

# Exploring Predictors of Depression with a Focus on Emotion Regulation Flexibility for Positive and Negative Affects

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Difficulties in flexible emotion regulation (ER) are a critical characteristic of depression. However, the conceptualizations and measurements of ER flexibility are heterogeneous, leading to greater confusion in understanding its impact on depression. The current study investigated which indicators of ER flexibility are predictive of depression. The study involved 414 young adults and assessed their emotional flexibility regarding regulatory strategies and competencies. Specifically, from the perspective of ER strategies, we evaluated ER variability, repertoire, and regulatory effort as indicators of ER flexibility using a hypothetical scenario scale. Additionally, ER abilities were assessed by measuring expressive flexibility through the Flexible Regulation of Emotional Expression (FREE) scale. We categorized emotion regulation flexibility indexes based on emotional valence, such as positive and negative emotions, and analyzed their respective relationships with depression. Multiple regression analysis revealed that the ability to enhance emotional expression—particularly the capacity to enhance positive emotion expression on the FREE scale—and the between-strategy variability and repertoire for positive emotion on the scenario questionnaire significantly predicted depression. These findings suggest that flexibility in ER, especially in managing positive emotions, is highly significant in understanding depression.

**Keywords:** emotion regulation, emotion regulation flexibility, depression

## Introduction

Persistent sadness and loss of interest or pleasure characterize major depressive disorder, accompanied by physical and cognitive changes (American Psychiatric Association, 2013). According to recent mental health surveys (Ministry of Health and Welfare,


2022a), the lifetime prevalence of major depressive disorder is 5.7% for males, 9.8% for females, and 7.7% overall. During the COVID-19 pandemic, 16.9% respondents were at risk of depression, over five times higher than the 2019 survey's 3.2% (Ministry of Health and Welfare, 2022b). Exploring the causes and persistence of major depressive disorder is significant, given its association with impairment in various functional domains and particularly high suicide risk (Kessler & Bromet, 2013).

Emotion regulation (ER) encompasses an extrinsic or intrinsic process responsible for monitoring, evaluating, and modifying emotional reactions to accomplish one's goals (Thompson, 1994), and researchers have identified difficulties in emotion regulation as vulnerability factors for emotional disorders, including depression (Ehring et al., 2010). Specifically, much of the previous research has dichotomized emotion regulation strategies as adaptive

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(e.g., cognitive reappraisal) or maladaptive (e.g., suppression) (Aldao et al., 2010), and has focused on the latter as a predictor of depression. However, recent studies have shown that each strategy's effectiveness was inconsistent across situations. Therefore, contemporary research on emotion regulation emphasizes flexibility.

Emotion regulation (ER) flexibility is defined as the capacity to adaptively manage emotions in response to situational demands (Bonanno & Burton, 2013) and to utilize appropriate emotion regulation strategies based on situational demands (Aldao et al., 2015). Deficits in ER flexibility are associated with developing psychopathology, particularly depression (Cole et al., 1994). Individuals with depression often exhibit frequent use of maladaptive ER strategies, such as rumination and suppression, while having limited ability to employ effective strategies (Joormann & Stanton, 2016), indicating a rigid pattern of ER. According to Rottenberg et al. (2005), depression is characterized by low sensitivity to emotional contexts and blunted emotional responses. Additionally, depression is closely associated with emotional inertia, which refers to the extent to which emotions resist change and remain constant over time (Koh & Kim, 2013; Suls et al., 1998). It is characterized by reduced responsiveness to changing environments and reflects one aspect of rigid ER (Brose et al., 2015; Gilbert et al., 2019). Such a lack of ER flexibility maintains negative emotions and ultimately perpetuates depression, making it crucial to understand ER flexibility in identifying, preventing, and treating the affective disturbances that characterize depressive disorders (Kashdan & Rottenberg, 2010).

However, despite the importance of ER flexibility, there is heterogeneity in its conceptualization (Cheng et al., 2014), resulting in diverse and mixed methods and indicators across studies. It makes it difficult to identify significant aspects of ER flexibility deficits in depression. The indicators of ER flexibility can be derived from two different domains. One approach focuses on ER strategies that individuals use to regulate their emotions, defining ER flexibility as using contextually appropriate strategies according to situational demands or individual goals (Tull & Aldao, 2015). In this approach, when measuring ER flexibility with a focus on ER strategies, previous studies have typically measured it by presenting participants with emotion-inducing stimuli (e.g., images, films) in experimental settings or emotional eliciting scenarios and then

asking them to select strategies to reduce the induced negative emotions (Goubet & Chrysikou, 2019; Sheppes et al., 2011).

In the domain of ER strategies, primary ER flexibility indicators that reflect various distinct aspects of ER flexibility include ER variability, repertoire, and regulatory effort. First, ER variability refers to the flexible use of ER strategies across different situations, which can be categorized into between-strategy and within-strategy variability (Aldao et al., 2015). Between-strategy variability reflects variations in endorsing different strategies on specific occasions (Aldao et al., 2015). Within-strategy variability refers to an individual's variation in using a specific strategy across different situations, indicating the tendency to find an appropriate strategy for each context (Blanke et al., 2020). Previous research has shown a negative relationship between depression and ER variability. Wang et al. (2021) found that people with higher between- and within-strategy variability reported lower levels of depression, and both types of variability were negatively correlated with resistance to negative emotion change.

Second, repertoire, one of the important components of ER flexibility, is an indicator in the domain of ER strategies that refers to the ability to use a variety of ER strategies (Bonanno & Burton, 2013). Repertoire is usually conceptualized as the number of diverse categories of ER strategies used (Aldao et al., 2015; Bonanno & Burton, 2013). People with a larger repertoire have various strategies available, whether adaptive or not. Previous studies have found a negative correlation between depression and repertoire. When comparing profiles of the range of ER strategies used, adolescents with a broader range of strategy use reported lower levels of internalizing problems such as depression compared to those with a narrower range of strategy use (Lougheed & Hollenstein, 2012).

Previous studies examining repertoire as an indicator of ER flexibility have also investigated the overall usage of strategies to better understand ER flexibility by including the indicator of regulatory effort. Goubet and Chrysikou (2019) assessed not only the number of ER strategies but also the total extent to which ER strategies were used across scenarios, thus evaluating regulatory effort. Similarly, Aldao and Nolen-Hoeksema (2013) investigated the average use of ER strategies alongside repertoire to understand regulatory effort. Thus, we also included regulatory effort as an ER flexibility indica-

tor along with repertoire to provide a deeper understanding. Although research on the relationship between depression and regulatory effort is limited, devoting a lot of effort to ER, given limited mental resources, can reduce the effectiveness of ER, considering it is a partly conscious control process (Lewczuk et al., 2022). Indeed, Blanke et al. (2020) found that higher average use of ER strategies was positively related to negative emotions, indicating that excessive use of strategies can lead to negative outcomes.

Another approach to ER flexibility focuses on ER abilities, which steps back from individual ER strategies and considers a broader perspective on the general ability to accept emotions, differentiate between various emotional states, and control behaviors in response to emotions (Tull & Aldao, 2015). In this domain, ER flexibility refers to the ability to regulate emotions appropriately according to situational demands (Gratz & Roemer, 2004). A primary ER flexibility indicator of ER abilities is emotion expressive flexibility. Emotion expressive flexibility is the ability to flexibly enhance or suppress emotional expressions according to situational demands (Westphal et al., 2010), which is not simply the skill of enhancing or suppressing emotional experiences (Choi, 2018). Emotion expressive flexibility is a psychological attribute that varies among individuals and remains stable over time, which is considered a dimension of ability (Westphal et al., 2010). Thus, it is distinctly different from indicators focused on ER strategies or those examining ER flexibility through emotion-inducing stimuli from a state perspective.

