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When Less is More: Effects of the Availability of Strategic Options on Regulating Negative Emotions

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Research in several domains suggests that having strategic options is not always beneficial. In this paper, we tested whether having strategic options (vs. not) is helpful or harmful for regulating negative emotions. In 5 studies (N = 151) participants were presented with 1 or more strategic options prior to watching aversive images and using the selected strategic option. Across studies, we found that people reported less intense negative emotions when the strategy they used to regulate their emotions was presented as a single option, rather than as 1 of several options. This was regardless of whether people could choose between the options (Studies 3–5) or not (Studies 1, 2, and 4), and specific to negative (but not neutral) images (Study 5). A sixth study addressed an explanation based on demand characteristics, showing that participants expected to feel more positive when having more than 1 option. The findings indicate that having strategic options for regulating negative emotions can sometimes be costly.

Keywords: choice, emotion regulation, decision making, option availability

When Ophelia told her father about her feelings for Hamlet, he told her to regulate her feelings by suppressing their overt expression. Instead of pointing to a single strategy, Ophelia's father could have offered her different options. For instance, he could have told Ophelia to regulate her feelings for Hamlet by suppressing their overt expression, by thinking about Hamlet in a manner that would make him less appealing, or by letting her emotions evolve naturally without interference. Would having different options have helped or hindered Ophelia in regulating her emotions? We suggest that by offering Ophelia only one option, her father may have done her a service.

To make a choice one needs to have available options and then choose between them. Yet no research to date has examined the influence of the availability of hypothetical (i.e., without the ability to choose between them) or actual (i.e., with the ability to choose between them) strategic options on how people regulate their negative emotions. In what follows, we review research on the availability of options and of choosing among them. Perhaps contrary to common intuition, research suggests that the availability of strategic options might not necessarily be helpful. We tested, for the first time, whether and how the availability of strategic options impacts people's ability to regulate negative emotions.

Choice in Emotion Regulation

There are different ways to handle negative emotions. For example, people can engage with the negative emotion-inducing situation, or regulate their emotions by concealing the overt expression of their emotion (i.e., expressive suppression) or changing how they think about the situation in a way that changes its emotional impact (i.e., cognitive reappraisal; for recent reviews, see Gross, 2014). Recent research has demonstrated that people differ in how they choose to regulate their negative emotions. For instance, the strategies people choose to regulate negative emotions are linked to various forms of psychopathology (e.g., Aldao, Nolen-Hoeksema, & Schweizer, 2010; Ehring, Tuschen-Caffier, Schnülle, Fischer, & Gross, 2010; Gruber, Harvey, & Gross, 2012; Sheppes, Suri, & Gross, 2015). People who recovered from depression, for example, used more suppression and less reappraisal than people who were never depressed, when exposed to a sad film clip (Ehring et al., 2010).

Other research has demonstrated that the strategies people choose for regulating negative emotions vary across emotional, cognitive, and motivational contexts (Sheppes, 2014; Sheppes & Levin, 2013). For instance, people are more likely to use reappraisal when the intensity of the emotional stimuli is relatively low, and more likely to choose distraction when the intensity of the

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emotional stimuli is relatively high (Sheppes, Scheibe, Suri, & Gross, 2011; Sheppes, Scheibe, et al., 2014). Finally, research on emotion regulation flexibility shows that people cope better with stressful life events when they choose strategies in a flexible manner (e.g., Levy-Gigi et al., 2016).

People choose between different available ways for regulating negative emotions (Bonanno & Burton, 2013). Research on emotion regulation choice focuses on which strategy people choose when they have strategic options. However, people differ in the strategic options they consider and implement (e.g., Côté, De-Celles, McCarthy, Van Kleef, & Hideg, 2011; Garnefski, Kraaij, & Spinhoven, 2001; Lopes, Salovey, Côté, & Beers, 2005). Such differences imply that people may not always have strategic options available. The effect of having (or not having) optional ways for regulating negative emotions has not yet been examined. Therefore, the primary goal of the current research was to test whether having strategic options, actual or hypothetical, influences how well people regulate their negative emotions. To examine this potential effect we turned to the available literature on choice and the availability of options.

The Psychological Impact of Having Options

The process of choice includes a deliberation phase, in which people consider possible options, and a decision phase, in which people choose one option (Gollwitzer, 1990). Although people cannot make a choice without having strategic options available, they can certainly have strategic options available, at least hypothetical ones, without choosing between them. From a theoretical perspective, the psychological effects of having options may differ from the psychological effects of choosing between them. Therefore, in the current investigation, to test the possible impact of having strategic options, we assessed the impact of having both hypothetical options (i.e., considering options that people do not actively choose from) and actual options (i.e., considering options that people actively choose from) on how people regulate their negative emotions.

Previous research on the availability of options has focused almost exclusively on cases in which people can choose between these options. Initially, scholars assumed that increasing the number of available options would have positive consequences, because having more options implies that people can choose the best one. However, multiple studies have challenged this assumption, suggesting a choice-overload effect (e.g., Botti & McGill, 2006; Chernev, Böckenholt, & Goodman, 2015; Iyengar & Lepper, 2000; Reutskaja & Hogarth, 2009; Scheibehenne, Greifeneder, & Todd, 2010; Schwartz, 2000).[1] For instance, Iyengar and Lepper (2000) have demonstrated that in certain contexts having more options available can be harmful. They found that when facing a variety of optional products, people tend to ultimately buy less overall. Similarly, when people chose among many (vs. few) optional tasks they ultimately performed worse on the task they chose (Iyengar & Lepper, 2000). The research on choice overload focuses almost exclusively on cases in which a person chooses from a small or a large set of options, manipulating the number of options from which the person needs to choose. Choice in this line of research is a constant, and what varies is the number of options available within the set. Although options may have a detrimental effect according to the choice overload literature, it is also possible that the negative effect of options is limited to cases in which the person must choose between them.

The negative effects of having options can also be explained by models of goal pursuit. Options provide means for pursuing a particular goal. For example, emotion regulation strategies serve as the means for pursuing the goal of emotion regulation. According to goal system theory (Kruglanski et al., 2002), goals and means to achieve them are cognitively associated. The strength of the association between the goal and the means determines the efficacy of goal pursuit. When a goal is associated with only one unique means, the association is particularly strong. In such cases, commitment to the goal transfers in its entirety to the unique means, facilitating persistence and efficacy in goal pursuit. However, when a goal is associated with more than one means, the strength of each association within the network is reduced. This leads to weaker engagement with any particular means, reducing the efficacy of goal pursuit (Kruglanski et al., 2002).

Supporting these ideas, Kruglanski and colleagues (2002) asked participants to list a goal they were trying to achieve (e.g., becoming a broadcaster) and to generate either one or two strategic options to help them achieve that goal (e.g., taking an editing class). Participants then rated their commitment to the option or options they generated. Participants who considered only one option were significantly more committed to it than participants who considered more than one option. Therefore, according to goal system theory (Kruglanksi et al., 2002), having strategic options can potentially impair goal commitment, regardless of whether people get to actively choose between these options or not.

This literature leads us to expect that the availability of options would have negative consequences with respect to performance and affect. Therefore, in the present context, we predicted that the availability of strategic options might impair the efficacy of regulating negative emotions.

The Psychological Impact of Choosing Between Options

Regardless of the documented negative consequences of having options, the act of choosing between them may carry either negative or positive psychological implications. On the negative side, choosing between options can deplete cognitive resources (Vohs et al., 2008). Therefore, it is possible that after choosing between options people might have less resources at their disposal, leading them to be less effective in implementing the selected strategy (Reutskaja & Hogarth, 2009). In the current context, therefore, it is possible that the more options that are available to choose from, the greater the cognitive load, which in turn, the less effective the regulation of negative emotions, resulting in more intense negative feelings.

