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Emotion Regulation Frequency and Self-Efficacy: Differential Associations with Affective Symptoms

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Successful emotion regulation is a critical component of mental health, and difficulties with emotion regulation have been associated with a wide range of disorders, including anxiety and depressive disorders. However, although much is known about commonly used forms of emotion regulation such as cognitive reappraisal and expressive suppression, the relative contribution of two important facets of emotion regulation—frequency and self-efficacy—is not yet clearly established. To address this issue, we conducted two studies. Study 1 employed a community sample (cross-sectional $N = 431$; 4- to 5-month longitudinal $N = 182$). Study 2 employed a clinical sample (cross-sectional $N = 132$). Both assessed emotion regulation frequency and self-efficacy, as well as affective outcomes (anxiety and depressive symptoms). Findings indicated cognitive reappraisal self-efficacy appears to be a relevant variable understanding negative affect outcomes, cross-sectionally, longitudinally and in the clinical sample. Our findings support the process model of emotion regulation in affective symptomatology. Implications for theory and treatment are discussed.

Keywords: emotion regulation; emotion regulation self-efficacy; anxiety; depression

Successful emotion regulation is now widely viewed as a critical component of mental health, and a protective factor with respect to anxiety and depressive disorders (Gross, 2015). However, uncertainty remains regarding the relative contributions of two important emotion regulation facets—namely, emotion regulation frequency and emotion regulation self-efficacy.

Emotion Regulation Frequency

Much of the work on emotion regulation to date has focused on the frequency with which individuals typically use specific emotion regulation strategies. One particular target of interest has been cognitive reappraisal, which is an often-effective emotion regulation strategy (Gross, 2013; see Webb et al., 2012). It refers to modifying how one thinks about an emotion-eliciting event to alter its emotional impact (see Gross, 1998; Uusberg et al., 2019).

In 2010, Aldao and colleagues found in their meta-analysis modest but reliable associations between cognitive reappraisal frequency and

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anxiety ($r = -.13$) and depression ($r = -.17$), and Hu et al. (2014) in another meta-analysis found cognitive reappraisal frequency was positively correlated with positive indicators of mental health ($r = .26$) and negatively with negative indicators of mental health ($r = -.20$). More recently, Dryman and Heimberg (2018) found in a systematic review that cognitive reappraisal frequency was negatively related to major depression disorder in cross-sectional studies. Among undergraduate, community, and clinical samples, less frequent cognitive reappraisal predicted greater self-reported symptoms of depression, with effect sizes predominantly in the moderate to large range (d's = 0.28–1.19). However, there is a scarcity of longitudinal studies, and they show mixed effects. Arditte and Joormann (2011) found that, after controlling for depression symptom severity, use of emotion regulation strategies predicted recovery status at Time 2. Specifically, use of reflection at Time 1 was a unique and significant predictor of greater chance for recovery from a major depressive episode. Brewer and colleagues (2016) found that one's use of emotion-regulation strategies predicts future profiles of psychosocial functioning, even while adjusting for profile status 8 months earlier. Cognitive reappraisal and suppression predicted subsequent levels of several components of psychosocial adjustment, also above and beyond baseline levels of these outcomes. And finally, Cludius and colleagues (2020), in their critical review, found consistent evidence showing that a reduced use of cognitive reappraisal is present across a number of disorders; however, there was only preliminary evidence from prospective and/or experimental studies. For example, in a recent experimental study, Andrews et al. (2023) found that symptoms of depression and anxiety were unrelated to self-reported negative affect after cognitive reappraisal. Reappraisal capacity—not frequency—was unrelated to depressive and anxiety symptoms.

The effects of cognitive reappraisal are often contrasted with those of expressive suppression, which refers to inhibiting ongoing emotion-expressive behavior (Gross, 2015). Suppression typically is related to weak, null, or paradoxical changes in negative emotion (Goldin et al., 2008; Gross, 1998). In general, greater suppression frequency is often associated with less well-being, less positive affect (Fernandes & Tone, 2021), and more symptoms of psychopathology (Cameron & Overall, 2018; see McRae & Gross, 2020).

