Running Header: REAPPRAISAL ATTEMPTS AND SUCCESS

Understanding reappraisal as a multi-component process: The psychological health benefits of attempting to use reappraisal depend on reappraisal success

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Abstract

When is reappraisal – reframing a situation's meaning to alter its emotional impact – associated with psychological health? To answer this question, we should consider that reappraisal is a multi-component process that includes, first, deciding to attempt to use reappraisal and, second, implementing reappraisal with varying degrees of success. Although theories of emotion regulation suggest that both attempting reappraisal more frequently *and* implementing reappraisal more successfully are necessary to achieve greater psychological health, no research has directly tested this assumption. We propose that daily diaries are particularly well-suited to assess these two components because diaries can capture repeated attempts and success in daily life and with relative precision. In a sample of community adults (N=219), we found that among participants experiencing elevated life stress (but not among those experiencing lower life stress), attempting reappraisal more frequently was associated with *fewer* depressive symptoms for those who used reappraisal more successfully, but was associated with somewhat *more* depressive symptoms for those who used reappraisal less successfully. These findings suggest that attempting reappraisal is associated with benefits only when individuals can implement it successfully. Thus, to fully understand the health implications of emotion regulation, we must consider it as a multi-component process.

Keywords: Emotion regulation, reappraisal, depression, stress, daily diaries

Understanding reappraisal as a multi-component process: The psychological health benefits of attempting to use reappraisal depend on reappraisal success

Reappraisal is a commonly-used and widely-studied emotion regulation strategy that involves reframing the meaning of a situation to alter its emotional impact (Gross, 1998). Although reappraisal has often been empirically examined as a single construct, theorizing suggests that reappraisal is a multi-component process that includes, first, deciding to attempt to use reappraisal and, second, implementing it successfully (Gross, 2015; McRae, 2013). We propose that the health benefits of reappraisal should depend on both of these two components: individuals who frequently attempt using reappraisal *and* implement it successfully should experience greater health. If only one component is present – attempting reappraisal frequently but unsuccessfully, or being able to use reappraisal successfully but rarely attempting it – no benefits should occur. While this hypothesis makes conceptual sense, it has not been empirically tested. Here, we test this hypothesis using daily diaries, an approach that is well-suited to parse apart the two reappraisal components. Next, we consider each of the two reappraisal components separately, and then consider how they may work together to shape psychological health.

Attempting Reappraisal Frequently and Psychological Health

Few investigations have assessed links between how frequently individuals attempt using reappraisal and psychological health. This statement may seem at odds with the fact that many studies have demonstrated links between questionnaires measuring habitual reappraisal – sometimes referred to as reappraisal *frequency* – and greater psychological health (Carver & Scheier, 1989; Garnefski & Kraaij, 2006; Gross & John, 2003). These measures, however, were not designed to measure frequency specifically. For example, the widely-used Emotion

Regulation Questionnaire includes items like "*I control my emotions by changing the way I think about the situation I'm in*" (Gross & John, 2003), which is ambiguous about whether it refers to reappraisal attempts, success, or both. A similar argument applies to studies that measure participants' self-reported use of reappraisal in laboratory contexts. At first glance, these measures could be viewed as an index of the strength of a reappraisal attempt: For example, when depressed and non-depressed participants indicate the extent to which they tried to use reappraisal during a negative mood induction without having been instructed to use reappraisal (e.g., Ehring et al., 2010). However, these measures rarely capture the *frequency* of individuals' attempts across multiple situations, and the items are often ambiguous about whether they refer to reappraisal attempts, success, or both. Thus, it is somewhat unclear which reappraisal components account for the link between these types of measures and psychological health.

To our knowledge, only two studies have examined the link between relatively pure measures of reappraisal attempt frequency and psychological health. First, in a laboratory study where participants viewed a series of unpleasant images, patients with a history of Bipolar Disorder attempted to use reappraisal (vs. distraction) with comparable frequency as healthy controls across those unpleasant images (Hay, Sheppes, Gross, & Gruber, 2015). Second, in a diary study of socially-anxious individuals undergoing therapy, attempting to use reappraisal more frequently on a week-by-week basis was not correlated with social anxiety symptoms (Goldin et al., 2014). These two studies alone are not conclusive, but they begin to suggest that attempting reappraisal more frequently may not by itself predict greater psychological health. Rather, the psychological health implications of attempting to use reappraisal might critically hinge on people's success in implementing it.