Burton and Bonanno (2016) developed a self-report scale, the Flexible Regulation of Emotional Expression (FREE) scale to measure emotion expressive flexibility. Three indicators of ER flexibility can be obtained with FREE: expressive flexibility, enhancement ability, and suppression ability. Expressive flexibility indicates the ability to both enhance and suppress emotions with balance, enhancement ability means the ability to express emotional responses to meet situational demands, such as sharing joy or sorrow with friends, and suppression ability means the ability to suppress emotional expression in situations like when a friend makes a funny mistake during a presentation. According to Bonanno et al. (2004), expressive flexibility predicted future reductions in psychological distress, including depression, whereas having extremely high levels of only one ability (either enhancement or sup-

pression) did not predict a reduction in psychological distress. Choi (2018) found that suppression ability significantly predicted psychological maladjustment. Meanwhile, Lee et al. (2015) revealed that the ability to flexibly enhance positive emotions with situational contexts was important for self-resilience and psychological adaptation. While previous studies have shown that overall expressive flexibility improves adaptations, the relative importance of flexibly enhancing and suppressing emotional expression shows mixed results (Chen et al., 2018). Comparing the effects of each ability on psychological health would be useful for understanding of the impact of emotional expression flexibility.

ER strategies and ER abilities are distinct concepts, each explaining different aspects of depression (Tull & Aldao, 2015). As discussed earlier, each ER flexibility indicators derived from both domains captures important and different aspects of rigid ER flexibility in depression. However, while there are studies that have examined the relationship between individual indicators and depression, few research included indicators from both domains to explore the characteristics of ER flexibility that are closely related to depression. This makes it difficult to identify and predict the risk of depression and does not provide insights into the crucial ER flexibility characteristics for treatment and intervention. Therefore, this study aims to derive primary ER flexibility indicators from both domains and examine their relationship with depression. Specifically, in the domain of ER abilities, we utilized ER flexibility indicators from FREE scale. However, for ER strategies, there is currently no self-report scale that can simultaneously measure various ER flexibility indicators. Thus, we developed a scenario-based self-report scale to measure various ER flexibility indicators, including emotion regulation variability, repertoire, and regulatory effort.

Additionally, previous research on ER traditionally examined ER in depression based on valence of emotions. As depression's characteristics include heightened negative emotions and a lack of positive emotions (Vanderlind et al., 2020), examining ER based on emotional valence can offer distinct insights into various facets of depression. However, previous research on ER flexibility has predominantly concentrated on difficulties in regulating negative emotions in depression (Joormann & Stanton, 2016; Silk et al., 2003), but not on flexibility in regulating positive emotions. Con-

sidering that anhedonia, a hallmark of major depressive disorder (MDD; American Psychiatric Association, 2013), is associated with impairments in the flexibility to enhance or upregulate positive emotions (Nelis et al., 2015; Werner-Seidler et al., 2013), we believe that investigating positive ER flexibility in depression is also crucial. Thus, we included indicators of both positive and negative ER flexibility to examine the respective effects of ER flexibility depending on emotional valence.

In summary, understanding the effects of ER flexibility on depression remains inconclusive because limited research has comprehensively examined various ER flexibility indicators by considering both strategy and ability domains, as well as emotional valence. Especially, previous studies exploring the relationship between ER flexibility and depression have used different indicators, limiting investigation of the characteristics of rigid ER most closely related to depression. Therefore, this study aimed to provide a more specific and integrated understanding of ER flexibility in depression by obtaining a comprehensive set of ER flexibility indicators and investigating which predict depression. This study collected various ER flexibility indicators which encompasses regulatory strategies (e.g., ER variability, repertoire, regulatory effort) and abilities (e.g., expressive flexibility) through a scenario questionnaire and FREE scale, respectively. We also included specific indicators based on the emotional valence.

## Methods

### Participants

We used an online survey and recruited 433 participants through an online research agency, ensuring that participants were evenly allocated by gender and age groups (20s, 30s). Among these, we excluded 19 (4.39%) participants because they failed to sufficiently demonstrate emotions after reading emotional scenarios. Therefore, the final analyses included 414 participants (95.61% of the original set). Of these, 203 were male (49.0%) and 211 were female (51.0%). The mean age was 30.19 years ( $SD = 5.03$ ; range: 20-39 years). Regarding education level, 101 participants had a high school diploma (24.4%), 80 an associate degree (19.3%), 200 a college degree (48.3%) and 33 had education above a college degree (8.0%). All participants self-identified as Koreans.

### Measures

#### Scenario Questionnaire

Development of scenarios and a pilot validation study. In the domain of ER strategies, existing instruments lacked the capability to measure various ER flexibility indicators simultaneously. Therefore, the researchers developed a scenario-based self-report questionnaire focusing on ER strategies to derive various ER flexibility indicators for the study. To capture a wide range of everyday emotional experiences, we considered factors such as emotion intensity (strong or weak) and emotional valence (negative or positive). We designed eight hypothetical scenarios: four scenarios to evoke negative emotions and four to evoke positive emotions. Additionally, among various daily contexts, we aimed to reflect everyday situations that are more closely related to depression. Considering that two vulnerabilities of depression—social isolation and autonomy—interact with stress in relationship and achievement contexts and significantly influence depression (Tennant, 2002), we structured the scenarios around these contexts. Thus, four scenarios are related to relational situations, and the remaining four are related to achievements.

We translated and adapted these scenarios from previous research to align with Korean culture. Besser and Priel (2010) utilized hypothetical scenarios involving failure to get a promotion or rejection by a romantic partner to compare emotional responses to threatening situations. Referring to these scenarios, we created scenarios to induce strong negative emotions in the contexts of achievement and relationships. To elicit positive emotions of similar intensity, we modified items related to promotions and romantic relationships from the Emotion Regulation Profile-Revised (ERP-R; Nelis et al., 2011) scale, which comprises various emotion-inducing hypothetical scenarios. Additionally, we used ERP-R items involving giving a presentation and receiving feedback to create scenarios that elicit positive and negative emotions of lesser intensity in the achievement context. Finally, adapting scenarios related to friendship conflicts from Haar and Krahe (1999), we created scenarios to elicit mild positive and negative emotions in the relationship context.

To assess the validity of the scenarios, we asked graduate students ( $N = 11$ ) in the psychology department to rate each scenario based on the life domains it represents, emotional valence, and

emotional intensity. We used repeated measures ANOVAs to test for differences in emotional valence within each scenario and emotional intensity across the scenarios. We observed significant differences in emotional valence within each scenario (Scenario 7:  $p = .001$ , all other scenarios:  $p < .001$ ). In other words, scenarios designed to evoke negative emotions effectively induced negative emotions, while scenarios designed to evoke positive emotions effectively triggered positive emotions. However, there were no significant differences in emotional intensity ratings between scenarios of different emotional valence (four negative emotion scenarios vs. four positive emotion scenarios:  $p = .079$ ), suggesting a balance in the emotional intensity elicited by the scenarios. These results indicate that different scenarios elicited varying emotional valences with similar intensity.

