
Corrigendum: Reappraisal Reconsidered: A Closer Look at the Costs of an Acclaimed Emotion-Regulation Strategy

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In the original article, there was an error in Figure 2: The “For example” text in the right-hand box immediately under “Drawback 1” was incorrectly duplicated. This text is now being corrected to read as follows: “For

example: when the situation is highly intense or has otherwise limited reappraisal affordances.” The rest of the text in that box (and in the figure) will remain the same.

Reappraisal Reconsidered: A Closer Look at the Costs of an Acclaimed Emotion-Regulation Strategy

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Abstract

Cognitive reappraisal is a common form of emotion regulation that often centers on reframing how one thinks about an emotional situation so that one feels better. Given its demonstrated widespread benefits, two conclusions have been drawn about reappraisal: People can use it easily, and people should use it frequently. We critically examine these conclusions and highlight two fundamental drawbacks of reappraisal: First, people are often unable to use reappraisal successfully, and second, even when successful, using reappraisal to feel better is not always functional. To synthesize current research and inspire future research, we present a conceptual framework that systematically considers these drawbacks and how they may be influenced by individual-centered factors (e.g., the individual's skill) and situation-centered factors (e.g., a stressor's intensity) to shape outcomes across time. We then summarize the current literature and highlight the importance of considering reappraisal's costs and benefits in future research.

Keywords

cognitive reappraisal, emotion regulation, stress, psychological health, coping

Reappraisal is a commonly used form of emotion regulation that centers on people's attempts to reframe how they are thinking about an emotional situation so that they feel better. Reappraisal is also one of the most widely studied emotion-regulation strategies, and decades of research have demonstrated reappraisal's benefits for emotional, social, cognitive, and physiological outcomes (Aldao, Nolen-Hoeksema, & Schweizer, 2010; Webb, Miles, & Sheeran, 2012). Given this accumulating evidence, it is tempting to draw two conclusions about reappraisal: (a) that people can use it easily and (b) that people should use it frequently. Indeed, reappraisal has been discussed as all but a panacea and is even being imported as a tool into various domains outside of psychology, including political science (Halperin, Porat, Tamir, & Gross, 2013), law (Maroney & Gross, 2014), business (Côté, 2005), education (Davis & Levine, 2013), and health (Appleton, Buka, Loucks, Gilman, & Kubzansky, 2013).

Given its popularity within and outside of psychology, it is crucial to consider not only reappraisal's benefits but also its possible costs. This is a timely concern given emerging research providing evidence for such

costs. To synthesize current research and inspire future research, we present a conceptual framework to systematically consider these costs, proposing that reappraisal may be susceptible to two fundamental drawbacks: that people are often unable to use reappraisal successfully (i.e., to change their emotions, as desired), and even when reappraisal is used successfully, this is not always functional (i.e., associated with useful outcomes that promote adaptive functioning).

A Framework for Considering the Costs of Reappraisal

Thousands of articles on reappraisal are published each year and the trend is only gaining steam (Fig. 1). This

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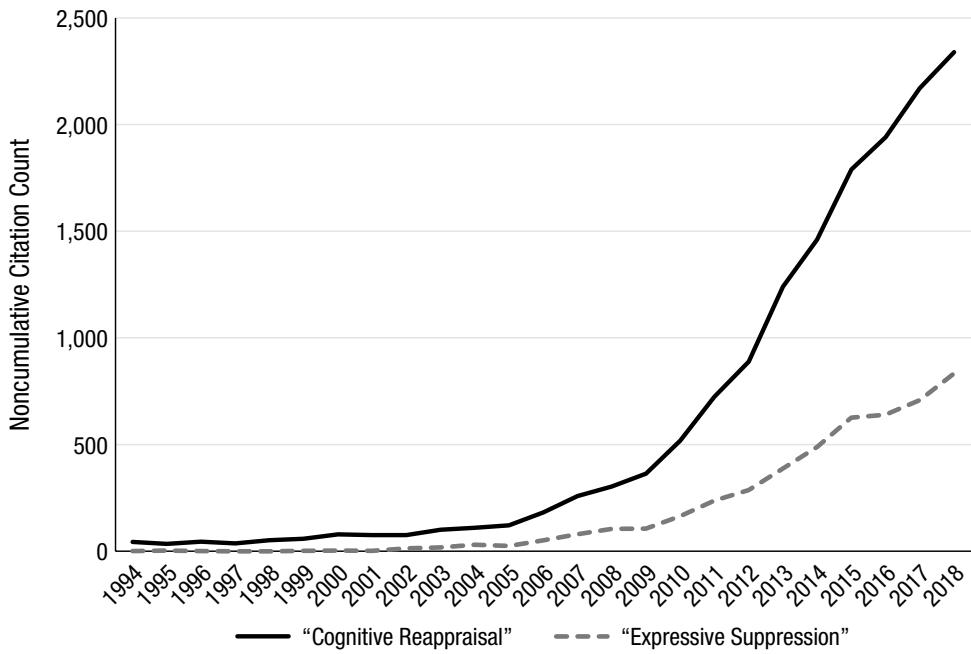