Implementing Reappraisal Successfully and Psychological Health

A small but growing number of studies have assessed links between relatively pure measures of reappraisal success and psychological health. In several studies, greater reappraisal success has been associated with greater psychological health whether success was assessed with questionnaires (Goldin et al., 2014; McRae, Jacobs, Ray, John, & Gross, 2012; Samson, Huber, & Gross, 2012), weekly diaries (Goldin et al., 2014), or laboratory paradigms (McRae et al., 2012; Troy, Wilhelm, Shallcross, & Mauss, 2010; Smoski, Labar, & Steffens, 2014). Additional research, however, suggests that the ability to successfully use reappraisal may not *necessarily* translate into greater psychological health: individuals with mood disorders have demonstrated comparable reappraisal success as healthy controls in laboratory paradigms (Gruber, Hay, & Gross, 2014; Millgram et al., 2015; Quigley & Dobson, 2014; Smoski et al., 2014). This somewhat inconsistent pattern again suggests that to fully understand how reappraisal shapes psychological health we may need to jointly consider reappraisal frequency and reappraisal success.

Examining the Interaction Between Reappraisal Attempts and Reappraisal Success

Theoretical considerations suggest that reappraisal's benefits should depend on frequently attempting it *and* implementing it successfully over time. However, very little research has directly examined this hypothesis. Although two studies separately assessed reappraisal attempts and success across daily or weekly diaries (Goldin et al., 2014; Kivity & Huppert, 2016), neither tested whether the two components interacted to predict psychological health. We thus do not know how the two components of reappraisal jointly shape psychological health.

One reason for the dearth of research on reappraisal attempts and success may be that they are not easy to measure with surveys. We propose that daily diaries are a particularly useful

method for at least two reasons: (1) With repeated daily assessments, we can generate a sum of the frequency of individuals' reappraisal attempts across multiple days. This measure should be more accurate than asking people, for example, to globally report their reappraisal frequency, which could be influenced by self-report biases. (2) We can ask about reappraisal success during specific recent events (e.g., during today's most stressful event), which provides a more accurate assessment than asking people to globally report their success.

The current investigation tested whether the interaction between reappraisal attempts and success, as measured with daily diaries, is associated with a key psychological health outcome, depressive symptoms. Furthermore, we assessed reappraisal when it was most likely to occur – during daily stressors. In the present study, these daily stressors (e.g., disagreements, financial difficulties) were moderately stressful on average, providing individuals with useful opportunities to attempt reappraisal. Because depressive symptoms are most likely to be elevated for individuals experiencing greater levels of life stress (e.g., Hammen, 2005), and because emotion regulation strategies like reappraisal have been identified as critical in adjustment to life stress (e.g., Bonanno et al., 2004; Gross & Munoz, 1995), we tested whether the joint benefit of reappraisal attempts and success would be most prominent at higher (versus lower) levels of life stress. We also controlled for the possible confounding influence of age, gender, socioeconomic status, and negative emotionality (neuroticism), which could influence both reappraisal use and psychological health. Finally, we examined whether the joint benefit of reappraisal attempts and success are independent of the possible benefits provided by habitual reappraisal, as measured with the widely-used Emotion Regulation Questionnaire (Gross & John, 2003).

Method

Participants

A sample of community adults was recruited from the Denver metropolitan area as part of a larger research project on the links between stress and psychological health (e.g., Troy et al., 2013). The larger research project began with 339 participants (aged 21-73), and a subset of participants 60 years and younger completed the daily diary element of the study reported here (*N*=229). Of this subset, 10 participants did not complete one or both of the relevant diary questions on any of the days and were thus removed from analyses, resulting in a final sample size of 219 (aged 21-60, 58.9% female) for analyses involving the primary study variables: reappraisal attempts, reappraisal attempts, life stress, and depressive symptoms. Missing values for secondary variables lead to smaller sample sizes for some secondary analyses, as noted in Table 1. Of the participants who indicated their race (*N*=216), participants were predominantly Caucasian (85.6%). Participants also represented diverse socioeconomic backgrounds with regard to household income (*N*=184: *M*=5.12, *SD*=2.11, on a scale of 1="*$10,000 or below*" to 7="*$100,000 or above*") and educational attainment (*N*=219: *M*=5.67, *SD*=0.90, on a scale of 1=*"less than 7th grade*" to 7="*graduate professional training*").

