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BRIEF REPORT

Choosing How to Feel: Emotion Regulation Choice in Bipolar Disorder

Aleena C. Hay
Yale University

Gal Sheppes
Tel Aviv University

James J. Gross
Stanford University

June Gruber
University of Colorado Boulder

Individuals with bipolar disorder experience emotion regulation difficulties, even during remission, but are able to effectively employ emotion regulation strategies when instructed. We hypothesized that this puzzling discrepancy might be due to their maladaptive emotion regulation choices. To test this hypothesis, we used a previously validated paradigm (Sheppes, Scheibe, Suri, & Gross, 2011; Sheppes et al., 2014), and asked remitted individuals with bipolar I disorder ($n = 25$) and healthy individuals ($n = 26$) to view standardized positive and negative images of high and low intensity, and choose reappraisal or distraction to decrease their emotion intensity. Replicating and extending prior results, participants across both groups showed a pattern of choosing distraction more for high versus low intensity positive and negative images, but no between-groups differences were evident. These results suggest that emotion regulation choice patterns may be robust across samples, and add to growing evidence that several basic emotion regulation elements may remain intact in bipolar disorder.

Keywords: emotion regulation choice, bipolar disorder, reappraisal, distraction

Bipolar disorder (BD) is a severe and chronic psychiatric disorder associated with significant functional impairment (Coryell et al., 1993). Although models of BD emphasize the importance of troubled emotion regulation in understanding BD, only recently have studies provided empirical evidence toward an emotion dysregulation conceptualization of BD (e.g., Gruber, Harvey, & Gross, 2012). One puzzle that has emerged from this work is that although individuals with BD have significant difficulties actually experiencing emotion regulatory benefits when implementing emotion regulation strategies in everyday life (e.g., Gruber, Kogan, Mennin, & Murray, 2013), their capacity to regulate when instructed is largely intact (e.g., Gruber, Harvey, & Johnson, 2009).

More specifically, individuals with BD demonstrate both heightened and prolonged emotion reactivity, or change in emotion from baseline in response to a stimulus, particularly for positive emotions (e.g., Farmer et al., 2006; Gruber, Harvey, & Purcell, 2011b; Johnson, Gruber, & Eisner, 2007; Ruggero & Johnson, 2006). For negative emotion reactivity, individuals with BD do not differ from healthy controls in terms of negative affect reactivity in response to failure feedback. With respect to emotion regulation for uncued (i.e., spontaneous/noninstructed) emotion regulation, individuals with BD report engaging in strategies aimed at increasing positive emotions in everyday life, such as positive rumination, as well as strategies associated with decreased self-reported success in achieving optimal regulation outcomes compared with healthy controls (Gruber, Eidelman, Johnson, Smith, & Harvey, 2011a). Notably, individuals with BD also experience uncued emotion regulation difficulties when attempting to spontaneously regulate their emotions in a laboratory setting (e.g., Gruber et al., 2012). Taken together, this suggests that although individuals with BD are spontaneously implementing emotion regulation strategies, they are not experiencing emotion regulatory success. Additionally, individuals with BD show sustained increases in cortisol levels after a stressful task, suggesting difficulties spontaneously down-regulating negative emotional experiences (Depue, Kleiman, Davis, Hutchinson, & Krauss, 1985). Notably, a review of neuroimaging study findings on emotion regulation in BD found that individuals with BD show abnormally reduced neural activity in the left orbitofrontal cortex and mediodorsal prefrontal cortex during automatic emotion regulation tasks (Phillips, Ladouceur, & Drevets, 2008), further providing evidence of emotion regulation difficulties in this population.

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Aleena C. Hay, Department of Psychology, Yale University; Gal Sheppes, The School of Psychological Sciences, Tel Aviv University; James J. Gross, Department of Psychology, Stanford University; June Gruber, Department of Psychology and Neuroscience, University of Colorado Boulder.