Thus, Aldao and colleagues (2010) found small to moderate effects of suppression on anxiety ($r = .29$) and depression ($r = .36$). Hu et al. (2014) found expressive suppression was correlated negatively with positive indicators of mental health ($r = -.12$), and positively with negative indicators of mental health ($r = .15$). Dryman and Heimberg (2018) found that individuals with high social anxiety reported more frequent expressive suppression (d's = 0.49–1.09), and these findings were evident in community and clinical samples, and in both cross-sectional and longitudinal designs. Regarding depression, authors found relatively mixed findings. Most cross-sectional studies of nonclinical samples have found more frequent suppression to be associated with greater depression, with small to moderate effect sizes in both undergraduate (d's = 0.35–0.71) and community samples (d's = 0.39–0.70). However, other research with undergraduate samples did not find a relationship between suppression and depressive symptoms (d's = 0.04–0.28), and results from clinical samples were also mixed.

EMOTION REGULATION SELF-EFFICACY

These mixed effects suggest the possibility that measures of emotion regulation frequency are missing something important in the process. Emotions can be misregulated for a variety of reasons depending on context, individual difference factors, and underlying beliefs and motivations (Gross & Jazaieri, 2014). From an individual difference perspective, one missing factor might be emotion regulation self-efficacy, which refers to the belief that one has the ability to successfully regulate emotions when needed (Dryman & Heimberg, 2018). In other words, to regulate emotions effectively, people need to *believe that it is possible* to regulate their emotions (Gutentag et al., 2017; Kneeland et al., 2016).

The term *self-efficacy* reflects highly contextualized knowledge structures that affect appraisal processes, which, in turn, guide our actions (Bandura, 1997). Historically, self-efficacy beliefs have been linked to motivation (Bandura & Cervone, 1986), cognitive and behavioral change (Bandura, 1977), and enhanced affect regulation (Bandura et al., 2003).

One crucially relevant type of self-efficacy concerns one's ability to successfully use reappraisal (cognitive reappraisal self-efficacy) or suppression (suppression self-efficacy). This *emotion regulation self-efficacy* may provide a sense of control over one's emotions. Thus, if individuals have the conviction that they can successfully apply emotion regulation strategies, they will be more likely to use them and learn how these strategies impact their emotions. It is important to note that,

although self-efficacy can promote greater use of emotion regulation strategies, successful emotion regulation strategy use can also enhance self-efficacy.

In fact, deficits in emotion regulation self-efficacy have been documented in some disorders (Southward et al., 2021). Treatments for emotional disorders enhance emotion regulation self-efficacy, and emotion regulation self-efficacy is related to greater emotion regulation strategy use, and it has been shown that emotion regulation self-efficacy predicts changes in emotional outcomes at different timescales in treatment (Southward et al., 2021). For example, patients with social anxiety disorder showed lower levels of cognitive reappraisal self-efficacy than nonclinical controls (Goldin et al., 2009; Werner et al., 2011), and it was found that change in reappraisal self-efficacy mediated therapy outcomes in the context of cognitive-behavioral therapy for social anxiety disorder (Goldin et al., 2013). However, less is known about the role of suppression self-efficacy. To our knowledge, only one study has explored suppression self-efficacy, finding effects of improvement after CBT treatment—namely, decreasing suppression self-efficacy (Kivity et al., 2021).

THE PRESENT RESEARCH

Both dimensions, (a) the strategic behavior or the implementation of the strategy, and (b) the belief in one's ability to regulate their emotions successfully, would play a differential role in one's emotional daily life and in psychological treatments (Goldin et al., 2012). They could explain differently affective symptomatology. The goal of the present research was to examine links between emotion regulation frequency and emotion regulation self-efficacy, on the one hand, and symptoms of anxiety and depression on the other. We addressed this goal via two studies. In the first study, we used a community sample to test both cross-sectional and longitudinal associations among emotion regulation measures and affective outcomes. In the second study, we replicated these associations using a cross-sectional study with a clinical sample. Based on the literature, we expected that cognitive reappraisal (frequency and self-efficacy) would be negatively associated with anxiety and depressive symptoms, and expressive suppression (frequency and self-efficacy) would be positively associated with anxiety and depressive symptoms. We expected to detect these effects in both samples, both cross-sectionally and longitudinally.