Measures

Reappraisal attempts and success. Across seven consecutive days of diaries, participants reported the emotion regulation strategies they used in response to the most stressful event of that day. These stressors were moderately stressful on average: average stressor severity (*How stressful was this event for you?* rated on a 1-5 scale) ranged between 3.01 (SD=1.15) and 3.34 (SD=1.23) for each of the seven days of diaries. Participants then received the following instructions: "*We are interested in what you tried to do as well as how successful you were in these attempts. Remember that you might have tried hard to do something but you might not have been successful at it".* Two items assessed reappraisal attempts on a scale of 1 (*"Very slightly or*

not at all") to 5 (*"Very/a lot"*): "*Did you try to think about the event in a way that would make you feel better?"* and "*Did you try to think about the potential positive outcomes of the event?"*

To test the proposed model, we needed to measure the *frequency of* individuals' daily reappraisal attempts (and not, for example, the *intensity* of individuals' daily reappraisal attempts). To measure the frequency of individuals' reappraisal attempts, we needed to aggregate across the daily diaries to measure the number of days that a given individual attempted to use reappraisal. To do so, we rescored participants' continuous ratings of how intensely they attempted to use reappraisal such that attempting reappraisal "*very slightly or not at all*" (originally "1") on a given day was recoded as "0", and attempting reappraisal at least "*a little*" (originally between "2"-"5") was recoded as "1."[1] These values were summed across the seven diary days (yielding a score of 0-7 for each participant) and divided by the total number of diaries each participant completed. This continuous measure captured the proportion of days that participants attempted reappraisal at least "a little" in their daily lives. This attempt proportion score was calculated for each of the two reappraisal items and then the two highly correlated attempt proportion scores (r=.60) were averaged together.

Importantly, with the present data, it is not possible to obtain a daily measure of *frequency* of reappraisal attempts (i.e., "level 1" variable, in multi-level modeling terms) because participants reported their use of reappraisal during their single most stressful event of the day and therefore, there is only one report of reappraisal use per day. It is only possible to capture *frequency* of reappraisal attempts by taking the full week into account and summing the number of attempts *across* the seven days of diaries. Because frequency of reappraisal attempts does not

[1] Because the low anchor combined "not at all" with "very slightly", we consider this to be a conservative measure of whether participants used reappraisal. Results also held when using different cutoffs: when reports of "1"-"2" were rescored as "0" and reports of "3"-"5" were rescored as "1".

exist as a "level 1" variable, it is not appropriate to use multilevel modeling and thus we report the appropriate moderated multiple regression analyses.

Participants then rated their reappraisal success on a scale of 1 (*"Very slightly or not at all"*) to 5 (*"Very/a lot"*) with two items: "*How successful were you in thinking about the event in a way that would make you feel better?"* and "*How successful were you in thinking about potential positive outcomes of the event?"* Ratings were averaged across the seven days and then across both highly correlated items (r=.74). The present data also provided an opportunity to examine the converging evidence between this daily diary index of reappraisal success and a laboratory index of reappraisal success. Using methods described in detail elsewhere (e.g., Troy et al., 2013), we assessed participants' ability to use reappraisal to successfully decrease their self-reported sadness experience during standardized sadness-inducing film clips during a laboratory session that occurred between the questionnaire assessment and the daily diaries (N=199[2]). This index of reappraisal success was correlated with the diary measure of success, r= .19, p=.008, but not with the diary measure of attempts, r=.03, p=.641, providing evidence that the reappraisal success individuals report having in daily life specifically converges with the reappraisal success they demonstrate in a standardized laboratory task.

Life stress. Using the Life Experiences Survey (Sarason, Johnson, & Siegel, 1978), participants identified which of 46 stressful events occurred in the preceding 18 months and rated those events' impact: -3 (*extremely negative*) to +3 (*extremely positive*). Negative impact ratings were summed and inverted, so that higher scores reflect greater life stress.

[2] According to convention, this sample excludes 19 participants who were 'non-responders' (i.e., who responded to an un-regulated sadness-inducing clip with no sadness).

Depressive symptoms. The Beck Depression Inventory (Beck, Steer, & Brown, 1996) is a 21-item measure rated on a scale of 0 to 3 and summed. One item on suicidal thoughts was removed due to concerns from the institutional review board (α=.93).

