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Emotion beliefs are associated with emotion regulation strategies and emotional distress

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Abstract
Emotion regulation strategies such as rumination and suppression have been consistently associated with distress and psychopathology. However, it is not yet known why people engage in maladaptive strategies instead of adaptive strategies despite their negative consequences. Beliefs about emotion have been theorized to influence which emotion regulation strategies are used, and therefore, the development of emotional disorders. This research seeks to test these predictions. We present a cross-sectional study ($N = 400$) using confirmatory factor analysis, as well as mediation analysis within a structural equation modeling framework. Beliefs that emotions are undesirable and uncontrollable emerged as interrelated yet separate factors. Both types of beliefs were associated with emotional distress ($r = .36$ for emotion undesirability, $r = .53$ for emotion uncontrollability), and more use of maladaptive emotion regulation strategies ($r = .32$; $r = .44$; respectively). SEM analyses showed that maladaptive emotion regulation strategies mediated the link between undesirability and uncontrollability beliefs and emotional distress. These results provide preliminary support for the hypothesis that negative beliefs about emotions influence the use of generally maladaptive emotion regulation strategies, intensifying symptomatology.

Keywords Beliefs about emotion · Emotion regulation · Emotional distress · Mediation model

Emotion regulation refers to attempts to alter an emotional response. It is now clear that there are a number of different emotion regulation strategies (Gross, 1998; Sheppes et al., 2015). These strategies vary in their effectiveness (Webb et al., 2012), and although there are not intrinsically "good" or "bad" strategies, research has highlighted specific strategies that are either generally maladaptive (e.g., emotional suppression, rumination) or generally adaptive (e.g., cognitive reappraisal) in terms of their typical associations with health or psychopathology (Aldao et al., 2010).

One enduring puzzle, however, is why people engage in maladaptive forms of emotion regulation despite their negative consequences. To explain this, researchers have begun to examine whether people's beliefs about emotions – that is, their ideas about the nature, characteristics, and functioning of their emotions – might be influencing their emotion regulation efforts (De Castella et al., 2013; Castella et al., 2018; Manser et al., 2012; Tamir et al., 2007).

Linking emotion beliefs with emotion regulation

Research linking emotion beliefs to emotion regulation has its origins in the work on implicit theories of emotion (Tamir et al., 2007). This work has shown that having entity beliefs (the belief that you cannot really change your emotions or that your emotions are uncontrollable) is associated with generally maladaptive emotion regulation strategies and

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avoidance of emotions (De Castella et al., 2018; Tamir et al., 2007). Other researchers have focused on how a threatening interpretation of emotions can guide the use of maladaptive emotion regulation strategies (Mennin et al., 2005).

Recently, Ford and Gross (2018) provided an integrative framework to understand how individual differences in beliefs may influence the emotion regulation process. In their review, they proposed a framework that organizes beliefs about emotions into two independent (but related) superordinate categories. The first concerns whether an emotion is perceived as good (useful, valid) or bad (dangerous, damaging, irrational); hereafter referred to as beliefs about *emotion undesirability*. The second concerns people's perceived control over emotions, and how malleable they think emotions are; hereafter referred to as beliefs about *emotion uncontrollability*.

Emotion beliefs, emotion regulation strategy use, and emotional distress

In their review, Ford and Gross (2018) predicted that higher levels of belief about emotion undesirability would increase the use of avoidance-based maladaptive emotion regulation strategies -such as suppression or distraction- in order to stop feeling the undesirable emotion. Higher levels of belief about emotion uncontrollability, on the other hand, were predicted to be associated with decreased motivation to practice and perseverance in emotion regulation strategies, resulting in lower ability to regulate emotions, as well as lower perseverance when trying to regulate emotions. This decreased motivation will be due to perceiving the emotion as something that the individual has no control over, so they might resort ultimately also to maladaptive emotion strategies because they tend to require less practice to achieve results. Additionally, Ford and Gross (2019) suggested that higher levels of belief about emotion undesirability and emotion uncontrollability would be associated with more intense emotions, worse mental health outcomes, lower well-being, and greater anxiety and depression symptoms.

