline personality disorder (BPD) [4–6].

BPD is characterized by a pervasive pattern of instability in affect regulation, impulse control, interpersonal relationships and self-image [7]. It has been proposed that difficulties decoding others' facial expressions may contribute to the emotion regulation difficulties that BPD patients report in the context of social interactions. Although some studies show biased or impaired facial emotion recognition in BPD [8–11], other studies report contradictory findings [12–14]. This inconsistency suggests that other variables may modulate the association between BPD and emotion recognition. Since correlations between alexithymia and emotion recognition deficits have been reported in healthy participants as well as psychiatric patients [15–17], alexithymic traits might be among these variables.

Thus, in the present study, we investigated whether alexithymic traits account for a substantial part of the variance in facial emotion recognition performance observed in BPD patients.

We recruited 19 female in-patients from the Department of Psychiatry of the University of Rostock (age: 26.5 ± 8.1; education [years in school]: 10.6 ± 1.5; IQ [Wechsler-Adult-Intelligence-Scale, short version]: 114.3 ± 19.0) who met criteria for BPD as validated with a German translation of the International Personality Disorder Examination for DSM-IV (IPDE) [18]. Eight patients were taking SSRIs, 16 reported a history of physical/sexual abuse, and 8 met criteria for post-traumatic stress disorder. We also recruited a control group of 25 women through on-campus announcements (age: 26.0 ± 4.5, education: 11.3 ± 1.6, IQ: 114.7 ± 15.4) who did not report any physical or mental illness. The study was approved by the institutional review board of the University of Rostock, Germany. All participants provided written informed consent before participation.

Alexithymic traits were assessed using the 20-item German version of the Toronto-Alexithymia Scale TAS-20 [19, 20] consisting of three factors: difficulties identifying feelings (DIF), difficulties describing feelings (DDF), and externally oriented thinking (EOT). In addition, we assessed symptom severity with the Beck-Depression-Inventory BDI [21] and the 95-item Borderline Symptom List BSL-95 [22]. Facial emotion recognition was measured with a dynamic facial morph task [9]. The task consisted of 3 blocks of 36 randomized trials, each showing a dynamic facial expression changing from neutral into one of six basic facial expressions: anger, fear, disgust, happiness, sadness, and surprise. Photographs of 3 men and 3 women from the Pictures of Facial Affect [23] were morphed from 0% (neutral) to 100% of a particular emotion in 5% steps resulting in series of 21 stimuli, which were sequentially presented for 800 ms each. Participants pressed a response button as soon as they recognized a specific emotion. Thereafter, they reported which emotion they had recognized (forced-choice among the six emotions). We recorded recognition threshold (intensity of emotional expression in percent at which the presentation was stopped) and error rates (number of errors in the forced choice) and tested group differences with two separate MANOVAs. Linear associations between alexithymic traits and emotion recognition were tested using Pearson's correlations. Significance level was $p < 0.05$.

There were significant differences between the two groups in depressive symptoms (BDI: BPD 33.4 ± 10.2; controls 7.0 ± 5.7; $t[42] = 10.8$; $p < 0.001$, Cohen's $d = 3.19$), severity of borderline symptoms (BSL-total: BPD 182.2 ± 46.4; controls 52.2 ± 26.0; $t[42] = 11.8$; $p < 0.001$; $d = 3.45$) and alexithymic traits (TAS-DIF: BPD 21.8 ± 6.0; controls 11.4 ± 4.8; $t[42] = 6.4$; $p < 0.001$; $d = 1.91$; TAS-DDF: BPD 19.2 ± 4.8; controls 10.7 ± 3.7; $t[42] = 6.6$; $p < 0.001$; $d = 1.98$; TAS-EOT: BPD 21.0 ± 4.3; controls 18.2 ± 4.0; $t[42] = 2.2$; $p = 0.032$; $d = 0.67$). The groups did not differ in overall emotion recognition threshold (multivariate: $F[6,37] = 0.5$; $p = 0.78$) or for specific emotions (all univariate $F[1,42] < 1.0$; all $p > 0.10$). Patients with BPD made more errors overall ($F[6,37] = 4.9$; $p < 0.002$; partial eta squared $\eta^2_{par} = 0.45$), an effect that was mainly driven by higher error rates for BPD patients for fearful ($F[1,42] = 3.3$; $p = 0.075$; $\eta^2_{par} = 0.07$) and surprised expressions ($F[1,42] = 13.2$; $p < 0.002$; $\eta^2_{par} = 0.24$). Analyzing the associations between the TAS-20 factor scores and recognition threshold in the BPD group, we found a significant correlation between the DIF and recognition threshold ($r = 0.46$; $p < 0.05$; DDF: $r = 0.10$; EOT: $r = 0.23$). No such correlation was found for the control group (all $r < 0.10$; all $p > 0.10$) or the whole sample (all $r < 0.25$; all $p > 0.10$). Follow-up analyses on specific emotional expressions revealed significant correlations between the TAS-DIF and detection threshold for fearful ($r = 0.55$; $p < 0.016$) as well as surprised

