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BRIEF REPORT

The Specificity of Emotional Switching in Borderline Personality Disorder in Comparison to Other Clinical Groups

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In an attempt to better understand the nature of emotion dysregulation in the daily lives of persons with a borderline personality disorder (BPD), Houben et al. (2016) recently identified emotional switching, which refers to the tendency to make large changes between positive and negative emotional states over time, as a possible defining characteristic of the emotion dynamics observed in BPD. The goal of this study was to examine the specificity of these previous findings in 2 samples by comparing BPD patients ($N = 43$ in sample 1; $N = 81$ in sample 2) to patients with bulimia nervosa ($N = 20$), posttraumatic stress disorder ($N = 28$), or healthy controls ($N = 28$) in sample 1, and to patients with depressive disorder ($N = 50$) in sample 2, with respect to measures of emotional switching. Analyses of these 2 experience sampling datasets revealed that contrary to expectations, BPD patients did not differ from the clinical groups regarding their mere tendency to switch between positive and negative emotional states on consecutive moments over time and regarding the magnitude of such changes between positive and negative emotional states over time. However, all clinical groups did differ from healthy controls regarding all switch measures in dataset 1. These results indicate that emotional switching, similar to other more traditional indicators of overall changes in emotional intensity in daily life, might reflect a feature of emotional responding characterizing a range of disorders with mood disturbances.

Keywords: borderline personality disorder, emotional switching, emotional instability, specificity, experience sampling

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Emotion dysregulation is generally considered a core problem of borderline personality disorder (BPD; Carpenter, & Trull, 2013; Linehan, 1993). Therefore, over the past few years, studies have increasingly investigated the emotional world of people suffering from BPD in daily life (Santangelo, Bohus, & Ebner-Priemer, 2014) to examine the exact nature of emotional dysfunction in BPD in an ecologically valid way. Such daily life studies typically use experience sampling methods (ESM), in which emotions and symptoms are tracked over time in daily life (e.g., using smartphones; Ebner-Priemer & Trull, 2009), which enable the investi-

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gation of patterns of emotional change that are characteristic of BPD. Understanding the true nature of emotional instability in daily life is crucial to understanding the core of BPD and to inform its treatment. In this paper we examine whether emotional switching, a specific type of emotional instability that may be particularly typical for BPD, is specific to BPD compared with other clinically relevant comparison groups.

Emotion Dynamics in BPD

Experience sampling studies investigating patterns of emotional change in BPD have shown that BPD is mainly characterized by large changes in emotional intensity over time. For example, a recent meta-analysis linking different patterns of emotional change to different indicators of psychopathology including BPD (Houben, Van Den Noortgate, & Kuppens, 2015) concluded that BPD was consistently linked to negative emotions that are more variable over time (meaning they show larger deviations from mean emotional levels over time, measured by the within-person variance of repeated emotions ratings; see also Ebner-Priemer et al., 2015) and positive or negative emotions that show larger changes from one moment to the next (e.g., measured by the mean square successive difference [MSSD]; see also Ebner-Priemer et al., 2007; Trull et al., 2008). Moreover, findings based on other operationalizations of emotional change (i.e., acute change, Trull et al., 2008; aggregated point-to-point-changes, Ebner-Priemer et al., 2007) also support the idea that BPD patients show larger changes in the intensity of their emotions over time in daily life.

However, a study by Houben et al. (2016) recently approached emotional instability more from a qualitative perspective and showed that what distinguishes BPD patients from healthy controls is not just the occurrence of overall larger changes in emotional intensity, as suggested by previous studies, but specifically larger changes in which a person switches from a positive to a negative emotional state or from a negative to a positive emotional state from one moment to the next, labeled emotional switching. They found that although BPD patients did not differ from healthy controls regarding their overall tendency to switch from a positive to a negative emotional state or vice versa (i.e., switch propensity), the size of such changes between positive and negative emotional states (i.e., switch distances) was significantly larger in BPD patients. In contrast, the magnitude of emotional changes separately within the negative or positive emotional range (e.g., if they change from one unpleasant to another unpleasant state) was similar for both groups. Thus, by taking the occurrence of sudden changes in valence of the emotional states into account, they found that not overall changes in intensity, but specifically changes in which one switches between a positive and a negative emotional state, are particularly larger in BPD when compared with healthy people.