Ford and Gross's predictions are supported by empirical studies linking negative emotion beliefs, use of maladaptive emotion regulation strategies, and emotion distress. In general, pervasive negative beliefs about emotions – about both their undesirability and their uncontrollability – have been related to greater use of maladaptive emotion regulation strategies across the literature (Manser et al., 2012; Tamir et al., 2007). Specifically, they have been linked to strategies such as emotional suppression (Kneeland & Dovidio, 2020; Tamir et al., 2007), expressive suppression (Ortner & Pennekamp, 2020), rumination (Kneeland & Dovidio, 2020), pathological worry (Buhr & Dugas, 2012; Stapinski et al., 2010), avoidance behavior (De Castella et al., 2018; Kappes & Schikowski, 2013), and withdrawal (Veilleux et al., 2021). Also as predicted, negative beliefs about emotion have been reliably associated with greater emotional intensity and distress (Sugiura & Sugiura, 2015; Tull & Roemer, 2007), such as anxiety symptoms (King & de la Rosa, 2019; Leahy 2002; Schroder et al., 2015), depressive symptoms (De Castella et al., 2013; Tamir et al., 2007), and stress symptoms (De Castella et al., 2013; Kneeland & Dovidio, 2020); as well as with different psychological disorders such as major depression (Singer & Dobson, 2009), anxiety disorders (De Castella et al., 2014; Mennin et al., 2005; Williams et al., 1997), obsessive-compulsive disorder (Stern et al., 2014), or borderline personality disorder (Manser et al., 2012; Veilleux et al., 2021). It is notable that some of the revised studies use different terms and models to refer to negative beliefs about emotions, while covering the same common ground of either emotions being undesirable or uncontrollable.

To our knowledge, however, no study has empirically examined beliefs about undesirability and beliefs about uncontrollability together in the same model -as two independent but related factors-, following the proposed structure in Ford and Gross's framework. This is unfortunate because studying both categories of beliefs jointly would allow examination of whether they differ in their relevance to specific maladaptive emotion regulation strategies and emotional distress. Such examination would also have important implications for theoretical models regarding maladaptive emotion regulation and be relevant to the development of specific treatment strategies that target beliefs about emotion. Also, studying both types of beliefs could shed some light on their relationship with different maladaptive emotion regulation strategies and add knowledge to current theoretical approaches. Moreover, the potential mediating role of maladaptive emotion regulation strategies in the link between beliefs about emotions and emotional distress needs further study. Although previous studies have shown significant associations between these beliefs with either maladaptive emotion regulation or emotional distress, they have not examined the mediation role of maladaptive strategies in this association (De Castella et al., 2018; King & de la Rosa, 2019).

The present research

The present study aims to examine the associations among beliefs about emotions, maladaptive emotion regulation strategies, and emotional distress. Based on previous findings and predictions, we hypothesized that: (1) different beliefs about emotions could be organized into two independent but

related factors: beliefs about emotions being bad or undesirable (emotion undesirability) and beliefs about emotions being uncontrollable (emotion uncontrollability); (2) beliefs about emotion undesirability and uncontrollability would be associated with greater emotional distress; (3) beliefs about emotion undesirability and uncontrollability would be associated with a higher use of maladaptive emotion regulation strategies; and, that (4) maladaptive emotion regulation strategies would act as a mediator of the associations between beliefs about emotion undesirability/uncontrollability and emotional distress.

Method

Participants

Participants in this study were 400 individuals (66.2% female, 33.5% male, and 0.3% non-binary) ranging in age from 18 to 66 years ($M = 30.7$, $SD = 11.8$). Of these, 139 were Psychology or Criminology undergraduate students, ages ranged from 18 to 54 years ($M = 23.76$, $SD = 5.43$; 80.6% female, 19.4% male), and 261 were participants from the general population, ages ranged from 18 to 66 years ($M = 36.65$, $SD = 12.59$; 58.6% female, 41% male, 0.4% non-binary). In the university sample, 43 (30.9%) had completed secondary education, 6 (4.3%) had a professional qualification, 88 (63.3%) had another university degree, and 2 (1.4%) had a postgraduate level degree. In terms of economic status, 38 (27.3%) reported annual income less than €12,000, 55 (39.6%) between €12,000 and 24,000, 24 (17.3%) between €24,000 and 36,000 and 22 (15.8%) more than €36,000. In the non-student sample, 3 (1%) had no education, 16 (6.1%) had completed elementary education, 36 (13.8%) had a professional qualification, 74 (28.3%) had completed secondary education, 101 (38.7%) had a university degree, and 31 (12%) a postgraduate level degree. In terms of economic status, 46 (17.6%) reported annual income less than €12,000, 104 (39.8%) between €12,000 and 24,000, 60 (23%) between €24,000 and 36,000 and 51 (19.6%) more than €36,000.