Study 1: Cross-Sectional and Longitudinal Associations

The goal of this study was to examine the associations among cognitive reappraisal (frequency and self-efficacy), expressive suppression (frequency and self-efficacy), and clinical symptoms of depression and anxiety cross-sectionally and prospectively.

METHOD

Participants

As part of a larger study, 431 individuals (75% female, 25% male) ranging in age from 18 to 70 years ($M = 25.5$, $SD = 12.2$) were recruited in Spain. Of these, 234 were students (83% female, 17% male), ranging in age from 18 to 55 ($M = 20.4$, $SD = 4.9$) and 197 were nonstudents (64.5 % female, 24.5% male), ranging in age from 18 to 70 ($M = 31.5$, $SD = 15.1$). In the total sample, 74.6% had completed secondary education, 12.1% had a university degree, and 0.2% a postgraduate level degree. In terms of economic status, 16.7% reported annual income less than €12.000, 38.7% between €12.000 and 24.000, 24.4% between €24.000 and 36.000 and 20.2% more than €36.000.

From this initial sample, 182 individuals (81.3% female) completed follow-up questionnaires to assess anxiety and depression symptoms 4 to 5 months later, in a Time 2 follow-up assessment. Age of this follow-up assessment ranged from 18 to 60 years ($M = 22.78$, $SD = 9.29$). Of these, 88.5% had completed secondary education, 9.3% had a university degree and 0.5% a postgraduate level degree. On the other hand, 19.2% reported annual income less than €12.000, 42.9% between €12.000 and 24.000, 24.2% between €24.000 and 36.000 and 13.7% more than €36.000.

We tested for differences between participants who completed both T1 and T2 and those who did not complete T2 follow-up session. We found significant differences in age, $t(429) = 4.67$ ($p < 0.01$), gender, $\chi^2(2) = 8.41$ ($p = 0.01$), and in levels of anxiety symptoms, $t(429) = -2.23$ ($p = 0.03$), with people who completed the questionnaires at both times being more likely to be female, younger, and high in anxiety.

PROCEDURE

Participants were university students and nonstudents from the general population in Spain. Student participants were verbally informed about the study during university courses and were compensated with class credit for their participation. Nonstudent participants were approached using a snowball procedure (student participants recruited non-student participants), and no compensation was given to

them. They were instructed to complete informed consent and questionnaires electronically and individually, with instructions given in writing. Participants who had taken part in the first stage were also asked whether they would like to be included in the second stage of the study, which would occur 4 to 5 months later. If they agreed, an identification code known only by the participant was provided and they were contacted later for the follow-up assessment. Participation was voluntary and anonymous. Ethical approval was obtained from the Complutense University of Madrid (Ref.: 2017/18-021).

MEASURES

Emotion Regulation Frequency

Reappraisal and suppression frequency were measured using the Emotion Regulation Questionnaire (ERQ; Gross & John, 2003). This is a 10-item self-report questionnaire assessing cognitive reappraisal (6 items; e.g., "When I want to feel less negative emotions, I change the way I'm thinking about the situation") and expressive suppression (4 items; e.g., "I control my emotions by not expressing them"). Items are answered on a 7-point Likert scale (1 = *completely disagree*; 7 = *completely agree*) with higher scores indicating greater habitual usage of that strategy. The ERQ is a widely used scale to assess emotion regulation that has shown good psychometric properties (Cabello et al., 2013; Preece et al., 2021). Reliability in this study was adequate (see Table 1).

Emotion Regulation Self-Efficacy

Reappraisal and suppression self-efficacy were measured using a version of the Emotion Regulation Questionnaire that focused on self-efficacy using the same items as the ERQ-frequency (see Goldin et al., 2009). This 10-item self-report measure assessed cognitive reappraisal self-efficacy (6 items, e.g., "When I really want to, I am very capable of controlling my emotions by changing the way I think about the situation I'm in") and suppression self-efficacy (4 items; e.g., "When I really want to, I am very capable of keeping my emotions to myself"). Items are answered on a 7-point Likert scale (1 = *completely disagree*; 7 = *completely agree*) with higher scores indicating greater self-efficacy in the usage of that strategy. Reliability in this study was adequate (see Table 1).