A crucial next step is to establish to what extent emotional switching is specific to BPD or rather reflects a transdiagnostic feature of several mental disorders. On the one hand, emotional switching may be specific to BPD, reflecting a type of emotional dysfunction that differentiates BPD from other mental disorders and specifically underlies BPD. The notion of emotional switching resonates with the concept of dichotomous or black-white thinking (see Houben et al., 2016), which has been linked to BPD and involves evaluations of people, self, and feelings in terms of all-good or all-bad, with the possibility of abrupt switches between the two extremes (Beck, Freeman, & Associates 1990). This suggests that emotional switching might reflect a kind of dysfunction specifically linked to BPD.

On the other hand, it could be that emotional switching reflects a feature of emotional responding characterizing people with a range of mental disorders. This idea is in line with findings from previous studies in which no differences between BPD and other clinical disorders were found for several features of emotional responding in daily life. In a meta-analysis linking BPD to more variable emotions and emotions that showed larger changes from one point to the next (Houben et al., 2015), results revealed that several indicators of psychological ill-being, such as major depressive disorder or neuroticism, were linked to the same emotion dynamical patterns. Moreover, a recent study by Santangelo, Reinhard, et al. (2014) has shown that in comparison to persons with a diagnosis of bulimia nervosa or posttraumatic stress disorder, no differences were found for BPD patients concerning various indicators of overall changes in emotional intensity, such as the MSSD, probability of acute change, and aggregated point-by-point changes. On the other hand, a study by Trull et al. (2008) found that BPD patients showed higher variability in average negative affect and fear over time, but also larger changes from one point to the next (as measured by MSSD) in hostility, fear, and sadness, specifically when compared to patients with a depressive disorder. Moreover, BPD patients were also more likely to make acute changes in hostility in comparison to patients with a depressive disorder. Furthermore, when taking comorbidity into account, Scheiderer, Wang, Tomko, Wood, and Trull (2016) indicated that persons with BPD that had a comorbid diagnosis of posttraumatic stress disorder showed larger changes from one point to the next, specifically in the intensity of fear and sadness, than persons with only a diagnosis of BPD. For persons with a depressive disorder the reverse pattern was found. In summary, results are mixed regarding the specificity of several indicators of change in the mere intensity of emotions, and it is not clear to what degree measures of switching between positive and negative emotional states do or do not reflect a feature that is specific to BPD patients.

The Current Study

The current study builds on the previous study by Houben et al. (2016) in which the concept of emotional switching in BPD was introduced and presents a reanalysis of the data reported in Santangelo, Reinhard et al. (2014) and in Scheiderer et al. (2016), in which so far only measures of changes in overall emotional intensity or negative emotional intensity specifically (i.e., quantitative changes) have been examined.

The goal of this study is to investigate whether emotional switching between positive and negative emotions states, a measure that captures more qualitative emotional changes, can differentiate between persons with BPD and with other psychiatric diagnoses in two datasets. Using experience sampling data from persons with BPD, bulimia nervosa, or posttraumatic stress disorder and healthy controls as reported in Santangelo, Reinhard, et al. (2014) and data from persons with BPD and with a depressive disorder (major depressive disorder or dysthymic disorder) as reported in Scheiderer et al. (2016) and Trull et al. (2008), we compared the different groups in terms of their propensity to

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switch (i.e., the probability that someone switches between positive and negative emotions states, irrespective of the size of such changes) and their average switch distance from a positive to a negative emotional state or vice versa (i.e., reflecting how large/extreme such changes are) from one assessment occasion to the next. Because the idea of emotional switching is based on clinical observations of BPD and theoretical concepts linked to BPD, we hypothesized that the occurrence of larger switch distances, as found in a previous study (Houben et al., 2016), is a distinctive feature of BPD when compared with other clinical groups.