Procedure

We used a cross-sectional design, with convenience sampling among college students and the general population in Spain. Student participants were verbally informed about the study during university courses at Complutense University of Madrid and Málaga University. Non-students were recruited through announcements in social media and by using a snowball-sampling procedure (student participants recruited non-student participants). Student participation and collaboration with recruitment was in exchange for extra course credit. All participants were offered the opportunity to participate in a random draw to win shopping vouchers (value of €40). All participants were informed about the characteristics of the study and provided informed consent. The participants completed the scales via an online survey, which was active for a month. The study was approved by the Complutense University of Madrid for Human Research (Ref nr: 2017/18–021).

Measures

Beliefs about emotions questionnaire (BAEQ; Manser et al., 2012)

The BAEQ is a self-report questionnaire that contains 6 subscales that assess different types of beliefs people can hold about their distressing emotions (uncontrollability, embarrassment, usefulness, meaning, damage, and contagion). For this study, we used 3 subscales, with a total of 24 items. To evaluate uncontrollability, we used the scale of *Uncontrollability*, which measures beliefs about the uncontrollability of emotions (e.g., "*When I start feeling upset, I cannot control it").* To assess emotional undesirability, we used the scales of *Embarrassment*, measuring beliefs about the embarrassment and the irrationality of feeling emotions (e.g., *"I should feel ashamed of feeling upset"*), and *Damage*, measuring beliefs about the damaging potential of emotions (e.g., "*Feeling upset might damage me psychologically"*).

We operationalized emotion undesirability as the composite score of the subscales Embarrassment and Damage based on the literature on emotion undesirability, where most of the models focus on fear and invalidation of emotions (viewing emotions as damaging, shameful or irrational; Linehan 1987; Mennin et al., 2005; Reiss et al., 1986). All items are rated on a five-point Likert scale (1 = strongly disagree to 5 = strongly agree) and higher scores are interpreted as a greater presence of the measured belief. The original scale has good internal consistency with alpha coefficients rating from 0.69 to 0.88 (Manser et al., 2012). The adaptation to Spanish population was created using a well-established method (World Health Organization, 2016) with the following steps: items were translated by two independent expert translators (both native and expert in the area of emotion, beliefs about emotions, and emotion regulation), then the items were back-translated and sent to the original authors for suggestions and changes. The internal consistency of the adaptation was good for all subscales in the current sample (see Table 1).

Table 1 Means, Standard Deviations, Reliabilities, and Correlations Among Measures

	1	2	3	4	5	6	7	8	9	10	11	12	*M* (*SD*)	α
1. BAEQ-Uncontrollability	-												24.12 (6.84)	0.83
2. ACQ-r Emotion Uncontrollability	**0.59**	-											12.25 (4.85)	0.77
3. Emotion Uncontrollability -TOTAL	**0.86**	**0.92**	-										5.14 (1.55)	0.87
4. BAEQ- Embarrasment	**0.35**	**0.20**	**0.30**	-									19.58 (6.46)	0.79
5. BAEQ-Damage	**0.35**	**0.25**	**0.33**	**0.41**	-								15.10 (4.53)	0.69
6. Emotion Undesirability-TOTAL	**0.41**	**0.27**	**0.38**	**0.77**	**0.89**	-							4.98 (1.31)	0.81
7. CERQ-Self-Blame	**0.21**	0.15	**0.20**	**0.30**	**0.17**	**0.27**	-						4.88 (1.94)	0.65
8. CERQ-Rumination	**0.23**	**0.22**	**0.25**	0.09	0.09	0.10	**0.38**	-					6.74 (1.95)	0.51
9. CERQ-Catastrophizing	**0.47**	**0.45**	**0.52**	**0.32**	**0.26**	**0.34**	**0.43**	**0.39**	-				4.44 (2.25)	0.88
10. CERQ- Blame Others	**0.25**	**0.17**	**0.23**	0.11	**0.16**	**0.17**	**0.17**	**0.18**	**0.32**	-			3.49 (1.49)	0.81
11. Maladaptive ER TOTAL	**0.43**	**0.37**	**0.44**	**0.31**	**0.25**	**0.32**	**0.72**	**0.71**	**0.80**	**0.54**	-		9.79 (2.69)	0.77
12. Emotion Distress-TOTAL	**0.45**	**0.49**	**0.53**	**0.33**	**0.28**	**0.36**	**0.29**	**0.31**	**0.51**	**0.29**	**0.51**	-	1.78 (1.62)	0.94