Anxiety and Depression Symptoms

Anxiety symptoms were measured using the Patient-Reported Outcomes Measurement Information System; Anxiety domain (PROMIS-A; Cella et al., 2007). This is an 8-item self-report scale which assesses anxious symptomatology in the last 7 days (e.g., "I had difficulty concentrating on anything other than my anxiety"). The eight items version uses a Likert-type scale, with five response options (1 = *never*, 5 = *always*), with a score range of 8 to 40. The items are based on the diagnostic criteria for anxiety disorders of the *Diagnostic and Statistical Manual of Mental Disorders* (5th edition; American Psychiatric Association, 2013 [DSM-5]). The scale has good psychometric properties (Pilkonis et al., 2011; Teresi et al., 2016). Reliability in this study was adequate (see Table 1). Depressive symptoms were measured using the Patient-Reported Outcomes Measurement Information System; Depression domain (PROMIS-D; Cella et al., 2007). This is

Table 1
Means, Standard Deviations, Internal Reliabilities, and Correlations Among Variables of Interest in the Community Sample

	1	2	3	4	5	6	7	8
N = 431								
1. Reappraisal Frequency	—							
2. Reappraisal Self-efficacy	.52**	—						
3. Suppression Frequency	.04	−.02	—					
4. Suppression Self-efficacy	.12*	.35**	.53**	—				
5. Depressive symptoms	−.09	−.24**	.28**	.16**	—			
6. Anxiety symptoms	−.08	−.29**	.18**	.06	.78**	—		
N = 182								
7. Depressive symptoms T2	−.08	−.25**	.18*	.07	.58**	.52**	—	
8. Anxiety symptoms T2	−.04	−.26**	.14	.07	.56**	.65**	.83**	—
M	28.54	13.19	26.19	16.48	16.24	19.35	16.62	20.36
SD	7.08	7.47	5.64	5.77	7.86	7.48	7.54	7.67
α	.80	.77	.83	.74	.90	.93	.93	.93
ω	.80	.78	.87	.74	.94	.95	.93	.94

* $p < .05$.
** $p < .01$

an 8-item self-report measure that appraises the severity of depressive symptomatology (e.g., "I felt that I have nothing to look forward to"). The items are based on the diagnostic criteria for anxiety disorders of the DSM-5. Responses range from 1 = "Never" to 5 = "Always," so the total score varies from 8 to 40. Findings showed good psychometric properties and validity (Cella et al., 2007; Vilagut et al., 2019). Reliability in this study was adequate (see Table 1).

The data and material are available at https://osf.io/yrqus/?view_only=6c5df28bd0404373b563c7813d9d2a61

DATA ANALYTIC APPROACH

We used IBM SPSS (Version 22) for computing descriptive statistics, internal consistency (Cronbach's alpha and McDonald's omega), correlations, and regression analyses. We performed regression analyses with the cross-sectional and longitudinal samples to examine the specific contribution of cognitive reappraisal and suppression frequency and self-efficacy to depressive and anxiety symptoms. In the cross-sectional sample, the key variable was included as outcome, sex and age were included in step 1, and, in step 2, we included emotion regulation variables that were significantly associated with the key variable in correlation analyses. We used the same approach in the longitudinal sample. Key variables in Time 2 were included as outcome, key variable at Time 1, sex, and age, in step 1, and, in step 2, the emotion regulation variables that were significantly correlated with the key variable.

RESULTS AND DISCUSSION

Descriptive Analyses and Correlations

Descriptive statistics, reliabilities, and zero-order correlation coefficients for all the study variables in Study 1 are shown in Table 1. We found positive correlations between cognitive reappraisal frequency and cognitive reappraisal self-efficacy, and between suppression frequency and suppression self-efficacy. It is notable that whereas the correlation between the frequency of cognitive reappraisal and suppression was nonsignificant, reappraisal and suppression self-efficacy were positively correlated.

Regarding the associations between cognitive reappraisal and suppression (frequency and self-efficacy) and affective symptoms at Time 1, we found cognitive reappraisal self-efficacy correlated negatively and significantly with depression and anxiety symptoms. Suppression frequency and self-efficacy correlated positively and significantly with depression and anxiety symptoms, but only suppression self-efficacy did with anxiety. When looking at affective symptoms at Time 2, cognitive reappraisal self-efficacy also correlated significantly and negatively with depression and anxiety symptoms, and suppression self-efficacy correlated significantly and positively with depression, but not with anxiety. Unexpectedly, reappraisal frequency did not correlate with either depression or anxiety symptoms at either Time 1 or Time 2.

