Behaviour Research and Therapy 87 (2016) 70–75

Contents lists available at ScienceDirect

Behaviour Research and Therapy

journal homepage: www.elsevier.com/locate/brat

Shorter communication

Cognitive and affective processing of social exclusion in borderline personality disorder and social anxiety disorder

Lea Gutz [a, *], Stefan Roepke [c], Babette Renneberg [b]

[a] Ambulantes Gesundheitszentrum der Charité, Campus Benjamin Franklin, Department of Psychotherapy, Hindenburgdamm 30, 12203, Berlin, Germany
[b] Department of Education and Psychology, Division of Clinical Psychology and Psychotherapy, Freie Universität Berlin, Habelschwerdter Allee 45, 14195, Berlin, Germany
[c] Department of Psychiatry, Charité – Universitätsmedizin Berlin, Campus Benjamin Franklin, Hindenburgdamm 30, 12203, Berlin, Germany

ARTICLE INFO

Article history:
Received 23 March 2016
Received in revised form
26 August 2016
Accepted 29 August 2016
Available online 31 August 2016

Keywords:
Borderline personality disorder
Social anxiety disorder
Social exclusion
Appraisal theory
Causal attributions

ABSTRACT

Causal attributions of social events are crucial for understanding emotional responses. Aim of the study was to identify appraisal processes in response to social exclusion in borderline personality disorder (BPD) and social anxiety disorder (SAD). Twenty-five patients with BPD, 25 patients with SAD and 25 healthy controls played Cyberball, a virtual ball-tossing paradigm that experimentally induces social exclusion. Causal attributions, subjective feelings and action tendencies in response to social exclusion were assessed. Both clinical groups showed more internal attributions and less control attributions than the control group, reported a higher increase in self-focused negative emotions, along with more escape tendencies and less intent to engage in pleasant activities. But only the BPD group reported higher hostile-intent attributions and more aggressive action tendencies compared to healthy controls.

1. Introduction

As declared by Epictetus (1959) already in the first century, “It is not the things themselves that disturb men, but their judgement about these things”.

Cognitive theories of psychopathology suggest that appraisal processes in borderline personality disorder (BPD) and social anxiety disorder (SAD) are negatively biased by distorted core beliefs, which emerge directly from internalized experiences within close relationships (Arntz, Dietzel, & Dreessen, 1999; Clark & Wells, 1995). In both disorders, experiences of social exclusion and insecure attachment are important etiological factors (Bifulco et al., 2006; Gazelle & Ladd, 2003) causing beliefs about the self as bad or flawed, and about the social environment as potentially threatening (Pinto-Gouveia, Castilho, Galhardo, & Cunha, 2006; Renneberg, Schmidt-Rathjens, Hippin, Backenstrass, & Fydrich, 2005). Accordingly, social cues signaling potential rejection are potent triggers for the distorted core beliefs in BPD and SAD. Once these beliefs are activated, they are assumed to shape the appraisal of the situation in a self-confirming manner, leading in turn to maladaptive emotional and behavioral responses (Baer, Peters, Eisenlohr-Moul, Geiger, & Sauer, 2012; Voncken, Dijk, de Jong, & Roelofs, 2010). Taken together, appraisal processes in particular with regard to social rejection may be crucial in the understanding of interpersonal dysfunction in BPD and SAD. Thus, the aim of the current study was to identify appraisal patterns elicited by social exclusion, a powerful type of rejection. Secondly, the study aimed to detect associations between the appraisals, emotional reactions and action tendencies in BPD and SAD that may account for disorder-specific maladaptive social functioning.

According to the multimotive model by Smart Richman and Leary (2009), rejection episodes can elicit three different behavioral motives: affiliation, aggression, and withdrawal. Which of the three motives predominates at a given time can be predicted by people's construals of the rejection event. According to the authors, aggression is linked to perceived unfairness and anger, whereas social withdrawal may be linked to a more internal attribution of the rejection event (e.g., as a reflection of one's own low value) and shame. This is in line with the appraisal theories of emotion, defining emotions as multicomponential response patterns with appraisal as the key component triggering and differentiating emotional episodes through synchronic changes in the other

* Corresponding author. Tel.: +49 30 450 550616; fax: +49 30 450 7550616.
E-mail addresses: lea.gutz@charite.de (L. Gutz), Stefan.Roepke@charite.de (S. Roepke), b.renneberg@fu-berlin.de (B. Renneberg).

http://dx.doi.org/10.1016/j.brat.2016.08.020
0005-7967/

components (Moors, Ellsworth, Scherer, & Frijda, 2013).

The appraisal of agency is considered to be most important in differentiating among the negative emotions (Roseman, 1996). Appraisals of other-agency have been shown to be associated with other-focused negative emotions such as anger, contempt, and disgust as well as aggressive action tendencies (Frijda, Kuipers, & ter Schure, 1989). Causal attributions of intentionality – attributing hostile and unfair intentions to others – are also well-known risk factors for aggressive and antisocial behavior (Dodge, 1980). In contrast, self-agency and self-blame are assumed to be associated with self-focused negative emotions like shame and guilt, and action tendencies like social withdrawal and avoidance (Tracy & Robins, 2006).