KARGER

Fax +41 61 306 12 34
E-Mail karger@karger.ch
www.karger.com

0033–3190/11/0806–0383$38.00/0

Accessible online at:
www.karger.com/pps

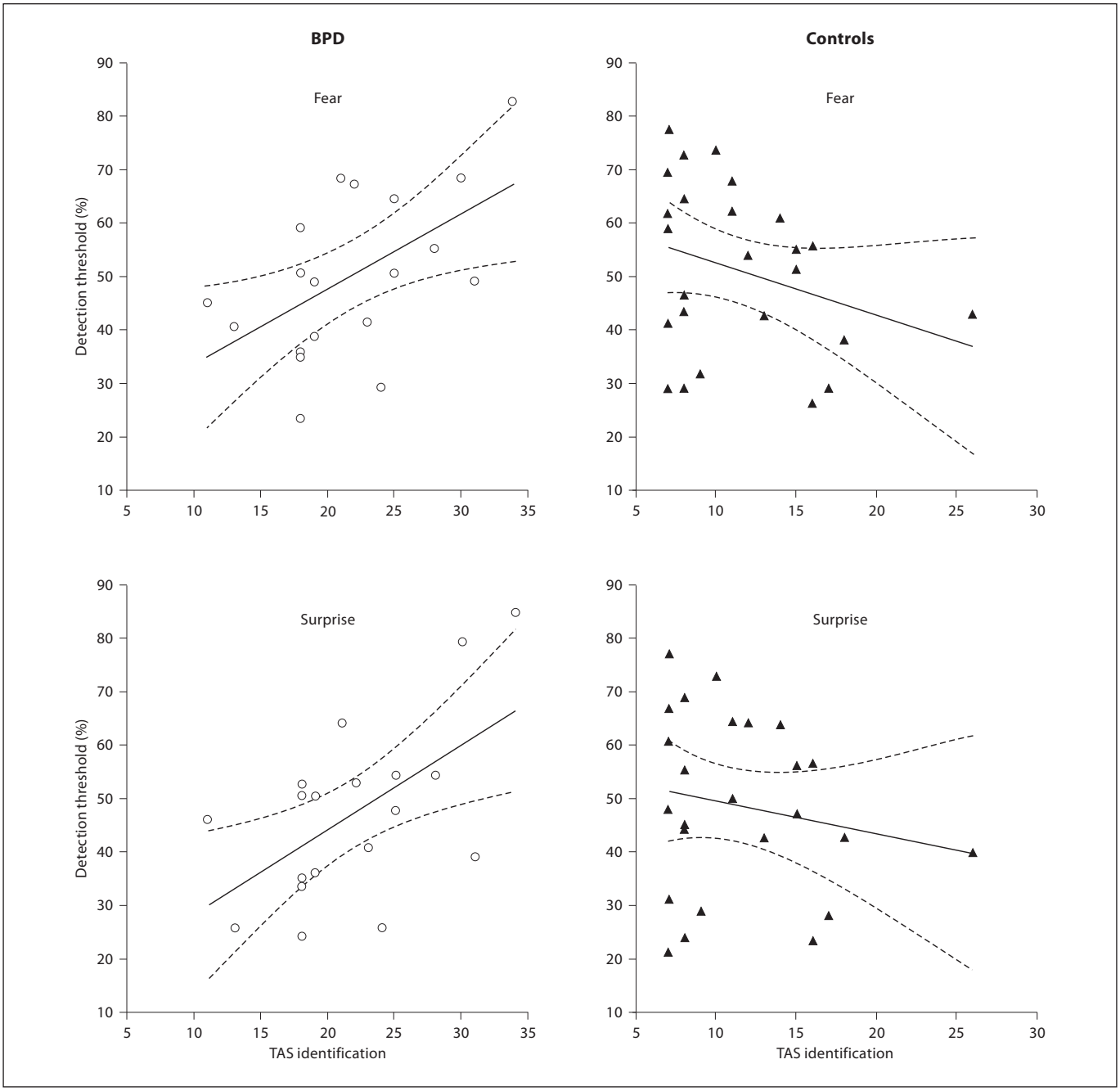

Fig. 1. Scatterplots of the association between facial emotion recognition threshold (for fearful and surprised faces) and the TAS-20 factor 'difficulty identifying feelings' (DIF) for BPD patients and controls. Linear regression curves are given as straight lines; broken lines represent the 95% CI.

faces ($r = 0.57$; $p < 0.011$) in the BPD group; these differed significantly from the correlations found in the control group (fearful: $r = -0.30$, Fisher's $z = 2.82$, $p = 0.0048$; surprised: $r = -0.18$, $z = 2.52$, $p = 0.012$) (fig. 1). Correlations in the BPD group between TAS-DIF and overall recognition threshold, as well as for fearful and surprised faces, remained marginally significant (overall: $r = 0.44$; $p < 0.08$; fear: $r = 0.45$; $p < 0.07$; surprise: $r = 0.49$; $p < 0.05$) even after controlling for depressive and borderline symptoms.

To our knowledge, this is the first study on the association between alexithymic traits and facial emotion recognition in patients with BPD. The present results show that self-reported difficulties in identifying and distinguishing one's own emotions

and feelings predict facial emotion recognition in BPD. This association between this specific facet of alexithymia and facial emotion recognition was pronounced for fearful and surprised facial expressions, and independent of illness severity. Since fear and surprise are the two facial expressions that adults find most difficult to distinguish [24], the two expressions might have been the most difficult categories in the present experiment and thus the most sensitive.

Despite some limitations of the present initial study (small sample size, exclusion of male participants, lack of a clinical control group), the results highlight the modulatory role of alexithymic traits on social cognitive functions, such as emotion recognition. Although the results suggest a deficit in emotional sensitivity in BPD patients with alexithymic traits, they could also reflect a deficit in recognition accuracy in terms of a speed-accuracy tradeoff.

It is well known that patients with BPD often have difficulties with introspection and in describing their emotional states; they also often report high levels of diffuse strain. BPD patients which have difficulties in identifying their own emotions seem to be more likely to show deficits in facial emotion recognition, which in turn might lead to misinterpretations of social signals and thereby contribute to dysfunctional emotional arousal and stress in social situations. In line with previous studies [25, 26], our results further underline the value of assessing alexithymic traits in the context of the treatment of BPD, and suggest that alexithymic BPD patients might benefit from a facial emotion recognition training.