Another possibility is that choosing between options can lead to increased negative emotions due to counterfactual thinking (Hafner, White, & Handley, 2012; Roese, 1997). When people choose one of several options, they are more likely to consider

[1] There is an ongoing debate in the literature concerning the reliability of the choice overload effect. Whereas some reviews suggest that the effect exists (e.g., Chernev et al., 2015), others question its reliability (e.g., Scheibehenne et al., 2010; Simonsohn, Nelson, & Simmons, 2014).

what might have happened had they chosen an alternative option, resulting in more negative emotions. Indeed, Luce and colleagues (Luce, 1998; Luce, Bettman, & Payne, 1997) have shown that having two desirable options and choosing between them induces negative emotions.

On the positive side, according to self-determination theory (Ryan & Deci, 2000), making a choice between personally relevant options increases perceived autonomy and enhances intrinsic motivation, leading to better performance (Dember, Galinsky, & Warm, 1992; Katz & Assor, 2007; Patall, Cooper, & Robinson, 2008; Ryan & Deci, 2000). For instance, when people could choose between two optional placebo treatments, the placebo effect was enhanced (Geers et al., 2013). Furthermore, when individuals chose between options, they experienced less anticipatory stress and reported less negative experiences following a stressful situation (Thompson, 1981).

The effect of choice might also depend on whether the choice is among positive or negative options. Botti and Iyengar (2004) presented participants with either attractive options or unattractive options. Some of the participants had a choice and selected one of the options. Other participants did not have choice and one of the options was selected for them. Botti and Iyengar (2004) found that for the unattractive options, participants were more satisfied when they did not have a choice. In contrast, for the attractive options participants were more satisfied when they did have a choice. Since options for regulating negative emotions may be negative (since they have negative emotions as their target) or positive (since they refer to ways of regulating such negative emotions), choice might have either a positive or a negative effect.

Taken together, there are reasons to expect choosing between options to have either negative or positive consequences, with respect to performance and affect. Therefore, in the context of regulating negative emotions, we did not have clear a priori predictions regarding the effect of choosing between available options, as prior research suggests that it could either increase or decrease negative emotions.

The Current Investigation

We examined the potential effects of the availability of options, both hypothetical and actual, on the regulation of negative emotions. Across studies, participants had either one or more options available to them on each trial. When there was more than one option available, participants could either choose between them or not. Participants had to implement the selected option while viewing an aversive image and rate their emotional reactions. Because we were interested in the effect of having options, both hypothetical and actual, regardless of whether the choice itself is adaptive or maladaptive, the option was selected (either by the participants themselves or by the computer) *prior* to the presentation of the aversive stimuli. This important feature sets our investigation apart from previous paradigms that have been used to study choice in emotion regulation. In such paradigms, the strategy was selected after the presentation of the aversive stimuli (e.g., Sheppes, Scheibe, et al., 2014). In contrast, our paradigm allowed us to tease apart the effect of the process of choice from the effects of the content of choice.

We examined two common and widely studied emotion regulation strategies, namely—expressive suppression and cognitive reappraisal (e.g., Gross, 1998; Gross & John, 2003). We refer to these strategies as options for regulation negative emotions. In some studies, we also included an option that involved unregulated engagement with the stimulus (i.e., "watch"). In these studies, we refer to the available options as options for handling negative emotions, as "watching" is a way of handling negative stimulation, but does not involve regulation per se. Consistent with prior research, we expected to find differences between strategic options. More importantly, however, we expected that presenting a particular option with or without alternative options would influence how negatively people ultimately feel.

Following previous studies on emotion regulation choice (Sheppes et al., 2011, Sheppes, Scheibe, et al., 2014), we tested our hypotheses using within-subject designs. In Study 1, we tested whether the availability of hypothetical strategic options (independent of choice) affected how people handled their negative emotions. Participants had either one or two strategic options, and when two options were available, one of them was selected by the computer.

One possible explanation for the detrimental effect of having options is that the processing of each option requires additional cognitive resources. Indeed, some theoretical accounts attribute the effect of options to cognitive load (e.g., Reutskaja & Hogarth, 2009). In Study 2, therefore, we tested whether the potential effects of strategic options for handling negative emotions is at least partially due to increased cognitive load. To this end, participants encountered trials that increased linearly in cognitive demand. Participants considered one, two or three hypothetical strategic options. When more than one option was available, one of them was selected by the computer. If cognitive load contributes to the detrimental effect of having options, the more options exist, the worse people would feel. Accordingly, trials with three options should lead people to be less effective in regulating negative emotions, compared with trials with two options. However, if cognitive load is not a prominent contributor to the detrimental effect of options, having options might lead to more intense negative emotions, compared with having no options, regardless of whether there are two or three options available.

In Study 3, we tested the effect of having actual strategic options and choosing between them on how people handle negative emotions. Participants had either one strategic option or two strategic options for handling their emotions. When two options appeared, they were asked to choose between them. Study 4 compared all three types of trials that were used in Studies 1 and 3. It included either one regulation option, two hypothetical regulation options without choice, or two regulation options with choice.

In Study 5, we tested whether the potential effects of having strategic options was specific for regulating negative emotions or whether it was independent of stimulus' valence. Participants had either one strategic option for regulating emotions or two strategic options to choose from. Additionally, they were presented with either negative or neutral stimuli, in order to test whether the effect is specific to regulating negative stimuli. Finally, because we used self-report to assess emotional experiences, in Study 6 we tested whether effects could have been fully driven by demand characteristics. To this end, we assessed naïve beliefs about the potential effects of available options and choice on handling negative emotions.

Based on prior research we predicted that having available strategic options (vs. not) would impair how well people regulate their negative emotions and how negatively they felt as a consequence, regardless of whether the options were hypothetical or not. We did not have clear a priori predictions regarding the potential effects of choosing (vs. not) between available options.

Study 1

Study 1 was designed to test whether having hypothetical options (independent of choice) for handling negative emotions impairs how well people do so. On each trial, participants were presented with either one strategic option (i.e., "reappraise," "suppress," watch) or two hypothetical strategic options (e.g., "reappraise or suppress"). When two hypothetical options were presented the computer chose one of the options. Participants were then presented with a negative image. They viewed the image while applying the strategy that was chosen. Finally, they rated their emotional response to the image. We expected participants to report less negative emotions after reappraising their emotions, compared with participants who merely watched the negative image or suppressed their emotions (e.g., Gross, 1998). More importantly, we expected the availability of strategic options to impair how people handled their negative emotions. We predicted that participants will end up feeling worse when using a strategy that was presented as one of two hypothetical options than when using the same strategy that was presented as a single option.

Method

Participants. Participants were 29 university students (41% male; $M_{age} = 23.41$).[2] Participants received either course credit or monetary compensation (~$8.50) for their participation.

Materials.

Negative images. We used 53 images from the International Affective Picture System (IAPS; Lang, Bradley, & Cuthbert, 2008) and 19 additional images. All images were pretested on an Israeli sample ($N = 11$) and were found to elicit moderate negative feelings ($M = 2.94$, $SD = 0.41$; where 1 = *very bad feelings* and 9 = *very good feelings*) with moderate arousal ($M = 6.19$, $SD = 0.38$; where 1 = *very low arousal* and 9 = very *high arousal*).

Procedure.