Method

Participants

Sample 1. The first sample consisted of 43 persons with BPD, 28 persons with a posttraumatic stress disorder, 20 persons with bulimia nervosa, and 28 healthy controls. Participants were all female with an age between 18 and 48 years ($M = 26.72$, $SD = 7.07$ for BPD subsample; $M = 35.25$, $SD = 7.53$ for posttraumatic stress subsample; $M = 23.70$, $SD = 5.97$ for bulimia nervosa subsample; $M = 28.82$, $SD = 7.47$ for healthy controls). The clinical groups consisted of inpatients and outpatients recruited at German mental health institutions. Healthy controls had no current or past Axis I or Axis II disorder diagnoses and were recruited using advertisements in local newspapers or were randomly selected from the national resident register of the city of Mannheim. For detailed diagnostic information, and for information regarding comorbidity, exclusion criteria, and diagnostic procedure, see Santangelo, Reinhard, et al. (2014).

Sample 2. Our second sample consisted of 81 persons with BPD and 50 persons with a depressive disorder (major depressive disorder or dysthymic disorder). Most participants were female (93% of the BPD subsample; 78% of the depressive disorder subsample). Mean age was 31.94 years ($SD = 11.68$) for the BPD group and 34.76 years ($SD = 11.95$) for the depressive disorder group. Recruitment of all patients took place in four local outpatient psychiatric clinics. For more information about (comorbid) diagnoses, diagnostic procedure, and exclusion criteria, see Scheiderer et al. (2016) and Trull et al. (2008).

Experience Sampling Procedure

Sample 1. After being carefully trained, participants carried a palmtop (Tungsten E) with them that generated a questionnaire every 15 min (± 1 min) during 24 hr; however, it excluded sleeping hours, during which the palmtop was shut down. Each questionnaire was announced with a beeping signal. At each assessment moment, participants were asked to identify the emotion they were experiencing from a list of possible discrete emotional states, including happy, anxious, angry, shame, disgust, sad, guilt, interest, envy/jealousy, emotion but cannot name it, and no emotion. They were next asked to rate the intensity of that emotion using a scale ranging from 1 to 11. These intensity scores were converted into a bipolar valence score for each moment by only multiplying the intensity of a current negative emotion by -1, yielding a negative valence score if they reported a negative emotion and retaining a positive valence score if participants reported a positive emotion, ranging from -11 to 11. Average compliance rates with the ESM protocol was very good (BPD patients completed 94% of ESM questionnaires, patients with posttraumatic stress disorder 93%, and persons with bulimia nervosa and healthy controls 94%). For more detailed information about the data collection procedure, see Santangelo, Reinhard, et al. (2014).

Sample 2. Participants received training and next carried a palmtop (Palm Zire 31) with them for approximately 28 days. During these days, the palmtop generated a questionnaire 6 times a day, equally spread over the day using stratified interval schemes. Each questionnaire was signaled by a beeping sound. Next, among other questions, participants were asked to indicate to what degree they had experienced certain emotions since the last beep on a scale of 1 (*not at all/very slightly*) to 5 (*extremely*) using the emotion items from the Positive and Negative Affect Schedule (PANAS; Watson & Clark, 1999). The 10 positive items and the 10 negative items were averaged to form a composite positive affect scale (PA) and negative affect scale (NA), respectively. Reliability estimates were obtained following suggestions by Nezlek (2012) using three-level models with items at Level 1, nested within beeps at Level 2, and nested within persons at Level 3; estimates showed excellent reliability for PA (estimate = .83 at the level of the measurement occasion; estimate = .99 at the person level) and for NA (estimate = .81 at the level of the measurement occasion; estimate = .99 at the person level). Next, a bipolar valence variable was created by subtracting NA from PA, yielding positive valence scores if PA was higher than NA and negative valence scores if NA was higher than PA and ranging from -4 to 4. BPD patients and patients with a depressive disorder showed good compliance with the ESM protocol and completed an average of 85% and 87% of ESM questionnaires, respectively. For more detailed information about the data collection procedure, see Scheiderer et al. (2016) and Trull et al. (2008).