Besides agency, controllability is an influential determinant of the emotional reaction and therefore also part of the core set of appraisal variables (Moors et al., 2013). Sadness, helplessness, related emotions, and withdrawal correspond to the experience of negative events appraised as uncontrollable, whereas positive emotions (Frijda et al., 1989) but also anger are proposed to be associated with relatively high coping potential (Ellsworth & Scherer, 2003).

Taken together, perceived agency, intentionality, and controllability are appraisal variables suitable to study the emotion-shaping construal when being socially rejected. Thus, in the current study, these variables were assessed during an episode of social exclusion along with the elicited subjective feelings and action tendencies. To our knowledge, this is the first study to assess multiple components of emotion episodes in an experimental setting inducing social exclusion, and thereby to investigate the structure of the processing of that powerful social stressor. Patients with BPD, patients with SAD, and healthy individuals played Cyberball, a virtual ball-tossing game that was applied to experimentally induce the experience of social exclusion (Williams, Cheung, & Choi, 2000).

Previous studies on attributional styles in BPD and SAD indicate an “aggressivistic evaluation bias” in BPD, characterized by the tendency to evaluate others as being more hostile relative to individuals with other and no mental disorders (Barnow et al., 2009), and a self-blaming and self-defeating attributional style in SAD (Graham & Juvonen, 1998). Based on these findings, it was hypothesized that compared to healthy controls patients with BPD would show more negative other-focused appraisals and emotions as well as aggressive behavioral tendencies in response to social exclusion, whereas patients with SAD were assumed to show more negative self-focused focused appraisals, emotions and withdrawal tendencies.

2. Methods

2.1. Participants

The current data were obtained within the context of a larger study examining neurophysiological responses to social exclusion (Gutz, Renneberg, Roepke, & Niedeggen, 2015). For the BPD group 25 patients were recruited from the Department of Psychiatry (Charité – Universitätsmedizin Berlin). They were in the first two weeks of a twelve-week inpatient dialectical behavioral treatment program (DBT). Prior to admission to the inpatient program, all of the patients with BPD were on a waiting list and none were admitted for acute care. The German inpatient DBT is an adapted version of the original outpatient DBT program and is a commonly used treatment approach for BPD in Germany (Bohus et al., 2004; Linehan, 1993). For the SAD group 25 patients were recruited from two university outpatient departments during the first two weeks of their psychotherapeutic treatment (Freie Universität Berlin, Humboldt-Universität zu Berlin). Outpatients with SAD were informed about the study and asked to participate by e-mail. The healthy control group was recruited via online classified advertisement website and an online newsletter of the Cluster Languages of Emotion. The German versions of SCID I and SCID II (Wittchen, Zaudig, & Fydrich, 1997) were employed to assess DSM-IV Axis I and II diagnoses. All interviewers were clinical psychologists, trained in the application of the SCID I and II interview and received supervision on the SCIDs. In the BPD group, interrater reliability of the SCID diagnoses by the same interviewers employed in the current study has previously shown to be good, $\kappa = 0.82$ (Ritter et al., 2014). With regard to the SAD group, videotaped SCID interviews of the current study were rated by two independent, diagnosis-blind, and trained interviewers. The percentage of agreement was excellent (100%). Exclusion criteria for the patients included any psychotic disorder, current substance abuse/dependency, mental retardation, epilepsy/organic brain disease, intake of psychotropic medication within the last two weeks (fluoxetine 6 weeks), and age younger than 18 or older than 40 years. Participants of the healthy control group (HC) were matched on age range and level of education to that of the patient groups. Table 1 displays demographic characteristics of the three groups, as well as comorbidity rates of BPD and SAD participants. According to the SCID I and II, no participant in the HC group met current or lifetime criteria for any mental disorder. Groups did not differ with regard to age and years of education (all $p > 0.20$, all $d < 0.48$). All participants signed informed consent forms. The study was approved by the ethics committee of the Freie Universität Berlin.

2.2. Cyberball paradigm

Cyberball is a virtual ball-tossing computer game that makes participants believe they are playing with other persons through the internet (Williams & Jarvis, 2006). In fact, the other participants are computer generated, and the participants' probability of getting the ball is experimentally manipulated. In the present study, reactions to the exclusion condition of the EEG-compatible version of Cyberball were analyzed (Gutz, Küpper, Renneberg, & Niedeggen, 2011). EEG-results of the current sample are published elsewhere (Gutz et al., 2015). During the exclusion condition, the probability to get the ball was reduced to 16% for the participant, who had to watch the ostensible co-players passing the ball to each other most of the time (84%). The game consisted of 200 ball throws and lasted about 7 min. Previous studies have shown that partial exclusion is sufficient to induce a significant ostracism effect (Gutz et al., 2011; Weschke & Niedeggen, 2013). As in the original version of Cyberball, the cover story informs the participant that Cyberball aims to test visual imagination capabilities. After playing Cyberball and completing all questionnaires, the participants were debriefed about the aim of the study.