Practice phase. Participants were told the study examined the ways people handle negative emotions. The study began with a training session, in which all participants learned about three possible instructions they could follow in response to the emotional images (i.e., watch, reappraise, and suppress). Before each option was introduced, participants were first instructed to watch the image and imagine themselves in the situation presented. This was done to ensure that participants attend to the picture and engage with it. To introduce each option, following Ochsner and colleagues (2004), participants were told that watch involves responding naturally to the image without changing one's reactions to it. They were told that reappraise refers to thinking about the image in a different way, which reduces the negative emotion it elicits. For example, they were told they could think about possible positive consequences of the event (i.e., the "decrease situation-focused instructions" in Ochsner et al., 2004). Following Gross (1998), participants were told that suppress refers to inhibiting overt emotional expression. In this respect, participants were told that if they experience negative emotions they should inhibit the overt expression of those emotions, such that somebody watching them would not know they are feeling anything at all. After learning about each option, participants practiced it twice on negative images that were presented on the screen. During those practice trials, the experimenter confirmed that the strategy was understood and applied properly.

After practicing each strategy separately, participants were told that the main task would include two types of trials. On some trials, one option would appear on the screen and they would be asked to employ it in response to the image that followed. On other trials, two options would appear on the screen and the computer would select one option which they were asked to employ in response to the image that followed. Participants practiced six trials in which they saw two options (i.e., watch-reappraise, watch-suppress, and suppress-reappraise, each pair twice, in a random order). During the entire training phase, after rating their emotional reactions to the images, participants explained to the experimenter what they did while the image was presented, to confirm that participants employed each option appropriately.

Experimental phase. After the training phase the experimenter left the room and participants completed the experimental task (Figure 1). The task included 72 trials. On 36 trials participants saw one option (i.e., watch, reappraise, or suppress), and on 36 trials participants saw two options (i.e., reappraise or suppress, "reappraise or watch," or "watch or suppress"). Trials appeared in a random order. On "two-options" trials, the location (left or right) of each option on the screen was counterbalanced (i.e., "watch or reappraise" vs. reappraise or watch).

Each trial of the experimental task began with the strategic options. On "one-option" trials, one strategy was presented at the center of the screen for 3s. On two-options trials, two strategies were presented on the screen for 3 s, one of them surrounded by a white frame indicating selection by the computer. Next, a negative image was presented for 6 s on the screen. Following the offset of the image, participants rated how they felt while viewing it (1 = *very bad*; 9 = *very good*). Since participants sometimes fail to follow instructions (Demaree, Robinson, Pu, & Allen, 2006), they were asked to indicate which strategy they actually employed while viewing the image. The design was fully randomized, such that images and instructions were independent and changed across participants; the order of both instructions and images was randomized as well. A black screen appeared for 4 s between each trial. Finally, participants provided demographic information.

Results

On average, participants were able to implement the selected option on 88% of the trials (range: 68%–100%, $SE = 0.02$). To test whether the experimental condition affected compliance, we con-

[2] One participant was excluded from the analysis because s/he failed to employ the selected strategy at a frequency that was more than two standard deviations from the mean (see Results section). Results remained unchanged when the participant was included in the analyses. The sample size was determined based on the standards set in previous studies that examined emotion regulation choice, using similar paradigms (e.g., Sheppes et al., 2011).

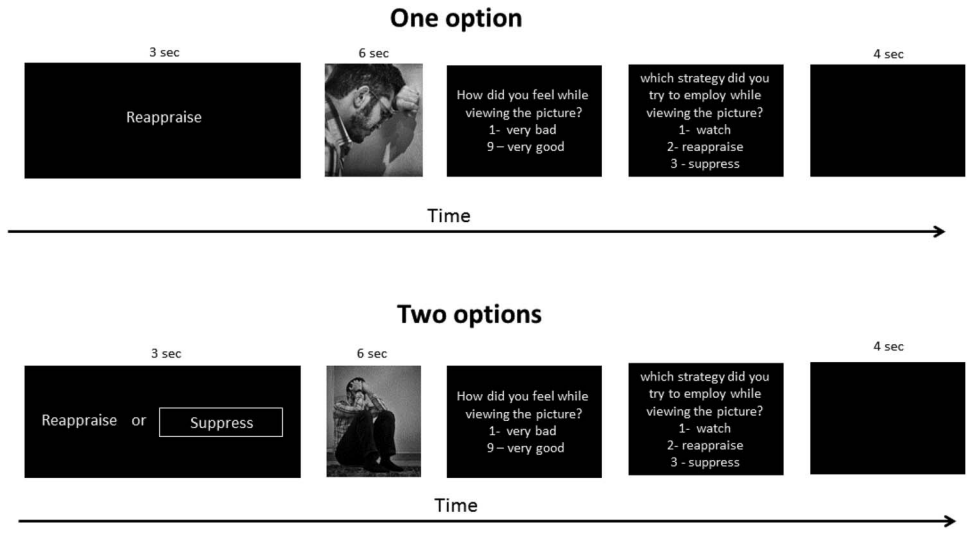

Figure 1. Depiction of the sequence of trials with one option (top panel) and trials with two options (bottom panel; Study 1).

ducted a 2 (options: one vs. two) × 3 (strategy: watch, reappraise, suppress) repeated-measures analysis of variance (ANOVA), predicting the percentage of trials in which participants used the strategy they were instructed to implement. We found a significant effect for strategy, $F(2, 56) = 7.82$, $p < .001$, partial $\eta^2 = 0.22$, such that, on average, participants were better able to implement watch instructions ($M = 0.942$, $SE = 0.02$) than reappraise instructions ($M = 0.865$, $SE = 0.03$, $p < .001$) and suppress instructions ($M = 0.891$, $SE = 0.02$, $p = .038$). This could be expected, given that passive watching is easier than implementing the other two active strategies. No other effects were significant ($F < 1$).

To assess the potential effects of options on negative emotions, for each participant we computed the average emotional reaction following each strategic option, when it was presented as a single option and, separately, when presented as one of two options. Trials in which participants failed to use the selected strategy were omitted from the analyses. This resulted in six scores per participant. We then conducted a 2 (options: one vs. two) × 3 (strategy: watch, reappraise, suppress) repeated-measures ANOVA, predicting negative emotional experiences. As predicted, we found a significant effect of options, $F(1, 27) = 8.76$, $p = .006$, partial $\eta^2 = .25$, 95% confidence interval (CI) [0.05, 0.26], such that participants reported feeling better after implementing a strategy when it was presented as a single option ($M = 3.62$, $SE = 0.119$), compared with the same strategy when it was presented as one of two options ($M = 3.46$, $SE = 0.113$). As expected, we also found a significant main effect of strategy, $F(2, 54) = 39.07$, $p < .001$, partial $\eta^2 = .59$, such that participants felt better after using reappraisal ($M = 4.34$, $SE = 0.18$) than after using suppression ($M = 3.29$, $SE = 0.13$), $t(27) = 5.78$, $p < .001$, or after passively watching ($M = 2.98$, $SE = 0.12$), $t(27) = 7.19$, $p < .001$). Participants also felt better after suppressing than after passively watching, $t(27) = 3.25$, $p = .003$. The Options × Strategy interaction was not significant, $F < 1$. Means and standard deviations are presented in Table 1.

Discussion

In Study 1, participants felt less intense negative emotions upon using a strategic option (i.e., reappraise, suppress, or watch) when it was presented as a single option, than upon using the exact same strategy when it was presented as one of two hypothetical options. This was despite the fact that in both cases participants did not get to choose which strategy to use. These findings demonstrate that the availability of options may ultimately lead people to feel worse when handling negative emotions. In fact, that is the case even when such options are hypothetical and people cannot actually choose between them.