Regression Analyses

Table 2 shows results of regression analyses of cognitive reappraisal frequency and self-efficacy and suppression frequency and self-efficacy on affect outcomes at both Time 1 and Time 2. At Time 1, results revealed that, after controlling for age and sex, cognitive reappraisal self-efficacy ($\beta = -.29$) and suppression frequency ($\beta = .19$) and self-efficacy ($\beta = .14$) had a specific contribution to depressive symptoms. A similar pattern appeared for anxiety symptoms, with both cognitive reappraisal self-efficacy ($\beta = -.27$) and suppression frequency ($\beta = .17$) having a specific effect on these variables. At Time 2, after controlling for Time 1 baseline anxiety and depressive symptoms, age, and sex, we found that cognitive reappraisal self-efficacy had a significant effect on affective symptoms, $\beta = -.16$ for depression and $\beta = -.13$ for anxiety, with people with higher levels of self-efficacy in Time 1 having less depressive and anxiety symptoms 4 to 5 months later.

Study 2: Associations in a Clinical Sample

Although findings from Study 1 were encouraging, one important limitation of this study was the use of a nonclinical sample. In Study 2, we sought to replicate and extend findings from Study 1 using a clinical sample, again drawn from Spain.

METHOD

Participants

A sample of 132 individuals who received inpatient treatment at Mind Group, a private clinic for psychotherapy, was analyzed in the present study. The Mind Group clinic treats patients mainly from the area of Madrid (Spain) and offers patients tailored treatments applying multiple evidence-based therapy methods. In this sample, 75% were female, and the average age was 33.79 ($SD = 12.46$), age ranging from 18 to 70 years. Of them, 72.7% had completed secondary education, 20.5% had a university degree and 4.5% a postgraduate level degree. On the other hand, 6.8% reported annual income less than €12.000, 16.7% between €12.000 and 24.000, 23.5% between €24.000 and 36.000, 16.7% between €36.001 and 48.000, and 36.3% more than €48.000.

Table 2
Regressions Analyses of Cognitive Reappraisal (Frequency and Self-Efficacy) and Suppression (Frequency and Self-Efficacy) on Anxiety and Depressive Symptoms in Time 1 and Time 2 in the Community Sample

	Cross-sectional N = 431											
	Depressive symptoms						Anxiety symptoms					
	R^2	*F*	*SE*	β	*p*	C.I. 95%	R^2	*F*	*SE*	β	*p*	C.I. 95%
Step 1	.04	10.89					.05	13.14				
Sex			.82	.01	.98	−1.63, 1.59			.77	−.10	.04	−3.13, −.9
Age			.03	−.22	<.001	−.20, .08			.03	−.22	<.001	−.19, −.07
Step 2	.17	18.96					.15	20.46		.18		
Reappraisal Self-efficacy			.05	−.28	<.001	−.40, −.20			.04	−.27	<.001	−.35, −.18
Suppression Frequency			.07	.19	<.001	.12, .42			.06	.17	<.001	.11, .35
Suppression Self-efficacy			.08	.14	.02	.04, .34			–	–	–	–
	Longitudinal N = 182											
	Depressive symptoms T2						Anxiety symptoms T2					
	R^2	*F*	*SE*	β	*p*	C.I. 95%	R^2	*F*	*SE*	β	*p*	C.I. 95%
Step 1	.35	33.65					.43	46.47				
Outcome variable T1			.06	.58	<.001	.45, .69			.06	.63	<.001	.53, .76
Sex			1.07	−.06	.02	−4.58, −.34			1.02	−.09	.10	−3.72, .32
Age			.05	−.14	.29	−.14, .04			.04	−.09	.11	
Step 2	.37	22.04					.44	36.99				
Reappraisal Self-efficacy			.07	−.16	.01	−.30, −.04			.06	−.13	.02	−.27, −.02
Suppression Frequency			.09	−.03	.62	−.22, .13			–	–	–	–