**Construction of scenario questionnaire and procedure.** The scenario questionnaire used in this study consists of a total of eight scenarios, presented in Supplementary Table 1. We instructed participants to read the scenarios. To control for the effect of the order in which the eight scenarios were presented, we suggested two types of questionnaires to participants in randomly. One starts with a positive emotion-eliciting scenario, and the other starts with a negative emotion-eliciting scenario. In each type, scenarios with different emotional valences are presented alternately.

After reading each emotion-eliciting scenario, participants completed several measures about their reactions. First, participants rated the extent to which they felt negative or positive emotions using a seven-point Likert scale, ranging from 0 (*not at all*) to 7 (*very strong*). Then, we asked participants to rate how much they used emotion regulation strategies to manage their negative or positive emotions in response to the scenario. Specifically, we included rumination, thought suppression, expressive suppression, reappraisal, acceptance, social support, distraction, and emotion expression for negative emotion regulation strategies.

For positive emotion regulation strategies, we included positive rumination, dampening, thought suppression, savoring, expression suppression, emotion sharing, emotion expression, and distraction. Participants provided ratings on a seven-point scale ranging from 1 (*not at all*) to 7 (*a lot*). We provided a brief description to help participants understand each strategy, as shown in Supplementary Table 2. After completing responses for the eight

scenarios, participants used a seven-point scale to rate how much they experienced a sense of immersion in the hypothetical situations.

#### Korean Version of Flexible Regulation of Emotional Expression (K-FREE) Scale

We applied the Flexible Regulation of Emotional Expression (FREE) scale to assess the ability to modulate emotional expressions compared to actual feelings in a given situation. Burton and Bonanno (2016) originally developed the scale, which was later translated into Korean and validated by Choi (2018). FREE contains eight items relating to enhancement ability and eight for suppression ability, with each ability subscale comprising four items related to positive and negative emotions. Participants assess each item on a six-point scale, ranging from 1 (*not at all*) to 6 (*very much*), with higher scores indicating greater flexibility in enhancing and suppressing emotional expression. The reliability coefficient was .81 for the eight-item enhance subscale, and .70 for the eight-item suppression subscale in Burton and Bonanno (2016)'s study. In Choi (2018)'s study, the internal consistency for the full scale was .75, .79 for the enhancement subscale, and .70 for the suppression subscale. In this study, the Cronbach's  $\alpha$  for the overall items was .74, .77 for the enhancement ability, and .65 for the suppression ability.

Among the suppression subscale, item 6 measuring negative emotion suppression ability had a low corrected item-total correlation of .274, which is similar to the .20 reported in Choi (2018)'s study. The relatively low correlation between item 6 and the total score is likely due to the situation described in the item ("You have just heard about the death of a close relative right before an important work meeting"), which induces a relatively strong emotional intensity compared to other items. This might impact the relatively lower reliability of the suppression ability in our study. Thus, we take this consideration into account when interpreting the suppression ability for negative emotion independently.

**Center for Epidemiologic Studies Depression (CES-D) Scale**  
Radloff (1977) developed the Center for Epidemiologic Studies Depression (CES-D) scale to measure depressive symptomatology in the general population. Jun et al. (2001) adapted the Korean version. The CES-D is a 20-item self-report questionnaire that assess-

es symptoms associated with depression over one week. Participants rate each item on a four-point scale, ranging from 0 (*rarely*) to 3 (*most of the time*). Higher scores reflect more severe levels of depression. Typically, a score of 16 or above indicates probable depression and a score of 25 or above indicates definite depression (Park & Kim, 2011). In this study, the 20 items of the CES-D demonstrated high reliability ( $\alpha = 0.93$ ).

### Emotion Regulation Flexibility Indexes

We calculated several variables as indicators of ER flexibility based on previous studies. We computed scores for emotion regulation variability, repertoire, and regulatory effort using the scenario questionnaire. Additionally, we derived emotion expressive flexibility scores from FREE. Furthermore, we obtained more detailed indicators of ER flexibility by categorizing the indicators based on emotional valence (negative, positive).

**Emotion Regulation Variability.** We used the standard deviation (SD) for calculating ER variability. According to Blanke et al. (2020), the between-strategy variability index involves calculating the SD per scenario. As a person-level measure of between-strategy variability, we averaged the between-strategy SD across all measurement scenarios for each individual. Similarly, we calculated the SD per strategy across different scenarios for the within-strategy variability index. We obtained the within-strategy variability index at the individual level by averaging the SDs of the strategies across all strategies for each participant.

**Repertoire.** To calculate the repertoire index, we summed the number of strategies used in each scenario and divided it by the total number of scenarios. We established a criterion in which we considered strategies endorsed above a four-point threshold as being used. Conversely, if participants endorsed a score below four points, we assumed they did not implement the strategy. We chose this reference point because four points is the median on a seven-point Likert scale, and responding above four points indicates using those emotion regulation strategies.

**Regulatory Effort.** We calculated the emotion regulatory effort index by summing the endorsement levels of each strategy across all scenarios, as referenced by Goubet and Chrysikou (2019). The score ranges from 56 to 392.

**Emotion Expressive Flexibility.** Using the FREE scale, we ob-

tained scores for expressive flexibility, enhancement ability, suppression ability, positive emotion expressive flexibility, and negative emotion expressive flexibility, according to Burton and Bonanno (2016)'s calculation method. First, we combined the positive and negative enhance scales for an overall enhancement ability and the positive and negative suppress scales for an overall suppression ability. Next, we calculated positive emotion expressive flexibility by summing the positive-enhance and positive-suppress scales. We also determined negative emotion expressive flexibility by summing the negative-enhance and negative-suppress scales. We calculated the expressive flexibility score by first summing the two overall ability scores and calculating a polarity score by subtracting each participant's smaller ability score from their larger ability score. Then, we subtracted the polarity score from the sum score to get the final flexibility score, with higher scores indicating greater flexibility.

### Data Analyses

We conducted Pearson's correlation analysis to examine the relationships among various ER flexibility indicators and depression. Then, multiple regression analyses identified the ER flexibility indicators significantly predicting depression. Since emotion expressive flexibility indicator in the ER ability domain was derived from enhancement and suppression abilities, we conducted two separate multiple regression analyses to address multicollinearity issues due to correlations: one included expressive flexibility and other flexibility indicators from the ER strategy domain as predictor variables, and the other included enhancement and suppression abilities and other flexibility indicators from the ER strategy domain. We conducted a detailed analysis for each specific flexibility indicator of overall emotion, positive emotion, and negative emotion.

In the analysis, we entered gender and anxiety as covariates. Gender was included as a covariate because there were significant differences in depression levels between males and females ( $t(412) = -2.102, p = .036$ ). Although anxiety and depression have overlapping aspects, they are related to different ER strategies and abilities (D'Avanzato et al., 2013; Domaradzka & Fajkowska, 2018). It is necessary to exclude the portion explained by anxiety when examining the impact of ER flexibility on depression to investigate

the unique impact of ER flexibility on depression. We analyzed the data using SPSS 29.0.

## Results

### Emotion Regulation Flexibility for Emotion in General

We first examined the correlation between various flexibility indicators related to emotion in general and depression (Table 1). We identified significant negative correlations between enhancement ability and depression,  $r = -.123$ ,  $p = .012$ , and between within-strategy variability and depression,  $r = -.163$ ,  $p < .001$ . Also, we found a positive correlation between regulatory effort and depression,  $r = .134$ ,  $p = .006$ .