Study 2

Some have proposed that the detrimental effect of having options may be due to the cognitive resources required to process each additional option (e.g., Reutskaja & Hogarth, 2009). It is possible, therefore, that increased cognitive load may have contributed to the detrimental effect of having strategic options obtained in Study 1. Each available option requires additional cognitive resources that could have been devoted to implementation, and so each additional option could lead to incremental impairment in how effectively people regulate their negative emotions. Similarly, if the findings in Study 1 were driven by properties of the goal system, people should be more effective in regulating their negative emotions when they have one option compared with two options, and when they have two options compared with three. We tested these possible accounts in Study 2, by using a similar paradigm as in Study 1, with one exception. In addition to trials with one or two hypothetical options, the experimental task included trials with three hypothetical options, resulting in yet greater cognitive demand (Reutskaja & Hogarth, 2009) and in a weaker mean-goal association (Kruglanski et al., 2002). As in Study 1, when more than one option was presented, one of the options was

Table 1
Means (SD in Parentheses) of Emotional Experiences (1 = Very Bad; 9 = Very Good) in Each Condition for Studies 1–5, and for Expected Emotional Experiences in Study 6

	Study 1		
Options	Reappraisal	Suppression	Watch
One option	4.39 (1.03)	3.39 (0.70)	3.07 (0.74)
Two options	4.30 (0.94)	3.20 (0.80)	2.89 (0.64)
	Study 2		
	Reappraisal	Suppression	Watch
One option	4.86 (1.10)	3.85 (0.81)	3.34 (0.82)
Two options	4.61 (1.17)	3.61 (0.92)	3.25 (0.87)
Three options	4.63 (1.22)	3.68 (0.80)	3.43 (0.88)
	Study 3		
	Reappraisal	Suppression	Watch
One option	4.11 (1.12)	3.58 (0.79)	3.17 (1.04)
Two options with choice	3.63 (1.53)	3.39 (0.94)	3.04 (1.01)

	Study 4	
	Reappraisal	Suppression
One option	3.73 (0.99)	3.18 (0.76)
Two options no choice	3.62 (1.12)	3.09 (0.71)
Two options with choice	3.46 (0.95)	2.86 (1.24)

	Study 5			
	Negative images		Neutral images	
	Reappraisal	Suppression	Reappraisal	Suppression
One option	3.94 (1.24)	2.97 (0.74)	5.09 (0.50)	5.24 (0.41)
Two options with choice	3.77 (1.15)	2.81 (0.87)	5.30 (0.62)	5.10 (0.33)

	Study 6	
	Reappraisal	Suppression
One option	3.65 (1.42)	2.32 (1.01)
Two options no choice	3.66 (1.40)	2.46 (0.94)
Two options with choice	3.66 (1.40)	2.98 (1.43)

selected by the computer. We expected cognitive load to be higher when two options were presented, compared with one option, and even higher when three options were presented, compared with two options. If differences in cognitive load or properties of the goal system contributed to the findings in Study 1, people should end up feeling worse when considering three, compared with two, hypothetical options.

On each trial, participants were presented with either one option (e.g., reappraise, suppress, or watch) two options (e.g., reappraise or suppress) or three options (e.g., reappraise, suppress, or watch). When two or three options were presented, one of the options was randomly selected by the computer. Participants were then presented with a negative image. They viewed the image while implementing the option that was chosen. Finally, they rated their emotional response to the image.

Method

Participants. Participants were 32 university students (47% male, $M_{age} = 23.88$).[3] Participants received either course credit or monetary compensation (~$8.50) for their participation.

Procedure. The procedure was identical to that of Study 1 with one exception. In addition to trials that included one and two

[3] A power analysis (using G*Power version 3.1.9.2) showed that a sample of $N = 22$ is required in order to find the same effect size as in Study 1 (partial $\eta^2 = 0.25$, conservatively assuming no correlation among measures) with the power of 0.95. For the sake of consistency between studies, and in order to increase the reliability of our estimation, we used a sample of roughly 30 participants in Studies 2–5. Two participants were excluded from the analysis because their compliance rate was more than two standard deviations below the mean. Results remained unchanged when these participants were included in the analyses.

strategic options, the task also included trials with three strategic options. The task included 75 trials, which included 24 trials with one option (8 per strategy), 24 trials with two options (8 per strategy), and 27 trials with three options (9 per strategy). Trials, trial types, and image combinations were presented in a random order. On trials that included more than one option, the location of the options on the screen was counterbalanced.

Results

On average, participants were able to use the selected option on 89% of the trials (range: 72%–100%, $SE = 0.01$). To test whether the experimental condition affected compliance, we conducted a 3 (options: one, two, three) × 3 (strategy: watch, reappraise, suppress) repeated-measures ANOVA on the percentage of trials in which participants implemented the strategy they were supposed to. We found a significant effect of strategy, $F(2, 58) = 13.25$, $p < .001$, partial $\eta^2 = 0.31$, such that participants were more compliant, on average, in implementing watch instructions ($M = 0.946$, $SE = 0.01$) than reappraise instructions ($M = 0.835$, $SE = 0.02$, $p < .001$) and suppress instructions ($M = 0.892$, $SE = 0.02$, $p = .009$). The difference between reappraise and suppress was also significant ($p = .006$). Additionally, we found a significant Strategy × Options interaction, $F(4, 116) = 2.78$, $p = .030$, partial $\eta^2 = .09$.[4] The effect for options was not significant ($F < 1.76$).

To assess the potential effect of the availability of options on negative emotions, we conducted a 3 (options: one, two, three) × 3 (strategy: watch, reappraise, suppress) repeated-measures ANOVA, predicting negative emotional responses. Trials in which participants failed to use the selected strategy were omitted from the analyses. We found a significant effect of number of options, $F(2, 58) = 4.73$, $p = .012$, partial $\eta^2 = .14$. We performed two planned contrasts to test our predictions. The first contrast compared the trials with one option to trials with more than one option. As predicted, participants felt less negative after one-option trials ($M = 4.02$, $SE = 0.12$) compared with more-than-one-option trials ($M = 3.87$, $SE = 0.14$), $F(1, 29) = 5.94$, $p = .021$, partial $\eta^2 = .17$. The second contrast compared two-options ($M = 3.82$, $SE = 0.14$) to three-options ($M = 3.91$, $SE = 0.14$) trials. The difference was not significant, $F(1, 29) = 2.68$, $p = .133$. Additionally, participants felt less negative in one-option trials than in two-options trials ($p = .012$, partial $\eta^2 = .21$), replicating the results of Study 1. The difference between the one-option ($M = 4.02$, $SE = 0.12$) and three-options ($M = 3.91$, $SE = 0.14$) trials was not significant, $p = .123$.

We also replicated the significant main effect of strategy that was found in Study 1, $F(2, 58) = 37.25$, $p = .001$, partial $\eta^2 = .56$, such that people felt less negative after implementing reappraisal ($M = 4.70$, $SE = 0.20$) than suppression ($M = 3.71$, $SE = 0.14$), $t(29) = 7.19$, $p < .001$, or watch instructions ($M = 3.34$, $SE = 0.14$), $t(29) = 7.19$, $p = .001$. People also felt less negative after implementing suppression than after watching, $t(29) = 3.21$, $p = .003$. The Options × Strategy interaction was not significant, $F < 1$, $p = .506$.[5] Means and standard deviations are presented in Table 1.

Discussion

In Study 2, participants felt less negative after implementing an option for handling negative emotions that was presented individually than after implementing the same strategy when it was presented with either two or three other hypothetical options, replicating our findings in Study 1. Our findings do not support a cognitive load account, as we did not find a difference between trials that included two hypothetical options and trials that included three hypothetical options. Our findings also do not support the predictions of a goals system theory (Kruglanski et al., 2002), according to which the more options available, the weaker the motivational strength of each option, to the extent that such an association is linear.

Study 3

Studies 1 and 2 tested hypothetical options, because the strategic option was selected by the computer rather than the participant. In Study 3, we tested whether the effect obtained in these studies extends to actual options, which people can choose from. On each trial, participants were presented with either one strategic option (i.e., reappraise, suppress, or watch) or two strategic options (e.g., reappraise or suppress). When two options were presented, participants had to choose between them. Participants were then presented with a negative image. They viewed the image while implementing the strategy they had chosen. Finally, they rated their emotional response to the image.