2.3. Measures

2.3.1. Manipulation check

In order to test whether the manipulation of the probability of getting the ball, and therefore being socially excluded, affected the perception of participation, each participant was asked to guess the percentage of the throws received: ‘Assuming that the ball should be thrown to each person equally (33%), what percentage of the throws was directed to you?’ (open answer).

2.3.2. Appraisals

After playing Cyberball, participants were asked to rate on three 5-point scales (1 = not at all to 5 = very much so) the extent to which the cause of their exclusion was perceived to be due to

oneself, the co-players or chance and other external situational factors (agency). Those three agency attributions were assessed by one item each. Perceived '(hostile) intentionality' was assessed by two items on 5-point scales (1 = not at all to 5 = very much so), e.g. "The other players played unfairly". Internal consistency of 'intentionality' proved to be good in all groups of the current study ($\alpha = 0.83–0.92$). Controllability was assessed with the three-item 'control' scale of the German version of the Need Threat Questionnaire (Grzyb, 2005), which was originally developed by Williams et al. (2000) to measure effects of social exclusion evoked by Cyberball (e.g., "I had control over the course of the interaction"). Again, the items had to be rated on 5-point scales ranging from "not at all" to "very much so". Internal consistency of 'control' proved to be satisfactory in all groups ($\alpha = 0.88–0.77$).

2.3.3. Action tendencies

For the assessment of action tendencies triggered by Cyberball, a list of behavioral intentions was presented to the participants, which was developed in German by Staebler (2008) in order to measure reactions to the exclusion condition of Cyberball in patients with BPD and healthy controls. The instruction was to rate the extent to which the listed action tendencies were present at the moment after the exclusion on a 7-point scale (1 = not at all to 7 = very much so). Five subscales, labeled pleasant activities (e.g., "to have fun with others"), verbalizing exclusion (e.g., "to give the co-players a telling-off for being unfair"), self-harm (e.g., "to feel pain" or "drink alcohol"), aggression (e.g., "to hurt the co-players") and escape (e.g., "to run away"), measure the intensity of the tendencies to engage in each behavior ("At the moment I feel the need to …"). Internal consistency of the scales proved to be satisfactory in all groups of the current study (pleasant activities $\alpha = 0.70–0.77$; verbalizing exclusion $\alpha = 0.87–0.89$; self-harm $\alpha = 0.80–0.84$; aggression $\alpha = 0.75–0.88$; escape $\alpha = 0.72–89$).

2.3.4. Subjective feelings

To assess the current subjective emotional state, the original German version of the Emotion Scale, a 14-item self-report inventory, was applied (Renneberg et al., 2012; Staebler, Gebhard, Barnett, & Renneberg, 2009). The Emotion Scale was applied before and after the exclusion condition of Cyberball (time: pre vs. post). Three scales measure positive emotions (POS; amusement, affection, contentment, pride), self-focused negative emotions (SFN; loneliness, hurt, despair, sadness, fear, shame, guilt), and other-focused negative emotions (OFN; contempt, anger, resentment). Participants were asked to indicate on a 7-point scale from 1 (not at all) to 7 (very strongly) how much they were experiencing the feeling at that moment. A mean score for each scale was calculated by dividing the total score of each scale by the number of items. Internal consistency proved to be good in all groups (POS $\alpha = 0.84–0.79$; SFN $\alpha = 0.80–0.93$; OFN $\alpha = 0.82–0.95$.)

3. Results

3.1. Manipulation check

In the exclusion condition participants in all groups correctly recognized that they received the ball less often than their co-players, and were quite accurate in estimating the percentage of the throws received (correct answer was 16%; BPD $M = 14.32$, $SD = 6.68$; SAD $M = 13.69$, $SD = 7.55$; HC $M = 17.08$, $SD = 7.10$).

3.2. Group differences in attribution, subjective feelings, and action tendencies

Multivariate analyses of variance revealed differences in attribution, subjective feelings and action tendencies after social exclusion between both clinical groups and HC (see Table 2). Patients with BPD and patients with SAD attributed social exclusion more internally and perceived less control than HC when excluded. They reported less engagement in pleasant activities and intended more strongly to escape than HC. Compared to HC only patients with BPD believed more strongly that the co-players had hostile intentions, attributed the exclusion less to chance, and reported stronger aggressive action tendencies. Furthermore, patients with BPD reported the highest self-harming action tendency compared to the SAD group and the HC group.

Since emotional state was assessed prior and after the exclusion, a repeated measure ANOVA was conducted (2 time × 3 group). Results showed a main effect of time: social exclusion led to significantly increased self-focused negative emotions (SFN $F(1, 73) = 32.93$, $p < 0.001$, *partial* $\eta^2 = 0.31$) and other-focused negative emotions (OFN, $F(1, 73) = 9.34$, $p < 0.003$, *partial* $\eta^2 = 0.12$), and decreased positive emotions (POS $F(1, 73) = 12.18$, $p < 0.001$, *partial* $\eta^2 = 0.15$). There was also a main effect of group. As expected, both patient groups reported higher negative emotions (SFN $F(1, 73) = 11.48$, $p < 0.001$, *partial* $\eta^2 = 0.24$; OFN $F(1, 73) = 9.54$, $p < 0.001$, *partial* $\eta^2 = 0.21$) and lower positive emotions than healthy controls (POS $F(1, 73) = 10.48$, $p < 0.001$, *partial* $\eta^2 = 0.23$); group comparisons: BPD vs. HC all $p < 0.001$; SAD vs. HC all $p < 0.026$; BPD vs. SAD n.s. An interaction effect of group and time

Table 1
Demographic Characteristics, Axis I and II Comorbidity of Participants Included.

