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COMPARING THE CONTRIBUTION OF AFFECT, EMOTION REGULATION, AND SELF-EFFICACY IN EMOTIONAL AND BEHAVIORAL OUTCOMES OF INDIVIDUALS WITH BORDERLINE PERSONALITY DISORDER

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Abstract

Positive and negative affect, emotion regulation and self-efficacy are important mechanisms in borderline personality disorder (BPD), but their contribution is still not clear. Our goal was to explore their role in relation to typical BPD outcomes*:* psychiatric hospitalizations, suicidal behaviors and depression. The sample comprised 88 women with BPD. The unique contribution of positive and negative affect, the regulation of emotions and self-efficacy in outcomes were analyzed. Positive (β= -.40, *p*< .001) and negative (β= .54, *p*< .001) affect contributed uniquely to depression. Emotion suppression was the only predictor of the number of hospitalizations (β= -.29, *p*<.05). Self-efficacy was uniquely related to suicide attempts (β= -.26, *p*< .05) when controlling the rest of the variables. Positive and negative affect, emotion regulation and self-efficacy are important psychological mechanisms uniquely associated with specific emotional and behavioral outcomes in BPD. These findings will help to design interventions in a more effective way and tailor treatments for individuals with this disorder.

KEY WORDS: *borderline personality disorder, affection, emotion regulation, self-efficacy, outcomes*.

Resumen

El afecto positivo y negativo, la regulación emocional y la autoeficacia son mecanismos importantes en el trastorno límite de la personalidad (TLP), pero su contribución no está clara. Nuestro objetivo fue explorar su papel con relación a las siguientes variables*:* hospitalizaciones psiquiátricas, conductas suicida y depresión. Se analizó la contribución única del afecto positivo y negativo, la regulación emocional y la autoeficacia en las variables descritas en una muestra de 88 mujeres con TLP. El afecto positivo (β= -0,40; *p*< 0,001) y negativo (β = 0,54; *p*< 0,001) contribuyeron de manera única a la depresión. La supresión emocional fue el único predictor del número de hospitalizaciones (β = -0,29; *p*< 0,05). La autoeficacia se relacionó de forma única con los intentos de

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suicidio (β= -0,26; p < 0,05) al controlar las demás variables. El afecto positivo y negativo, la regulación emocional y la autoeficacia son mecanismos psicológicos importantes asociados de forma única con variables emocionales y conductuales problemáticas en el TLP. Esto ayudará a orientar las intervenciones de forma eficaz y personalizar los tratamientos para las personas con este trastorno.
PALABRAS CLAVE: *trastorno límite de la personalidad, afecto, regulación emocional, autoeficacia, variables*.

Introduction

Borderline personality disorder (BPD) is characterized by instability of several aspects of the individual, including interpersonal relationships, self-image, and mood, as well as high impulsivity (American Psychological Association; APA, 2013). BPD is estimated to affect between 1.6% and 5.9% of the worldwide general population, but its prevalence significantly increases in primary care settings, outpatient clinics, and inpatient units, where it is argued to represent 6%, 10%, and 20% of the population, respectively (APA, 2013). As a result of all this, BPD has become an alarming problem for the health care systems and the society in general (Laurenssen et al., 2014). For instance, suicide rates in this population are about the highest amongst personality disorders, with estimates ranging from between 6 and 10% (Lieb, Zanarini, Schmahl, Linehan, & Bohus, 2004; Witt et al., 2017) and depression prevalence rates are usually between 41-83% (Brown, Comtois, & Linehan, 2002; Lieb et al., 2004; Linehan et al., 2015). BPD is also an expensive disorder, as these patients are among the highest utilizers of psychiatric services and between 9% and 27% of emergency patients present a BPD diagnosis (Shaikh et al., 2017).