[4] We ran a follow-up test for simple effects in strategy compliance. We found a significant effect for options only for reappraisal trials, $F(2, 28) = 4.14$, $p = .027$, partial $\eta^2 = .23$, the rest of the simple effects were not significant ($ps > .117$). Follow-up pairwise comparisons revealed that participants were significantly less successful in implementing the strategic option selected when reappraisal was one of three options ($M = .797$, $SE = .030$) than when reappraisal was one of two options ($M = 0.867$, $SE = .027$, $p = .009$) and marginally less successful when reappraisal was one of three options, than when it was the only option ($M = 0.842$, $SE = .025$, $p = .061$).

[5] It is possible that the lack of an Options × Strategy interaction is due to low statistical power. In order to further test this possibility we combined the data from the three studies (Studies 1–3) that included watch, suppression and reappraisal, either as a single option, or as one of two options ($N = 89$). We ran a repeated-measures ANOVA with strategy (watch, suppression and reappraisal) and options (one option, two options) as within-subject factors and study (Studies 1, 2, and 3) as a between-subjects factor. We included in the analysis a planned contrast that compared the nonregulation strategy (watch) with the regulation strategies (suppression and reappraisal). As expected, we found a significant effect for options, $F(1, 166) = 30.93$, $p < .001$, partial $\eta^2 = 0.27$, such that participants experienced less negative emotions after one-option trials ($M = 3.75$, $SE = 0.08$) than two-options trials ($M = 3.54$, $SE = 0.09$). We also found the expected effect for strategy, $F(2, 166) = 80.19$, $p < .001$, partial $\eta^2 = 0.49$, such that participants reported feeling the least negative on reappraisal trials ($M = 4.30$, $SE = 0.12$), than suppression trials ($M = 3.51$, $SE = 0.08$), and most negative on watch trials ($M = 3.13$, $SE = 0.09$), and these differences were statistically significant, $ps < .001$. However, we did not find a significant Options × Strategy interaction ($F < 1$). The planned contrast for the interaction (comparing the difference between number of options for the watch trials with the difference between number of options for the suppression and reappraisal trials) was not significant as well, $F(1, 83) = 1.46$, $p = .297$. Therefore, even though the difference between options for the watch trials ($M = 0.13$) is smaller than the difference for the suppression ($M = 0.22$) and reappraisal ($M = 0.27$) trials, the difference is not significant. The lack of significance in this analysis is less likely to be due to low statistical power.

Method

Participants. Participants were 29 university students (45% male, $M_{age} = 24.61$).[6] Participants received either course credit or monetary compensation (~$8.50) for their participation.

Procedure. The procedure was identical to that of Study 1, with one exception. In Study 1 when two options were presented, the computer chose between them. In contrast, in Study 3, when two options were presented, participants indicated, by pressing either "1" or "2," which of the two options they chose (the order of presentation and key-strategy combinations were counterbalanced). Once they indicated their choice, a white frame appeared around the chosen option for 3 s before the negative image was presented.

Results

On average, participants implemented the selected option on 83% of the trials (range: 63%–100%, $SE = 0.02$). To test whether the experimental condition affected compliance, we conducted a 2 (options: one vs. two) × 3 (strategy: watch, reappraise, suppress) repeated-measures ANOVA on the percentage of trials in which participants implemented the option they were supposed to. We found a significant effect of strategy, $F(2, 50) = 12.05$, $p < .001$, partial $\eta^2 = .33$, such that participants were more compliant when implementing watch ($M = 0.934$, $SE = 0.02$) than reappraise ($M = 0.753$, $SE = 0.04$, $p < .001$) and suppress instructions ($M = 0.805$, $SE = 0.04$, $p < .001$). No other effects were significant ($F < 1$).

To assess the potential effect of the availability of options we conducted a 2 (options: one vs. two) × 3 (strategy: watch, reappraise, suppress) repeated-measures ANOVA, predicting negative emotional responses. Trials in which participants failed to use the selected strategy were omitted from the analyses. We found a significant effect of choice, such that participants felt less negative after implementing an option that was presented individually ($M = 3.62$, $SE = 0.17$), than after choosing it from two options ($M = 3.35$, $SE = 0.20$), $F(1, 23) = 12.49$, $p = .002$, partial $\eta^2 = .35$, 95% CI [0.11, 0.43]. We also replicated the significant main effect of strategy that was found in Studies 1 and 2, $F(2, 46) = 8.63$, $p = .001$, partial $\eta^2 = .27$, such that people felt less negative after implementing reappraisal ($M = 4.03$, $SE = 0.27$) than suppression ($M = 3.46$, $SE = 0.16$), $t(26) = 2.44$, $p = .022$, or watch ($M = 3.05$, $SE = 0.18$), $t(26) = 3.96$, $p = .001$. People also felt less negative after implementing suppression than after watching, $t(26) = 4.10$, $p < .001$. The Options × Strategy interaction was not significant, $F < 1.76$, $p = .18$. Means and standard deviations are presented in Table 1.

Discussion

In Study 3, participants felt less negative after implementing a strategic option that was presented individually than after choosing to use the same strategy over another. Taken together, the findings from this study and the previous ones suggest that people handle negative emotions in a manner that results in less intense negative feelings when they are presented with one strategic option for doing so than when they are presented with two such options, whether they get to choose between them or not.

Study 4

To test whether having available options and choosing between them have independent effects, it is necessary to test their possible effects in a single experimental design. We did so in Study 4. The study included all three types of trials that were included in Studies 1 and 3 (i.e., one option, two hypothetical options, and two actual options). We expected participants to be more effective in regulating their negative emotions when the strategy they used to do so was presented as a single option (vs. not), regardless of choice.

Method

Participants. Participants were 30 university students, (41% male; $M_{age} = 23.93$).[7] Participants received either course credit or the equivalent of $8.50 for their participation.

Procedure. The procedure was similar to that of Study 3, with several differences. First, the study included three types of trials: one option, two options without choice (hypothetical options, as in Study 1), and two options with choice (as in Study 3). Second, the study included only two strategic options for regulating negative emotions: reappraisal and suppression. Overall, there were 60 experimental trials: 10 with reappraise instructions, 10 with suppress instructions, 20 with reappraise or suppress with one option randomly chosen (the selected option appeared in a white frame), and 20 with reappraise or suppress, where the participant had to choose between them. Trials were presented in a random order.

Results

On average, participants implemented the selected strategy on 92% of the trials (range: 82%–100%, $SE = 0.01$). We conducted a 3 (trial type: one option, two options no choice, two options with choice) × 2 (strategy: reappraise, suppress) repeated-measures ANOVA, predicting the percentage of trials in which the participants used the strategy they were supposed to. We found a significant effect of trial type, $F(2, 54) = 8.58$, $p < .001$, partial $\eta^2 = 0.24$, such that participants were more compliant, on average, when they chose which strategy to use ($M = 0.943$, $SE = 0.01$) than when presented with two options without choice ($M = 0.884$, $SE = 0.02$, $p < .001$) or with one option ($M = 0.900$, $SE = 0.02$, $p = .006$). Other effects were not significant, $F < 1$.

To test our main hypotheses, we conducted a 3 (trial type: one option, two hypothetical options, two actual options) × 2 (strategy: reappraise, suppress) repeated-measures ANOVA, with two planned contrasts that followed the results obtained in Studies 1, 2 and 3. Trials in which participants failed to use the selected strategy were omitted from the analyses. The first contrast tested the effect of available options, comparing one-option trials to both

[6] One participant was excluded from the analysis because his/her compliance rate was more than two standard deviations below the mean. Results remained unchanged when the participant was included in the analyses.