	BPD ($n = 25$)	SAD ($n = 25$)	HC ($n = 25$)
Female, *n* (%)	23 (92)	21 (84)	22 (88)
Age in years, *M* (*SD*)	25 (6.56)	28 (4.82)	26 (4.44)
Education in years, *M* (*SD*)	11.57 (1.50)	12.36 (0.86)	12.00 (1.26)
Comorbid mild MDE current, *n* (%)	3 (12)	3 (12)	0
MDE lifetime, *n* (%)	12 (48)	4 (16)	0
Dysthymia, *n* (%)	2 (8)	1 (4)	0
Social anxiety disorder, n (%)	2 (8)	25 (100)	0
PTSD, *n* (%)	6 (24)	1 (4)	0
Any eating disorder, *n* (%)	6 (24)	2 (8)	0
Any anxiety disorder except SAD, *n* (%)	0 (0)	5 (20)	0
Obsessive-compulsive disorder *n* (%)	1 (4)	0	0
Any somatoform disorder *n* (%)	1 (4)	3 (12)	0
Borderline personality disorder, *n* (%)	25 (100)	0	0
Obsessive-compulsive personality disorder, *n* (%)	0 (0)	1 (4)	0
Avoidant personality disorder, *n* (%)	2 (8)	3 (12)	0

Note. BPD = borderline personality disorder. SAD = social anxiety disorder. HC = healthy controls, MDE = major depression episode, PTBS = post traumatic stress disorder.

($F(2, 72) = 4.68$; $p < 0.012$, *partial* $\eta^2 = 0.12$) revealed that the increase in self-focused-negative emotions was higher in the patient groups than in the HC group (BPD vs. HC $p < 0.025$; SAD vs. HC $p < 0.036$). Table 2 shows the mean increase in negative emotions (difference score: post − pre), and the mean decrease in positive emotions (difference score: pre − post) triggered by exclusion for each group.

3.3. Correlations

Associations between causal attributions, emotions and action tendencies are displayed in Table 3. Attributing being socially excluded from Cyberball to oneself was positively correlated with increased self-focused negative emotions, and the action tendencies to escape and to engage in self-harming activities in all groups. Furthermore, in all groups attributing hostile intentions to the co-players was positively related to an increase in other-focused negative emotions, and action tendencies to verbalize being excluded, and to engage in aggression against others. The appraisal of other-agency in case of social exclusion (co-players) was associated with an increased tendency to complain about being excluded (verbalize exclusion) in the BPD group and the HC group. Other-agency was also associated with increased other-focused negative emotions in the BPD group, and with aggression in the SAD group. In particular in individuals with SAD, attributing being excluded to chance or other external situational factors was negatively correlated with the increase in self-focused negative emotions, and aggressive action tendencies, and positively correlated with the tendency to engage in pleasant activities.

4. Discussion

In order to increase the understanding of interpersonal dysfunction in BPD and SAD, the current study aimed to identify appraisal patterns in response to social exclusion.

Results indicate that both patient groups have a stronger tendency to blame themselves for being excluded and perceive less control during exclusion than healthy controls. Furthermore, only patients with BPD attributed more hostile intentions to their co-players, and were less convinced that they were socially excluded due to chance or other external situational factors than healthy controls.

4.1. Internally directed processing

Negative self-beliefs in individuals with BPD and individuals with SAD are well documented (Pinto-Gouveia et al., 2006; Renneberg et al., 2005). Consistently, in the current study, both clinical groups attributed more responsibility to themselves for being socially excluded than healthy individuals, and thus seem to interpret rejection as a reflection of their own low relational value. Furthermore, self-focused negative emotions, and escape tendencies were most pronounced in the clinical groups. Associations between self-blaming and increased self-focused negative emotions, escape and self-harming action tendencies after social exclusion, might indicate an underlying internally directed processing pattern. Internally directed processing of rejection may contribute to the persisting interpersonal problems and self-harming behaviors of patients with BPD and patients with SAD. Previous studies have shown that self-blame and withdrawal responses to victimization are significant risk factors for continued victimization (Schacter, White, Chang, & Juvonen, 2014; Schwartz, Dodge, & Coie, 1993).