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Correspondence concerning this article should be addressed to June Gruber, Department of Psychology and Neuroscience, University of Colorado, Boulder, 345 UCB, Muenzinger D321C, Boulder, CO 80309-0345. E-mail: june.gruber@colorado.edu

When examining cued (i.e., instructed) emotion regulation, individuals with BD are able to successfully engage in emotion regulation and decrease emotion intensity. For example, individuals with BD demonstrate decreased self-reported positive emotion intensity when instructed to engage in a reflective (i.e., distanced-why) perspective-taking strategy when recalling autobiographical positive memories (Gruber et al., 2009). Those with BD also demonstrate the ability to follow cued cognitive reappraisal instructions to preemptively decrease both positive and negative emotion experience, as well as physiological arousal, when viewing positive and negative standardized films (e.g., Gruber, Hay, & Gross, 2014). It is interesting to note that evidence suggests that mechanisms underlying distraction may remain intact in individuals with BD (Kanske, Heissler, Schönfelder, Forneck, & Wessa, 2013); however, exploration of the effectiveness of the distraction emotion regulation strategy requires further exploration. Individuals with BD are also able to benefit from cognitive–behavioral therapy, which is a technique that necessitates the utility of emotion regulation strategies (Hollon & Ponniah, 2010), and as such, an interesting next step would be to compare the effectiveness of the two strategies explored in the current investigation. This evidence suggests that individuals with BD have the ability to successfully execute emotion regulatory strategies when instructed, but have difficulties regulating emotions otherwise.

To help explain this discrepancy between an intact ability to regulate emotions upon instruction and compromised performance in everyday emotion regulation in BD, we thought it might be useful to distinguish between a person's capacity to regulate when cued, and what that person actually does when given the choice as to how to regulate emotion. In terms of emotion regulation choices, it has been theorized that healthy individuals will select regulatory strategies that suit differing contextual demands (Sheppes, 2014; Sheppes & Levin, 2013). Specifically, previous studies (e.g., Schonfelder, Kanske, Heissler, & Wessa, 2014; Sheppes, Catran, & Meiran, 2009; Sheppes & Meiran, 2008) found that under low emotional intensity, distraction and reappraisal can both reduce negativity, but only reappraisal allows for emotional processing which is important for long-term adaptation. However, under high emotional intensity, distraction—which blocks emotional information processing—more successfully reduces emotion relative to reappraisal. Accordingly, it was found that healthy college-aged individuals flexibly switched their regulatory choice from preferring reappraisal under low negative and positive intensity situations to preferring distraction under high negative and positive intensity situations (Sheppes et al., 2011, 2014).

Taken together, these findings suggest the possibility that individuals with BD—despite their intact capacity to regulate—might be failing to make adaptive choices as to how to regulate. Moreover, work in healthy adults provides clues into the important role of emotion regulation choice in highlighting potential factors that may explain why individuals with BD exhibit difficulty regulating emotions, despite possessing an intact capacity to regulate. The present study thus aimed to characterize emotion regulation choice patterns in positive and negative emotional contexts of high and low intensity levels among remitted individuals with BD as compared with healthy controls (CTL). The present study utilized a modified version of the validated emotion regulation choice (ERC) paradigm (Sheppes et al., 2011, 2014) that allowed us to examine the selection of emotion regulation strategies across contexts that varied in emotional valence and intensity, addressing two aims. The first aim was to replicate and extend previous results from an ERC task in a negative context in healthy college-aged adults (Sheppes et al., 2011) and in a positive context with healthy male adults (Sheppes et al., 2014), to the present investigation of a more diverse community sample of healthy male and female adults. We predicted that the CTL group would choose distraction less frequently for low intensity negative and positive photos, and more frequently for high intensity negative and positive photos. This would suggest that emotion regulation choice preferences are robust across age ranges and gender among healthy adults. The second aim was to explore group differences between the clinical BD and healthy CTL groups. We predicted that the BD group would choose distraction more frequently than reappraisal across all contexts (i.e., high and low positive and negative photos) in comparison to the CTL group. These predictions were guided by prior literature suggesting that individuals with BD have difficulty regulating emotions (Gruber, 2011) and generally employ maladaptive regulation strategies (Gruber et al., 2011a; Gruber et al., 2012).