Fig. 1. Noncumulative citation counts for the search terms “cognitive reappraisal” and “expressive suppression” for the past 25 years, as generated by Google Scholar. Counts for “expressive suppression” are provided because it is often examined in comparison with cognitive reappraisal (e.g., Gross & John, 2003).

research has often underscored reappraisal’s success (e.g., after reappraising, people—on average—feel better; Webb et al., 2012) and functionality (e.g., habitually reappraising correlates with greater psychological health; Aldao et al., 2010). However, as foreshadowed by pioneering theoretical work in the domains of coping, emotion regulation, and psychopathology (including, most directly, work on flexibility and context sensitivity), reappraisal may also carry important costs, depending on how and when it is used (e.g., Bonanno & Burton, 2013; Gross, 2015; Kashdan & Rottenberg, 2010; Lazarus & Folkman, 1987). Here, we outline a framework to consider these costs.

This framework is broad, summarizing core processes relevant to numerous emotion-regulation strategies, including reappraisal. We organize this framework in three ways (see Fig. 2). First, we highlight two possible drawbacks of using a strategy, derived from the two basic motives underlying emotion regulation (Tamir, 2016): hedonic motives (was the strategy unable to help you feel better?) and instrumental motives (was the strategy unable to promote adaptive functioning?). Second, we highlight two core factors that can influence the likelihood of those drawbacks, derived from the goals of personality and social psychology: understanding individual factors (what was the role of the individual?) and situational factors (what was the role of the situation?). Third, we highlight the role of time, derived from affective and clinical-science traditions

that underscore emotion regulation as a powerful influence on outcomes across time, both immediately (what happens in the direct aftermath of using the strategy?) and cumulatively (what happens as the strategy’s effects accumulate?). Although these distinctions are not the only ways to consider a strategy’s outcomes, we focus on them because they are foundational, are represented in the empirical literature, and provide a structure to efficiently consider the costs (and benefits) of various emotion-regulation strategies. In the present targeted review, we focus specifically on reappraisal given its role as a commonly used, highly studied, and strongly espoused strategy.

First, theory suggests that people may often be unable to use reappraisal to successfully feel better (Fig. 2, left side). Reappraisal involves reconsidering the meaning of a situation, thus requiring people to engage with their stressful experiences, which can be a vulnerable position (Sheppes, 2014). This vulnerability can be driven by both individual-centered and situation-centered factors across time. For example, if individuals do not have the resources to successfully reconsider the situation (e.g., they are unskilled at generating reappraisals), they are unlikely to feel better in the short term; if they continue using the strategy unsuccessfully, these short-term outcomes should accumulate into worse psychological health (Fig. 2, top left). Or if the situation itself is challenging to reconsider (e.g., the situation is highly intense), individuals are also unlikely