4.2. Externally directed processing

Current results contribute to the finding that aggression and the experience of social rejection are linked in BPD (Berenson, Downey, Rafaeli, Coifman, & Paquin, 2011). Hostile intentionality ratings and aggressive action tendencies after social exclusion were increased in patients with BPD compared to HC. Furthermore, results indicate that attributing hostile intentions to others is associated with increased other-focused negative emotions and the tendencies of aggression and verbally complaining after social exclusion. Thus, increased attribution of hostile intentions to others might explain the association between aggressive behavior and rejection in BPD. According to Dodge et al. (2003), early and chronic rejection as experienced by most patients with BPD exacerbates the development of aggressive behavior through fortifying a hostile attribution style: Chronically rejected individuals may become convinced that others are malevolent. Then rejection is no longer only a loss of something valuable (the connection to others), but an omnipresent threat that must be fought against. But attributing hostile intentions to other people's behavior does not only increase the risk for maladaptive social responses. According to a study conducted by Ferraz et al. (2013) high levels of hostility also lead to an increased risk of suicidal behavior in BPD. The authors argue that the development of a hostile worldview is accompanied by feelings of social alienation and low belonging, which are predictive of suicidal attempt.

4.3. Adaptive processing

Both patient groups perceived less control during exclusion than healthy controls, and patients with BPD also showed a reduced tendency to attribute social exclusion to chance or other external-situational factors. In contrast to self- and hostile other-blaming, controllability and attributing social exclusion to chance or other external situational factors seem to be associated with a more adaptive processing of social exclusion. In the BPD group, external-situational attributions attenuated the negative effect of social exclusion on positive emotions. In the SAD group, high external-situational attributions were associated with lower aggression tendencies after exclusion, and a smaller increase in self-focused negative emotions. Moreover, external-situational attributions were related to an increase in the tendency to engage in pleasant activities after being excluded in SAD − an adaptive response, which was significantly reduced in patients with SAD and patients with BPD compared to healthy controls. Perceived control during experienced rejection seemed to have a disorder-specific effect: the more patients with SAD felt in control during the game, the less they reported escape tendencies, whereas high controllability in BPD was associated with reduced aggressive action tendencies after exclusion.

Limitations of the current study include the small sample size that did not allow an examination of the complex reciprocal causation between processes of appraisal, subjective feelings and action tendencies. Group comparisons may not differ significantly between BPD and SAD due to the small sample size or due to the focus on social exclusion condition only. With regard to the initial stage of social information processing, differences between BPD and SAD were found in the processing of social inclusion, but not exclusion (Gutz et al., 2015). Another possible reason for the absence of significant differences between the clinical groups might be shared underlying dimensions such as rejection sensitivity (RS). However, there seems to be no direct link between RS and specific responses to rejection (aggression vs. social withdrawal), and causal attribution is assumed to be one of the key social-cognitive variables mediating between RS and the

Table 2
Means (M), standard deviations (SD), and group comparisons for attribution, subjective feelings, and action tendencies subscales for patients with BPD, patients with SAD and HC after exclusion.

Measure	Group						ANOVA		
	BPD ($n = 25$)		HC ($n = 25$)		SAD ($n = 25$)				
	M	*S.D.*	*M*	*S.D.*	*M*	*S.D.*	*F*	*p*	Partial η^2
Attribution of social exclusion									
Chance	2.20[a]	1.26	3.42[b]	1.32	2.74	1.42	5.13	0.008	0.13
Internal	2.72[a]	1.40	1.42[b]	0.83	2.39[a]	1.27	7.82	0.001	0.19
Control	3.84[a]	1.46	5.25[b]	2.65	3.87[a]	1.18	4.40	0.016	0.11
Co-players	3.32	1.38	3.50	1.50	3.26	1.48	0.17	>0.84	0.01
Intentionality	3.32[a]	1.33	2.33 [b]	1.06	2.78	1.34	3.83	0.026	0.10
Action tendencies									
Pleasant activities	2.86[a]	1.29	4.07[b]	1.16	2.96[a]	1.30	7.77	0.001	0.18
Verbalizing exclusion	2.70	1.69	2.16	1.50	3.02	1.97	1.58	>0.21	0.04
Self harm	2.10[a]	1.31	1.20[b]	0.45	1.19[b]	0.37	9.90	0.001	0.22
Aggression	1.93[a]	1.09	1.23[b]	0.49	1.45	0.95	4.17	0.019	0.10
Escape	2.17[a]	1.38	1.15[b]	0.26	2.09[a]	1.03	8.11	0.001	0.18
Subjective feelings (difference scores)							time × group		
							F	*p*	
Increase OFN	0.25	0.98	0.11	0.44	0.56	1.06	1.77	>0.17	0.05
Increase SFN	1.14[a]	1.49	0.20[b]	0.37	1.09[a]	1.46	4.68	0.012	0.12
Decrease POS	0.09	0.77	0.43	0.52	0.22	0.51	1.98	>0.14	0.05

Note. BPD = borderline personality disorder, SAD = social anxiety disorder, HC = healthy controls, OFN = other-focused negative emotions, SFN = self-focused negative emotions, POS = positive emotions, [a, b] means are significantly different from each other, Bonferroni correction was applied to correct for inflation in type I error rate caused by multiple comparisons.

Table 3
Correlation analysis, two tailed.