Pharmacological and psychosocial treatments do not offer a useful solution (Caballo, 2001) and psychological treatment is the first-line intervention for people with BPD (Leichsenring, Leibing, Kruse, New, & Leweke, 2011; Meuldijk, McCarthy, Bourke, & Grenyer, 2017; National Health and Medical Research Council, 2013; Stoffers et al., 2012). Several specific psychological treatments for BPD exist, such as dialectical-behavioral therapy, mentalization-based treatment, schema-focused therapy, transference-focused psychotherapy, and systems training for emotional predictability and problem solving, to name some of the most popular interventions (Choi-Kain, Finch, Masland, Jenkins, & Unruh, 2017). Of these, DBT has received most attention and has the most robust evidence in this population (García-Palacios, Navarro-Haro, Guillen Marco & Botella, 2010; Linehan et al., 2015; Stoffers et al., 2012). However, some authors suggest that important commonalities exist between the aforementioned psychological approaches to the disorder (Choi-Kain, Albert, & Gunderson, 2016; Weinberg, Ronningstam, Goldblatt, Schechter, & Maltsberger, 2011). The study of the unique contribution of some of these arguably shared mechanisms on important BPD outcomes is the main goal of the present investigation.

One key target mechanism of most psychological treatments for BPD is negative affect (Beblo et al., 2012; Clarkin, Levy, Lenzenweger, et al., 2007;

Kellogg & Young, 2006; Linehan, 1993; Young, Klosko, & Weishaar, 2003). Negative affect is defined as a general tendency to experience anxiety and dysphoric states (Watson & Clark, 1992) and has been argued to be a central element in BPD (Bradley et al., 2011; Trull et al., 2008; Zittel-Conklin & Westen, 2005). In fact, some authors consider that BPD is a negative affect disorder itself (APA, 2013; Chu, Victor & Klonsky, 2016; Ebner-Priemer et al., 2007; Von Ceumern-Lindenstjerna et al, 2010). Indeed, BPD patients present higher negative affect compared to healthy controls (Daros, Guevara, Uliaszek, Mcmain, & Ruocco, 2018) and this characteristic has been associated with important BPD outcomes, such as non-suicidal self-injuries (Armey & Crowther, 2008; Fox Hammond & Mezuli, 2017; Selby, Franklin, Carson Wong, & Rizvi, 2013).

Another key psychological factor investigated in the BPD literature and frequently included in treatments for this population is emotion regulation (Crowell, Beauchaine, & Linehan, 2009; Linehan, 1993). Emotion regulation refers to the process that determines the emotions we experience, as well as when and how we have them and express them (Gross, 1998). There are different strategies to regulate emotions, but cognitive reappraisal and emotional suppression have attracted most attention from the literature (Daros et al., 2018; Gross, 2002). The first one consists of changing the interpretation of a situation in order to decrease its emotional impact and is argued to be adaptive, while the second refers to inhibiting the outward signs of one's inner feelings and is generally considered to be maladaptive (Gross, 2002). Indeed, a recent meta-analysis has revealed a significant relationship between emotion dysregulation and non-suicidal self-injuries (Wolff et al., 2019) and, specifically, emotion suppression has been shown to interfere with the beneficial effects of cognitive reappraisal on this population (Navarro-Haro, Wessman, Botella, & Garcia-Palacios, 2015).

Another psychological variable related to BPD and frequently included in treatments for the disorder is self-efficacy, which has been defined as the perceived ability to manage stressful situations efficiently (Chesney, Neilands, Chambers, Taylor, & Folkman, 2006). Despite the long tradition of studies about self-efficacy in health literature and the arguably important role of self-efficacy perceptions in managing stressful situations of different populations (Marks, Allegrante, & Lorig, 2005), the literature on general self-efficacy in BPD is scarce, especially when compared to emotion regulation, and has been frequently treated as a secondary target (Axelrod, Perepletchikova, Holtzman, & Sinha, 2011; Gratz & Roemer, 2004). Some studies, however, have indicated significant associations between low self-efficacy and BPD outcomes, such as nonsuicidal self-injury (Barnicot, Gonzalez, McCabe, & Priebe, 2016; Heath, Joly, & Carsley, 2016), which suggests that this psychological mechanism might as well play an important role in the disorder.