[7] One participant failed to complete the study and was omitted from the analysis. Two additional participants' compliance rates were below two standard deviations from the mean and they were excluded from the analysis. One other participant was excluded from the analyses because his or her emotional responses were more than 3 *SD*s above the mean (results remained unchanged when the participant was included in the analyses).

types of two- options trials (i.e., hypothetical and actual). Replicating our findings in Studies 1 and 2, participants felt less negative after using a strategy that was presented individually (M = 3.46, SE = 0.14) than after using a strategy that was presented with an alternative option (M = 3.25, SE = 0.15), $F(1, 26) = 5.15$, p = .032, partial η^2 = .17.

The second contrast tested the effect of choosing between options, comparing choice trials with both trial types in which there was no choice (i.e., one option and two hypothetical options). Replicating our findings in Study 3, participants reported feeling less negative after implementing a strategy that they did not choose, whether it was presented individually or with other options (M = 3.40, SE = 0.14), compared with a strategy they did choose (M = 3.16, SE = 0.18), $F(1, 26) = 4.68$, p = .040, partial η^2 = .15.

We also found a significant effect for trial type, $F(2, 52) = 3.84$, p = .028, partial η^2 = .13. Using simple pairwise comparisons, we found a significant difference between the "two options with choice" trials (M = 3.16, SE = 0.18) and the one-option trials (M = 3.46, SE = 0.14), p = .025. The "two options without choice" trials (M = 3.35, SE = 0.15) were not significantly different from the one-option trials (p = .207) or from the two options with choice trials (p = .106). Finally, as in Studies 1–3, we found a significant effect for strategy, $F(1, 26) = 12.65$, p = .001, partial η^2 = .33, such that people felt better after using reappraisal (M = 3.60, SE = 0.18) compared with suppression (M = 3.04, SE = 0.14). The Trail Type × Strategy interaction was not significant, $F < 1$. Means and standard deviations are presented in Table 1.

Discussion

In Study 4, we found that participants felt less negative after using a strategy for regulating negative emotions when it was presented as a single option than when the same strategy was presented as one of two options, regardless of whether they were able to choose between these options or not. Additionally, as in Study 3, participants who chose which strategy to use were less successful in regulating their negative emotions than participants who did not. However, when presented with two strategies, whether or not participants could choose among the options did not affect how well they regulated their negative emotions. It should be noted that this null effect is inconsistent with Botti and Iyengar's (2004) research that found a negative effect of choice among unattractive options and a positive effect of choice among attractive options. It is possible that the current null effect may have been due to limited statistical power.

Study 5

In Studies 1–4, we demonstrated that having more than one option for handling negative emotions impairs how people handled their negative emotions and how they felt as a result. This is consistent with our hypothesis that options impair how well people regulate their negative emotions. However, our previous findings are also consistent with an alternative hypothesis, according to which options elicit negative affect, regardless of the valence of the stimuli. According to this alternative hypothesis, having options elicits negative feelings regardless of whether the emotions people are handling are negative or not. In order to test this possibility, in Study 5, participants were presented with either negative images, as in Studies 1–4, or with neutral images. They were given either one strategic option for handling these images or two strategic options from which they were instructed to choose. According to the alternative hypothesis that available options simply elicit negative affect, we should find *similar* patterns of changes in emotional experience following negative and neutral images. In contrast, according to our hypothesis that options impair how well people handle negative emotions, we should find effects following negative, but not neutral, images. As in Study 4, in Study 5 we used suppression and reappraisal as strategic options. We used reappraisal instructions that could be easily applied to both negative and neutral stimuli, by instructing participants to challenge the reality of the images (e.g., "the events presented in the image are staged").

Method

Participants. Participants were 31 university students, (43.3% male; M_{age} = 23.37).[8] Participants received either course credit or the equivalent of $7.50 for their participation.

Materials

Negative and neutral images. For negative images we randomly selected 40 of the images we used in Studies 1–4. For neutral images we used 40 images from the IAPS (Lang et al., 2008) that were found[9] to elicit neutral feelings (M = 4.99, SD = 0.24; where 1 = *very bad feelings* and 9 = *very good feelings*) with low arousal (M = 2.87, SD = 0.52; where 1 = *very low arousal* and 9 = *very high arousal*).

Procedure. The procedure was similar to that of Study 3, except for the following changes. First, as in Study 4, strategic options included only reappraisal and suppression. Second, in the training phase, participants were told that reappraise refers to thinking about an image in a way that challenges the reality of the image: for example, considering the events in the image as theatrically staged (following McRae, Ciesielski, & Gross, 2012). We chose strategies that could be applied both to negative and to neutral stimuli. Suppression can be applied to both negative and neutral stimuli, as people can hide the expressions of their true feelings, regardless of what they are. Reality challenge reappraisal can also be applied to both negative and neutral stimuli, as both can be either real or fake. Finally, each participant completed two blocks of images, in a counterbalanced order: a negative image block and a neutral image block. Each block consisted of 40 images, 10 that appeared with reappraise instructions, 10 with suppress instructions, and 20 with reappraise or suppress instructions, in which participants needed to choose between them, as in Study 3.

Results

On average, participants implemented the selected strategy on 91% of the trials (range: 75%–100%, SE = 0.08). We conducted

[8] Two participants' compliance rate was below two standard deviations from the mean and they were excluded from the analysis. Data from one participant were missing, due to an experimenter's mistake (the same participant's number was used twice, and the data from the earlier participant were overwritten).

[9] Previous research found that Israeli participants react differently to negative and positive images from the IAPS (Okon-Singer, Kofman, Tzelgov, & Henik, 2011). Therefore, we did not pretest the neutral pictures for this study, and used the emotional ratings from Lang and colleagues (2008).

a 2 (trial type: one option, two options with choice) × 2 (strategy: reappraise, suppress) × 2 (image valence: negative, neutral) repeated-measures ANOVA, predicting the percentage of trials in which the participants used the strategy they were supposed to. We found a significant effect of trial type, $F(1, 23) = 4.82$, $p = .038$, partial $\eta^2 = .17$, such that participants were more compliant, on average, when they could choose between two options ($M = 0.914$, $SE = 0.02$) than when they were presented with a single option ($M = 0.888$, $SE = 0.02$. Other effects were not significant, $F < 2.37$.

To test our hypotheses, we conducted a 2 (trial type: one option, two options with choice) × 2 (strategy: reappraise, suppress) × 2 (image valence: negative, neutral) repeated-measures ANOVA, predicting emotional response, while controlling for block order (negative images first, or neutral images first). Trials in which participants failed to use the selected strategy were omitted from the analyses. As predicted, we found a significant Trial Type × Image Valence interaction, $F(1, 21) = 4.96$, $p = .037$, partial $\eta^2 = .19$. After viewing negative images, participants felt less negative upon implementing a strategy that was presented as a single option ($M = 3.45$, $SE = 0.17$), compared with having two options and choosing between them ($M = 3.29$, $SE = 0.16$), $F(1, 21) = 4.66$, $p = .043$, partial $\eta^2 = .18$, 95% CI [0.01, 0.32], replicating our previous findings. However, after viewing neutral images, there was no difference between the one-option trials ($M = 5.17$, $SE = 0.09$) and the trials in which participants had two options and chose between them ($M = 5.20$, $SE = 0.09$), $F < 1$. These findings support our hypothesis that available options impair the regulation of negative emotions, and is inconsistent with the alternative hypothesis that options themselves elicit negative affect.