Potential confounds. We controlled for demographic variables (age, gender, and socioeconomic status using a z-scored composite of income and education) and neuroticism, using the 10-item International Personality Item Pool subscale (Goldberg, 2005) (α=.92).

Habitual reappraisal. The Emotion Regulation Questionnaire (Gross & John, 2003) was used to assess habitual reappraisal with six items reflecting the individuals' use of reappraisal in general (e.g., *I control my emotions by changing the way I think about the situation I'm in*) (α=.85).

Procedure

Participants completed online questionnaires assessing demographics, neuroticism, habitual reappraisal, depressive symptoms, and life stress. Approximately one week later, participants began 14 consecutive days of diaries, the last seven of which assessed reappraisal attempts and success (95.4% of participants completed three or more of these seven days).

Results

Links between reappraisal attempts, success and depressive symptoms. Underscoring the relative prevalence of attempting reappraisal in daily life, participants reported attempting reappraisal on 67% of the days we assessed, on average. Participants also reported a moderate degree of daily reappraisal success on average (M=2.73, on a scale of 1-5). As displayed within Table 1, the frequency of individuals' daily reappraisal attempts was moderately correlated with their daily reappraisal success, r=.32, p<.001. Finally, the correlations between depressive symptoms and both reappraisal attempts (r=.07, p=.330) and reappraisal success (r= -.09,

p=.164) were not significant, consistent with the proposed theoretical model that the link between depressive symptoms and reappraisal may depend jointly on both components of reappraisal.

Interaction between reappraisal attempts, success, and life stress. In a multiple regression, depressive symptoms were entered as the outcome and the three-way interaction between mean-centered reappraisal attempts, reappraisal success, and life stress was entered as the predictor, in addition to all main effects and two-way interactions. As hypothesized, the three-way interaction was significant, β=-.21, t(211)=3.99, p<.001 (Figure 1). All main effects and two-way interactions were non-significant, ps>.063, with one exception: life stress predicted greater depressive symptoms, β=.69, t(211)=13.10, p<.001.

Simple slopes analyses (Aiken & West, 1991) were used to examine the three-way interaction. At higher levels of life stress, attempting reappraisal more frequently was associated with *lower* depressive symptoms for those who used reappraisal *more* successfully, β=-.32, t(211)=2.99, p=.003. But, attempting reappraisal more frequently was associated with marginally *greater* depressive symptoms for those who used reappraisal *less* successfully, β=.19, t(211)=1.95, p=.053. The link between using reappraisal more vs. less successfully and depressive symptoms was most pronounced when individuals attempted using reappraisal relatively frequently, β=-.41, t(211)=3.76, p<.001. Using reappraisal more vs. less successfully was unrelated to depressive symptoms for those who used reappraisal less frequently, β=.09, t(211)<1, p=.319.

At lower levels of life stress, attempting reappraisal more vs. less frequently was associated with greater depressive symptoms for those who used reappraisal *more* successfully, β=.23, t(211)=2.46, p=.015, but was not associated with depressive symptoms for those who

used reappraisal *less* successfully, β=.05, $t(211)<1$, p=.608. There were, however, no significant differences in depressive symptoms between those who used reappraisal more successfully and those who used reappraisal less successfully, whether they used reappraisal more frequently, β =.06, $t(211)<1$, p=.567, or less frequently, β=-.12, $t(211)=1.39$, p=.166.

This three-way interaction also remained significant when simultaneously controlling for demographics (age, gender, socioeconomic status) and neuroticism, β=-.22, $t(192)=4.87$, $p<.001$, and the simple effects closely paralleled those depicted in Figure 1 with one exception: At higher levels of life stress, attempting to use reappraisal more frequently was now associated with *significantly* greater – formerly *marginally* greater – depressive symptoms for those who used reappraisal *less* successfully, β=.19, $t(192)=2.29$, p=.023.

Links with habitual reappraisal. Habitual reappraisal was significantly linked with frequency of daily reappraisal attempts (r=.18, p=.006) and daily reappraisal success (r=.23, p=.001). These findings suggest that individuals' global ratings of habitual reappraisal are linked with both reappraisal attempts and reappraisal success in daily life, but to a relatively modest degree.