Procedure

All patients were evaluated at the second session of the individual treatment, instructed by their therapist to complete an online battery of questionnaires as part of the evaluation. All therapists were independent clinical psychologists, with a grade in psychology and a master's degree in clinical and health psychology, properly trained in assessment, diagnostic, and psychological treatment in accordance with the accreditation required in the country regulation. Patients completed informed consent and the questionnaires electronically and individually. All patients who attended the facilities from January 2020 to April 2022 and received the diagnostic evaluations at the beginning of their treatment were included in the sample, excluding those who met criteria for psychotic and bipolar disorders, as well as those with cognitive impairment. As a primary diagnosis (adhering to ICD-10 guidelines; World Health Organization, 1992), the patients suffered from emotional disorders, 29.3% had any anxiety disorder, 7.5% major depression, 11.3% recurrent depression, and 20.0% primarily suffered from stress and adaptive disorders. The rest of the patients who completed the assessment did not meet specific criteria for any mental disorder.

MEASURES

Emotion Regulation Frequency and Self-Efficacy

Reappraisal and suppression frequency and self-efficacy were measured as they had been in Study 1, using frequency and self-efficacy versions of the Emotion Regulation Questionnaire (ERQ; Gross & John, 2003). Reliability for these measures was adequate (see Table 3).

Anxiety and Depression Symptoms

Anxiety symptoms were assessed using the Generalized Anxiety Disorder–7 (GAD-7; Spitzer et al., 2006). The GAD-7 is a self-administered seven-item instrument used as a screening tool. Its items describe the prominent diagnostic features of the original DSM-IV diagnostic criteria for generalized anxiety disorder. Participants are asked about how often, during the last 2 weeks, they have encountered anxiety symptoms like feeling nervous, trouble relaxing, etc. Response options for each item range from 0 to 3 on a 4-point Likert-scale (0 = *not at all*; 3 = *nearly every day*). Adding the scores of all seven items provide the GAD-7 total score ranging from 0 to 21. Reliability in this study was adequate (see Table 3).

Depressive symptoms were assessed using the Patient Health Questionnaire-9 (PHQ-9; Kroenke et al., 2001). This 9-item questionnaire assesses symptoms of depression with a 2-week recall period (e.g., "Feeling down, depressed or hopeless"). Items are rated on a scale from 0 = "Not at all" to 3 = "Nearly every day," with total scores ranging from 0 to 27. This questionnaire has shown good reliability and validity (Diez-Quevedo et al., 2001; Kroenke et al., 2001). Reliability in this study was adequate (see Table 3).

DATA ANALYTIC APPROACH

We used IBM SPSS (Version 22) for computing descriptive statistics, internal consistency (Cronbach's alpha and McDonald's omega), correlations, and regression analyses. We performed regression analyses using the same approach as in Study 1. Running a regression model for each affective outcome, we included the key variable as outcome, sex and age in step 1, and, in step 2, the emotion regulation variables that were significantly associated with the affective outcome in previous correlations analyses.

RESULTS AND DISCUSSION

Descriptive Analyses and Correlations

Descriptive statistics, reliabilities, and zero-order correlation coefficients for all the study variables in Study 2 are shown in Table 3. In this clinical sample, the correlation between cognitive reappraisal and suppression frequency was null. However, we observed a correlation between cognitive reappraisal and suppression self-efficacy. In line with the results of Study 1, we found that cognitive reappraisal self-efficacy was the main variable associated with depressive and anxiety symptoms, but contrary to results from Study 1, suppression frequency was not associated with clinical symptoms in clinical population. Consistent with Study 1, but contrary to our initial expectations, we once again found that reappraisal frequency was unrelated to depression or anxiety symptoms.

Regression Analyses[1]

Table 4 shows results of regression analyses of cognitive reappraisal on depressive and anxiety symptoms. Controlling for age and sex, and in the line of our expectations, we found that cogni-

[1] In regression analyses, we only introduced the emotion regulation variables that were significantly correlated with the key variable to obtain a parsimonious model, reducing the possible redundant effects of the variables. Results remained unchanged significantly in the cross-sectional analyses in Study 1 and in Study 2, when including all the emotion regulation variables in the last step (frequency and self-efficacy). In the longitudinal analyses of Study 1, results were also very similar, however, the significance of cognitive reappraisal self-efficacy was marginal, b = −.14 [95% CI: −.31, .01] (p = .06) for depression symptoms, and b = −.12 [95% CI: −.29, .02] (p = .08) for anxiety symptoms.