As exposed before, the aforementioned psychological mechanisms (i.e., affect, emotion regulation, and self-efficacy) are common to the majority of psychological interventions for BPD. It is unclear, however, whether the three factors share common variance in their association with BPD outcomes, which would suggest redundancy in the treatment for this population. This is important because the exploration of the unique contribution of important psychological constructs altogether in the prediction of BPD outcomes can help guide

interventions in a more effective way (i.e., reducing the number of target mechanisms and constructs evaluated in treatment programs or selecting the appropriate target mechanism for each outcome). Indeed, to the best of our knowledge no study has compared the contribution of these three key mechanisms altogether in the prediction of important BPD outcomes.

In sum, this study will compare the unique contribution of key therapeutic goals in BPD, namely affect (positive and negative), emotion regulation strategies (i.e. emotion suppression and cognitive reappraisal), and self-efficacy, in the prediction of behavioral (i.e., psychiatric hospitalizations and number of suicidal attempts) and emotional outcomes (i.e., depressive symptoms). Because psychological constructs tend to be correlated (Ammerman, Jacobucci, & McCloskey, 2018; Brown, Linehan, Comtois, Murray, & Chapman, 2009; Brunner et al., 2007), we expect that affect, emotion regulation, and self-efficacy will be correlated. Additionally, we anticipate that such redundancy will result in a reduced number of unique associations with study outcomes when controlling for the contribution of the other constructs in a multivariate analysis. Thus, we anticipate that negative affect, high emotion suppression, low cognitive reappraisal, and low self-efficacy will be correlated, while positive affect will correlate with low emotion suppression, high cognitive reappraisal, and high self-efficacy.

Method

Participants

The sample comprised 88 females attending a private clinical center for the treatment of BPD. All participants were Spanish and aged between 16 and 55 years (M= 28.69 years, SD= 8.85). Regarding educational level, 25.3% had completed primary education only, 52.3% had completed secondary education, and 20.5% of them had a university degree. The majority of participants were not in a relationship at the time of assessment (93.7%). All women met BPD DSM-IV-TR criteria (recruitment occurred before DSM-5 was published).

Instruments

a. *Structured Clinical Interview for DSM-IV Axis II Personality Disorders* (SCID-II; First, Gibbon, Spitzer, Williams, & Benjamin, 1996), Spanish version by First et al. (1997). The SCID-II is a semi-structured interview that assesses the presence of personality disorders following the criteria of the Diagnostic and statistical manual of mental disorders DSM-IV (APA, 1994, 2000). The SCID-II has shown good internal consistency ($.90 \leq \alpha \leq .98$).
b. *Clinical record*. The lifetime history of *psychiatric hospitalizations* and *suicide attempts* were obtained from the electronic clinical record and double-checked with the patient.
c. *Beck Depression Inventory-II* (BDI-II; Beck, Steer, & Brown, 1996), Spanish validation by Sanz, Navarro, and Vazquez (2003). The severity of *depressive symptoms* in the previous weeks was evaluated with the BDI-II, a 21-item

measures of depression that is widely used and psychometrically sound. The Spanish adaptation of the BDI-II obtained an excellent Cronbach's alpha value of .87 (Sanz et al., 2003).

d. *Positive and Negative Affect Schedule* (PANAS; Watson, Clark, & Tellegen, 1988), validated in Spanish by Sandin et al. (1999). The PANAS is composed of 20 items (10 adjectives for positive affect and 10 for negative affect). In the questionnaire, participants are asked to report how often they have experienced positive/negative affect in the previous month using a scale ranging from 1= "very slightly or not at all" to 5= "extremely". Scores in the Spanish adaptation of the PANAS have demonstrated to have a high internal consistency (between .87 and .91) (Sandin et al., 1999).
e. *Emotion Regulation Questionnaire* (ERQ; Gross & John, 2003), Spanish adaptation by Cabello, Salguero, Fernandez-Berrocal, and Gross (2013). The ERQ has 10 items grouped into two scales: Emotional suppression (4 items) and Cognitive reappraisal (6 items). Response scales range from 1= "strongly disagree" to 7= "strongly agree". The internal consistency of scores have been .73 and .79 for suppression and reappraisal, respectively (Gross & John, 2003). Similarly, the Spanish adaptation indicated Cronbach's coefficients of .75 for Suppression and .79 for Reappraisal.
f. *General Self-Efficacy Scale* (GSE; Sherer et al., 1982), Spanish version validated by Sanjuán, Pérez, and Bermúdez (2000). The GSE was used to evaluate *self-efficacy*. The scale has 10 items that use a Likert scale response system ranging from 1= "strongly disagree" to 4= "strongly agree". The Cronbach's alpha of the Spanish adaptation of the GSE was .87 (Sanjuán et al., 2000).