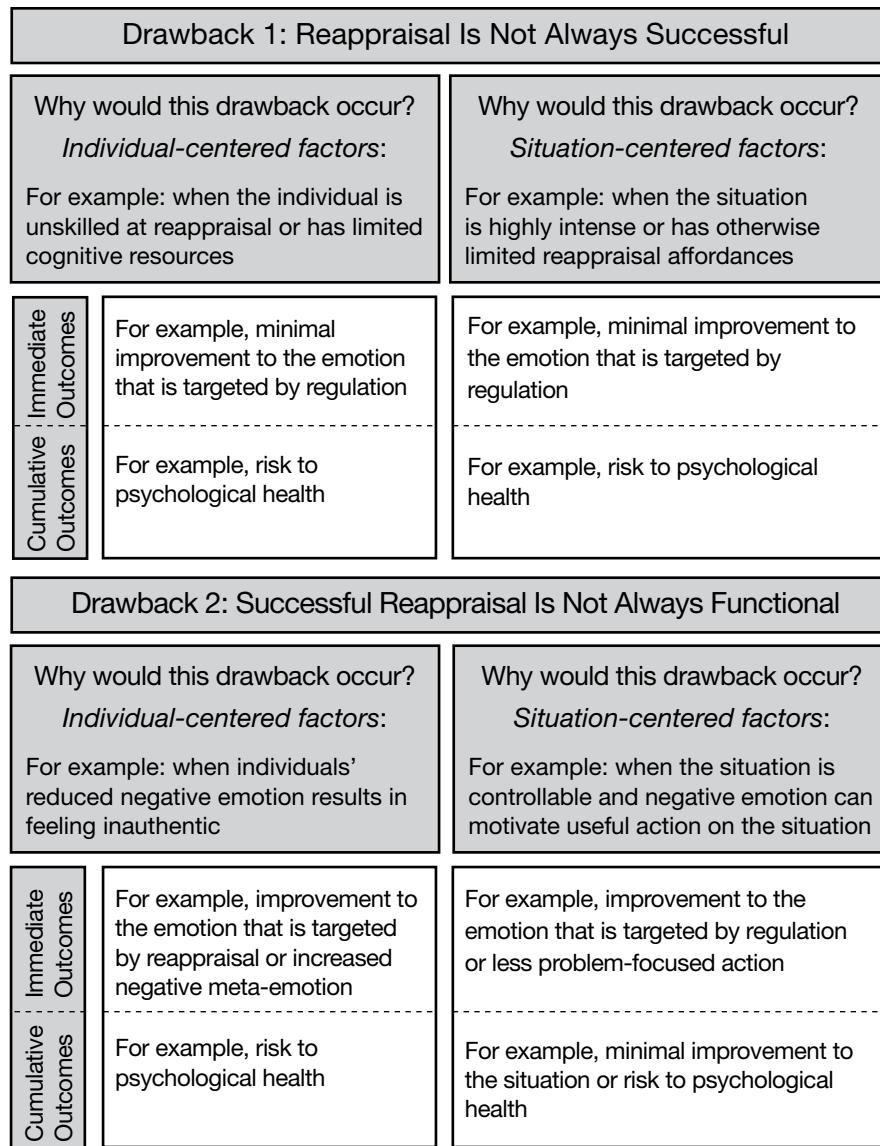


Fig. 2. Conceptual framework depicting two drawbacks of using reappraisal: that reappraisal is not always successful and that successful reappraisal is not always functional. These two drawbacks can be generated by both individual-centered factors and situation-centered factors. Additionally, these drawbacks have both immediate outcomes (that the individual can experience in the direct aftermath of a single instance of reappraisal) and cumulative outcomes (that the individual can experience over time as instances of reappraisal accumulate). We include psychological health as a key cumulative outcome because of its theoretical importance and its strong representation in the current reappraisal literature (however, other cumulative outcomes are possible and are highlighted in the future directions included in Fig. 3). The examples provided in this figure and discussed in the text are not intended to be a comprehensive list of possibilities; rather, they represent salient examples with at least some support in the available empirical or theoretical literature.

to feel better in the short term, and continued use of the strategy may generate cumulative risk for their future psychological health (Fig. 2, bottom left).