	Chance			Internal			Control			Co-players			Intentionality		
	BPD	SAD	HC	BPD	SAD	HC	BPD	SAD	HC	BPD	SAD	HC	BPD	SAD	HC
OFN	−0.224	−0.390	−0.359	−0.106	**0.418**[c]	0.096	−0.016	**−0.372**	−0.039	**0.555**[b]	0.352	0.149	**0.454**[c]	**0.629**[a]	**0.568**[b]
SFN	−0.034	**−0.406**[c]	0.196	**0.459**[c]	**0.536**[b]	**0.450**[c]	−0.218	**−0.497**[c]	−0.069	0.282	0.296	0.069	0.023	0.337	0.149
POS	**−0.422**[c]	−0.250	**−615**[a]	0.169	−0.075	0.159	−0.238	−0.213	−0.268	−0.316	−0.098	0.105	−0.272	−0.101	0.167
Pleasant act.	0.306	**0.462**[c]	**0.434**[c]	−0.249	0.090	−0.044	0.318	0.182	0.301	−0.126	−0.145	−0.324	−0.157	−0.226	−0.115
Verbal. excl.	−0.055	−0.227	−0.046	0.085	0.132	0.279	−0.270	−0.172	−0.181	**0.570**[b]	0.269	**0.430**[c]	**0.484**[c]	**0.509**[b]	**0.744**[a]
Self-harm	−0.203	−0.275	0.024	**0.505**[c]	**0.430**[c]	**0.431**[c]	−0.107	−0.311	−0.193	−0.115	0.309	−0.055	0.076	**0.486**[c]	−0.158
Aggression	0.095	**−0.462**[c]	0.074	−0.109	0.288	0.191	**−0.456**[c]	−0.338	0.003	0.361	**0.418**[c]	0.107	**0.410**[c]	**0.454**[c]	**0.414**[c]
Escape	−0.334	−0.378	−0.177	**0.419**[c]	**0.559**[b]	**0.475**[c]	−0.197	**−0.457**[c]	−0.159	0.035	0.340	0.141	0.251	0.296	0.162

Note. BPD = borderline personality disorder, SAD = social anxiety disorder, HC = healthy controls, OFN = other-focused negative emotions, SFN = self-focused negative emotions, POS = positive emotions, bold = significant correlation, [a] $p < 0.001$, [b] $p < 0.010$, [c] $p < 0.050$.

emotional-behavioral response to perceived rejection (Downey, Feldman, & Ayduk, 2000; Göncü & Sümer, 2011). Furthermore, three individuals of the BPD group (12%) were also diagnosed with avoidant personality disorder and/or SAD. Although current comorbidity rates were even below the population rates (Grant et al., 2008), this circumstance might have contributed to the lack of differences between clinical groups.

Since action tendencies were measured only after the Cyberball game, causal conclusions have to be drawn carefully. Current results may reflect dispositional action tendencies rather than changes in action tendencies due to social exclusion.

Because of the gender distribution in the BPD group, the sample consisted of predominantly female participants (88%), which is why gender differences could not be investigated. In another Cyberball study females were significantly more likely than males to attribute social exclusion to their own poor character (Williams & Sommer, 1997), whereas Boyes and French (2009) did not find effects of gender on perceived control appraisals of the Cyberball game. Furthermore, the assessment of the components of the emotional response was restricted to self-reports. Future studies should also assess physiological measures of arousal, or facial expressions, and actual behavior in response to social exclusion.

In conclusion, both clinical groups showed increased internally directed processing (self-blame, self-focused negative emotions, escape tendencies) and decreased adaptive processing of social exclusion (perceived control, pleasant activities) compared to healthy controls. Only the BPD group showed a stronger hostile-intent attribution tendency as well as more pronounced aggression after social exclusion than healthy controls.

References

Arntz, A., Dietzel, R., & Dreessen, L. (1999). Assumptions in borderline personality disorder: Specificity, stability and relationship with etiological factors. *Behaviour Research and Therapy, 37*(6), 545–557. http://dx.doi.org/10.1016/S0005-7967(98)00152-1.

Baer, R. A., Peters, J. R., Eisenlohr-Moul, T. A., Geiger, P. J., & Sauer, S. E. (2012). Emotion-related cognitive processes in borderline personality disorder: A review of the empirical literature. *Clinical Psychology Review, 32*(5), 359–369. http://dx.doi.org/10.1016/j.cpr.2012.03.002.

Barnow, S., Stopsack, M., Grabe, H. J., Meinke, C., Spitzer, C., Kronmuller, K., et al. (2009). Interpersonal evaluation bias in borderline personality disorder. *Behaviour Research and Therapy, 47*(5), 359–365. http://dx.doi.org/10.1016/j.brat.2009.02.003.

Berenson, K. R., Downey, G., Rafaeli, E., Coifman, K. G., & Paquin, N. L. (2011). The rejection-rage contingency in borderline personality disorder. *Journal of Abnormal Psychology, 120*(3), 681–690. http://dx.doi.org/10.1037/a0023335.