Method

Participants

Participants were individuals diagnosed with currently remitted BD Type I ($n = 25$), and individuals who did not meet current or past criteria for any *DSM–IV–TR* Axis I disorders ($n = 26$). Power analyses (using standard estimates of adequate power of 0.80) suggest that our remaining sample size [BD group ($n = 25$) and CTL group ($n = 26$)] was adequately powered to detect a medium to large effect size (i.e., $\eta_p^2 \geq 0.11$). We focused specifically on BD participants in remission in order to minimize the possible effects of phasic mood state on emotion regulation strategy choice patterns (e.g., Gruber et al., 2011a). Exclusion criteria included a lifetime history of stroke, severe head trauma, neurological disease, autoimmune disorder, alcohol or substance abuse in the past 6 months, and impaired cognitive functioning on the Mini Mental Status Examination. Given BD is highly comorbid with other disorders (e.g., Kessler et al., 2005), participants were not excluded based on comorbidities, excluding current substance and alcohol use disorders (See Table 1). The BD group included the following comorbidities, social phobia ($n = 1$), specific phobia ($n = 2$), obsessive–compulsive disorder ($n = 1$), generalized anxiety disorder ($n = 1$), pain disorder ($n = 1$), and binge eating disorder ($n = 1$).

Measures of Clinical Functioning

Diagnostic evaluation. All Axis I diagnoses were assessed using the Structured Clinical Interview for *DSM–IV* (SCID-IV; First, Spitzer, Gibbon, & Williams, 2007). Trained interviewers (i.e., clinical psychology doctoral candidates and research fellows) administered the SCID-IV. Additional measures of illness duration, age of onset, and lifetime number of manic and depressive episodes were also obtained. Diagnostic ratings between the original interviewer and independent reviewer for a subset ($n = 21$; 40%) matched 95.24% (mean $\kappa = 0.95$) for primary Axis I diagnosis and 94.44% (mean $\kappa = 0.94$) across Axis I diagnoses.

Table 1
Demographic and Clinical Characteristics

	BD	CTL	All	Statistic
Demographic				
Age (Yrs)	33.64 (12.38)	33.35 (10.73)	33.49 (11.45)	$F = 0.01$
Female (%)	48.0	52.0	49.0	$\chi^2 = 0.02$
Caucasian (%)	92.0	92.3	92.2	$\chi^2 = 0.002$
Education (Yrs)	15.37 (1.91)	15.79 (2.48)	15.58 (2.20)	$F = 0.43$
Employed (%)	53.8	68.0	60.8	$\chi^2 = 1.07$
Single/NonPartnered (%)	48.0	38.5	43.1	$\chi^2 = 0.47$
Cognitive				
MMSE	28.04 (1.97)	28.65 (1.72)	28.35 (1.85)	$F = 1.41$
Working Memory	12.16 (3.16)	12.04 (3.03)	12.10 (3.06)	$F = 0.02$
Clinical				
YMRS	1.48 (1.53)	0.62 (0.85)	1.04 (1.30)	$F = 6.28^*$
IDS-C	4.00 (3.07)	2.81 (2.61)	3.39 (2.88)	$F = 2.24$
Age of onset	18.57 (7.75)	—	—	—
Illness duration (Yrs)	13.77 (12.62)	—	—	—
# lifetime manic episodes	9.91 (12.35)	—	—	—
# lifetime depressive episodes	14.77 (17.34)	—	—	—
# comorbid disorders	0.28 (0.54)	—	—	—
# psychotropic medications	1.80 (1.55)	—	—	—
# anticonvulsants	0.60 (0.65)	—	—	—
# antidepressants	0.48 (0.71)	—	—	—
# atypical antipsychotics	0.28 (0.46)	—	—	—
# anxiolytics	0.08 (0.28)	—	—	—
# mood stabilizers	0.28 (0.46)	—	—	—
# amphetamines	0.04 (0.20)	—	—	—
# sedative-hypnotics	0.08 (0.28)	—	—	—
# outpatient treatment (past 3 months)	0.68 (0.48)	0.00	0.33 (0.48)	—
# emergency room visit	0.00	0.00	0.00	—
# inpatient psychiatric hospitalization	0.00	0.00	0.00	—

Note. BD = Bipolar disorder group; CTL = Healthy control group; YMRS = Young Mania Rating Scale; IDS-C = Inventory of Depressive Symptomatology-Clinician; MMSE = Mini Mental State Exam. Working memory scores presented are age-normed scaled scores. Mean values (with standard deviations) are displayed.
$^* p < 0.05$.