Second, theory suggests that it may not always be functional to successfully use reappraisal. Even if reappraisal successfully helps people feel better—which is not the sole aim of reappraisal, but is a highly common one—feeling better is not always best (Fig. 2, right

side). Unpleasant emotions serve important functions (e.g., fear helps us avoid threats), and reducing these emotions reduces the functions those emotions can serve (Tamir, 2016). These functions can be driven by both individual-centered and situation-centered factors across time. For example, if an individual's negative emotional experience is important to her or his identity (e.g., the emotion reflects the person's values), using

reappraisal to reduce this emotion may actually increase negative meta-emotions such that the individual feels bad about feeling better (e.g., she or he feels inauthentic), which can accumulate into worse psychological health (Fig. 2, top right). Or if the situation itself could be improved (e.g., a relatively controllable stressor), reducing unpleasant emotions may reduce the motivation to improve the situation itself; in this case, the individual may feel better in the short term, but continued exposure to the unimproved situation may generate risk for psychological health (Fig. 2, bottom right).

A new generation of empirical work has begun that examines these boundary conditions of reappraisal, providing accumulating evidence for crucial drawbacks. We summarize the available evidence below.

Drawback 1: Reappraisal Is Not Always Successful

Although reappraisal is commonly attempted in daily life (Ford, Karnilowicz, & Mauss, 2017), research indicates that people are often unable to use reappraisal to successfully feel better. Consistent with the proposed theoretical framework (Fig. 2), this work has revealed both individual-centered factors and situation-centered factors that influence reappraisal's success, with both immediate and cumulative implications.

First, with respect to individual differences in reappraisal's success, research suggests that many individuals are unable to use reappraisal successfully. When examining the immediate outcomes of reappraisal, research has shown that one half to one third of participants felt worse after attempting reappraisal (vs. responding naturally) when faced with a standardized laboratory negative-mood induction (assessed with self-reported and physiological indicators; Troy, Shallcross, & Mauss, 2013; Troy, Wilhelm, Shallcross, & Mauss, 2010). Participants also report mixed success when facing negative events in daily life: In a diary study, nearly half of the participants who attempted to use reappraisal during their most stressful daily events rated their reappraisal success below the scale's midpoint (i.e., not at all or only slightly successful; Ford et al., 2017).

Individuals who tend to use reappraisal unsuccessfully may subsequently face cumulative risk to their psychological health if they continue attempting reappraisal. Indeed, attempting reappraisal more frequently in daily life was cross-sectionally associated with greater depressive symptoms for individuals who were relatively unskilled at reappraisal (Ford et al., 2017; importantly, attempting reappraisal was associated with fewer depressive symptoms for individuals who were more skilled at reappraisal). These findings are consistent

with clinical evidence suggesting that unsuccessful reappraisal often characterizes individuals with poor psychological health (Johnstone, van Reekum, Urry, Kalin, & Davidson, 2007). Although the theory is compelling, verifying a causal role of reappraisal will require moving beyond cross-sectional work. Complicating matters, reappraisal and psychological health are likely bidirectionally linked: Poor psychological health may also make it harder for individuals to generate successful reappraisals, perpetuating a vicious cycle.

Second, with respect to situational differences that influence reappraisal's success, several findings indicate that particular situations are challenging to reappraise successfully. For example, situations may be too intense to generate an effective reappraisal or may provide too few features that can be reinterpreted ("reappraisal affordances"). Research examining the immediate outcomes of reappraisal indicates that reappraisal is less successful when used during higher-intensity stressors (vs. lower-intensity stressors; Sheppes, 2014; Sheppes & Meiran, 2007). And while individuals often choose not to use reappraisal for higher-intensity stressors (see Sheppes, 2014, for a review), many individuals still attempt reappraisal in situations in which it is unlikely to be successful (i.e., when reappraisal affordances are scarce; Suri et al., 2018).

Frequently using reappraisal in situations in which it is less likely to be successful may, in turn, generate cumulative risk to individuals' psychological health. Indeed, frequently attempting reappraisal was cross-sectionally associated with greater depressive symptoms for Latinx individuals living in high-oppression situations, which may be especially challenging to successfully reappraise (i.e., living as a visible minority in the United States and perceiving heightened racial oppression; Perez & Soto, 2011). Importantly, attempting reappraisal was associated with fewer depressive symptoms in situations characterized by low racial oppression (i.e., living as a majority member in Puerto Rico or perceiving less oppression). Although these results can be interpreted from different perspectives, the authors posited that oppression offers few reappraisal affordances: It may seem impossible to generate different interpretations, and searching for these interpretations can be counterproductive (e.g., ruminative). Building on these correlational findings, an experimental manipulation of situational intensity demonstrated that firefighters who more frequently attempted reappraisal when it was unlikely (vs. likely) to be successful (i.e., during high- vs. low-intensity lab-induced stressors) were most at risk for reporting higher posttraumatic-stress-disorder symptoms when faced with traumatic events (Levy-Gigi et al., 2016).