Bifulco, A., Kwon, J., Jacobs, C., Moran, P. M., Bunn, A., & Beer, N. (2006). Adult attachment style as mediator between childhood neglect/abuse and adult depression and anxiety. *Social Psychiatry and Psychiatric Epidemiology, 41*(10), 796–805. http://dx.doi.org/10.1007/s00127-006-0101-z.

Bohus, M., Haaf, B., Simms, T., Limberger, M. F., Schmahl, C., Unckel, C., et al. (2004). Effectiveness of inpatient dialectical behavioral therapy for borderline

personality disorder: A controlled trial. *Behaviour Research and Therapy, 42*(5), 487–499. http://dx.doi.org/10.1016/S0005-7967(03)00174-8.
Boyes, M. E., & French, D. J. (2009). Having a Cyberball: Using a ball-throwing game as an experimental social stressor to examine the relationship between neuroticism and coping. *Personality and Individual Differences, 47*(5), 396–401. http://dx.doi.org/10.1016/j.paid.2009.04.005.
Clark, D. M., & Wells, A. (1995). A cognitive model of social phobia. In R. G. Heimberg, M. R. Liebowitz, D. A. Hope, & F. R. Schneier (Eds.), *Social Phobia: Diagnosis, assessment, and treatment* (pp. 69–93). New York, NY, US: Guilford Press.
Dodge, K. A. (1980). Social cognition and Children's aggressive behavior. *Child Development, 51*(1), 162–170. http://dx.doi.org/10.2307/1129603.
Dodge, K. A., Lansford, J. E., Burks, V. S., Bates, J. E., Pettit, G. S., Fontaine, R., et al. (2003). Peer rejection and social information-processing factors in the development of aggressive behavior problems in children. *Child Development, 74*(2), 374–393. http://dx.doi.org/10.1111/1467-8624.7402004.
Downey, G., Feldman, S., & Ayduk, O. (2000). Rejection sensitivity and male violence in romantic relationships. *Personal Relationships, 7*(1), 45–61. http://dx.doi.org/10.1111/j.1475-6811.2000.tb00003.x.
Ellsworth, P. C., & Scherer, K. R. (2003). Appraisal processes in emotion. In R. J. Davidson, K. R. Scherer, & H. H. Goldsmith (Eds.), *Handbook of affective sciences* (pp. 572–595). Oxford, UK: Oxford University Press.
Epictetus. (1959). *The discourses as reported by arrian, the manual, and fragments* (W. A. Oldfather, Trans. Vol. II). Cambridge, Mass. & London, UK: Harvard University Press & William Heinemann Ltd.
Ferraz, L., Portella, M. J., Vállez, M., Gutiérrez, F., Martín-Blanco, A., Martín-Santos, R., et al. (2013). Hostility and childhood sexual abuse as predictors of suicidal behaviour in Borderline Personality Disorder. *Psychiatry Research, 210*(3), 980–985. http://dx.doi.org/10.1016/j.psychres.2013.07.004.
Frijda, N. H., Kuipers, P., & ter Schure, E. (1989). Relations among emotion, appraisal, and emotional action readiness. *Journal of Personality and Social Psychology, 57*(2), 212–228. http://dx.doi.org/10.1037/0022-3514.57.2.212.
Gazelle, H., & Ladd, G. W. (2003). Anxious solitude and peer exclusion: A diathesis-stress model of internalizing trajectories in childhood. *Child Development, 74*(1), 257–278. http://dx.doi.org/10.1111/1467-8624.00534.
Göncü, A., & Sümer, N. (2011). Rejection sensitivity, self-esteem instability, and relationship outcomes. *European Psychologist, 16*(4), 303–313. http://dx.doi.org/10.1027/1016-9040/a000066.
Graham, S., & Juvonen, J. (1998). Self-blame and peer victimization in middle school: An attributional analysis. *Developmental Psychology, 34*(3), 587–599. http://dx.doi.org/10.1037/0012-1649.34.3.587.
Grant, B. F., Chou, S. P., Goldstein, R. B., Huang, B., Stinson, F. S., Saha, T. D., et al. (2008). Prevalence, correlates, disability, and comorbidity of DSM-IV borderline personality disorder: Results from the wave 2 national epidemiologic survey on alcohol and related conditions. [Review]. *Journal of Clinical Psychiatry, 69*(4), 533–545.
Grzyb, K. R. (2005). *Sozialer Ausschluss und automatisches Zielstreben. Social exclusion and automatic goal pursuit*. Konstanz, Germany: University of Konstanz.
Gutz, L., Küpper, C., Renneberg, B., & Niedeggen, M. (2011). Processing social participation: An event-related brain potential study. *NeuroReport, 22*(9), 453–458. http://dx.doi.org/10.1097/WNR.0b013e3283476b67.
Gutz, L., Renneberg, B., Roepke, S., & Niedeggen, M. (2015). Neural processing of social participation in borderline personality disorder and social anxiety disorder. *Journal of Abnormal Psychology, 124*(2), 421–431. http://dx.doi.org/10.1037/a0038614.
Linehan, M. (1993). *Cognitive-behavioral treatment for borderline personality disorder*. New York: Guilford Press.