Mood symptoms. The Young Mania Rating Scale (YMRS; Young, Biggs, Ziegler, & Meyer, 1978) is an 11-item, clinician-rated measure of current manic symptoms with scores ranging from 0 to 60. Current symptoms of depression were measured using the Inventory of Depressive Symptomatology-Clinician (IDS-C; Rush, Gullion, Basco, Jarrett, & Trivedi, 1996), a 30-item, clinician-rated measure of current symptoms of depression. Interrater reliability between the original interviewer and an independent rater for approximately 40% ($n = 21$) of videotaped interviews were strong for the YMRS (= 0.86) and IDS-C (= 0.99). Current remitted status was determined using the SCID-IV mood module criteria for the past month and cutoff scores on the YMRS (≤7) and IDS-C (≤11) for the past week.

Measures of Baseline Cognitive Functioning

General cognitive functioning. In order to assess participants' general cognitive functioning, the Mini Mental State Examination was utilized (MMSE; Folstein, Folstein, & McHugh, 1975). The MMSE is a 30-item assessment that takes approximately 10 minutes to administer and screens for cognitive functioning in such domains as orientation, recall, calculation, attention, naming, repetition, comprehension, reading, writing, and drawing. The MMSE scores range from 0 to 30, with 30 reflecting the highest functioning.

Working memory. The letter-number sequencing subtest of the Wechsler Adult Intelligence Scale-IV (WAIS-IV; Wechsler, 2008) was utilized to assess baseline working memory. In this test, participants read aloud a series of increasingly long lists of numerical digits and alphabetical letters and verbally repeat back all numbers (in numerical order) first, followed by all letters (in alphabetical order). Raw scores (ranging from 0 to 21) are calculated as the total number of trials correct, from which WAIS-IV age-norm scaled scores are computed.

Emotion Regulation Choice Task

The Emotion Regulation Choice task (ERC; Sheppes et al., 2011, 2014) contained both a negative and positive condition, which were counterbalanced. At the beginning of each condition, participants completed a 60 s resting baseline in front of a blank computer screen and completed baseline emotion ratings (see below). Next, at the beginning of each condition, participants completed a practice ERC session, which contained photos that matched the valence of the upcoming task accordingly. During practice sessions, participants were taught the meaning of reappraisal and distraction, and practiced the strategies aloud with the experimenter using practice photos. Participants had to demonstrate understanding of the task through correctly defining both terms, describing the difference between the two strategies, and completing multiple practice examples where they correctly implemented each strategy before proceeding.

For the ERC task trials, 30 negative and 34 positive photos were selected from the International Affective Photo System (IAPS; Lang, Bradley, & Cuthbert, 2008), consisting of 15 low intensity negative photos (Arousal: $M = 4.97$, $SD = 0.75$; Valence: $M = 3.47$, $SD = 0.57$), 15 high intensity negative photos (Arousal: $M = 5.99$, $SD = 0.79$; Valence: $M = 2.74$, $SD = 3.61$), 17 low intensity positive photos (Arousal: $M = 4.47$, $SD = 1.07$; Valence: $M = 6.57$, $SD = 0.88$), and 17 high intensity positive photos (Arousal: $M = 6.52$, $SD = 0.97$; Valence: $M = 6.80$, $SD = 1.12$). Photo selections are consistent with previous studies utilizing this paradigm (Sheppes et al., 2011, 2014). Photo valence and arousal were significantly different for high and low intensity negative photos (both Fs > 19.01, ps < 0.001) as well as for high and low intensity positive photos (both Fs > 18.95, ps < 0.001; Sheppes et al., 2011, 2014). Each photo was presented for a brief period (500 ms) after which participants pressed a button on the keyboard to select a regulation strategy (distraction or reappraisal) to decrease their emotional intensity while viewing that photo. Participants then viewed the photo again (5,000 ms) while implementing their chosen strategy. After each photo, participants separately rated how positively and negatively they felt on a 1 (*not at all*) to 9 (*very*) scale (Sheppes et al., 2011, 2014).