Note: Bold font = $p = < 0.001$

BAEQ = Beliefs About Emotion Questionnaire; ACQ-r = Anxiety Control Questionnaire- revised; CERQ = Cognitive Emotion Regulation Questionnaire; DASS = Depression, Anxiety, and Stress Scale; ER = Emotion Regulation

Anxiety control questionnaire-revised (ACQ-r; Brown et al., 2004)

The ACQ-r is a self-report questionnaire consisting of 15 items rated on a six-point Likert scale (0 = strongly disagree, 5 = strongly agree). The questionnaire assesses three aspects in which a person can perceive control regarding anxiety: emotion control (perception of one´s ability to control emotions), threat control (control over the occurrence or escape of a frightening situation), and stress control (control regarding the coping and regulating of emotions in a stressful situation). To measure emotion uncontrollability, we used the subscale *Emotion Control* (5 items; e.g., *"I am able to control my level of anxiety"*). We reversed the score of each item; therefore, higher scores in this scale are interpreted as a greater perception of uncontrollability over one's anxiety. The original scale has adequate internal consistency, with alpha coefficients rating from 0.69 to 0.78 (Brown et al., 2004). The Spanish adaptation was conducted following the same steps as the ones described for the BAEQ. The internal consistency in the current sample of the adaptation was good (see Supplemental Table 1).

Cognitive emotion regulation questionnaire-short version (CERQ-S; Garnefski & Kraaij, 2006)

This questionnaire measures the frequency with which people use different emotion regulation strategies when they are experiencing a stressful situation. The emotion regulation strategies measured can be organized in two categories: adaptive and maladaptive emotion regulation strategies (Holgado-Tello et al., 2018). For the present study, we selected thefour subscales that are considered indicators of maladaptive emotion regulation strategies: self-blame (e.g., *"I feel that I am the one who is responsible for what has happened"*), rumination (e.g., *"I often think about how I feel about what I have experienced"*), catastrophizing (e.g., *"I keep thinking about how terrible it is what I have experienced"*), and blaming others (e.g., *"I feel that basically the cause lies with others"*).

In total, this resulted in 8 items, which are rated on a five-point Likert scale (1 = almost never, 5 = almost always). Higher scores in each subscale indicate more frequent use of each specific strategy. Both the original scale (α = 0.68-0.81; Garnefski & Kraaij, 2006) and the Spanish adaptation (α = 0.62-0.90; Holgado-Tello et al., 2018) have shown good psychometric properties. Reliability in this study was adequate (see Table 1).

Depression, anxiety and stress scale – 21 item version (DASS-21; Lovibond & Lovibond, 1995)

The DASS-21 assesses anxiety (e.g., *"I was worried about situations in which I might panic and make a fool of myself*"), depression (e.g., *"I felt downhearted and blue"*), and stress severity (e.g., *"I found it hard to wind down"*) as dimensions of a general factor of negative affect or emotional distress (Brown et al., 1997; Henry & Crawford, 2005; Osman et al., 2012). The DASS-21 ranks presence of symptoms during the past week using a four-point Likert scale (0 = Did not apply to me at all, 3 = Apply to me very much or most of the time). Higher scores on any of the 3 scales represent more severe symptomatology. Both the original scale (α = 0.87-0.94; Antony et al., 1998) and the Spanish adaptation (α = 0.73-0.81; Fonseca-Pedrero et al., 2010) have good psychometric properties. Reliability in this sample was good (see Table 1).