In sum, particular individuals are relatively unskilled at reappraisal but may still attempt it frequently.

Furthermore, particular situations may be especially challenging to successfully reappraise (e.g., high-intensity stressors), but individuals often still attempt reappraisal in such situations, likely because these contexts frequently generate strong motivations to regulate. In either case, continuing to use reappraisal when unsuccessful can generate risk to downstream health.

Drawback 2: Successful Reappraisal Is Not Always Functional

Even when reappraisal is used successfully to regulate emotional states, this does not guarantee that reappraisal is functional (e.g., associated with useful, adaptive outcomes). Indeed, recent work suggests that both individual-centered and situation-centered factors influence reappraisal's functionality, with both immediate and cumulative implications.

First, with respect to individual differences that influence reappraisal's functionality, prior theory suggests that individuals' motivations and needs should alter whether changes in emotion (e.g., reduced negative emotion) will promote beneficial outcomes. For example, although individuals are often motivated to feel good, they are also motivated to feel emotions—even unpleasant ones—that verify their own beliefs and values (e.g., anger in the face of injustice; Swann, 1987; Tamir, 2016). If individuals use reappraisal to reduce negative emotions that are important to their identity, they may experience immediate decreases in those emotions but may also experience increases in negative meta-emotions (i.e., emotions or judgments about one's emotions), such as a decreased sense of authenticity. Although no published work to our knowledge has examined the immediate outcomes of reappraisal when individuals face identity-based threats, this promising idea has received indirect support from research examining the cumulative outcomes of reappraisal.

Specifically, preliminary evidence examining cumulative outcomes suggests that reappraisal may be harmful when individuals face identity-based threats. For example, using reappraisal was associated with significantly lower psychological health for individuals experiencing higher levels of racial oppression (Perez & Soto, 2011). Here, we speculate that successful reappraisal may invalidate one's experiences of oppression, thereby increasing downstream risk: If reappraisal is repeatedly used in a way that increases negative meta-emotions regarding the self, this can jeopardize one's sense of self and one's values, generating cumulative risk for psychological health. This pattern may seem at odds with work suggesting that reappraisal is linked with greater psychological health when used during

uncontrollable stressors (Troy, Ford, McRae, Zarolia, & Mauss, 2017; Troy et al., 2013), given that oppression can also be characterized as a relatively uncontrollable stressor. This paradox requires careful attention. One possibility is that reappraisal may backfire when individuals face threats to their identity, regardless of the controllability of those threats. These fascinating novel hypotheses remain to be empirically examined.

Second, with respect to situations that influence reappraisal's functionality, several findings indicate that reappraisal is unlikely to provide benefits—and may even promote harm—in some contexts. When reappraisal is used to reduce emotions that would otherwise be useful for solving a problem, successful reappraisal may reduce individuals' immediate motivation to engage in effective problem solving and decision making (Cheng, Lau, & Chan, 2014). For example, individuals who used reappraisal to decrease negative emotion (e.g., moral outrage) during an economic game accepted more unfair offers from other participants (Grecucci, Giorgetta, van't Wout, Bonini, & Sanfey, 2013; van't Wout, Chang, & Sanfey, 2010), likely increasing their chances of being exploited. Furthermore, individuals who used reappraisal to reduce fear during a risk-taking game made riskier decisions (Heilman, Crișan, Houser, Miclea, & Miu, 2010), likely increasing their chances of suffering losses. Finally, individuals who minimize the negative impact of a romantic partner's aggression may be more likely stay in abusive relationships and place themselves at risk for increased harm (Arriaga, Capezza, Goodfriend, & Allsop, 2018).

If reappraisal reduces the tendency to take effective action yet is frequently used in contexts in which action would be functional, reappraisal may also result in cumulative risk to psychological health. A laboratory study tested this question by assessing self-reported and physiological indicators of reappraisal success and found that reappraisal predicted worse psychological health when individuals were exposed to relatively controllable stressful situations—contexts in which negative emotions likely serve as important motivators of action (Troy et al., 2013). Recent work has also replicated this pattern using experience-sampling measures of reappraisal in daily life (Haines et al., 2016).