In both datasets, a switch was defined as a change from an emotional state with positive valence to an emotional state at the next time point within the same day that was characterized by negative valence, or the other way around. Changes within the positive emotional range or within the negative emotional range within the same day were defined as nonswitches.

Statistical Analysis

In both datasets, repeated measurements are nested within persons. To deal with this nested structure, we applied two-level analyses to analyze the data using HLM 7 (Raudenbush, Bryk, Cheong, Congdon, & du Toit, 2011). For detailed information about the modeling approach, see Houben et al. (2016).

Differences in switch propensity (i.e., the probability for a switch to occur) were modeled using two-level logistic regression models using a random intercept at the moment-to-moment level (i.e., Level 1) of the model and using diagnostic group dummies (leaving out the intercept) at the person level (i.e., Level 2) of the model. Differences between the slopes of the different dummy variables were statistically tested using General Linear hypothesis testing. Unit-specific models were used, although population-average models led to similar conclusions.

Differences in switch (and nonswitch) distances were modeled using two-level linear regression models in which absolute changes in valence between two consecutive time points were modeled as a function of a switch and a nonswitch dummy at the

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moment-to-moment level of the model, leaving out the intercept, and different diagnostic group dummies at the person-level of the model, again leaving out the intercepts. Differences in slopes were tested using General Linear hypothesis testing.

Results

Switch Propensity

Table 1 shows the estimated switch propensity for each group and the difference between the groups in each dataset. For dataset 1, results showed that all clinical groups (including persons with BPD, bulimia nervosa, and posttraumatic stress disorder) had a higher propensity to switch in comparison to healthy controls. However, no differences were found among the clinical groups. Likewise, in dataset 2 no difference was found between patients with BPD and with a depressive disorder for the propensity to switch.

Switch Distance

In Table 2 the estimated switch and nonswitch distances for all groups and the estimated differences between groups are shown for both samples. In Table 3 similar results are shown, distinguishing between switching from positive to negative and from negative to positive emotional states.

In dataset 1, BPD patients, but also persons with bulimia nervosa and with posttraumatic stress disorder, showed significantly larger switch distances and larger nonswitch distances in comparison to healthy controls. These results hold for switching in both directions. However, no differences were found between BPD patients and any of the clinical control groups (i.e., patients with bulimia nervosa or posttraumatic stress disorder) for both switch and nonswitch distances. To check the robustness of findings, we repeated the analysis estimating switch and nonswitch distances but correcting for individual differences in the extremity of the starting points of calculated distances at Level 1 of the model (i.e., the absolute value of the valence rating at time t–1). This was done because for more extreme valence ratings that deviate more from the neutral valence point, a larger change has to occur to result in a switch. For switch distance, similar results were obtained as previously described. However, for nonswitch distances, differences between all clinical groups and healthy controls were no longer significant after correction for starting points ($ps > .50$).

For dataset 2, we found that BPD patients showed switch distances that were significantly larger than those of persons with a depressive disorder. No difference was found for nonswitch distances. Distinguishing between the two directions of switching, results indicated that individuals with BPD displayed significantly larger switch distances specifically from positive to negative emotions states. However, if we modeled switch and nonswitch distances, additionally corrected for the starting points of the calculated distances, the difference between BPD patients and patients with a depressive disorder was nonsignificant ($p = .11$).