Procedure

For a period of 12 months, new patients asking for consultation at a private clinic were asked to enroll in the investigation. All of them voluntarily accepted to participate in the study and signed an informed consent sheet. All the participants were assessed with a clinical interview (distributed in two, one-hour-sessions) by an expert clinician in order to analyze whether they met inclusion criteria (DSM-IV-TR BPD criteria). Exclusion criteria (alcohol or drug dependence, bipolar disorder, psychotic disorders, or any other organic illness that could interfere with the study) was also evaluated at this stage. During these two assessment sessions, the instruments described above (SCID-II, BDI-II, PANAS, ERQ, and GSE) were also administered.

Data analysis

First, we calculated the means, standard deviations, and bivariate associations between all study variables. In doing so, we compared the present study scores with normative data from the general population. As a final step, we computed a multivariate regression for each study outcome (i.e., depressive symptoms, number of lifetime psychiatric hospitalizations, and number of lifetime suicide attempts). In the regressions, we included all the psychological variables in the same block to

compete with each other. Because we anticipated that psychological constructs would be intercorrelated, we assessed multicollinearity issues in the regression. No multicollinearity problems were revealed (Variance Inflation Factor< 4 in all cases). All analyses were performed with IBM SPSS Statistics 22.0 (IBM Corp., 2013).

Results

Means, standard deviations, bivariate associations between study variables, and comparison with normative data

Means, standard deviations, and bivariate associations across study variables, together with the comparison with normative data are presented in Table 1. The analyses revealed weak-to-moderate associations between several psychological constructs, namely negative affect and positive affect (r= -.35, p< .001), negative affect and cognitive reappraisal (r= -.37, p< .001), and positive affect and self-efficacy (r= -.35, p= .001). Weaker, yet significant correlations emerged between positive affect and cognitive reappraisal (r= .23, p= .038), cognitive reappraisal and emotional suppression (r= .25, p= .024), and between negative affect and self-efficacy (r= -.25, p= .021). Emotional suppression was not linked with positive and negative affect and self-efficacy (all p> .05).

In addition to the intercorrelations between the study predictors, we calculated their bivariate association with outcomes. Overall, our analyses revealed that psychological factors were more strongly associated with our emotional outcome (i.e., depression) than with the behavioral measures (i.e., number of psychiatric hospitalizations and suicide attempts). However, a number of weak, significant associations were also observed with some of the behavioral outcomes. With regards to depression, moderate-to-strong associations were found with positive (r= -.60, p< .001) and negative affect (r= .74, p< .001) and weak negative correlations were obtained with cognitive reappraisal (r= -.29, p= .007) and self-efficacy (r= -.33, p= .003). Taking the behavioral measures, no associations were observed with positive affect and cognitive reappraisal (all p> .05). A weak correlation emerged between emotional suppression and psychiatric hospitalization (r= -.26, p= .019) and between self-efficacy and suicide attempts (r= -.23, p= .035).

The comparison between normative and present study scores in study variables is also presented in Table 1. The results indicated that our sample presented lower levels of positive affect (t= 12.42, p< .001), higher negative affect (t= 8.86, p< .001), lower levels of cognitive reappraisal (t=13.12, p< .001), similar levels of emotion suppression (t=1.28; p= .199), lower sense of self-efficacy (t= 31.42; p< .001), and more severe depressive symptoms (t= 18.07; p< .001).