Table 3
Means, Standard Deviations, Internal Reliabilities, and Correlations Among Variables of Interest in the Clinical Sample

	1	2	3	4	10	11
1. Reappraisal Frequency	—					
2. Reappraisal Self-efficacy	.55**	—				
3. Suppression Frequency	−.07	.02	—			
4. Suppression Self-efficacy	.12	.45**	.57**	—		
10. Depressive symptoms	−.16	−.36**	.02	−.08	—	
11. Anxiety symptoms	−.15	−.32**	.02	−.17	.70**	—
M	22.19	21.44	12.65	15.89	10.34	8.70
SD	7.23	7.62	5.48	5.39	5.9	4.99
α	.80	.88	.79	.66	.84	.86
ω	.80	.82	.89	.69	.84	.86

*$p < .05$.
** $p < .01$.

tive reappraisal self-efficacy was associated with both variables, $\beta = -.36$ for depression and $\beta = -.34$ for anxiety.

General Discussion

In this investigation, we examined the relative contribution of cognitive reappraisal and suppression frequency and self-efficacy to affective symptoms of anxiety and depression in two independent studies.

EMOTION REGULATION AND AFFECTIVE SYMPTOMS

In the first study, people who had high cognitive reappraisal self-efficacy reported fewer symptoms of depression and anxiety. On the other hand, whereas both suppression frequency and self-efficacy were positively associated with depression, only the suppression frequency was associated with anxiety symptoms. Regarding prospective associations, we found that cognitive reappraisal self-efficacy was the only variable predicting depressive and anxiety symptoms in the mid-term. Thus, individuals with more cognitive reappraisal self-efficacy at baseline reported less negative affective symptoms 4 to 5 months later.

In the second study, we replicated the main finding from Study 1. Individuals who had higher levels of cognitive reappraisal self-efficacy had less depressive and anxiety symptomatology. Moreover, the magnitude of the correlations between cognitive reappraisal self-efficacy and affective outcomes was higher in the clinical sample than in the community sample.

According to the process model of emotion regulation, different forms of emotion regulation should have different consequences (Gross, 2013), and this may be because they influence the emotion-generative process at different stages. In terms of mental health, in cross-sectional studies, cognitive reappraisal frequency has been associated with less anxiety and depression, and suppression frequency has been associated with more anxiety and depression (Aldao et al., 2010; Dryman & Heimberg, 2018), but there are mixed effects in prospective and clinical studies (Arditte & Joormann, 2011; Brewer et al., 2016; Cludius et al., 2020). Regarding cognitive reappraisal frequency, we found results contrary to previous studies, since it was not significantly associated with anxiety and depressive symptoms. Results with suppression frequency and self-efficacy were more in line with expectations; however, these significant associations appeared only cross-sectionally in the community sample (not longitudinally), and not in the clinical one.

Table 4
Regressions Analyses of Cognitive Reappraisal (Frequency and Self-Efficacy) and Suppression (Frequency and Self-Efficacy) on Depressive and Anxiety Symptoms in the Clinical Sample

	Depressive symptoms						Anxiety symptoms					
	R^2	F	SE	β	p	C.I. 95%	R^2	F	SE	β	p	C.I. 95%
Step 1	.01	.78					.01	.34				
Sex			1.06	−.09	.31	−3.15, 1.03			.89	−.05	.55	−2.3, 1.23
Age			.04	.07	.46	−.05, .11			.03	.05	.60	−.05, .09
Step 2	.12	6.63					.09	5.28				
Reappraisal Self-efficacy			.07	−.36	<.001	−.41, −.15			.06	−.34	<.001	−.33, −.11

Taken together, our results highlight that in both community and clinical samples, cognitive reappraisal self-efficacy appears to be an important variable for understanding negative affect outcomes. In particular, the less cognitive reappraisal self-efficacy individuals show, the more affective symptoms they experience.