Discussion

The goal of this study was to examine the specificity of emotional switching between positive and negative emotional states for BPD in comparison to other clinical disorders. We used two datasets in which it previously was shown that BPD patients tend to show large changes in emotional intensity over time in daily life (Santangelo, Reinhard, et al., 2014 and Scheiderer et al., 2016). However, these emotional intensity results were not always specific to BPD after comparison with other clinical groups. The current study expanded on these studies by investigating the specificity of not just changes in intensity of emotions in general but specifically of changes between positive and negative emotional states (i.e., emotional switching) over time.

Our findings indicated that in comparison to healthy controls, all clinical groups (including BPD, bulimia nervosa, or posttraumatic stress disorder) were more likely to make switches between positive and negative emotions states over time. Moreover, if they switched, then the size of the emotional changes from positive to negative or from negative to positive emotional states was also larger. However, regarding the specificity of these findings, in the first dataset no differences were observed between persons with BPD and the two clinical control groups or between the two different clinical control groups. In dataset 2, some indications were found that patients with BPD show larger switch distances than patients with a depressive disorder; however, results were not robust when taking into account individual differences in the extremity of start points of calculated distances.

Table 1
Results From Two-Level Logistic Regression Models Predicting Switch Propensity by Diagnostic Status

Predicted event	Level 1	Level 2	Estimate	*SE*	*t* (*df*)	*p*	Test of difference with BPD	
							χ^2(*df*)	*p*
Sample 1								
Switch	Intercept, β_{0j}	BPD dummy, γ_{01}	-1.87_a	.14	−13.37 (115)	<.01		
		PTSD dummy, γ_{02}	-2.17_a	.20	−10.74 (115)	<.01	1.44 (1)	.23
		BN dummy, γ_{03}	-1.76_a	.22	−7.92 (115)	<.01	0.19 (1)	>.50
		HC dummy, γ_{04}	-3.01_b	.22	−13.44 (115)	<.01	18.59 (1)	<.01
Sample 2								
Switch	Intercept, β_{0j}	BPD dummy, γ_{01}	-2.03_a	.10	−20.26 (129)	<.01		
		DEP dummy, γ_{02}	-1.95_a	.14	−13.60 (129)	<.01	0.21 (1)	>.50

Note. For each sample, coefficients at Level 2 having a common subscript are not statistically different at $\alpha = .05$. PTSD = posttraumatic stress disorder; BN = bulimia nervosa; HC = healthy controls; DEP = depressive disorder.

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Table 2
Results From Two-Level Linear Regression Models Estimating Switch Distances and Nonswitch Distances as a Function of Diagnostic Status

Level 1	Level 2	Estimate	*SE*	*t* (*df*)	*p*	Test of difference with BPD χ^2(*df*)	Test of difference with BPD *p*
Sample 1							
Switches slope, β_{1j}	BPD dummy, γ_{11}	2.50_a	.04	59.67 (115)	<.01		
	PTSD dummy, γ_{12}	2.54_a	.06	42.67 (115)	<.01	0.32 (1)	>.50
	BN dummy, γ_{13}	2.50_a	.06	41.18 (115)	<.01	0.00 (1)	>.50
	HC dummy, γ_{14}	2.11_b	.07	29.59 (115)	<.01	21.33 (1)	<.01
Nonswitches slope, β_{2j}	BPD dummy, γ_{21}	$.96_a$	.03	33.84 (115)	<.01		
	PTSD dummy, γ_{22}	$.94_a$	.05	19.09 (115)	<.01	0.09 (1)	>.50
	BN dummy, γ_{23}	$.92_a$	.05	18.77 (115)	<.01	0.43 (1)	>.50
	HC dummy, γ_{24}	$.74_b^{\S}$	.06	12.60 (115)	<.01	11.23 (1)	<.01[§]
Sample 2							
Switches slope, β_{1j}	BPD dummy, γ_{11}	$.81_a$	.03	26.40 (129)	<.01		
	DEP dummy, γ_{12}	$.72_b^{\P}$	.03	21.98 (129)	<.01	3.99 (1)	.04[¶]
Nonswitches slope, β_{2j}	BPD dummy, γ_{21}	$.44_a$	.02	29.27 (129)	<.01		
	DEP dummy, γ_{22}	$.43_a$	.02	25.84 (129)	<.01	0.57 (1)	>.50