References

1 Taylor GJ, Bagby RM: An overview of the alexithymia construct; in Baron R, Parker JDA (eds): Handbook of Emotional Intelligence. San Francisco, Jossey-Bass, 2000, pp 40–67.
2 Grabe HJ, Spitzer C, Freyberger HJ: Alexithymia and personality in relation to dimensions of psychopathology. Am J Psychiatry 2004;161: 1299–1301.
3 Sifneos PE: The prevalence of 'alexithymia' characteristics in psychosomatic patients. Psychother Psychosom 1973;22:255–262.
4 Berenbaum H: Childhood abuse, alexithymia and personality disorder. J Psychosom Res 1996;41:585–595.
5 Zlotnick C, Mattia JI, Zimmerman M: The relationship between posttraumatic stress disorder, childhood trauma and alexithymia in an outpatient sample. J Trauma Stress 2001;14:177–188.
6 Heinrichs M, Wagner D, Schoch W, Soravia LM, Hellhammer DH, Ehlert U: Predicting posttraumatic stress symptoms from pretraumatic risk factors: a 2-year prospective follow-up study in firefighters. Am J Psychiatry 2005;162:2276–2286.
7 Lieb K, Zanarini MC, Schmahl C, Linehan MM, Bohus M: Borderline personality disorder. Lancet 2004;364:453–461.
8 Bland AR, Williams CA, Scharer K, Manning S: Emotion processing in borderline personality disorders. Issues Ment Health Nurs 2004;25: 655–672.
9 Domes G, Czieschnek D, Weidler F, Berger C, Fast K, Herpertz SC: Recognition of facial affect in borderline personality disorder. J Pers Disord 2008;22:135–147.
10 Levine D, Marziali E, Hood J: Emotion processing in borderline personality disorders. J Nerv Ment Dis 1997;185:240–246.
11 Wagner AW, Linehan MM: Facial expression recognition ability among women with borderline personality disorder: implications for emotion regulation? J Pers Disord 1999;13:329–344.
12 Lynch TR, Rosenthal MZ, Kosson DS, Cheavens JS, Lejuez CW, Blair RJ: Heightened sensitivity to facial expressions of emotion in borderline personality disorder. Emotion 2006;6:647–655.
13 Minzenberg MJ, Poole JH, Vinogradov S: Social-emotion recognition in borderline personality disorder. Compr Psychiatry 2006;47:468–474.
14 Domes G, Schulze L, Herpertz SC: Emotion recognition in borderline personality disorder-a review of the literature. J Pers Disord 2009;23: 6–19.
15 Lane RD, Sechrest L, Reidel R, Weldon V, Kaszniak A, Schwartz GE: Impaired verbal and nonverbal emotion recognition in alexithymia. Psychosom Med 1996;58:203–210.
16 Parker JD, Taylor GJ, Bagby RM: Alexithymia and the recognition of facial expressions of emotion. Psychother Psychosom 1993;59:197–202.
17 Pedrosa Gil F, Ridout N, Kessler H, Neuffer M, Schoechlin C, Traue HC, Nickel M: Facial emotion recognition and alexithymia in adults with somatoform disorders. Depress Anxiety 2009;26:E26–E33.
18 Loranger AW, Sartorius N, Andreoli A, Berger P, Buchheim P, Channabasavanna SM, Coid B, Dahl A, Diekstra RF, Ferguson B, et al: The international personality disorder examination: the World Health Organization/alcohol, drug abuse, and mental health administration international pilot study of personality disorders. Arch Gen Psychiatry 1994;51:215–224.
19 Bagby RM, Parker JD, Taylor GJ: The twenty-item Toronto alexithymia scale. I. Item selection and cross-validation of the factor structure. J Psychosom Res 1994;38:23–32.
20 Grabe HJ, Lobel S, Dittrich D, Bagby RM, Taylor GJ, Quilty LC, Spitzer C, Barnow S, Mathier F, Jenewein J, Freyberger HJ, Rufer M: The German version of the Toronto structured interview for alexithymia: factor structure, reliability, and concurrent validity in a psychiatric patient sample. Compr Psychiatry 2009;50:424–430.
21 Hautzinger M, Bailer M, Worall H, Keller F: Beck-Depression-Inventory (BDI). Test Manual (German edition). Bern, Huber, 1994.
22 Bohus M, Limberger MF, Frank U, Chapman AL, Kuhler T, Stieglitz RD: Psychometric properties of the borderline symptom list (BSL). Psychopathology 2007;40:126–132.
23 Eckman P, Friesen WV: Pictures of Facial Affect. Palo Alto, Consulting Psychologist, 1976.
24 Ekman P, Sorenson ER, Friesen WV: Pan-cultural elements in facial displays of emotion. Science 1969;164:86.
25 Ogrodniczuk JS, Piper WE, Joyce AS: Effect of alexithymia on the process and outcome of psychotherapy: a programmatic review. Psychiatry Res 2010 May 12. [Epub ahead of print].
26 Grabe HJ, Frommer J, Ankerhold A, Ulrich C, Groger R, Franke GH, Barnow S, Freyberger HJ, Spitzer C: Alexithymia and outcome in psychotherapy. Psychother Psychosom 2008;77:189–194.

Gregor Domes, PhD
Department of Psychology
Laboratory for Biological and Personality Psychology
University of Freiburg
Stefan-Meier-Strasse 8, DE–79104 Freiburg (Germany)
Tel. +49 761 203 3035, E-Mail domes@psychologie.uni-freiburg.de