Following the task, as a manipulation check, participants were asked to a) give examples of how they implemented these strategies, b) rate their general ability to use each strategy on a 1 (*not at all well*) to 7 (*very well*) scale, c) state the percentage of time they implemented each strategy after they chose it, and) state the percentage of time they looked away from the photos for each condition. There were no group differences in these manipulation check items (all $ps > .13$).

Measurement of Emotion Experience

Baseline positive and negative emotion experience was measured using the 10-item short form of the PANAS scale (Mackinnon et al., 1999), including five positive and five negative emotion terms rated on a 1 (*very slightly or not at all*) to 5 (*extremely*) scale ($PA_{average}$ $\alpha = .83$; $NA_{average}$ $\alpha = .52$).

Procedure

The present study consisted of three main parts. First, after obtaining informed consent, trained clinical psychology doctoral candidates and research fellows administered the SCID-IV, IDS-C, YMRS, and cognitive functioning measures. Second, participants completed the ERC task (in addition to other tasks unrelated to the present study, of which the ERC task occurred second). Third, participants were offered the option to watch a brief calming video from the *Planet Earth* series (declined to view: CTL 68%, BD 76%).

Data Analyses

For all analyses, reported p values are two-tailed, and significant effect sizes are presented as partial eta squared (η_p^2). Before all analyses were conducted, skewness and kurtosis significance tests were conducted for all dependent variables. Three variables (positive ratings of positive photos, negative ratings of positive photos, positive ratings of negative photos) were positively skewed, one was negatively skewed (distraction for high intensity negative photos), and three were leptokurtic (distraction for high intensity negative photos, negative ratings of positive photos, positive ratings for negative photos). To normalize the data, log transformations were used in all analyses; however, nontransformed values are presented in Figure 1 for ease of interpretation. Two participants (one CTL, one from BD group) who self-reported to the experimenter that they did not understand or follow task instructions were removed from data analysis. Additionally, four other participants were removed from data analysis due to only having partial data,[1] leaving a final sample of 25 BD and 26 CTL participants.

Results

Preliminary Analyses

There were no differences between positive and negative images in self-reported arousal across participants ($p = 0.36$). Outcome variables were not associated with age or gender ($ps > .05$). Task order did not affect analysis results ($ps > 0.05$). As noted in Table 1, BD and CTL participants did not significantly differ with respect to age, gender, ethnicity, and education ($ps > 0.05$). The two groups did not significantly differ on IDS-C scores ($p = 0.14$) but did differ on YMRS symptom scores ($p = .02$), with the BD group scoring higher than the CTL group. The groups did not differ in working memory ($p = .89$) or general cognitive functioning ($p = .24$). There were no significant group differences for baseline positive or negative affect ($ps > .05$).

Primary Analyses

For Aim 1, we conducted a 2 (Valence) × 2 (Intensity) repeated measures analysis of variance (ANOVA) with the frequency of distraction strategy as the dependent variable (quantified as the total number of times a participant chose distraction divided by the number of photos in that condition, and thus reappraisal was the inverse of this total) for the CTL group only. Replicating prior findings, results revealed a significant main effect for Intensity, such that participants chose distraction more for high ($M = 60.9\%$, $SD = 12.9\%$, 95% CI [0.56, 0.65]) compared to low intensity photos ($M = 32.3\%$, $SD = 17.1\%$, 95% CI [0.26, 0.36]), $F(1, 25) = 703.91$, $p < .001$, $\eta_p^2 = 0.97$. There was a significant main effect found for Valence, such that participants used distraction more for negative ($M = 49.2\%$, $SD = 13.1\%$, 95% CI [0.42, 0.52]) than positive ($M = 44.0\%$, $SD = 15.2\%$, 95% CI [0.40, 0.49]) photos, $F(1, 25) = 646.50$, $p < .001$, $\eta_p^2 = 0.96$. Additionally, there was a significant two-way interaction for Intensity×Valence, $F(1, 25) = 683.14$, $p < 0.001$, $\eta_p^2 = 0.97$. To decompose this Valence × Intensity interaction, we conducted follow-up one-way repeated measures ANOVAs separately for the high and low intensity conditions. In the low intensity condition, there was no