Data analytic approach

We used the Statistical Package IBM SPSS version 25 for the descriptive statistics, correlation analyses, and internal consistency. We used an adjusted alpha level to interpret the correlations ($p < .001$). We used Eq. 6.3 (Bentler, 1995) to compute (a) confirmatory factor analysis (CFA), and (b) structural equation modeling (SEM) with latent variables, to test the mediation model. We carried out CFA and mediation analysis using the maximum likelihood (ML) method. We first tested the data's adjustment to normality (following the recommendations of West et al., 1995); and because multivariate kurtosis statistics indicated non-normality, we used the Satorra-Bentler scaled ML correction to adjust the model chi-square (Hu, Bentler, & Kano, 1992). According to Schweizer's (2010) recommendations, the following measures of model fit were used in addition to Satorra-Bentler chi-square: (a) root mean square error of approximation (RMSEA); (b) the Bentler comparative fit index (CFI), and (c) standardized root mean square residual (SRMR). According to Schweizer (2010), CFI exceeding 0.90 signifies acceptable fit, RMSEA below 0.08 is considered acceptable, whereas values below 0.05 are indicative of good fit, and finally, SRMR is expected to stay below 0.10.

To ensure the proper identification and quality of the model, we performed both the CFA and the SEM model using three or more indicators (Kenny, 1979; Yang et al., 2010). The CFA was used to test whether the different beliefs about emotion fit the proposed structure of two independent but interrelated factors. In this model, three parcels (each composed of randomized items of the BAEQ-embarrassment and BAEQ-damage) were used as indicators of the Undesirability beliefs factor; and five parcels (two extracted from the ACQ-r emotion uncontrol and three from the subscales of BAEQ-uncontrollability) were used as indicators of the emotional uncontrollability beliefs latent factor. For comparison purposes, we tested an alternative one factor model in which these parcels were used as indicators of one single latent factor measuring general negative beliefs about emotion. We tested the associations between the respective beliefs tested in the CFA (undesirability and uncontrollability) with composite scores of maladaptive emotion regulation strategies, and emotional distress by calculating Pearson's correlations. We compared the strengths of these associations with Fisher´s Z.

We used SEM to test the hypothesized mediation model. We calculated direct effects of beliefs about emotions on maladaptive emotion regulation strategies (*a* path) and emotional distress (*c* path), direct effects of maladaptive strategies on emotional distress (*b* path), and indirect effects (mediated effect) of beliefs about emotions through maladaptive strategies (*ab* path). We further examined whether the mediational effect was partial (*c* path remains significant) or total (*c* path does not remain significant) (Kenny et al., 1998). Because this is a cross-sectional study, the results derived from the mediation model should be interpreted as initial evidence of these relationships, but causality cannot be inferred.

Results

Confirmatory factor analysis

The fit indices of the two factor model, corresponding to beliefs about emotion undesirability and beliefs about emotion uncontrollability were as follows: Satorra-Bentler $\chi2 = 98.43$, $df = 19$, $p = < 0.001$; normed $\chi2$ ($\chi2/df$) = 5.2; RMSEA = 0.10, 90% CI [0.08–0.12]; CFI = 0.93; SRMR = 0.05. For the one factor model, the fit indices were: Satorra-Bentler $\chi2 = 368.92$, $df = 20$, $p < .001$; normed $\chi2$ ($\chi2/df$) = 18.4; RMSEA = 0.21, [0.19–0.23]; CFI = 0.71; and SRMR = 1.5. As can be seen, the model of two independent and interrelated factors demonstrated the best fit.

Descriptive analyses and correlations

Descriptive statistics and reliability for all study variables can be seen in Table 1. The adapted scales, BAEQ uncontrollability, BAEQ embarrassment, BAEQ damage, and ACQ-r emotion uncontrol, showed adequate internal consistency, with Cronbach's alphas ranging from 0.69 to 0.83. Although some of the alphas are low, note that in subscales that contain two items, an alpha superior to 0.70 is considered adequate (Loewenthal, 2018).

Table 1 shows correlation coefficients among subscales and Table 2 shows the differences between correlations among emotion uncontrollability and emotion undesirability subscales.

Differences in the strength of the correlations between the subscales measuring emotion undesirability and the subscales measuring emotion uncontrollability supported the hypothesis of the two-factor model (please see Table 2 that directly compare the relevant subscales and report the r values). Correlations between the subscales measuring emotion undesirability (BAEQ embarrassment and BAEQ damage), on the one hand, and emotion uncontrollability (BAEQ uncontrollability and ACQ-r emotion uncontrol), on the other, were significantly stronger than correlations between subscales measuring emotion undesirability and emotion uncontrollability.

