

Supplementary Information

Processing of increased frequency of social interaction in social anxiety disorder and borderline personality disorder

Authors: Anna Weinbrecht^a, Michael Niedeggen^b, Stefan Roepke^c, Babette Renneberg^a

Affiliations: ^aClinical Psychology and Psychotherapy, Freie Universität Berlin, Berlin, Germany

^bExperimental Psychology and Neuropsychology, Freie Universität Berlin, Berlin, Germany

^cDepartment of Psychiatry and Psychotherapy, Charité – Universitätsmedizin Berlin, corporate member of Freie Universität Berlin, Humboldt-Universität zu Berlin, and Berlin Institute of Health, Campus Benjamin Franklin

Supplementary Information A: Detailed results of the ANOVA on the P2 amplitude

Significant main effect of “condition” $F(1) = 13.01, p < 0.001$) and of the Greenhouse-Geisser corrected main effect of “electrode position” ($F(1.42) = 27.99, p < 0.001$). Main effect of “group” was not significant, $F(2) = 2.23, p = 0.11$. The Greenhouse-Geisser corrected two-way interactions between “group” and “electrode position” ($F(2.84) = 0.45, p = 0.71$) as well as between “condition” and “electrode position” ($F(1.56) = 0.22, p = 0.75$) were not significant. The two-way interactions between “group” and “condition” ($F(2) = 2.18, p = 0.12$) was also not significant. As described in the main text, the Greenhouse-Geisser corrected three-way interaction between “group”, “electrode position” and “condition” was significant, $F(3.12) = 3.62, p = 0.01$. Most importantly, the relevant interaction between “group” and “condition” was only significant at Fz ($F(2) = 3.62, p = 0.03$), but not at Cz ($F(2) = 1.79, p = 0.17$) and Pz ($F(2) = 1.95, p = 0.15$).

Main effects at the frontal position: Main effect of “group” ($F(2) = 2.40, p = 0.10$) and “condition” ($F(1) = 0.47, p = 0.50$) were not significant.

Results of Tukey corrected post-hoc analyses of differences between groups per condition at the frontal position: no significant differences between groups in the inclusion (all $p > 0.39$) or in the overinclusion condition (all $p > 0.50$).

Results of Tukey corrected post-hoc analyses of differences between conditions per group at the frontal position: No significant differences for patients with SAD ($t(82) = 0.16, p = 0.87, r = 0.02$). Significant differences for patients with BPD ($t(82) = -3.19, p = 0.002, r = 0.33$) and HCs ($t(82) = -3.11, p = 0.003, r = 0.32$).

Supplementary Information B: Emotion Scale

Table S1: Means and SDs of emotion subscales (positive emotions, self-focused negative and other-focused negative emotions) in social anxiety disorder, borderline personality disorder and healthy controls.

		HC (n = 28)	SAD (n = 28)	BPD (n = 29 ^a)
	Time	M (SD)	M (SD)	M (SD)
Positive emotions	t0	3.68 (1.36)	2.42 (0.98)	2.45 (1.13)
	t1	3.21 (1.46)	2.18 (0.78)	2.26 (1.21)
	t2	3.39 (1.33)	2.38 (1.03)	2.37 (1.52)
Negative self-focused emotions	t0	1.15 (0.31)	1.73 (0.74)	2.40 (1.30)
	t1	1.14 (0.24)	1.44 (0.67)	2.10 (1.46)
	t2	1.08 (0.18)	1.29 (0.44)	1.97 (1.27)
Negative other-focused emotions	t0	1.23 (0.37)	1.44 (0.50)	1.94 (1.14)
	t1	1.33 (0.43)	1.56 (0.52)	2.14 (1.16)
	t2	1.31 (0.47)	1.42 (0.54)	1.86 (0.85)

Note. HC = healthy controls, SAD = social anxiety disorder, BPD = borderline personality disorder. t0 = before the Cyberball game, t1 = after the inclusion condition, t2 = after the overinclusion condition

^a at t2: n = 28

Results of the ANOVA on self-focused and other-focused negative emotions

Self-focused negative emotions:

Significant main effect of “time” ($F(2) = 8.59, p < 0.001$) and “group” ($F(2) = 11.80, p < 0.001$). The two-way interaction between “time” and “group” was not significant, $F(4) = 1.59, p = 0.18$.

Results of Tukey corrected post-hoc analyses of differences in self-focused negative emotions between groups: Patients with BPD experienced significant more self-focused negative emotions than patients with SAD ($t(81) = 2.98, p = 0.01$) and HCs ($t(81) = 4.82, p < 0.001$). Patients with SAD and HCs did not differ from each other, $t(81) = 1.83, p = 0.17$.

Results of Tukey corrected post-hoc analyses of differences in self-focused negative emotions over time: Negative self-focused emotions decreased from t0 to t1 ($t(162) = -2.95, p = 0.01$), but did not change from t1 to t2 ($t(162) = -1.05, p = 0.55$).

Other-focused negative emotions:

Significant main effect of “group” ($F(2) = 8.43, p < 0.001$). The main effect of “time” ($F(2) = 2.48, p = 0.09$) and the two-way interaction between “time” and “group” were not significant ($F(4) = 0.37, p = 0.83$).

Results of Tukey corrected post-hoc analyses of differences in other-focused negative emotions between groups: Patients with BPD experienced significant more other-focused negative emotions than patients with SAD ($t(81) = 2.86, p = 0.02$) and HCs ($t(81) = 3.98, p < 0.001$). Patients with SAD and HCs did not differ from each other, $t(81) = 1.13, p = 0.50$.