Table 1
Means, standard deviations, and bivariate associations across study variables

Variables	BPD sample (*n*=88) *M* (*SD*)	General population *M* (*SD*)	*n*[1]	*t*	*p*	*Cohen's d*	95% CI	2	3	4	5	6	7	8
1. Positive affect	20.91 (8.42)	30.37 (6.08)	441	12.42	<.001	1.29	-10.96, -7.96	-.35***	.23*	-.06	.35**	-.60***	<.01	-.07
2. Negative affect	30.28 (9.51)	22.69 (6.83)	441	8.86	<.001	0.92	5.91, 9.27		-.37***	.17	-.25*	.74***	.09	-.02
3. Cognitive reappraisal	20.79 (7.71)	30.22 (6.49)	1548	13.12	<.001	1.32	-10.84, -8.02			.25*	.21	-.29**	<.01	<.01
4. Emotional suppression	12.91 (6.07)	12.07 (5.97)	1548	1.28	0.199	0.14	-0.45, 2.13				.16	.09	-.26*	-.01
5. Self-efficacy	21.26 (7.85)	65.02 (12.23)	259	31.42	<.001	4.26	-46.50, -41.02					-.33**	-.16	-.23*
6. Depression	29.11 (15.62)	9.4 (7.7)	470	18.07	<.001	1.60	17.57, 21.85						.14	.10
7. Psychiatric hospitalizations	2.50 (4.17)	NA												.45***
8. Suicide attempts	1.10 (1.71)	NA												

Notes: BPD= borderline personality disorder; NA= not available. [1]The *n* for each variable corresponds to the number of people in the Spanish validation. Thus, PANAS in its Spanish validation of Sandin et al. (1999), had an *n* of 441 people. In the Spanish validation of the ERQ of Cabello et al. (2013) the *n* was 1548 people. In the Spanish validation of the Self-efficacy Scale of Sanjuán, Pérez, and Bermúdez in 2000, the *n* was 259 people and in the validation of the BDI-II of Sanz, Navarro, and Vázquez (2003), the *n* was 470 people. ***p< .001; **p< .01; *p< .05.

Multivariate regression predicting study outcomes from psychological mechanisms

The simultaneous contribution of predictors on outcomes is presented in Table 2. Our analyses indicated that, as a block, psychological variables only significantly contributed to the prediction of depression (change in R^2= 68.3%, F(5, 76)= 32.73, p< .001). Additionally, we observed that, when competing with the remaining psychological factors, some associations that were significant in the bivariate analyses shown in Table 1 became non-significant, arguably due to commonalities/shared variance between predictors. For example, positive (β= -.40, t= -5.32, p< .001, CI= -1.04, -0.47) and negative affect (β= .54, t= 6.81, p< .001, CI= 0.65, 1.18) were the only psychological constructs uniquely associated with depression. Psychological constructs as a block did not significantly contribute to the behavioral outcomes, namely the number of psychiatric hospitalizations (R^2= 11.2%, F= 1.89) and the number of suicide attempts (R^2= 5.8%, F= .93). However, we found an association between emotional suppression and the number of psychiatric hospitalizations (β= -.29, t= -2.40, p= .019, CI= -0.37, -0.03) and between self-efficacy and the number of suicide attempts (β= -.26, t= -2.10, p= .0139, CI= -0.11, -0.01).

Table 2
Multivariate regressions predicting study outcomes from psychological constructs

Variables	Depression		Psychiatric hospitalizations		Suicide attempts	
	β	*t*	β	*t*	β	*t*
Positive affect	-.40	-5.32***	.10	0.79	.03	0.26
Negative affect	.54	6.81***	.21	1.59	-.01	-0.04
Cognitive reappraisal	.01	0.07	.16	1.29	.06	0.43
Emotional suppression	-.02	-0.25	-.29	-2.40*	.02	0.16
Self-efficacy	-.06	-0.90	-.12	-1.01	-.26	-2.10*
R^2	.683		.112		.058	
F	32.73***		1.89		0.93	

Notes: β is standardized. ***p< .001; **p< .01; *p< .05.

Discussion

BPD is a common and serious illness that has a deleterious impact on those who suffer it, their significant others, and the societies in general. Because this is a complex disorder, several treatments have emerged in the past decades, mostly of psychological nature. The present study aimed at exploring the unique contribution of common psychological mechanisms included in most interventions for BPD, namely affect, emotion regulation, and self-efficacy, on emotional and behavioral

outcomes in a sample of BPD patients. Because psychological factors tend to be intercorrelated and the unique contribution of the aforementioned psychological factors had not been investigated in relation to important BPD outcomes, the present study taps into an important gap into the BPD literature. Overall, our results mostly supported our hypotheses as the majority of psychological mechanisms were intercorrelated. Also, as anticipated, only a subset of psychological mechanisms uniquely contributed to BPD outcomes, which would support the need for personalized interventions (i.e., adjusting the focus on certain psychological mechanisms as a function of the outcome of interest).