Next, we conducted two multiple regression analyses. First, we included expressive flexibility indicator obtained from the ER ability domain and other ER flexibility indicators from the ER strategy domain as predictors of depression. In another regression analysis, we included enhancement and suppression abilities from the ability domain and other ER flexibility indicators from the strategy domain. There were no multicollinearity problems in either analysis, and the results showed that only enhancement ability significantly predicted depression,  $\beta = -.158$ ,  $t(405) = -2.634$ ,  $p = .009$  (Table 2).

### Emotion Regulation Flexibility for Positive Emotions

We obtained ER flexibility indicators related to positive emotion

**Table 1.** Correlations of Emotion Regulation Flexibility Indicators and Depression

	Expressive flexibility	Enhancement	Suppression	Regulatory effort	Repertoire	Between-strategy variability	Within-strategy variability	Depression
Expressive flexibility	-							
Enhancement	.443**	-						
Suppression	.912**	.243**	-					
Regulatory effort	.165**	.229**	.073	-				
Repertoire	.176**	.241**	.108*	.808*	-			
Between-strategy variability	.098*	.146**	.104*	-.092	.065	-		
Within-strategy variability	.063	.094	.099*	-.037	.005	.069	-	
Depression	-.068	-.123*	-.027	.134**	.080	-.015	-.163***	-
Mean	57.80	35.11	29.84	277.68	4.06	1.35	.96	17.95
SD	10.93	5.82	6.06	28.95	1.13	.57	.63	11.44

SD = Standard deviation.  
\* $p < .05$ , \*\* $p < .01$ , \*\*\* $p < .001$ .

**Table 2.** Multiple Regression Analysis: Predicting Depression with Emotion Regulation Flexibility Indicators

	B	SE	$\beta$	$t$	$p$	TOL	VIF
(Constant)	-15.384	4.688		-3.281**	.001		
Gender	-1.160	.684	-.051	-1.695	.091	.885	1.130
Anxiety	.822	.030	.826	27.657***	<.001	.889	1.124
Enhancement	-.158	.060	-.080	-2.634**	.009	.850	1.177
Suppression	.090	.056	.048	1.608	.109	.893	1.119
Between-strategy variability	-.591	.594	-.030	-.995	.320	.902	1.108
Within-strategy variability	-.025	.528	-.001	-.048	.962	.940	1.064
Repertoire	.437	.506	.043	.863	.389	.320	3.128
Regulatory effort	-.010	.020	-.024	-.482	.630	.312	3.206
$F(p)$				106.969***			
Adj. $R^2$				.672			
Durbin-Watson				2.003			

\*\* $p < .01$ , \*\*\* $p < .001$ .

**Table 3.** Correlations of Positive Emotion Regulation Flexibility Indicators and Depression

	Expressive flexibility	Enhancement	Suppression	Regulatory effort	Repertoire	Between-strategy variability	Within-strategy variability	Depression
Expressive flexibility	-							
Enhancement	.708**	-						
Suppression	.832**	.199**	-					
Regulatory effort	.112*	.123*	.059	-				
Repertoire	.174**	.160**	.116*	.775**	-			
Between-strategy variability	.122*	.194**	.018	-.187**	.089	-		
Within-strategy variability	.022	.067	-.023	-.244**	-.166**	.164**	-	
Depression	-.102*	-.166***	-.011	.095	.053	-.137**	.045	-
Mean	35.29	18.46	16.83	135.69	3.80	1.58	.88	17.95
SD	5.57	3.15	4.01	16.46	1.27	.73	.59	11.44

SD = Standard deviation.

\* $p < .05$ , \*\* $p < .01$ , \*\*\* $p < .001$ .

**Table 4.** Multiple Regression Analysis: Predicting Depression with Emotion Regulation Flexibility Indicators for Positive Emotion

	B	SE	$\beta$	$t$	$p$	TOL	VIF
(Constant)	-11.636	4.474		-2.601	.010		
Gender	-1.547	.659	-.068	-2.346	.019	.945	1.058
Anxiety	.822	.029	.825	28.326***	<.001	.927	1.079
Expressive flexibility	-.041	.059	-.020	-.693	.488	.947	1.056
Between-strategy variability	-1.411	.490	-.090	-2.882**	.004	.806	1.241
Within-strategy variability	.984	.566	.051	1.739	.083	.922	1.084
Repertoire	.960	.433	.107	2.216*	.027	.337	2.968
Regulatory effort	-.063	.034	-.091	-1.839	.067	.324	3.088
$F(p)$				123.638***			
Adj. $R^2$				.675			
Durbin-Watson				1.967			
(Constant)	-11.412	4.449		-2.565*	.011		
Gender	-1.364	.660	-.060	-2.067*	.039	.933	1.072
Anxiety	.815	.029	.819	28.152***	<.001	.919	1.088
Enhancement	-.259	.108	-.071	-2.391*	.017	.875	1.143
Suppression	.096	.082	.033	1.166	.244	.942	1.061
Between-strategy variability	-1.206	.494	-.077	-2.440*	.015	.782	1.279
Within-strategy variability	1.088	.565	.056	1.928	.055	.917	1.091
Repertoire	.884	.432	.099	2.048*	.041	.335	2.984
Regulatory effort	-.053	.034	-.076	-1.534	.126	.319	3.138
$F(p)$				110.166***			
Adj. $R^2$				.679			
Durbin-Watson				1.982			

\* $p < .05$ , \*\* $p < .01$ , \*\*\* $p < .001$ .

and investigated their correlation with depression. Among the variables, positive emotion expressive ability,  $r = -.102$ ,  $p = .038$ , and enhancement ability for positive emotion from the FREE scale negatively correlated with depression,  $r = -.166$ ,  $p < .001$ . Moreover,

the results indicated a negative correlation in the between-strategy variability of positive emotion and depression,  $r = -.137$ ,  $p = .005$ . There was no significant correlation between the other indicators and depression (Table 3).



**Table 5.** Correlations of Negative Emotion Regulation Flexibility Indicators and Depression

	Expressive flexibility	Enhancement	Suppression	Regulatory effort	Repertoire	Between-strategy variability	Within-strategy variability	Depression
Expressive flexibility	-							
Enhancement	.762**	-						
Suppression	.747**	.139**	-					
Regulatory effort	.195**	.208**	.085	-				
Repertoire	.183**	.205**	.070	.851**	-			
Between-strategy variability	.125*	.108*	.080	-.075	.034	-		
Within-strategy variability	.054	.026	.057	-.048	-.040	.069	-	
Depression	-.055	-.051	-.031	.136**	.089	-.015	-.163***	-
Mean	29.66	16.65	13.01	141.99	4.33	1.35	.96	17.95
SD	5.65	3.79	3.69	16.93	1.27	.57	.63	11.44

Note. SD = Standard deviation.  
\* $p < .05$ , \*\* $p < .01$ , \*\*\* $p < .001$ .