THE DISTINCTION BETWEEN EMOTION REGULATION FREQUENCY AND SELF-EFFICACY

To successfully regulate our emotions, we need both the use of a strategy (e.g., cognitive reappraisal), and the conviction that we are able to use it effectively when needed (Gutentag et al., 2017). This type of self-efficacy may provide a sense of control over one´s emotions and it is well known that the belief that emotions and strategies are more amenable to control is linked to more adaptive emotional outcomes (e.g., Tamir et al., 2007). In this sense, people who believe that they can use cognitive reappraisal effectively may have greater conviction when regulating their emotions, as well as better outcomes (Arbulu et al., 2023; Ford & Gross, 2019). Our results are in line with this idea. Using cross-sectional, prospective, and clinical study, we found that the more symptoms of anxiety and depression individuals show (e.g., clinical sample), the more relevant is the component of self-efficacy in emotion regulation. In our research, the conviction of the use of cognitive reappraisal raises as a remarkable variable explaining both anxiety and depressive symptoms, perhaps because when they are asked for both (the strategy and self-efficacy) they realize emotions are *more controllable* than they would believe. Back in the 1970s, Glass and Singer (1972) studied behavioral and emotional consequences of adaptation to controllable and uncontrollable noise and shocks (Glass et al., 1971). They discovered that the adaptation to high-intensity unpredictable noise results in lower tolerance for subsequent frustrations and in greater performance decrements on a proofreading task (Glass et al.,1969). These differences were substantially reduced when subjects believed *they had control* over the termination of the unpredictable noise. Adverse postadaptive effects were reduced when individuals believed that he had *direct* and *indirect* control over noise termination. It was not necessary that they exerted control, but only that they perceived control was possible (Glass & Singer, 1972). Emotions can be perceived as uncontrollable reactions as well, and when individuals tend to regulate them, the belief that these emotions are controllable may lead to better outcomes.

IMPLICATIONS FOR CLINICAL PRACTICE

Many mental disorders, such as the anxiety disorders, the mood disorders, or borderline personality disorder, are defined by *dysregulated emotional states* (American Psychiatric Association, 2000). Difficulties with emotion regulation have been postulated as a core transdiagnostic mechanism of anxiety and mood disorders (Campbell-Sills & Barlow, 2007; Cludius et al., 2020; Werner & Gross, 2010), and clinical treatments focus on enhancing the use of emotion regulation adaptive skills to modulate emotional reactivity (Mennin & Fresco, 2009). However, our results suggest that in order to reduce affective outcomes (depression and anxiety symptoms), it is important to enhance people's beliefs that they can regulate their own emotions successfully. In our study, cognitive reappraisal self-efficacy was a key variable in predicting clinical symptoms. Learning how to use cognitive reappraisal in treatments would need to focus on the two dimensions of the strategy: (a) strategic behavior (i.e., the actual implementation of cognitive reappraisal) and (b) meta-cognition (i.e., belief in one's ability to implement cognitive reappraisal). Both dimensions would play a different role during the psychological treatments (Goldin et al., 2012).

LIMITATIONS AND FUTURE DIRECTIONS

Although these findings make a useful contribution to the field, several limitations will require further research. First, as mentioned, a sample mainly composed of women from a single country gives us an incomplete picture. In future research, it will be useful to employ more diverse samples from different countries as well as different cultures. Second, we focused on affective symptoms in terms of depression and anxiety, but working within the process model framework, in future research we expect that similar patterns should be present for other symptom categories characterized by problematic levels of emotion or emotion dysregulation (e.g., substance use, eating, and borderline personality symptoms). Future research could examine the transdiagnostic generalizability of our findings. Third, all our variables were assessed using self-report measures in an online survey. Self-report measures are the most common assessment approach in the field, but future research might also consider incorporating a multi-modal assessment approach in the field of emotion regulation self-efficacy and affective outcomes. Fourth, we used different measures of anxiety and depression in Studies 1 and 2. Although these measures should be highly correlated, they

may assess different aspects of depression and anxiety than the PROMIS scales (see Fried, 2017).

Our findings make a useful contribution to the field of emotion regulation. The need to capture the entire picture of emotion regulation strategies should considere emotion regulation self-efficacy.

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