As anticipated, some psychological constructs in the study, such as negative and positive affect and self-efficacy, were significantly intercorrelated. Consistent with this finding, past research has evidenced that experimentally inducing negative and positive mood states decreases and increases self-efficacy, respectively (Medrano, Flores-Kanter, Moretti, &, Pereno, 2016). Similarly, it has been argued that self-efficacy influences the development of affect (Lightsey, Burke, Ervin, Henderson, & Yee, 2006), which suggests a reciprocal effect. In addition to the relationship between affect and self-efficacy, our results revealed an association between an emotion regulation strategy, namely cognitive reappraisal, and affect. Conversely, emotion suppression was unrelated to positive and negative affect. Indeed, the association between cognitive reappraisal (i.e., modulating cognitions to reinterpret emotional events) and affective states is robust (Troy, Shallcross, Brunner, Friedman, & Jones, 2018). Also consistent with the present study findings, the role of emotion suppression in affect is more controversial (Yamasaki, Sasaki, Uchida, & Katsuma, 2011; Wang, Chen, & Han, 2017).

An unexpected finding with regards to the association between psychological constructs included in our study has been that emotion regulation strategies and self-efficacy were unrelated. Traditionally, cognitive reappraisal and, to a lesser extent, emotion expression (i.e., as opposed to emotion suppression) have been argued to be adaptive strategies. This would suggest that their implementation should lead to better outcomes, including higher perceived self-efficacy. Contrary to this traditional view and consistent with the present study results, there is recent evidence to suggest that the utility of emotion regulation strategies is likely to depend on the context in which they are deployed, so that a strategy might be useful in some situations but not in others (McRae, 2016).

While acknowledging the aforementioned differences in the strength of associations between psychological constructs in BPD individuals in our study, it is important to note that the strength of all intercorrelations between psychological factors, including the significant ones, was small. This suggests that the commonalities between the assessed constructs is only modest and indicates that they might be indeed measuring different psychological mechanisms. However, an interesting finding was that these commonalities were sufficient to reduce the number of unique contributions revealed in our multivariate analyses when compared to the bivariate associations, which indicates that the small shared variance between psychological factors should not be ignored. Most importantly, our results indicate that each psychological factor might be selectively and uniquely

associated with a specific outcome. In the next line we will propose some explanations to these unique associations. However, before doing so, we believe it is important to highlight the clinical implications of this selective association between psychological mechanisms and outcomes, in the sense that they provide further evidence for the need to personalize (psychological) treatments. While most efforts to personalize treatments to date have focused on patient demographic, personality, stages of change, and severity characteristics (Ng & Weisz, 2016), to name some examples, in the light of the present study findings the target outcome is also likely to be an important element to be incorporated in research into personalized therapy.

In our multivariate regressions, positive and negative affect were uniquely associated with the severity of depressive symptoms, while only self-efficacy and emotion suppression were uniquely related to the lifetime prevalence of suicide attempts and psychiatric hospitalizations, respectively. Regarding affect, negative affect was already identified as a "higher order construct" underlying several mental disorders decades ago (Bradley et al., 2011; Krueger, 1999; Watson & Clark, 1992). Not surprisingly, in recent years it has also emerged as a core feature in BPD (Zittel-Conklin, Bradley, & Westen, 2006). As a result of this, there is now extensive research showing a significant relationship between high negative affect and BPD affective outcomes (Chu et al., 2016; Salsman, & Linehan, 2012; Zittel-Conklin & Westen, 2005), which is consistent with our results showing a unique association between negative affect and depression. Positive affect has received less attention in the BPD literature, but the health literature suggests that positive affect is associated with beneficial outcomes (Pressman & Cohen, 2005), which is in line with the present study findings. Also importantly, our results indicated that positive and negative affect were independently associated with depressive symptoms, which provides further support for the need to differentiate both affective dimensions (Larsen, Hershfield, Stastny, & Hester, 2017).