The three-way interaction between reappraisal attempts, reappraisal success, and life stress remained significant when simultaneously controlling for habitual reappraisal, demographics (age, gender, socioeconomic status), and neuroticism, β=-.22, $t(191)=4.82$, $p<.001$. The simple effects of this three-way interaction closely paralleled those depicted in Figure 1 with one exception: At higher levels of life stress, attempting to use reappraisal more frequently was now associated with *significantly* greater – formerly *marginally* greater – depressive symptoms for those who used reappraisal *less* successfully, β=.18, $t(191)=2.18$,

p=.031. Additionally, habitual reappraisal did not predict depressive symptoms beyond the other effects in the model, β=.03, $t(191)<1$, p=.603.

Alternative models. As summarized above, our primary model included one three-way interaction and three subordinate two-way interactions. The four variables included within this model (reappraisal attempts, reappraisal success, life stress, and depressive symptoms), however, could interact with one another in alternative configurations. Specifically, a total of twelve two-way interactions and four three-way interactions are possible between the present study variables. While examining alternative models is important, we believe there is little theoretical rationale to test several of these possible interactions (see Discussion section for additional consideration of this topic). However, two two-way interactions in particular make theoretical sense to consider: Individuals with lower (vs. higher) levels of depressive symptoms could demonstrate a more "psychologically healthy" pattern of mutually reinforced contingency between their reappraisal attempts and success (i.e., the more they attempt reappraisal, the more successful they are, and vice versa). We did not find empirical support for this hypothesis, as evidenced by non-significant interactions between depressive symptoms and reappraisal attempts (or success) in predicting reappraisal success (or attempts), βs<-.06, $t(215)$s<1, ps>.389.

Discussion

The benefits of reappraisal for psychological health should depend on attempting to use reappraisal frequently *and* implementing reappraisal successfully during heightened stress. Although theoretically grounded, these two components of reappraisal have rarely been assessed within the same study, limiting our knowledge about whether they interact as hypothesized. The current investigation assessed both components using daily diaries and found that at higher levels life stress, using reappraisal more frequently was only associated with lower depressive

symptoms for those who achieved greater daily reappraisal success. Conversely, using reappraisal more frequently was associated with greater depressive symptoms for those who used it with little success in daily life. Importantly, this pattern held when controlling for participants' demographics (age, gender, and socioeconomic status), underscoring the robustness of the pattern, and when controlling for heightened negative emotionality (neuroticism), indicating that an underlying predisposition toward negative emotions is not driving the present results.

Our primary hypotheses concerned the links between reappraisal and depressive symptoms at *higher levels* of life stress, when depressive symptoms tend to be elevated and, theoretically, when reappraisal can provide more notable benefits. Thus, we did not have strong hypotheses for how reappraisal attempts and success may interact at *low levels* of life stress. Results indicated that at lower levels of life stress, the link between reappraisal attempts and depressive symptoms was significantly – and surprisingly – *positive* for those who use reappraisal *more* successfully (see left side of Figure 1). However, this finding is difficult to interpret given that this positive slope was not significantly different from the *non*-significant slope for those who use reappraisal *less* successfully. Moreover, participants experiencing lower levels of life stress reported quite low levels of depressive symptoms overall (i.e., averaging between 2 and 5 symptoms, depending on their use of reappraisal), which are considered 'minimal' levels of depression (Beck et al., 1996). Predicting subtle changes in normal ups and downs may not have much relevance to the construct of depression; moreover, there is a chance these results are driven by the overall low levels of symptoms and could be due to chance. Thus, this finding must be interpreted with caution.

Theoretical and Methodological Implications

The present results underscore the importance of examining emotion regulation strategies in a nuanced manner, differentiating emotion regulation attempts from success. These results also highlight the advantages of examining interactions between components: here, each individual component was unrelated to depressive symptoms. This pattern is consistent with the theoretical model presented here: that the link between depressive symptoms and reappraisal may depend on both components of reappraisal working in concert. Indeed, it was only by examining their interaction that we uncovered links with psychological health. This pattern underscores the more general theory that emotion regulation is a multi-component process whose adaptiveness relies on the interactions between those components.