Note. For each slope at Level 1 separately, corresponding coefficients at Level 2 having a common subscript are not statistically different at $\alpha = .05$. PTSD = posttraumatic stress disorder; BN = bulimia nervosa; HC = healthy controls; DEP = depressive disorder.
[§] The differences between clinical groups and HC become insignificant after correction for starting points (*p*s > .50). [¶] This difference between BPD and DEP becomes insignificant after correction for starting points ($p = .11$).

Overall, these results indicate that switching might not be a phenomenon specific to BPD but most likely reflects a feature of emotional responding common among several disorders (at least those studied here). These findings are in line with the conclusion formulated by Houben et al. (2015) in which it was shown that several indicators of emotional change were not specifically linked to BPD because other clinical groups or other indicators of psychological ill-being were characterized by similar patterns. Moreover, the results show that next to limited specificity for indicators of changes in the overall intensity of emotions as concluded in Santangelo, Reinhard, et al. (2014), indicators of emotional switching between positive and negative emotional states are also not very specific to BPD after comparison with other clinical groups.

Table 3
Results From Two-Level Linear Regression Models Estimating Switch Distances to Different Directions and Nonswitch Distances as a Function of Diagnostic Status

Level 1	Level 2	Estimate	*SE*	*t* (*df*)	*p*	Test of difference with BPD χ^2 (*df*)	Test of difference with BPD *p*
Sample 1							
Switches to positive, β_{1j}	BPD dummy, γ_{11}	2.50_a	.04	58.50 (115)	<.01		
	PTSD dummy, γ_{12}	2.54_a	.06	41.51 (115)	<.01	0.32 (1)	>.50
	BN dummy, γ_{13}	2.51_a	.06	39.29 (115)	<.01	0.03 (1)	>.50
	HC dummy, γ_{14}	2.11_b	.07	29.49 (115)	<.01	21.43 (1)	<.01
Switches to negative, β_{2j}	BPD dummy, γ_{21}	2.50_a	.04	57.57 (115)	<.01		
	PTSD dummy, γ_{22}	2.54_a	.06	42.12 (115)	<.01	0.30 (1)	>.50
	BN dummy, γ_{23}	2.49_a	.06	39.76 (115)	<.01	0.01 (1)	>.50
	HC dummy, γ_{24}	2.12_b	.09	24.08 (115)	<.01	14.95 (1)	<.01
Nonswitches, β_{3j}	BPD dummy, γ_{31}	0.96_a	.03	33.84 (115)	<.01		
	PTSD dummy, γ_{32}	0.94_a	.05	19.09 (115)	<.01	0.09 (1)	>.50
	BN dummy, γ_{33}	0.92_a	.05	18.76 (115)	<.01	0.43 (1)	>.50
	HC dummy, γ_{34}	0.74_b	.06	12.60 (115)	<.01	11.23 (1)	<.01
Sample 2							
Switches to positive, β_{1j}	BPD dummy, γ_{11}	0.78_a	.03	24.47 (129)	<.01		
	DEP dummy, γ_{12}	0.72_a	.04	19.83 (129)	<.01	1.71 (1)	.19
Switches to negative, β_{2j}	BPD dummy, γ_{21}	0.84_a	.03	26.03 (129)	<.01		
	DEP dummy, γ_{22}	0.73_b	.03	20.95 (129)	<.01	6.05 (1)	.01
Nonswitches, β_{3j}	BPD dummy, γ_{31}	0.44_a	.02	29.27 (129)	<.01		
	DEP dummy, γ_{32}	0.43_a	.02	25.84 (129)	<.01	0.57 (1)	>.50

Note. For each slope at level 1 separately, corresponding coefficients at level 2 sharing a common subscript are not statistically different at $\alpha = .05$. PTSD = posttraumatic stress disorder; BN = bulimia nervosa; HC = healthy controls; DEP = depressive disorder.