We also replicated the significant main effect of strategy that was found in Studies 1–4, $F(1, 21) = 12.43$, $p = .002$, partial $\eta^2 = .37$, such that people felt less negative after implementing reappraisal ($M = 4.53$, $SE = 0.15$) than suppression ($M = 4.03$, $SE = 0.10$). Additionally, we found an effect for image valence, $F(1, 21) = 141.48$, $p < .001$, partial $\eta^2 = .87$, such that participants felt better after viewing neutral images ($M = 5.18$, $SE = 0.09$) than negative images ($M = 3.37$, $SE = 0.16$). We also found a significant Image Valence × Strategy interaction, $F(1, 21) = 12.29$, $p = .002$, partial $\eta^2 = .37$. For trials with negative images, participants felt less negative when using reappraisal ($M = 3.85$, $SE = 0.25$) than suppression ($M = 2.88$, $SE = 0.16$), $F(1, 21) = 12.93$, $p = .002$, partial $\eta^2 = .38$. For trials with neutral images, there was no difference in emotional experience between trials in which participants used reappraisal ($M = 5.20$, $SE = 0.11$) and suppression ($M = 5.17$, $SE = 0.71$), $F < 1$. Finally, we found a marginally significant Trial Type × Strategy interaction, $F(1, 21) = 4.07$, $p = .057$, partial $\eta^2 = .16$. Across image valence, for trials in which participants used reappraisal, there was no difference between trials in which reappraisal was the only option presented ($M = 4.52$, $SE = 0.15$) and trials in which participants chose reappraisal ($M = 4.54$, $SE = 0.15$), $F < 1$. For trials in which participants used suppression, participants experienced less negative emotion when suppression was the only option presented ($M = 4.10$, $SE = 0.09$) than when participants chose to use suppression ($M = 3.95$, $SE = 0.11$), $F(1, 21) = 4.61$, $p = .044$, partial $\eta^2 = .18$. However, this interaction should be interpreted with caution as it was not statistically significant. Means and standard deviations are presented in Table 1.

Discussion

In Study 5, we found that participants felt less negative in response to negative images when regulating their emotions using a strategy that was presented as a single option than when they chose to use that strategy over another option, replicating our findings from Studies 3–4. This emotional impact, however, was not obtained when people were responding to neutral images, supporting our hypothesis that having options impairs how effectively people regulate negative emotions, and doesn't simply make people feel worse.

Study 6

In Studies 1–5, we used self-reported emotional experiences to assess the efficacy with which people regulated negative emotions. Given that self-reports are amenable to control, it is possible that our findings could also reflect demand characteristics. If this is the case, our findings should reflect also participants' naïve beliefs about the effects of having available hypothetical and actual options on regulating negative emotions. Therefore, in Study 6 we directly assessed such naïve beliefs. The study was similar to Study 4, with one major difference. Instead of viewing negative images, participants were presented with brief verbal descriptions of the images presented in Study 4, and were asked how they *expected* to feel when viewing the actual images, after implementing different strategies in different choice sets (for similar procedures, see Lieberman, Inagaki, Tabibnia, & Crockett, 2011; Sheppes, Brady, & Samson, 2014). The use of verbal descriptions of the images, rather than the actual presentation of them, enabled us to measure expectations, while minimizing changes in emotional experiences per se.

Method

Participants. Forty-one university students (32% male; $M_{age} = 23.51$) participated in the study for either course credit or the equivalent of $3.

Procedure. The study was similar to Study 4 with several changes. First, participants completed the study without the presence of an experimenter. Additionally, both in the practice phase and in the experimental phase instead of viewing an image, participants read a short verbal description of an image. All trials began with a cue signaling the type of trial (i.e., "Imagine you see will see one option", "Imagine the computer will choose reappraisal or suppression" and "Imagine you will choose reappraisal or suppression"). The cue appeared for 4 s. Participants were asked to imagine themselves following the specific instructions (e.g., "Imagine you chose reappraisal. Imagine yourself viewing the image and reappraising it in an attempt to reduce negative emotions"—when reappraisal was the selected option; "Imagine you chose suppression. Imagine yourself viewing the image and trying to suppress your emotions"—when suppression was the selected option). Each type of trial appeared twice. The instructions were presented for 4 s with the type of instructions appearing in random order. Following the instructions, participants were presented with a verbal description of an image for 8 s (e.g., "Imagine you're viewing an image of a man pointing a gun to his mouth"). Participants were then asked to report how they think they would have

felt had they viewed the image according to the instructions (1 = *very bad*; 9 = *very good*). Four different versions of image-instruction combinations were randomly created, and each participant was randomly assigned to one version. Finally, participants provided demographic information.

Results

To test our hypotheses, we conducted similar analyses to those in Study 4. Specifically, we conducted a 3 (trial type: one option, two hypothetical options, two actual options with choice) × 2 (strategy: reappraise, suppress) repeated-measures ANOVA with two planned contrasts. As in Study 4, the first contrast compared one-option trials to the two-options trials (both hypothetical and actual). Unlike the pattern we found in Study 4, where participants felt less negative when using an option that was presented individually than when presented together with an alternative, participants in Study 6 did not expect to experience different levels of negative emotions when presented with one strategic option (M = 2.98, SE = 0.14) compared with two strategic options (M = 3.11, SE = 0.18), $F(1, 40) = 1.12$, $p = .296$. This null effect is unlikely to result from lack of statistical power, as the means were in the opposite direction, and as our sample size in this study was larger than in our previous studies. The second contrast compared the choice trials with the no-choice trials. Contrary to the pattern we found in Studies 3 and 4, where participants felt less negative when they did not choose the regulation option relative to when they did choose it, participants in Study 6 expected to feel better after implementing a strategic option that they had personally chosen (M = 3.32, SE = 0.21) compared with one they did not (M = 2.95, SE = 0.14), $F(1, 40) = 7.61$, $p = .009$.

We also found a significant effect for trial type, $F(2, 80) = 4.35$, $p = .016$, partial $\eta^2 = .10$, such that participants expected to feel less negative emotions when they had two options and could choose between them (M = 3.32, SE = 0.21) than when they had two options without a choice (M = 2.91, SE = 0.18, $p = .011$) or only one option (M = 2.98, SE = 0.14, $p = .032$). Participants did not expect to feel differently when they had one option than when they had two options but without a choice between them ($p = .620$). We also found a significant effect for strategy, $F(1, 40) = 42.69$, $p < .001$, partial $\eta^2 = .52$, such that participants expected to feel less negative after using reappraisal (M = 3.55, SE = 0.20) compared with suppression (M = 2.58, SE = 0.14), suggesting that people have relatively accurate intuitions regarding the efficacy of reappraisal. We also found a significant Trial Type × Strategy interaction, $F(2, 80) = 3.13$, $p = .049$, partial $\eta^2 = .07$, such that people expected suppression to be more effective when they choose it (M = 2.98, SE = 0.22) than when having it selected for them from two hypothetical options (M = 2.46, SE = 0.15, $t(40) = 2.51$, $p = .016$) or having only one option (M = 2.32, SE = 0.16, $t(40) = 2.78$, $p = .008$). Means and standard deviations are presented in Table 1.

Discussion

The findings in Study 6 demonstrate that people expect to benefit from choosing which strategic option to use, and they do not expect the availability of options to influence how they regulate negative emotions. Our findings are consistent with research showing that people do not always have accurate expectations or insight into their psychological mechanisms (e.g., Greenwald & Banaji, 1995), including the effects of available options (Diehl & Poynor, 2010) and the ways in which they regulate negative emotions (Sheppes, Scheibe, et al., 2014). Similarly, people's beliefs regarding the effects of having options and choice on regulating negative emotions were inconsistent with the actual effects obtained in Studies 1–5. These findings are inconsistent with the possibility that our findings resulted partially from demand characteristics.

General Discussion

Would Ophelia have been more successful in concealing her feelings toward Hamlet if she had other strategic options available? Our studies suggest that, contrary to naïve beliefs (Study 6), the answer to this question is likely negative. In five studies (Studies 1–5) we demonstrated that having strategic options for regulating negative emotions resulted in more, rather than less, intense negative emotions. This effect was not explained by increased cognitive load or mean-goal associations (Study 2) and was specific to reactions to negative, but not to neutral, stimuli (Study 5).