Beliefs about emotion undesirability and emotional uncontrollability were positively correlated with all the indicators of emotional distress (see Table 1). As expected, both emotion undesirability and uncontrollability beliefs were also significantly positively correlated with all maladaptive strategies, except for the correlation between emotion undesirability and rumination, which was not statistically significant. However, it should be noted that the alpha coefficient of the rumination subscale was low. This low coefficient could be because this is a two-item subscale and alpha coefficients tend to be lower in these scales (Loewenthal, 2018); also, it should be noted that this subscale does not differentiate between components of rumination such as brooding and self-reflection, so in future studies we recommend using a specific brooding rumination scale (because it has been more strongly associated with depression) (Nolen-Hoeksema et al., 2008).

Moreover, the magnitude of correlations was greater for beliefs about emotion uncontrollability than for beliefs about emotion undesirability for both maladaptive strategies ($z = 1.98$, $p = .002$), and emotional distress ($z = 3.05$, $p = .001$). Finally, the use of maladaptive strategies was associated with higher emotional distress.

Structural equation Model

We fitted a mediation model with beliefs about emotion undesirability and emotion uncontrollability as two interrelated latent factors. Four subscales of CERQ, including self-blame, rumination, catastrophizing, and blaming others, were used as indicators for the latent factor of maladaptive emotion regulation strategies. Lastly, the three subscales of DASS-21 were used as indicators for the latent factor of emotional distress, as has been done in previous research (Brown et al., 1997; Henry & Crawford, 2005; Osman et al., 2012). The model showed the following fit indices: Satorra-Bentler $\chi2 = 153.98$, $df = 71$, $p < .001$; normed $\chi2$ ($\chi2/df$) = 2.16; RMSEA = 0.054, 90% CI [0.042–0.066]; CFI = 0.95; and SRMR = 0.04. Globally, these indices indicate a good fit to the data.

As presented in Fig. 1, the two superordinate beliefs – beliefs about emotion undesirability and uncontrollability – although correlated, showed independent and specific effects on emotion regulation strategies and emotional distress. However, consistent with the correlation analyses, the associations were stronger for beliefs about emotion uncontrollability than for beliefs about emotion undesirability. Maladaptive emotion regulation strategies were positively related to emotional distress. Beliefs about emotion uncontrollability and undesirability were related to emotional distress both directly and indirectly through maladaptive strategies ($b = 0.05$, $SE = 0.07$, $p < .01$ for uncontrollability beliefs, and $b = 0.23$, $SE = 0.07$, $p < .01$ for undesirability beliefs). Thus, the mediating effect of maladaptive strategies was partial for both emotion beliefs.

Discussion

Emotion regulation plays a central role in emotional functioning. However, it is not yet clear what factors influence the use of generally maladaptive emotion regulation strategies regardless of their consequences. Ford and Gross (2018) suggested that beliefs about emotions can be organized into two superordinate categories, which could have

Table 2 Differences between correlations among Emotion Uncontrollability and Emotion Undesirability subscales

	Correlation between BAEQ embarrassment with		Correlation between BAEQ damage with	
	BAEQ-Uncontrollability	ACQ-r Emotion Uncontrollability	BAEQ-Uncontrollability	ACQ-r Uncontrollability
Correlations between BAEQ-Embarrassment and BAEQ-Damage (r = .41)	0.35 (z = 0.99, $p = .016$)	0.20 (z = 3.28, $p = .001$)	0.35 (z = 0.99, $p = .016$)	0.25 (z = 2,54, $p = .006$)
	Correlation between BAEQ-Uncontrollability with		Correlation between ACQ-r Uncontrollability with	
	BAEQ-Embarrassment	BAEQ-Damage	BAEQ-Embarrassment	BAEQ-Damage
Correlations between BAEQ-Uncontrollability and ACQ-r-Uncontrollability (r. 59)	0.35 (z = 4.39, p = .001)	0.35 (z = 4.39, p = .001)	0.20 (z = 6.69, p = .001)	0.25 (z = 4.39, p = .001)