In sum, successfully using reappraisal does not guarantee beneficial outcomes. If one's emotions are important to one's identity, reducing such emotions may generate negative meta-emotions (e.g., feelings of inauthenticity) and, in turn, foster risk to psychological health. If one's emotional states serve motivational functions that can guide effective action, reducing such emotions may impair action, which may also jeopardize downstream health.

Drawback 1: Reappraisal Is Not Always Successful			
	What Do We Know?		Where Can We Go From Here?
Immediate Outcomes	Individual-Centered Factors	Cumulative Outcomes	Individual-Centered Factors
Some people are less skilled at reappraisal (e.g., Troy, Shallcross, & Mauss, 2013; Troy, Wilhelm, Shallcross, & Mauss, 2010).			Who, specifically, is less skilled at reappraisal? What accounts for these individual differences?
Stressed people who frequently use unsuccessful reappraisal experience worse psychological health (e.g., Ford, Karnilowicz, & Mauss, 2017).			How does poor reappraisal predict future psychological health (and other cumulative outcomes, including social and physical well-being)? And what mechanisms account for these longitudinal links?
Situation-Centered Factors			
Immediate Outcomes	High-intensity negative situations are harder to reappraise (e.g., Sheppes & Gross, 2011; Sheppes & Meiran, 2007).	Cumulative Outcomes	Situation-Centered Factors
People who frequently use reappraisal in situations that are harder to reappraise experience worse psychological health (e.g., Levy-Gigi et al., 2016; Perez & Soto, 2011).			What taxonomy of situations describes the factors that shape the success of reappraisal (e.g., intensity, valence, predictability)? How can reappraisal be used successfully even in harder-to-reappraise situations?
			How can we protect the psychological health of people facing hard-to-reappraise situations? How should reappraisal-centered interventions be amended to best assist individuals in these situations?
Drawback 2: Successful Reappraisal Is Not Always Functional			
	What Do We Know?		Where Can We Go From Here?
Immediate Outcomes	Individual-Centered Factors	Cumulative Outcomes	Individual-Centered Factors
No published work to date has examined who is more likely to experience worse short-term functionality from reappraisal.			Who is likely to experience increased meta-emotion (e.g., decreased authenticity) when using reappraisal? What accounts for these individual differences?
People who frequently use reappraisal when they are experiencing identity-based negative emotions experience worse psychological health (e.g., Perez & Soto, 2011).			How does successful reappraisal use predict future psychological health and other cumulative outcomes (e.g., social or physical well-being) for individuals managing identity-based negative emotions? What mechanisms account for these longitudinal links?
Situation-Centered Factors			
Immediate Outcomes	In controllable situations, using reappraisal to reduce negative emotion can work against effectively managing those situations (e.g., Arriaga, Capezza, Goodfriend, & Allsop, 2018; van't Wout, Chang, & Sanfey, 2010).	Cumulative Outcomes	Situation-Centered Factors
Using reappraisal to frequently reduce negative emotion in controllable situations is linked with worse psychological health (e.g., Haines et al., 2016; Troy et al., 2013).			What taxonomy of situations describes the factors that shape the functionality of reappraisal in addition to the controllability of situations (e.g., situations that invoke identity-based emotions)? How can reappraisal be used in these situations in ways that do not interfere with functional outcomes?
			How does frequently using reappraisal in situations that would benefit from negative emotion predict future psychological health and other cumulative outcomes (e.g., social or physical well-being)? Can individuals be trained to be more sensitive to these situations and achieve better cumulative outcomes as a result?

Fig. 3. Building from the conceptual framework described in Figure 2, this figure summarizes what we currently know (i.e., drawing from the current literature) and where we can go from here (i.e., generating ideas for future research).

Future Directions

Lastly, we outline multiple directions for basic research and shine a spotlight on three promising growth areas where it may be particularly consequential to consider the costs (and benefits) of reappraisal.