Implications for Emotion Regulation

Recent research in emotion regulation emphasizes the importance of being flexible (e.g., Bonanno & Burton, 2013; Bonanno, Papa, Lalande, Westphal, & Coifman, 2004) and the need to employ regulation strategies that are effective in the given context (e.g., Sheppes et al., 2011, Sheppes, Scheibe, et al., 2014; Troy, Shallcross, & Mauss, 2013). Some strategies may be more effective than others in certain contexts, and to regulate emotions successfully, people must be able to choose the right strategy in the right context. Nonetheless, our research suggests that having more than one strategic option for regulating emotions could come at a cost. Contrary to previous research that examined the content of emotion regulation choice (i.e., which choice is better than others in specific contexts), this investigation examined how the process of choice itself affects how people regulate their negative emotions, regardless of the content of choice. We accomplished this using a paradigm, in which the strategic option was selected before the emotional stimulus appeared.

To understand the impact of choice on regulating negative emotions, we distinguished between two components of choice: hypothetical availability of options and the act of choosing between them, and tested the effect of each component on negative emotions. We tested whether the use of any one strategy (e.g., cognitive reappraisal) results in more or less intense negative emotions, when it is presented alone or within a set of available hypothetical options (Studies 1, 2, and 4). We also tested whether the use of any one strategy results in more or less intense negative emotions when it is presented as a single option or when the participant chose it from among two available options (Studies 3–5). We found that having options was detrimental to regulating negative emotions whether participants could choose the option they used or not, suggesting that perhaps the detrimental effect of choice is due to the availability of options, and not to choice per se. Moreover, in Study 4, when we compared two options with choice

trials to two options without choice trials, we found no significant difference. Therefore, though it is possible that two distinct psychological mechanisms are involved, one for the availability of options and the other for choice, we found no support for that possibility in our studies. In Study 5, we demonstrated that the effect of available options is evident in response to negative stimuli, but not neutral stimuli, supporting our argument that options impair the regulation of negative emotions.

Our findings are consistent with prior findings, showing that people report less negative emotions after using reappraisal than suppression, and less negative emotions when using suppression than simply watching the negative stimuli (Webb, Schweiger Gallo, Miles, Gollwitzer, & Sheeran, 2012). However, our findings also show, for the first time, that a strategic option, including reappraisal, yields better outcomes when participants are instructed to use it as a single option than when it is presented as one of two possible options. The effects of any particular strategy, therefore, may be influenced by the availability of other options, hypothetical or actual. This suggests that providing people with options in emotion regulation could have a possible downside.

It should be noted, however, that the benefit of having only one (vs. more) option is smaller than the benefit of using an adaptive regulatory strategy. This implies that using reappraisal as one of many options for emotion regulation is likely to result in less negative emotions than using suppression, even if suppression is presented as a single option. However, our findings suggest that using reappraisal as the only emotion regulation option may lead to less negative emotions than using reappraisal as one of several options.

In our studies, we artificially manipulated the number of options available to our participants. We propose that in real life too, people may vary in the number of options they have to regulate their negative emotions. Indeed, people may not necessarily have in mind all possible strategic options they might use for emotion regulation (e.g., Gross, 2015). Previous research has shown that people differ in their knowledge about emotion regulation strategies (Côté et al., 2011; Garnefski et al., 2001; Lopes et al., 2005). Our findings suggest that in addition to having access to effective regulation strategies, there may be some advantage of inhibiting competing options in appropriate contexts, as even if an effective strategy is ultimately selected, having alternative options could impair its efficacy.

Our findings also have potential implications for clinical settings. In such settings, patients are often taught a variety of strategic options for regulating their negative emotions. Presenting people with various strategic options may be advantageous, because they might then select the options that are most appropriate in a given context (Bonanno & Burton, 2013). However, our findings suggest that, at least in some contexts, having available options could be costly.

The effect of the availability of strategic options on regulating negative emotions should be further tested, in both healthy and clinical populations. Giving people strategic options for regulating their emotions is important if it leads them to select the best strategy in a given context. However, to the extent that having available options may carry a cost, it is possible that such a cost differs for healthy and unhealthy individuals. For instance, this cost may be more pronounced in certain clinical populations, where the process of choice is particularly taxing (e.g., obsessive compulsive disorder; Foa et al., 2003). To the extent that clinicians could either offer several strategic options or focus on the best option in the situation, our findings suggest that there might be a cost to the former.

Limitations and Future Directions

Although our designs were sufficiently powered to test the main effect of available options, they might have been underpowered to test some of the potential boundary conditions, which may have been detected by significant interactions. Future studies should use larger sample sizes to further test whether the effect of available options increases in a linear fashion as a function of the number of options available (Study 2), and whether options affect emotional experience in response to neutral stimuli (Study 5). In addition, although the main effect of available options was replicated across studies, in contrast to our findings in Studies 1 and 2, in Study 4, we did not find a significant difference between the one option trials and the two options with no choice trials. This null effect may have been due to insufficient power.

In our investigation, we were able to test several potential accounts for the effect of available strategic options on regulating negative emotions. However, we did not yet find conclusive support for an underlying mechanism. Our findings in Study 2 were not consistent with a cognitive load account. However, there may be other ways to test cognitive load as a possible mechanism, for example, by using measures that are sensitive to small variations in cognitive load, such as pupil dilation (Paas, Tuovinen, Tabbers, & Van Gerven, 2003). The findings in Study 2 also were not consistent with a goal system account (Kruglanski et al., 2002). However, this account should also be further tested. For example, it may be useful to vary the type of options that are made available, so that some options serve as relevant means for regulating negative emotions (e.g., reappraisal), whereas some options do not (e.g., brushing teeth). According to goal system theory, the availability of goal-related options should impair goal pursuit, but the availability of options that are unrelated to the target goal pursuit should not. Other potential accounts, such as counterfactual thinking (e.g., Roese, 1997), expectation disconfirmation (Diehl & Poynor, 2010), preference uncertainty (Botti & McGill, 2006; Chernev et al., 2015), and decreased agency should also be further examined.

In our studies, to test the effects of the process of choice, independent of the content and quality of choice, we provided strategic options and choice before participants were exposed to negative stimuli. Future research can examine whether the pattern we found would also emerge when options are presented after exposure to emotion-inducing stimuli. To assess how well people regulated negative emotions, we used self-report measures of emotional experience. In particular, we used a single item to assess experienced affect. Using one bipolar item has limitations, as it does not allow participants to report that they are experiencing both negative and positive emotions. To enhance the reliability of our measure, it would be helpful to assess both negative and positive affect separately. This would enable independent assessment of the effects of available options on negative and positive emotions.

The outcomes of emotion regulation can reflect the direct impact of selected emotion regulation strategies on emotional expe-

riences as well as one's satisfaction with this impact. The effects and one's reactions to these effects can be either congruent or incongruent (e.g., Mauss, Tamir, Anderson, & Savino, 2011). Therefore, both the efficacy of options in emotion regulation and one's reactions to such options may contribute to the effects of available options on emotion regulation. We have begun to disentangle these potential contributors by investigating the effect of option availability in response to neutral stimuli in Study 5. However, future research should further disentangle their potential contribution.

Finally, Future research should take additional measures to rule out the possibility of demand characteristics. In Study 6, we measured expectancies in a separate sample and used imaginary images. Measuring expectancies and actual emotional experiences in the same sample while assessing physiological indices of emotional experience might address the problem of demand characteristics in a more conclusive way. Specifically, the measurement of electromyography from the corrugator supercilii muscle can reliably measure characteristics (e.g., Ray, McRae, Ochsner, & Gross, 2010) that are linked to changes in emotional experiences. Further research using measures other than self-report will provide further validation of our current findings.

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