Emotion suppression, as we noted earlier, was the only psychological variable that significantly correlated with lifetime history of psychiatric hospitalizations. It is widely known that individuals with a diagnosis of BPD tend to use mental health services more frequently than other individuals, including those with a personality disorder other than BPD (Hörz, Zanarini, Frankenburg, Reich, & Fitzmaurice, 2010). Correlates of psychiatric hospitalizations have been more rarely investigated, but clinical factors like history of parasuicide behavior and the number of comorbid anxiety diagnoses do appear to be related to more frequent mental health service use (Comtois et al., 2003). New to the existing literature is the present study finding, suggesting that emotion regulation characteristics might also be associated with mental health service use (i.e., more emotional suppression is performed by those with less psychiatric hospitalizations). While the following is only a tentative explanation at this stage, it is possible that, contrary to the traditional view of emotion suppression as a maladaptive strategy, in the case of BPD not suppressing inappropriate emotions results in problematic outcomes that lead to hospitalization. In BPD, an inability to regulate one's emotional states has been associated with detrimental outcomes, such as non-suicidal self-injuries in persons with BPD (Armey & Crowther, 2008; Brown et al., 2002; Hilt, Nock, Lloyd-

Richardson, & Prinstein, 2008; Selby & Joiner, 2009) and suicide attempts (Selby, Anestis, Bender, & Joiner, 2009) to name some examples. Because, as exposed before, the context in which emotion regulation strategies are implemented play a key role determining their adaptive value (McRae, 2016), it is possible that being able to suppress intense emotions in a given context might be beneficial (i.e., result in less hospitalizations) in persons with BPD. Consistent with this idea is the study by Chapman, Rosenthal and Leung (2009), in which individuals with severe BPD had more positive emotions and fewer impulsive behaviors when asked to suppress their emotions. Note too that emotional suppression was the only variable in which BPD and the general population reported similar levels, which again makes us think that this strategy might not be as universally maladaptive as it was initially thought.

The last psychological characteristic to be uniquely associated with outcomes was self-efficacy. Specifically, our results indicated that people with high perceived self-efficacy presented significantly lower rates of suicide attempts, supporting the results found in previous studies (Barnicot et al., 2016), where self-efficacy played an important role in behavioral outcomes such as self-harm and suicide attempts. Past research has already argued that self-efficacy might enhance distress tolerance in persons with BPD (Luberto, Cotton, McLeish, Mingione, & O'Bryan, 2014; Selby & Joiner, 2009), which might explain the less frequent suicide attempts presented by more self-efficacious individuals in our sample. Other psychological characteristics, such as negative affect, have also been linked to suicidal outcomes (i.e., suicidal thoughts) (Mou et al., 2018). In our study, however, because we did not measure suicidal thoughts but suicidal attempts, it is possible that different psychological characteristics, such as low self-efficacy, might play a more relevant role (maybe due to the link with distress intolerance). Because of the exploratory nature of this study, further conclusions cannot be drawn, and more research will be needed to explain and replicate some of the aforementioned findings.

While the present study has a number of strengths, including the comparison of various important psychological mechanisms and the exploration of both emotional and behavioral outcomes in BPD individuals, some limitations need to be acknowledged. On the one hand, because the study is cross-sectional the interpretation of findings should be made with caution and causality cannot be claimed. Additionally, while several mechanisms and outcomes that are frequently addressed in the psychological treatment of BPD have been included, the list is far from complete.

Despite the aforementioned shortcomings, the present study findings might be relevant for clinical and research purposes. First, because it revealed that commonalities between psychological mechanisms typically addressed in the psychological treatment of BPD exist, which suggests that existing assessment and intervention plans may be simplified if necessary. Also interestingly, the present investigation revealed that psychological mechanisms might be selectively associated with outcomes, which is an important finding for personalized treatment of BPD and suggests that treatments should be tailored in content depending on the person, specifically on the outcome that is to be targeted for a given individual, supporting the view of progressing in research in personalized

approaches as a way to target the complexity of mental disorders (Holmes et al., 2018). By doing this, we expect to guide interventions for BPD in a more effective way.

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