We conducted two multiple regression analyses for positive ER flexibility indicators in the same method as described above. In the regression analysis including expressive flexibility for positive emotion and other flexibility indicators from the ER strategy domain, between-strategy variability negatively predicted depression,  $\beta = -1.411$ ,  $t(406) = -2.882$ ,  $p = .004$ , and repertoire positively predicted depression,  $\beta = .960$ ,  $t(406) = 2.216$ ,  $p = .027$ . Additionally, in the regression analysis including enhancement and suppression abilities and other ER flexibility indicators from the ER strategy domain, enhancement ability,  $\beta = -.259$ ,  $t(405) = -2.391$ ,  $p = .017$ , and between-strategy variability negatively predicted depression,  $\beta = -1.206$ ,  $t(405) = -2.440$ ,  $p = .015$ , while repertoire positively predicted depression,  $\beta = .844$ ,  $t(405) = 2.048$ ,  $p = .041$  (Table 4). There were no multicollinearity problems in either analysis.

#### Emotion Regulation Flexibility for Negative Emotions

Lastly, we calculated ER flexibility indicators related to negative emotion and analyzed their correlation with depression. The results of the correlation analysis are in Table 5. Regarding the FREE scale, none of the flexibility indicators significantly correlated with depression. However, the correlation between regulatory effort for negative emotion and depression was positively significant,  $r = .136$ ,  $p = .006$ . Additionally, within-strategy variability of negative emotion negatively correlated with depression,  $r = -.163$ ,  $p < .001$ . However, none of the negative ER flexibility indicators had a significant relationship with depression in the regression analyses.

## Discussion

Our study aimed to identify key ER flexibility indicators predicting depression. Past research has lacked a comprehensive exploration of these indicators, encompassing specific ER strategies and overall ER abilities. To address this, we utilized various flexibility indicators from scenario-based questions and self-reports, examining their impact on depression. We also analyzed ER flexibility separately for negative and positive emotions, an important step in understanding the role of emotional valence in depression. Our findings showed that, among these indicators, the ability to enhance overall emotions significantly predicted depression. Specifically, enhancement ability, between-strategy variability and repertoire for positive emotions had significant predictive effects, while negative ER flexibility indicators did not.

Regardless of emotional valence, only the ability to enhance emotional expressions, as measured by the FREE scale, predicted depression. Flexibly enhancing and expressing positive and negative emotions according to the situation is associated with lower depression. This indicator focuses on the external expression or ER rather than an intrinsic aspect. Previous research has revealed the importance of expressive ER in social relationships and its potential impact on mental health. Expressing emotions serves the purpose of eliciting responses from others to fulfill one's needs, which facilitating more social support from partners and stronger communal relationships through reciprocal intra- and interpersonal processes

(Clark & Finkel, 2004), and ultimately having a positive effect on preventing depression (Aneshensel & Stone, 1982; George et al., 1989). In the same context, our findings emphasized that the ability to appropriately and flexibly enhance emotional expression in social contexts can serve as a protective factor against depression.

More specifically, when examining the impact of enhancement ability on depression according to emotional valence, simply flexibly enhancing negative emotion expression did not significantly predict depression, whereas the ability to enhance positive emotion expression predicted lower levels of depression. This suggests that even if negative emotions are flexibly enhanced, expressing negative emotions alone has limitations in facilitating the positive impacts on depression that emotional expression can bring, and the enhancement ability for positive emotions is more effective in promoting social support. In fact, individuals who express positive emotions receive more favorable evaluations across various personality dimensions, make others look forward to interacting with them, and report higher psychological well-being (Harker & Keltner, 2001). Our findings emphasized that it is essential to identify the ER patterns of depressed people within an interpersonal context, particularly focusing on flexibly enhancing and expressing positive emotions.

Unlike enhancement ability, suppression ability did not predict depression. This result indicates that enhancement ability is a unique aspect of emotional expression flexibility that explains depression among the sub-factors of expression flexibility. D'Avanzato et al. (2013) compared patterns of emotional expression flexibility between depressed and anxious individuals and found that anxious individuals suppressed their emotional expressions more than depressed individuals. People with anxiety tend to suppress their expressions of anxiety and emotions because they worry about how their anxiety symptoms might be perceived negatively by others. Thus, the ability to suppress emotional expressions appears to better explain the emotional expression patterns of anxiety, suggesting that interventions for depression should focus more on flexibly enhancing emotional expression ability.

Our study also emphasized the necessity of approaching emotional flexibility differently depending on whether the regulated emotion has a positive or negative valence. The correlation analysis showed that depression was related to different types of ER

variability depending on emotional valence. For positive emotions, between-strategy variability correlated significantly with depression, while for negative emotions, within-strategy variability showed a significant correlation with depression. This indicates that knowing and prioritizing which strategy is appropriate when experiencing positive emotions is more closely related to lower levels of depression. In contrast, for negative emotions, the flexibility in using specific strategies with varying intensity across different times and situations is more related to depression than momentary flexibility.

Furthermore, the results of the regression analyses showed that flexible regulation of positive emotions significantly predicted depression, while the indicators of negative ER flexibility did not. Specifically, the flexible utilization of diverse positive ER strategies was significant predictors of lower levels of depression. This finding emphasizes the importance of a rigid pattern of positive ER strategy use across situations in depressed people. Previous studies have shown that individuals with depression habitually attempt to down-regulate positive emotion by greater use of dampening and less use of positive rumination (Feldman et al., 2008), and this lack of flexibility in positive ER strategies can prospectively predicts more depressive and anhedonia symptoms (Nelis et al., 2015; Werner-Seidler et al., 2013).

Contrary to our expectations, repertoire significantly positively predicted depression. This finding contradicts previous research, which suggested that a smaller repertoire is associated with higher depression. This discrepancy may be due to our study including both adaptive and maladaptive strategies without distinction when calculating the repertoire indicators based on the number of strategies used by individuals. Depressed individuals tend to use more maladaptive strategies than adaptive ones, so even if they use many strategies, they may be using many inappropriate or maladaptive ones. Therefore, cautious interpretation is needed for the repertoire's result in this study.

The importance of flexibly regulating positive emotions provides insights not only for predicting and preventing but also for therapeutic interventions for depression. According to previous studies, a lack of positive ER flexibility is associated with anhedonia, a major symptom of depression. Depressed individuals have difficulties in maintaining and enhancing positive experiences,

such as avoiding positive emotions and engaging less in cognitive elaboration of positive emotions, which worsens anhedonia (Bryant, 2003; Feldman et al., 2008). However, most existing depression treatments focus on negative ER, failing to improve positive emotions or effectively treat anhedonia (Craske et al., 2019). Therefore, interventions focusing on positive ER flexibility can help alleviate anhedonia by up-regulating positive emotions. Especially, given that flexible regulation of positive emotion is an indicator of psychological well-being (Shin et al., 2022), exploring flexible positive ER is crucial.

Despite this study's significant findings, it has several limitations. First, our study utilized a cross-sectional design, which restricts establishing causal relationships. Hence, future studies should employ a longitudinal design to examine the prospective association between ER flexibility and depression. Second, generalizing the results of this study to clinical depression groups is limited because the participants were a non-clinical group, with only 25.1% exceeding the cutoff score for definite depression. Additionally, although the validity of the scenario stimuli was verified, the pilot validation study's small sample size and biased participant selection from the psychology department limit the generalization. Third, in terms of assessing ER abilities, we only focused on the expression component using FREE. In addition, although we aimed to explore many ER flexibility indicators, we did not include all aspects of ER flexibility. Future studies could incorporate more various ER flexibility components (e.g., responsiveness to feedback; Bonanno & Burton, 2013) and other aspects of ER abilities that are relevant to depression (e.g., emotional awareness, emotional clarity; Visted et al., 2018) for a more holistic understanding of ER flexibility. Lastly, the explanatory power of flexibility indicators for depression was relatively small compared to the covariate, anxiety. However, this study aimed to identify the significant characteristics of ER flexibility that affect depression, excluding the impact of anxiety. Despite the relatively small explanatory power, the study offers meaningful insights into the relationship between ER flexibility and depression.