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From one perspective, the lack of specificity of emotional switching for BPD is a rather surprising finding. Although emotional instability is an important and characterizing diagnostic criterion of BPD, this is not explicitly the case for major depressive disorder or dysthymia, posttraumatic stress disorder, or bulimia nervosa. Moreover, emotion lability is even assumed to play an etiological role for BPD (Linehan, 1993). Therefore, the finding that other clinical groups showed similar levels of emotional instability in daily life (as indicated by emotional switching) compared with BPD raises questions about the completeness of the current diagnostic criteria. However, differences between clinical groups may be found in different aspects of emotional responding. For example, although groups might not differ in the resulting patterns of emotional change, the nature of triggers of such changes could distinguish between the groups.

However, from a different perspective, emotional instability, as indicated by larger emotional switching between positive and negative emotional states, might reflect a feature of emotional responding that underlies groups of mental disorders. This finding would fit with current calls for a transdiagnostic approach to the investigation and classification of psychopathology with a focus on mechanisms or core disturbances (Insel et al., 2010). For example, in the research domain criteria (RDoC) developed by the National Institute of Mental Health, a call for a focus on the investigation of underlying mechanisms and measures that cut across current clinical groups was formulated. Related to these propositions, emotional instability could reflect a transdiagnostic dimension underlying psychopathology. Future research should provide more insight into the mechanisms underlying emotional instability. Speculatively, emotional instability could signify a lack of emotional control, which could act as a risk factor for the development of psychopathological conditions in general. On the other hand, emotional instability could also result from negative life events that are often experienced by people with psychopathology in general and that tend to underlie mental disorders, such as traumatic life events. Alternatively, emotional instability could also reflect a possible consequence of dysfunctional behavior exhibited by people with psychopathological problems.

Several limitations should be mentioned. First, our measures of emotional switching are based on self-reported emotions, which have shortcomings (e.g., possible influence of response biases, it is based on introspective abilities, etc.). However, subjective self-report is most commonly used to assess the experiential aspect of affective states, and using ESM limits the influence of memory bias and single assessments as much as possible. Second, the two datasets that were reported differ in two important ways: how valence of the emotion was determined and the sampling rates that were used. In both samples, valence was operationalized in different ways; therefore, they may not be directly comparable. Concerning sample rates, in dataset 1 very short time intervals were used that capture consecutive changes in emotions on a small time scale, which is claimed to be most appropriate for the investigation of emotional instability in BPD (Ebner-Priemer & Sawitzki, 2007). However, assessments only stretch over a time period of 24 hr, in which only a limited amount of variation in events and experiences can be captured. In contrast, in dataset 2 only six assessments per day were recorded, resulting in larger time intervals between consecutive measurements. However, patients were sampled over a period of approximately 28 days, which more likely captured a diverse set of events during the study. Because of these differences, it is not clear whether we are measuring the same process across different time scales. Nonetheless, the different studies led to similar conclusions about the specificity of emotional switching. Third, although sample sizes were not very small, we cannot fully exclude the possibility that we lacked sufficient statistical power to detect changes between clinical groups, likely more of a concern in dataset 1. However, subsamples in dataset 2 were larger and resulted in similar conclusions.

Conclusions

On the basis of two independent samples, we found that several clinical groups, including BPD, bulimia nervosa, and posttraumatic stress disorder, all displayed a higher tendency to switch between positive and negative emotional states in consecutive moments over time. Moreover, if they switched, then the size of the emotional changes from positive to negative or from negative to positive emotional states was also larger in comparison to healthy controls. However, limited specificity of emotional switching was found for BPD in comparison to patients with bulimia nervosa, posttraumatic stress disorder, or a depressive disorder. These findings imply that emotional switching might reflect a feature of emotional responding that characterizes several psychopathological conditions.

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