Basic research: testing the proposed framework

Considering the future of reappraisal. By design, the proposed framework highlights many areas for future research. We summarize a systematic set of future directions in Figure 3. These research questions center on examining the longitudinal and causal implications of reappraisal, thoroughly examining the cumulative outcomes of reappraisal, and generating broader taxonomies to consider for whom, when, and why reappraisal is less likely to be successful or functional.

Considering other emotion-regulation strategies. Although parts of the proposed framework are relevant across various emotion-regulation strategies, others may be specific to the particular challenges posed by reappraisal. For example, given reappraisal's unique role as a strategy that involves disavowing one's original interpretation of a situation, it could be particularly likely to contribute to feelings of inauthenticity relative to other strategies. Establishing the specificity versus breadth of these drawbacks will help build a comprehensive model of the costs and benefits of emotion regulation. We must also examine how strategies work together to shape emotion-regulation outcomes. People frequently use multiple strategies at a time (Folkman & Lazarus, 1980), and while particular combinations may be especially advantageous (cf. Shallcross, Troy, & Mauss, 2015), other combinations may backfire (cf. Heiy & Cheavens, 2014). The field of emotion regulation is ripe for moving beyond studying specific strategies in isolation.

Research spotlights: examining the costs (and benefits) of reappraisal in three consequential domains

Interpersonal research. What are the implications of using reappraisal for (or on) other people? Intrinsic regulation abilities (regulating one's emotions) may or may not translate into extrinsic regulation abilities (regulating other people's emotions). Theoretically, reappraisal may be particularly likely to backfire during extrinsic regulation because reappraisal's success will hinge on both the skill of the regulator and the receptiveness of the person being regulated (e.g., Dixon-Gordon, Bernecker, & Christensen,

2015), easily rendering reappraisal lost in translation (cf. Marigold, Cavallo, Holmes, & Wood, 2014).

Intergroup and social-justice research. What are the implications of reappraisal when individuals face group-based animosity (e.g., racism, sexism)? Reappraisal can have important benefits in such situations, including reduced condemnation of out-group members (Feinberg, Antonenko, Willer, Horberg, & John, 2014; Halperin et al., 2013). However, reappraisal can also reduce people's motivation to act on behalf of their group, reducing the likelihood of collective action (Ford, Feinberg, Lam, Mauss, & John, 2018). Social-justice efforts will benefit from practical research that balances reappraisal's societal benefits and costs.

Physical-health research. What are the implications of reappraisal for physical health? Little research has examined reappraisal and physical health, but a small body of work has assessed physiological indices thought to shape longer-term health. These results have been mixed, perhaps because of methodological heterogeneity: Some work suggests that reappraisal is linked with healthier physiological responding (e.g., lower inflammation; Appleton et al., 2013), some suggests no reliable association (see Webb et al., 2012, for a multimeasure meta-analysis), and some suggests that reappraisal may even exert a physiological cost (e.g., greater cortisol reactivity; Lam, Dickerson, Zoccola, & Zaldivar, 2009). The physical-health implications of reappraisal (for better or worse) represent a crucial yet understudied and unanswered question.

Concluding Comment

This review presents a framework to synthesize and scaffold a growing literature on the boundary conditions of reappraisal and enhances our understanding of how reappraisal functions across individuals, situations, and time. We must understand reappraisal's possible costs to better understand how it can be leveraged most successfully.

Recommended Reading

- Ford, B. Q., Karnilowicz, H. R., & Mauss, I. B. (2017). (See References). Demonstrates that people are often unable to use reappraisal successfully in daily life.
- Gross, J. J. (2015). (See References). A review of the process model of emotion regulation, which emphasizes the importance of considering the context in which emotion regulation is used in determining the implications of that regulation.
- Perez, C. R., & Soto, J. A. (2011). (See References). Demonstrates that reappraisal may backfire when used by particular individuals (e.g., those experiencing oppression).

- Troy, A. S., Shallcross, A. J., & Mauss, I. B. (2013). (See References). Demonstrates that reappraisal may backfire when used within particular stressful contexts (e.g., controllable stressors).
- Webb, T. L., Miles, E., & Sheeran, P. (2012). (See References). A meta-analytic review of reappraisal's influence on a range of outcomes.

Action Editor

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