The current study extends previous understanding of ER flexibility in depression. Using various ER flexibility indicators obtained from two ER approaches and calculating specific indicators based on emotional valence, we investigated which indicators of

ER flexibility effectively predict depression. Identifying the aspects of ER flexibility that impact depression is important because it implies that individuals who consistently exhibit rigid ER patterns are more likely to experience depression, which is valuable for assessing the risk of depression. Our study indicates that individuals who face difficulties in enhancing the expression of positive emotions and exhibit inflexibility in using positive ER strategies across various situations may be at a higher risk for depression. Thus, researchers should consider individual patterns of ER, particularly the flexibility of positive emotion regulation, when predicting depression risk and designing interventions.

### Author contributions statement

Haein Kim, graduate student at Sogang University, designed the research, collected and analyzed data, and led manuscript preparation. Hyang Sook Kim, professor at Seoul National University, designed the research, acquired funding, and supervised the research process. All authors provided critical feedback, participated in revision of the manuscript, and approved the final submission.

### References

- Aldao, A., & Nolen-Hoeksema, S. (2012). When are adaptive strategies most predictive of psychopathology? *Journal of Abnormal Psychology, 121*, 276-281. <https://doi.org/10.1037/a0023598>
- Aldao, A., & Nolen-Hoeksema, S. (2013). One versus many: Capturing the use of multiple emotion regulation strategies in response to an emotion-eliciting stimulus. *Cognition and Emotion, 27*, 753-760. <https://doi.org/10.1080/02699931.2012.739998>
- Aldao, A., Nolen-Hoeksema, S., & Schweizer, S. (2010). Emotion-regulation strategies across psychopathology: A meta-analytic review. *Clinical Psychology Review, 30*, 217-237. <https://doi.org/10.1016/J.CPR.2009.11.004>
- Aldao, A., Sheppes, G., & Gross, J. J. (2015). Emotion regulation flexibility. *Cognitive Therapy and Research, 39*, 263-278. <https://doi.org/10.1007/s10608-014-9662-4>
- American Psychiatric Association. (2013). *Diagnostic and statistical manual of mental disorders* (5th ed). American Psychiatric Association.
- Aneshensel, C. S., & Stone, J. D. (1982). Stress and depression: A test of the buffering model of social support. *Archives of General Psychiatry, 39*, 1392-1396. <https://doi.org/10.1001/ARCHPSYC.1982.04290120028005>

- Besser, A., & Priel, B. (2010). Grandiose narcissism versus narcissism in threatening situations: Emotional reactions to achievement failure and interpersonal rejection. *Journal of Social and Clinical Psychology, 29*, 874-902. <https://doi.org/10.1177/1088868316685018>
- Blanke, E. S., Brose, A., Kalokerinos, E. K., Erbas, Y., Riediger, M., & Kuppens, P. (2020). Mix it to fix it: Emotion regulation variability in daily life. *Emotion, 20*, 473-485. <https://doi.org/10.1037/EMO0000566>
- Bonanno, G. A., & Burton, C. L. (2013). Regulatory flexibility: An individual differences perspective on coping and emotion regulation. *Perspectives of Psychological Science, 8*, 591-612. <https://doi.org/10.1177/1745691613504116>
- Bonanno, G. A., Papa, A., Lalande, K., Westphal, M., & Coifman, K. (2004). The importance of being flexible: The ability to both enhance and suppress emotional expression predicts long-term adjustment. *Psychological Science, 15*, 482-487. <https://doi.org/10.1111/j.0956-7976.2004.00705.x>
- Brose, A., Schmiedek, F., Koval, P., & Kuppens, P. (2015). Emotional inertia contributes to depressive symptoms beyond perseverative thinking. *Cognition and Emotion, 29*, 527-538. <https://doi.org/10.1080/02699931.2014.916252>
- Bryant, F. B., & Veroff, J. (2007). *Savoring: A New Model of Positive Experience*. Erlbaum.
- Burton, C. L., & Bonanno, G. A. (2016). Measuring ability to enhance and suppress emotional expression: The Flexible Regulation of Emotional Expression (FREE) Scale. *Psychological Assessment, 28*, 929-941. <https://doi.org/10.1037/pas0000231>
- Carver, C. S., Scheier, M. F., & Weintraub, J. K. (1989). Assessing coping strategies: A theoretically based approach. *Journal of Personality and Social Psychology, 56*, 267-283. <https://doi.org/10.1037/0022-3514.56.2.267>
- Chen, S., Chen, T., & Bonanno, G. A. (2018). Expressive flexibility: Enhancement and suppression abilities differentially predict life satisfaction and psychopathology symptoms. *Personality and Individual Differences, 126*, 78-84. <https://doi.org/10.1016/J.PAID.2018.01.010>
- Cheng, C., Lau, H. P. B., & Chan, M. P. S. (2014). Coping flexibility and psychological adjustment to stressful life changes: A meta-analytic review. *Psychological Bulletin, 140*, 1582-1607. <https://doi.org/10.1037/a0037913>
- Choi, Y. H. (2018). *The effect of expressive flexibility on the relationship between life stress and psychological maladjustment*. [unpublished doctoral dissertation]. Seoul National University.
- Clark, M. S., & Finkel, E. G. (2004). Does expressing emotion promote well-being? It depends on relationship context. In L. Z. Tiedens, & C. W. Leach (Eds.), *The social life of emotions* (pp.105-126). Cambridge University Press.
- Cole, P. M., Michel, M. K., & Teti, L. O. D. (1994). The development of emotion regulation and dysregulation: A clinical perspective. *Monographs of the Society for Research in Child Development, 59*, 73-100. <https://doi.org/10.2307/1166139>
- Craske, M. G., Meuret, A. E., Ritz, T., Treanor, M., Dour, H., & Rosenfield, D. (2019). Positive affect treatment for depression and anxiety: A randomized clinical trial for a core feature of anhedonia. *Journal of Consulting and Clinical Psychology, 87*, 457-471. <https://doi.org/10.1037/ccp0000396>
- D'Avanzato, C., Joormann, J., Siemer, M., & Gotlib, I. H. (2013). Emotion regulation in depression and anxiety: Examining diagnostic specificity and stability of strategy use. *Cognitive Therapy and Research, 37*, 968-980. <https://doi.org/10.1007/s10608-013-9537-0>
- Domaradzka, E., & Faikowska, M. (2018). Cognitive emotion regulation strategies in anxiety and depression understood as types of personality. *Frontiers in Psychology, 9*, 856. <https://doi.org/10.3389/fpsyg.2018.00856>
- Ehring, T., Tuschen-Caffier, B., Schnulle, J., Fischer, S., & Gross, J. J. (2010). Emotion regulation and vulnerability to depression: Spontaneous versus instructed use of emotion suppression and reappraisal. *Emotion, 10*, 563-572. <https://doi.org/10.1037/A0019010>
- Feldman, G. C., Joormann, J., & Johnson, S. L. (2008). Responses to positive affect: A self-report measure of rumination and dampening. *Cognitive Therapy and Research, 32*, 507-525. <https://doi.org/10.1007/s10608-006-9083-0>
- George, L. K., Blazer, G., Hughes, D. C., & Fowler, N. (1989). Social support and the outcome of major depression. *British Journal of Psychiatry, 154*, 478-485. <https://doi.org/10.1192/bjp.154.4.478>
- Gilbert, K. E., Tonge, N. A., & Thompson, R. J. (2019). Associations between depression, anxious arousal and manifestations of psychological inflexibility. *Journal of Behavior Therapy and Experimental Psychiatry, 62*, 88-96. <https://doi.org/10.1016/j.jbtep.2018.09.006>
- Goubet, K. E., & Chrysikou, E. G. (2019). Emotion regulation flexibility: Gender differences in context sensitivity and repertoire. *Frontiers in Psychology, 10*, 935. <https://doi.org/10.3389/fpsyg.2019.00935>
- Gratz, K. L., & Roemer, L. (2004). Multidimensional assessment of emotion regulation and dysregulation: Development, factor structure, and initial validation of the difficulties in emotion regulation scale. *Journal of Psychopathology and Behavioral Assessment, 26*, 41-54. <https://doi.org/10.1023/B:JOBA.0000007455.08539.94>
- Gross, J. J. (1998). Antecedent-and response-focused emotion regulation: Divergent consequences for experience, expression, and physiology. *Journal of Personality and Social Psychology, 74*, 224. <https://doi.org/10.1037/0022-3514.74.1.224>
- Haar, B. F., & Krahe, B. (1999). Strategies for resolving interpersonal conflicts in adolescence: A German-Indonesian comparison.