[1] Results remained the same when analyzed including the participants who failed the manipulation check items, which refer to how well participants were able to understand and implement the emotion regulation strategies.

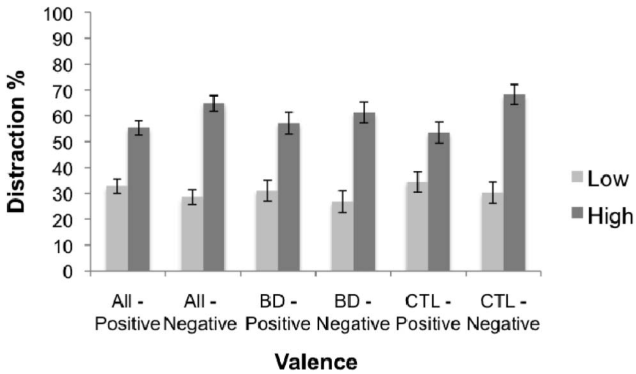

Figure 1. Distraction choice frequencies for positive and negative photos for all participants and for the BD and CTL groups separately. Error bars refer to standard error.

significant difference in distraction choice for positive (M = 34.4%, SD = 3.9%, 95% CI [0.26, 0.42]) versus negative (M = 30.3%, SD = 4.0%, 95% CI [0.22, 0.38]) photos, $F(1, 25) = 1.04$, $p = .32$, $\eta_p^2 = 0.04$. For high intensity photos, distraction was used significantly more for negative (M = 68.2%, SD = 11.8%, 95% CI [0.63, 0.73]) versus positive (M = 53.6%, SD = 4.0%, 95% CI [0.45, 0.62]) photos, $F(1, 25) = 1{,}345.76$, $p < .001$, $\eta_p^2 = 0.98$ (See Figure 1).

For Aim 2, we tested the second prediction that the CTL and BD groups would show different strategy choice patterns in contexts of varying valence and intensity. To that end, a 2 (Group) × 2 (Valence) × 2 (Intensity) mixed model ANOVA[2] was conducted with the frequency of distraction strategy as the dependent variable. Results revealed a significant main effect for Intensity, such that all participants chose distraction more for high (M = 60.1%, SD = 16.2%, 95% CI [0.56, 0.65]) compared to low intensity photos (M = 30.7%, SD = 17.8%, 95% CI [0.26, 0.36]), $F(1, 49) = 1{,}463.82$, $p < .001$, $\eta_p^2 = 0.97$. There was a significant main effect found for Valence, such that participants used distraction more for negative (M = 46.7%, SD = 17.6%, 95% CI [0.42, 0.52]) than positive (M = 44.1%, SD = 15.7%, 95% CI [0.40, 0.49]) photos, $F(1, 49) = 1{,}285.69$, $p < .001$, $\eta_p^2 = 0.96$. There was no significant main effect found for Group, $F(1, 49) = 0.06$, $p = 0.81$, $\eta_p^2 = 0.001$. Additionally, there was a significant two-way interaction for Intensity × Valence, $F(1, 49) = 1{,}257.86$, $p < 0.001$, $\eta_p^2 = 0.96$, and we conducted follow-up two-way mixed model ANOVAs for the low and high intensity conditions. In the low intensity condition, there was no significant difference in distraction use for positive (M = 32.8%, SD = 19.9%0, 95% CI [0.27, .38]) versus negative (M = 28.6%, SD = 21.0%, 95% CI [0.23, 0.35]) photos, $F(1, 50) = 2.16$, $p = 0.15$, $\eta_p^2 = 0.04$. However, for high intensity photos, distraction was used across participants significantly more for negative (M = 64.8%, SD = 20.2%, 95% CI [0.59, 0.71]) than positive (M = 55.4%, SD = 20.7%, 95% CI [0.50, 0.61]) photos, $F(1, 50) = 7.37$, $p = 0.01$, $\eta_p^2 = 0.13$. Both two-way interactions for Valence x Group, $F(1, 49) = 0.21$, p = 0.65, $\eta_p^2 = 0.004$, and Intensity × Group, $F(1, 49) = 1.01$, p = 0.32, $\eta_p^2 = 0.02$, were nonsignificant. Contrary to predictions, there was not a significant higher-order three-way interaction for Group × Valence × Intensity, $F(1, 49) = 0.18$, $p = 0.67$, η_p^2 = 0.004 (See Figure 1).[3]