Moors, A., Ellsworth, P. C., Scherer, K. R., & Frijda, N. H. (2013). Appraisal theories of Emotion: State of the art and future development. *Emotion Review, 5*(2), 119–124. http://dx.doi.org/10.1177/1754073912468165.
Pinto-Gouveia, J., Castilho, P., Galhardo, A., & Cunha, M. (2006). Early maladaptive schemas and social phobia. *Cognitive Therapy and Research, 30*(5), 571–584. http://dx.doi.org/10.1007/s10608-006-9027-8.
Renneberg, B., Herm, K., Hahn, A., Staebler, K., Lammers, C. H., & Roepke, S. (2012). Perception of social participation in borderline personality disorder. *Clinical Psychology & Psychotherapy, 19*(6), 473–480. http://dx.doi.org/10.1002/cpp.772.
Renneberg, B., Schmidt-Rathjens, C., Hippin, R., Backenstrass, M., & Fydrich, T. (2005). Cognitive characteristics of patients with borderline personality disorder: Development and validation of a self-report inventory. *Journal of Behavior therapy and Experimental Psychiatry, 36*(3), 173–182. http://dx.doi.org/10.1016/j.jbtep.2005.05.001.
Ritter, K., Vater, A., Rüsch, N., Schröder-Abé, M., Schütz, A., Fydrich, T., et al. (2014). Shame in patients with narcissistic personality disorder. *Psychiatry Res, 215*(2), 429–437. http://dx.doi.org/10.1016/j.psychres.2013.11.019.
Roseman, I. J. (1996). Appraisal determinants of Emotions: Constructing a more accurate and comprehensive theory. *Cognition and Emotion, 10*(3), 241–278. http://dx.doi.org/10.1080/026999396380240.
Schacter, H. L., White, S. J., Chang, V. Y., & Juvonen, J. (2014). "Why Me?": characterological self-blame and continued victimization in the first year of middle school. *Journal of Clinical Child & Adolescent Psychology, 44*(3), 446–455. http://dx.doi.org/10.1080/15374416.2013.865194.
Schwartz, D., Dodge, K. A., & Coie, J. D. (1993). The emergence of chronic peer victimization in boys' play groups. *Child Development, 64*(6), 1755–1772. http://dx.doi.org/10.1111/j.1467-8624.1993.tb04211.x.
Smart Richman, L., & Leary, M. R. (2009). Reactions to discrimination, stigmatization, ostracism, and other forms of interpersonal rejection: A multimotive model. *Psychological Review, 116*(2), 365–383. http://dx.doi.org/10.1037/a0015250.
Staebler, K. (2008). Reactions to social exclusion in borderline personality disorder: Emotional, facial, physiological and behavioral data. In K. Staebler (Ed.), *Emotional responses in borderline personality disorder* (pp. 48–90). Berlin: Freie Universität Berlin.
Staebler, K., Gebhard, R., Barnett, W., & Renneberg, B. (2009). Emotional responses in borderline personality disorder and depression: Assessment during an acute crisis and 8 months later. *Journal of Behavior Therapy and Experimental Psychiatry, 40*(1), 85–97. http://dx.doi.org/10.1016/j.jbtep.2008.04.003.
Tracy, J. L., & Robins, R. W. (2006). Appraisal antecedents of shame and Guilt: Support for a theoretical model. *Personality and Social Psychology Bulletin, 32*(10), 1339–1351. http://dx.doi.org/10.1177/0146167206290212.
Voncken, M. J., Dijk, C., de Jong, P. J., & Roelofs, J. (2010). Not self-focused attention but negative beliefs affect poor social performance in social anxiety: An investigation of pathways in the social anxiety-social rejection relationship. [Comparative study]. *Behaviour Research and Therapy, 48*(10), 984–991. http://dx.doi.org/10.1016/j.brat.2010.06.004.
Weschke, S., & Niedeggen, M. (2013). The effect of the physical presence of Co-Players on perceived ostracism and event-related brain potentials in the Cyberball paradigm. *PLoS One, 8*(8), 1–7. http://dx.doi.org/10.1371/journal.pone.0071928.
Williams, K. D., Cheung, C. K. T., & Choi, W. (2000). Cyberostracism: Effects of being ignored over the internet. *Journal of Personality and Social Psychology, 79*(5), 748–762. http://dx.doi.org/10.1037/0022-3514.79.5.748.
Williams, K. D., & Jarvis, B. (2006). Cyberball: A program for use in research on interpersonal ostracism and acceptance. *Behavior Research Methods, 38*(1), 174–180. http://dx.doi.org/10.3758/Bf03192765.
Williams, K. D., & Sommer, K. L. (1997). Social ostracism by Coworkers: Does rejection lead to loafing or compensation? *Personality and Social Psychology Bulletin, 23*(7), 693–706. http://dx.doi.org/10.1177/0146167297237003.
Wittchen, H. U., Zaudig, M., & Fydrich, T. (1997). *Strukturiertes Klinisches Interview für DSM-IV. Achse I und II. Handanweisung*. Göttingen: Hogrefe.