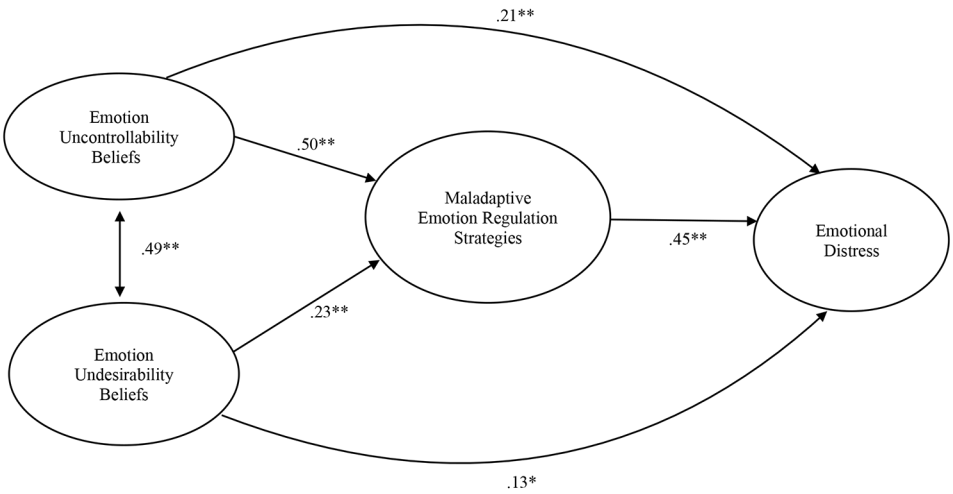


Fig. 1 Model of Relationships Between Beliefs About Uncontrollability and Undesirability of Emotions, Maladaptive Emotion Regulation Strategies, and Emotional Distress
Note: Standardized coefficients are shown
Ns = Not significant
*p < .05; **p < .01

different effects on the emotion regulation process. In the present study, we tested the hypothesis that beliefs about emotion undesirability and uncontrollability are independent but related factors that would be associated with emotional distress, and with greater use of maladaptive regulation strategies. We also provided a preliminary test of whether maladaptive strategies might mediate the link between negative beliefs and emotional distress.

Support for the Ford and Gross's framework

Our results provide initial support for the utility of Ford and Gross's (2018) framework. A CFA conducted on scales from different measures indicated that beliefs about emotion undesirability and uncontrollability are separate but positively correlated factors. Thus, people's beliefs about emotions being undesirable or being uncontrollable may be distinct ways in which people perceive their emotions. However, although these constructs are distinct, people who believe their emotions are undesirable (e.g., "I believe it is unacceptable for me to ever feel upset") also tend to believe that they are uncontrollable (e.g., "feeling upset can completely take control of me"). Our findings indicate that both types of beliefs provide relevant information to better understand why some people view emotions in a more negative way.

As predicted, beliefs about emotion undesirability and uncontrollability were positively associated with both maladaptive emotion regulation strategies and emotional distress. These results are consistent with the literature (De Castella et al., 2013; Schroder et al., 2015; Tamir et al., 2007), suggesting that perceiving one's emotions as undesirable and uncontrollable is associated with more frequent use of strategies such as rumination, catastrophizing, self-blame, and blaming others, as well as with reports of higher levels of anxiety, depression, and stress. Additionally, we found a pattern of differences in magnitude in the associations between emotion undesirability and uncontrollability with maladaptive emotion regulation strategies and emotional distress. Specifically, uncontrollability beliefs were more strongly associated with emotion regulation strategies and emotional distress compared to undesirability beliefs. This finding is consistent with the predictions made by Ford and Gross (2019) that emotion uncontrollability may be associated with lower motivation to engage in emotion regulation, leading individuals to have more problems selecting and implementing effective emotion regulation strategies. Therefore, having beliefs about emotions being uncontrollable may result in the individual resorting to maladaptive emotion regulation strategies rather than trying other emotion regulation strategies that require practice and perseverance, such as reappraisal (Tamir & Mauss, 2011; Tamir & Millgram, 2017). Also, perceiving their emotions as uncontrollable would increase their sense of helplessness and stress when dealing with painful emotions, resulting in added emotional distress (Ford et al., 2018).

As predicted, we found that maladaptive emotion regulation strategies mediated the association between beliefs about emotions and emotional distress. This shows that beliefs about emotions being undesirable and uncontrollable are related to emotional distress, and that a significant part of that association may occur via the use of maladaptive emotion regulation strategies. These results are in the line with Ford and Gross (2018; 2019) as well as with the few previous studies that have linked beliefs about emotion to emotion regulation difficulties and emotional distress (De Castella et al., 2018; Stapinski et al., 2010), suggesting that having beliefs about emotion undesirability and uncontrollability may lead to the use of maladaptive emotion regulation strategies which in turn cause emotional distress.