Discussion

Individuals with BD experience difficulties spontaneously regulating their emotions but can do so effectively upon instruction. However, it is not clear what mechanisms may underlie, and give rise to, difficulties effectively and adaptively regulating emotions in this disorder. The present investigation was the first to our knowledge to use a rigorous experimental approach to examine potential mechanisms that may underlie the previously discovered discrepancy between intact emotion regulation ability and impaired emotion regulatory achievement in BD using a previously validated emotion regulation strategy choice paradigm (Sheppes et al., 2011, 2014). This study also systematically measured several potentially important confounds—including symptom severity, baseline working memory, and general cognitive functioning—to rule out other potential explanations for the observed findings.

Our first aim was to replicate and extend previous findings suggesting that healthy individuals use distraction less in low intensity contexts and more in high intensity contexts across both negative and positive conditions. Based on previous findings in an undergraduate sample (Sheppes et al., 2011) and in healthy male adults (Sheppes et al., 2014), we predicted that our healthy community adult sample would use distraction more in high intensity negative and positive contexts versus low intensity negative and positive contexts. Indeed, our findings support this hypothesis by robustly replicating the emotion regulation choice pattern finding in healthy community adults, across genders, in negative and positive emotional contexts. These findings, taken in conjunction with recent literature, seem to suggest that although reappraisal may be adaptive in some contexts (e.g., low intensity negative contexts), it is also critical to be able to utilize other context-

[2] Results remain the same when analyses are run separately for positive and negative photo conditions, as well as when controlling for YMRS symptom scores.

[3] We conducted secondary analyses related to emotion experience during the task in order to determine if differential emotion experience (i.e., participants' ratings of how positively and negatively they felt after each image) between groups might be associated with emotion regulation strategy choice patterns. Toward this end, 2 (Group: BD, CTL) × 2 (Photo: Negative, Positive) mixed model ANOVAs were conducted for positive and negative ratings after each image during the task. For the negative images, there was no significant main effect for Group, $F(1, 44) = 1.19$, $p = 0.28$, $\eta_p^2 = 0.03$, and no significant Group × Valence interaction, $F(1, 44) = 0.65$, $p = 0.43$, $\eta_p^2 = 0.02$. For the positive images, there was also no significant main effect for Group, $F(1, 44) = 0.89$, $p = 0.33$, $\eta_p^2 = 0.02$, and no significant Group × Valence interaction, $F(1, 44) = 1.86$, $p = 0.18$, $\eta_p^2 = 0.04$. In sum, although we did not directly measure reactivity, these results do not provide suggestive evidence of baseline group differences in emotion intensity that may have influenced results obtained for the ERC task. Although this is counter to previous research suggesting that individuals with BD exhibit increased positive reactivity (Johnson, 2005) across negative, neutral, and positive stimuli (Gruber et al., 2011b), it should be noted that this was not a true measure of naturalistic emotion reactivity as measurements were recorded after participants engaged in spontaneously chosen, but cue-provided, emotion regulation instructions and after emotion regulatory efforts were implemented and so subsequent emotion regulation efforts may have masked initial reactivity differences. However, it should be noted that it is difficult to fully interpret these results because of possible differences in effectiveness of employing the two different strategies under different emotion intensities. The allowance of emotion regulation strategy choice and the strong preferences for strategies based on emotion intensity make it so that the emotional content and intensity are not held constant across both regulatory conditions.

appropriate regulation strategies, such as distraction. Indeed, emotion regulation flexibility is also imperative to adaptive regulation more so than the specific strategy chosen (Bonanno, Papa, Lalande, Westphal, & Coifman, 2004).