We also argue that daily diaries represent a particularly useful method for examining different reappraisal components because diaries can capture repeated attempts and success as individuals manage their emotions in everyday life. Although questionnaire measures of habitual reappraisal are relatively easier to use, they are not optimized to disentangle different components of reappraisal. Indeed, our data indicate that one of the most widely-used questionnaire measures of habitual reappraisal (Emotion Regulation Questionnaire; Gross & John, 2003) is relatively modestly linked *both* with the frequency of daily reappraisal attempts (r=.18, p=.006) as well as with daily reappraisal success (r=.23, p=.001). Additionally, the primary study results remained unchanged when habitual reappraisal was included in the model (which itself did *not* significantly predict depressive symptoms in the present sample), suggesting that these diary measures are informative above and beyond the questionnaire measure.

Alternative Models

The present manuscript focuses on the question of how reappraisal attempts and success work together during higher levels of life stress to shape depressive symptoms. However, alternative models for our study variables are interesting to consider. Specifically, a total of twelve two-way interactions and four three-way interactions are possible between the present study variables. Out of the twelve possible two-way interactions, three were addressed in our primary model, but not all of the remaining nine interactions make theoretical sense to consider. For example, three of these interactions would consider life stress as an 'outcome', which makes relatively less conceptual sense compared to other models. We believe that two two-way interactions in particular may make sense to consider: One might expect that individuals with lower (vs. higher) levels of depressive symptoms would demonstrate a more "psychologically healthy" pattern of mutually reinforced contingency between their reappraisal attempts and success: the more they attempt reappraisal, the more successful they are, and the more successful they are, the more they attempt it. Although this is a plausible hypothesis, we did not find empirical support for it.

Out of the four possible three-way interactions, one was addressed in our primary model and we believe the other three-way interactions make little theoretical and empirical sense to examine. Theoretically, we would not predict that levels of life stress would influence the strength of the contingency between reappraisal attempts and success for individuals with higher vs. lower depressive symptoms, especially when depressive symptoms are most often considered as powerfully *determined by* life stress (Hammen, 2005). Empirically, depressive symptoms and life stress are highly correlated in the present sample, r=.64, creating a substantial multicollinearity issue for examining these variables as interacting predictors. Based on these considerations, the present paper focused on the theoretically-motivated – and empirically

supported – three-way interaction among reappraisal attempts, reappraisal success, and life stress in predicting depressive symptoms.

Future Directions

To build on the present research, future research may benefit from the following: (a) assessing reappraisal across more days to generate a more robust measure, (b) assessing reappraisal more frequently within these days to capture in-the-moment regulation (e.g., with ecological momentary assessment), (c) using behavioral (rather than self-report) measures to assess reappraisal attempts or success (Suri, Whittaker, & Gross, 2015; Troy et al., 2010), or (d) measuring other strategies (e.g., distraction, suppression) to examine whether the benefits or downsides of any strategy depend on an interaction between attempts and success.

Additionally, a growing body of work suggests that the characteristics of the stressful context may critically shape the outcomes of reappraisal (e.g., the controllability of the stressor; Cheng, 2001; Troy et al., 2013). These findings suggest that continued research on this topic will also benefit from a careful consideration of the specific stressors that individuals are experiencing.

Finally, our data revealed a modest link between daily reappraisal attempts and daily reappraisal success (r=.32, p<.001). This link suggests that people who attempt to use reappraisal more frequently are somewhat more likely to be successful at using reappraisal, but our data do not speak to the directionality of this link – it is possible that people who frequently use reappraisal gain more practice and are thus more successful, but it is also possible that people who are more successful are more likely to use the strategy that 'works for them'. Future research would benefit from multiple assessments of these reappraisal components in a longitudinal design to examine how they may predict each other (and depressive symptoms) over

time. Rigorously testing these ideas can help us understand how emotion regulation – as it is used in daily life – contributes to psychological health.

Concluding Comment

The present investigation proposes that to fully understand the health implications of reappraisal, we must consider reappraisal as a multi-component process. Using a cross-sectional mixed-method design, we found support for the hypothesis that frequently attempting to use reappraisal was only associated with psychological health benefits when individuals were also able to implement that strategy successfully.

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Table 1. Descriptive statistics and correlations for study variables.