Broader implications

Our study has two major implications. First, if beliefs about emotion undesirability and uncontrollability have a specific contribution to emotional distress, theoretical accounts must consider both factors when explaining emotional disorders. Previous literature has studied one type of belief at a time, testing their respective association with emotion regulation strategies and/or emotional symptoms, but less frequently linking these two concepts. Our results suggest that a process framework accounting for the impact of these beliefs on emotion regulation may sharpen our understanding of the mechanisms underlying emotional disorders. In particular, a negative view of the emotion experience (as undesirable and, mainly, uncontrollable) might lead people to feel overwhelmed, leading them to engage in avoidance-based maladaptive emotion regulation strategies, such as suppression or worry (De Castella et al., 2018; Mennin et al., 2005). Because these maladaptive emotion regulation strategies are not effective and the distress is perpetuated, the beliefs about emotion undesirability and uncontrollability may be confirmed, and people will not change their regulation strategies. Differences in uncontrollability beliefs may also influence whether a person tries to engage in emotion regulation, potentially explaining why uncontrollability beliefs play such a prominent role (Ford & Gross, 2019).

Second, given our findings that beliefs about emotion undesirability and uncontrollability are related to emotion regulation and emotional distress, individuals holding these types of beliefs may benefit from interventions that focus directly on changing these beliefs. Some research has indeed suggested that specific interventions on beliefs about emotion will improve treatment efficacy and outcome (e.g., see Leahy 2007). Such effects may be due to the fact that even though emotion regulation skills may be enhanced by practice (Tamir & Mauss, 2011), emotion beliefs may determine whether someone is willing to make the effort to engage in emotion regulation practice.

Limitations and future directions

This study has several limitations that warrant mention. Its main limitation is the use of a mediation analysis in cross-sectional design, a design that cannot establish causality (e.g., Maxwell & Cole, 2007; O'Laughlin et al., 2018; Rohrer et al., 2021). We believe, however, that our results can serve as useful potential preliminary evidence that may inspire both experimental and longitudinal research in the future. To date, a few experimental and longitudinal studies indicate that beliefs about emotion precede emotion regulation and emotional disorders (Bigman et al., 2016; De Castella et al., 2018; Schroder et al., 2019; Tamir et al., 2007); however, there is research indicating a reversed causality where mental health problems were shown to precede beliefs about emotion (Schleider & Weisz, 2016). Further studies should examine the direction behind these associations. Second, the use of a non-clinical sample precludes the generalization of our results to clinical samples; also, the scores in Emotional Distress (DASS-21) were low in average, so this could also affect the interpretation and generalization of our results due to a possible floor effect. Third, our sample consisted mainly of women and young adults; future studies should corroborate our findings in gender and age equilibrated samples, to account for possible differences in emotion regulation due to these factors. Fourth, although the study's hypotheses were theoretically strongly motivated, and consistent with prior findings, the study was not pre-registered as these data were collected prior to this practice becoming widespread. Finally, this study focused on general beliefs regarding negative emotions, but the social and cultural context in which those emotions occur may have an influence on the desirability of emotions, and therefore in the perception the person has of that particular emotion (e.g., feeling sad in a funeral is socially desirable). Social and cultural context could limit the generalization of our results and should be further studied in the future.

Conclusion

Despite these limitations, we found that having beliefs about emotions being undesirable and uncontrollable is associated with greater maladaptive emotion strategies and distress. The current results support the model proposed by Ford and Gross (2018). The present findings advance the conceptualization of the emotional experience and its regulation by showing that beliefs about emotion undesirability and uncontrollability have specific contributions to emotional distress. These beliefs should be integrated into theoretical models and treatments for emotional disorders. We believe that a better understanding of negative beliefs about emotions will expand our knowledge on why people regulate their emotions and help them cope better with emotional distress.

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Declarations

Declaration of conflicting interests The authors have declared that there were no conflicts of interest with respect to the authorship or the publication of this article and have no competing financial interests or personal relationships that could have appeared to influence the work reported in this paper.

Declaration of authorship All authors contributed to the study conception and design. Material preparation, data collection and analysis were performed by Ilyana Arbulu, Juan Ramos-Cejudo and Jos? M. Salguero. The first draft of the manuscript was written by Ilyana Arbulu and all authors edited and commented on previous versions of the manuscript. All authors read and approved the final manuscript.

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