Findings for our second aim suggested that both the BD and CTL groups chose distraction more frequently for high versus low intensity, and more frequently for negative versus positive, photos. This is consistent with the possibility that emotion regulation choice remains largely intact for individuals with BD, despite difficulties with emotion dysregulation more generally. This points to an area of relative preservation in BD in the ability to select appropriate strategies when given a clearly delimited choice and a choice point for when to regulate. The results of this study indicate successful cued emotion regulation strategy selection, which when considered along with evidence of successful cued emotion regulation implementation (Gruber et al., 2014), suggests a general cued emotion regulation ability in individuals with bipolar disorder that has promising implications for therapeutic treatments of the disorder. An important next step will be to explore the effectiveness of strategies chosen by individuals with BD to regulate emotion, possibly by utilizing a study design that implements emotion regulation effectiveness ratings after each picture presentation and comparing strategy effectiveness.

The present investigation should be interpreted within the confines of several limitations. First, participants' emotion regulation strategy choices were drawn from a forced-choice paradigm, which may preclude our ability to examine concurrent use of multiple strategies observed in prior BD research (e.g., Gruber et al., 2011a, Gruber et al., 2012) or additional strategies shown to be effective in reducing distress and symptom severity, such as acceptance in mindfulness traditions (Chambers, Gullone, & Allen, 2009) or acting opposite to one's emotional state (Linehan, 1993). Additionally, future studies could explore potential sources of emotion regulation choice differences in less well-studied and putatively maladaptive strategies, including rumination. Second, it is also important to note that differences may exist between how individuals would choose to regulate their emotions in a laboratory versus a real-life setting and as such more ecologically valid settings utilizing daily emotional experiences are warranted. Third, we were unable to determine the effectiveness of participants' ability to employ emotion regulation strategies; that is, whether the chosen strategies actually led to a subsequent reduction in emotion intensity. Fourth, we note that the present sample sizes were small, although impressive given the severe nature of the psychiatric groups recruited and complexity of the measured variables. Although our power analyses suggested we were well-suited to detect medium to large effect sizes, we acknowledge that it is possible that we may have failed to detect more subtle effects. Even though our sample size necessarily constrained our statistical power and ability to reject the null hypothesis, group means were not suggestive of possible differences in emotion regulation choice patterns (See Figure 1). Nevertheless, future studies with larger sample sizes to examine the generalizability of these findings are an important next step. Fifth, BD participants were remitted at the time of testing, which represents a relative strength insofar as it enables the identification of vulnerability factors during the remission period. Nonetheless, it will be critical to examine the relative influence of manic and depressive mood state to isolate trait versus more state-related features of emotion regulation. Finally, given the challenges of accessing an unmedicated BD sample, we were unable to investigate the influence of medication effects on results and so future studies with larger samples, assessment of blood serum levels, and random assignment of individuals on different medication classes are warranted.

In conclusion, the present study did not provide suggestive evidence for an emotion regulation deficit perspective in BD, but instead suggests potential avenues of intact regulatory performance in this disorder. Such findings could have implications for treatment targets as they suggest that strategy choice may not need to be focused on but rather another aspect of the process. Specifically, perhaps focus in treatment may be less on which strategies are chosen but rather on other alternative angles, such as the duration the strategy is employed or how often they are actually utilized in daily life. As such, future studies should continue to explore other aspects of the emotion regulation process in order to determine when and how emotion regulation may go awry in this pernicious and costly disorder.

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