	Descriptives				Correlations							
	Possible Scale Range	N	Mean	SD	Reappraisal Attempts		Reappraisal Success		Life Stress		Depressive Symptoms	
					r	*p*	*r*	*p*	*r*	*p*	*r*	*p*
Primary Study Variables												
Reappraisal Attempts (Daily Diary Measure)	0-1	219	0.67	0.26	–	–						
Reappraisal Success (Daily Diary Measure)	1-5	219	2.73	0.87	.32*	<.001	–	–				
Life Stress	0-138	219	13.58	10.26	.05	.440	-.07	.334	–	–		
Depressive Symptoms	0-60	219	10.70	9.51	.07	.330	-.09	.164	.64*	<.001	–	–
Potential Confounds												
Age	21-60 years	219	40.6	11.35	.02	.759	-.04	.592	.13	.055	.11	.098
Gender	male=1 female=2	219	1.59	0.49	-.01	.850	-.03	.669	.05	.489	.04	.566
Socioeconomic Status	†	219	-0.02	0.87	-.10	.138	-.10	.154	-.19*	.004	-.23*	.001
Neuroticism	1-5	204	2.92	0.92	.05	.478	-.14*	.047	.38*	<.001	.64*	<.001
Habitual Reappraisal (ERQ Measure)	1-7	219	5.05	1.12	.18*	.006	.23*	.001	-.04	.528	-.11	.117
Reappraisal Success (Laboratory Measure)	‡	199	.10	1.14	.03	.641	.19*	.008	.01	.862	.04	.616

Note. *p<.05, † Socioeconomic status was a composite of z-scored household income and educational status, originally rated on the following scales: 1="*$10,000 or below*" to 7="*$100,000 or above*" and 1="*less than 7th grade*" to 7="*graduate professional training*".

‡ As described elsewhere (Troy et al., 2013), laboratory reappraisal success was measured using a difference score between z-scored sadness experience ratings in response to unregulated and reappraised sad film clips, originally rated on the following scale: 1 = “not at all” to 9= “extremely”. ERQ: Emotion Regulation Questionnaire.

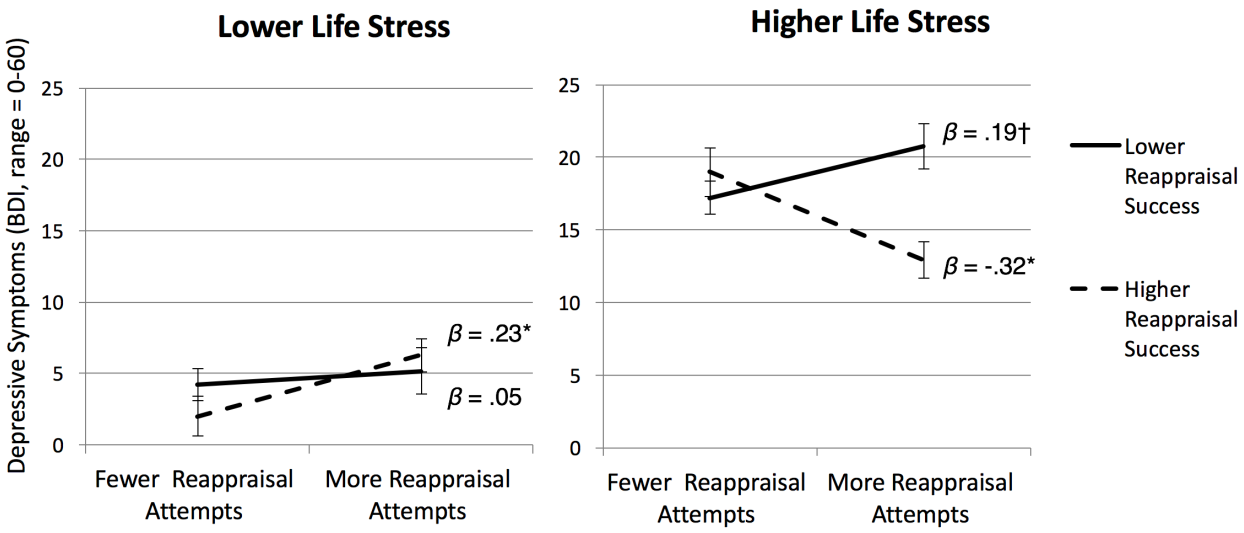

Figure 1. Simple slopes of the significant three-way interaction between daily reappraisal attempts, daily reappraisal success, and life stress predicting depressive symptoms. All predictors are plotted at +/- 1 SD from the mean. Error bars represent standard errors of the mean. *$p < .05$, †$p = .053$.