- Journal of Cross-Cultural Psychology*, 30, 667-683. <https://doi.org/10.1177/0022022199030006001>
- Harker, L., & Keltner, D. (2001). Expressions of positive emotion in women's college yearbook pictures and their relationship to personality and life outcomes across adulthood. *Journal of Personality and Social Psychology*, 80, 112-124. <https://doi.org/10.1037/0022-3514.80.1.112>
- Hayes, S. C. (2004). Acceptance and commitment therapy, relational frame theory, and the third wave of behavioral and cognitive therapies. *Behavior Therapy*, 35, 639-665. [https://doi.org/10.1016/S0005-7894\(04\)80013-3](https://doi.org/10.1016/S0005-7894(04)80013-3)
- Joormann, J., & Stanton, C. H. (2016). Examining emotion regulation in depression: A review and future directions. *Behavior Research Therapy*, 86, 35-49. <https://doi.org/10.1016/j.brat.2016.07.007>
- Jun, K. G., Choi, S. J., & Yang, B. C. (2001). Development of the integrated Korean version of the CES-D. *Korean Journal of Psychology: Health*, 6, 59-76.
- Kashdan, T. B., & Rottenberg, J. (2010). Psychological flexibility as a fundamental aspect of health. *Clinical Psychology Review*, 30, 865-878. <https://doi.org/10.1016/j.cpr.2010.03.001>
- Kessler, R. C., & Bromet, E. J. (2013). The epidemiology of depression across cultures. *Annual Review of Public Health*, 34, 119-138. <https://doi.org/10.1146/annurev-publhealth-031912-114409>
- Koh, M. K., & Kim, H. S. (2013). Emotional inertia and depression: Influence of behavioral activation and ways of stress coping. *Korean Journal of Clinical Psychology*, 32, 935-954.
- Lee, E. J., Lee, J. G., & Yi, J. H. (2015). Relations among ego-resilience, emotional and cognitive flexibilities and effects on adaptation and active coping. *Journal of Social Science*, 26, 77-97.
- Lewczuk, K., Wizla, M., Oleksy, T., & Wyczesany, M. (2022). Emotion regulation, effort and fatigue: Complex issues worth investigating. *Frontiers in Psychology*, 13, 742557. <https://doi.org/10.3389/fpsyg.2022.742557>
- Lougheed, J. P., & Hollenstein, T. (2012). A limited repertoire of emotion regulation strategies is associated with internalizing problems in adolescence. *Social Development*, 21, 704-721. <https://doi.org/10.1111/J.1467-9507.2012.00663.X>
- Ministry of Health and Welfare. (2022a). *National Mental Health Survey 2021*. Ministry of Health and Welfare. [https://www.mohw.go.kr/board.es?mid=a10411010100&bid=0019&tag=&act=view&list\\_no=369858](https://www.mohw.go.kr/board.es?mid=a10411010100&bid=0019&tag=&act=view&list_no=369858)
- Ministry of Health and Welfare. (2022b). *Covid-19 National Mental Health Survey*. Ministry of Health and Welfare. [https://www.mohw.go.kr/board.es?mid=a10503000000&bid=0027&tag=&act=view&list\\_no=372545&cg\\_code=](https://www.mohw.go.kr/board.es?mid=a10503000000&bid=0027&tag=&act=view&list_no=372545&cg_code=)
- Nelis, D., Quoidbach, J., Hansenne, M., & Mikolajczak, M. (2011). Measuring individual differences in emotion regulation: The Emotion Regulation Profile-Revised (ERP-R). *Psychologica Belgica*, 51, 49-91. <https://doi.org/10.5334/pb-51-1-49>
- Nelis, S., Holmes, E. A., & Raes, F. (2015). Response styles to positive affect and depression: Concurrent and prospective associations in a community sample. *Cognitive Therapy and Research*, 39, 480-491. <https://doi.org/10.1007/s10608-015-9671-y>
- Nolen-Hoeksema, S., Parker, L. E., & Larson, J. (1994). Ruminative coping with depressed mood following loss. *Journal of Personality and Social Psychology*, 67, 92-104. <https://doi.org/10.1037/0022-3514.67.1.92>
- Park, J. H., & Kim, K. W. (2011). A review of the epidemiology of depression in Korea. *Journal of the Korean Medical Association*, 54, 362-369.
- Radloff, L. S. (1977). The CES-D Scale: A self-report depression scale for research in the general population. *Applied Psychological Measurement*, 1, 385-401. <https://doi.org/10.1177/014662167700100306>
- Rime, B., Mesquita, B., Philippot, P., & Boca, S. (1991). Beyond the emotional event: Six studies on the social sharing of emotion. *Cognition and Emotion*, 5, 435-465. <https://doi.org/10.1080/0269939108411052>
- Rottenberg, J., Gross, J. J., & Gotlib, I. H. (2005). Emotion context insensitivity in major depressive disorder. *Journal of Abnormal Psychology*, 114, 627-639. <https://doi.org/10.1037/0021-843X.114.4.627>
- Sheppes, G., Scheibe, S., Suri, G., & Gross, J. J. (2011). Emotion-regulation choice. *Psychological Science*, 22, 1391-1396. <https://doi.org/10.1177/0956797611418350>
- Shin, K. E., Newman, M. G., & Jacobson, N. C. (2022). Emotion network density is a potential clinical marker for anxiety and depression: Comparison of ecological momentary assessment and daily diary. *British Journal of Clinical Psychology*, 61, 31-50. <https://doi.org/10.1111/bjc.12295>
- Silk, J. S., Steinberg, L., & Morris, A. S. (2003). Adolescents' emotion regulation in daily life: Links to depressive symptoms and problem behavior. *Child Development*, 74, 1869-1880. <https://doi.org/10.1046/j.1467-8624.2003.00643.x>
- Suls, J., Green, P., & Hillis, S. (1998). Emotional reactivity to everyday problems, affective inertia, and neuroticism. *Personality and Social Psychology Bulletin*, 24, 127-136. <https://doi.org/10.1177/0146167298242002>
- Tennant, C. (2002). Life events, stress and depression: A review of recent findings. *Australian & New Zealand Journal of Psychiatry*, 36, 173-182. <https://doi.org/10.1046/J.1440-1614.2002.01007.X>
- Thompson, R. A. (1994). Emotion regulation: A theme in search of definition. *Monographs of the Society for Research in Child Development*, 59, 25-52. <https://doi.org/10.2307/1166137>
- Tull, M. T., & Aldao, A. (2015). Editorial overview: New directions in the science of emotion regulation. *Current Opinion in Psychology*, 3, 4-10. <https://doi.org/10.1016/j.copsyc.2015.03.009>

- Vanderlind, W. M., Millgram, Y., Baskin-Sommers, A. R., Clark, M. S., & Joormann, J. (2020). Understanding positive emotion deficits in depression: From emotion preferences to emotion regulation. *Clinical Psychology Review, 76*, 101826. <https://doi.org/10.1016/j.cpr.2020.101826>
- Visted, E., Vøllestad, J., Nielsen, M. B., & Schanche, E. (2018). Emotion regulation in current and remitted depression: A systematic review and meta-analysis. *Frontiers in Psychology, 9*, 322567. <https://doi.org/10.3389/FPSYG.2018.00756>
- Wang, X., Blain, S. D., Meng, J., Liu, Y., & Qiu, J. (2021). Variability in emotion regulation strategy use is negatively associated with depressive symptoms. *Cognition and Emotion, 35*, 324-340. <https://doi.org/10.1080/02699931.2020.1840337>
- Wegner, D. M., & Schneider, D. J. (1987). Paradoxical effects of thought suppression. *Journal of Personality and Social Psychology, 53*, 5-13. <https://doi.org/10.1037/0022-3514.53.1.5>
- Werner-Seidler, A., Banks, R., Dunn, B. D., & Moulds, M. L. (2013). An investigation of the relationship between positive affect regulation and depression. *Behaviour Research and Therapy, 51*, 46-56. <http://dx.doi.org/10.1016/j.brat.2012.11.001>
- Westphal, M., Seivert, N. H., & Bonanno, G. A. (2010). Expressive flexibility. *Emotion, 10*, 92-100. <https://doi.org/10.1037/a0018420>

**Supplementary Table 1.** *The Scenarios in the Scenario Questionnaire*

#	Scenario
1.	최근에 한 명의 직원만 승진할 수 있는 예외적인 기회가 생겼다. 나는 승진을 너무 하고 싶다. 오늘 나는 이사님과 개인 면담이 예정되어 있다. 예상보다 빨리 사무실에 도착해 계단을 올라가는데, 사무실 안에서 웃음소리가 들려왔다. 살짝 열려 있는 문틈 사이로 이사님이 승진한 다른 사람을 축하하고 있는 모습이 보였다. 이사님은 나를 따로 불러 이번 승진이 무산되었고 지방으로 발령하게 되었다고 말했다.
2.	내가 혼자 오랫동안 좋아해 온 사람이 있다. 오늘 그 사람이 나를 찾아와 사실 나에게 굉장히 호감이 있고 나와 좋은 연인관계로 발전하고 싶다고 이야기를 했다.
3.	나는 회사에서 중요한 프로젝트를 진행하고 있다. 내가 방금 끝낸 결과물에 대해 어떤 평가를 받을지 확신이 서지 않았는데, 팀원들은 검토한 뒤, “아쉽다. 좀 더 보완을 하면 좋겠어.”라고 말했다.
4.	일주일 뒤에 걱정되는 시험 하나가 있다. 시험을 잘 보지 못하면 다시 봐야 한다. 다행히도 친구가 시험 공부를 도와주겠다고 약속했고, 친구가 도와준다는 사실은 큰 위안이 되었다. 오늘 나는 우연히 길에서 친구를 마주쳤고, 시험 공부를 도와주겠다고 한 약속을 상기시켰다. 그러자 친구가 반갑게 반기며 “그럼 공부는 언제부터 시작할까?”라고 물었다.
5.	오늘은 일정이 일찍 끝나서 선물을 사가지고 애인을 놀라게 해주려고 한다. 아파트 계단을 걸어 올라갈 때 안에서 웃음소리가 들렸고, 연인이 바람을 피우고 있다는 사실을 알게 되었다. 연인은 몇 달 정도 되었다고 말하며, 나와 의 관계에서 부족함을 느꼈고 다른 사람과의 관계에서 충만함을 더 느꼈다고 말한다. 나는 연인과 헤어지기로 한다.
6.	몇 달 동안 쉽 없이 일한 끝에, 마침내 꿈꾸던 승진을 했다. 쉽지 않았고 여기까지 온 것은 정말 잘한 일이다. 나는 스스로가 매우 자랑스럽다. 그리고 오늘 친척들과 친구들이 나를 위해 축하파티를 열어준다고 한다!
7.	나는 친구와 소파에 앉아 이야기를 나누고 있었다. 그러던 중 갑자기 친구는 요즘 나의 행동과 말하는 것이 마음에 들지 않는다고 불만을 쏟아냈다.
8.	나는 회사에서 중요한 프로젝트를 진행하고 있다. 내가 방금 끝낸 결과물에 대해 어떤 평가를 받을지 확신이 서지 않았는데, 팀원들은 검토한 뒤, “너무 좋다. 정말 잘 했어!”라고 말했다.

**Supplementary Table 2.** *Description of Emotion Regulation Strategies*

Strategy	Description	References
Rumination	Thinking always about the feelings and thoughts associated with the negative event.	Nolen-Hoeksema et al., 1994
Reappraisal	Cognitively transforming the situation to alter its emotional impact, interpreting it positively about the event.	Aldao et al., 2010; Gross, 1998
Thought suppression	Consciously trying to stop thinking about a particular thought or situation.	Wegner & Schneider, 1987
Expressive suppression	Consciously inhibiting the expression of emotion.	Bonanno & Burton, 2013
Acceptance	Resigning to what has happened or accepting the situation's reality; acceptance of thoughts and feelings.	Carver et al., 1989; Hayes, 2004
Distraction	Diverting attention from an emotional stimulus by thinking or engaging in another activity that is unrelated to present experiences.	n/a
Social support	Seeking social support for instrumental reasons (i.e., seeking advice or information) or seeking social support for emotional reasons (i.e., getting sympathy or understanding).	Carver et al., 1989
Emotion expression	Conveying one's emotional experience through verbal and non-verbal behaviors.	Gross, 1998
Positive rumination	Recurrently thinking about one's positive self-qualities, positive affective experiences, and favorable life circumstances.	Feldman et al., 2008
Dampening	Responding to positive mood states with mental strategies to reduce the intensity and duration of the positive mood state.	Feldman et al., 2008
Savoring	Attending to, appreciating, and enhancing the positive experiences in one's life.	Bryant & Veroff, 2007
Emotion sharing	Openly communicating with others about the emotional circumstances and one's feelings and reactions.	Rime et al., 1991