

This effect of reappraisal is considered beneficial in everyday situations because it may enhance the predictability of future similar moderately stressful encounters. When one has been confronted with potentially traumatic stressors, however, the memory-enhancing effect of reappraisal might be maladaptive at least for some individuals because it may contribute to the consolidation of fear memory that, in turn, may lead to posttraumatic stress disorder (Kearns et al. 2012).

As a logical consequence of all these considerations, a flexible implementation of different emotion-regulation strategies dependent on person characteristics and situational demands should lead to optimal coping with both daily hassles and traumatic experiences. In the coping and emotion-regulation literature, this capability is termed *coping flexibility* (Cheng 2001), *regulatory flexibility* (Bonanno & Burton 2013), or *psychological flexibility* (Kashdan & Rottenberg 2010). For intellectual honesty, I would like to add that a recent meta-analysis, however, showed only small to moderate coping flexibility effect sizes (Cheng et al. 2014) that were comparable to those of reappraisal in another meta-analysis (Webb et al. 2012). Therefore, much theoretical and empirical work has to be done to demonstrate that coping flexibility is the most adaptive way of dealing with stressors in everyday life.

Taken together, any particular emotion-regulation strategy is not adaptive or maladaptive per se – its adaptiveness depends on several contextual factors. As a consequence, it seems unlikely that a positive (non-negative) appraisal style *always* will have positive consequences and is the *only* mediator of resilience.

## The value of “negative” appraisals for resilience. Is positive (re)appraisal always good and negative always bad?

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**Abstract:** In contrast to the PASTOR model by Kalisch et al. we point to the potential negative long-term effects of positive (re)appraisals of events for resilience. This perspective posits that emotional reactions to events provide important guidelines as to which events, environments, or social relations should be sought out and which ones should be avoided in the future.

There is no doubt that positive (re)appraisals of negative events can contribute to a person’s affective and subjective well-being. The PASTOR model proposed by Kalisch et al. elaborates the central role of such positive (re)appraisals for understanding the processes contributing to resilience in the face of stressors and adversities. Although we agree with the main tenets of this model, we believe that this perspective overlooks the potentially negative effects of positive (re)appraisals as well as the potentially positive effects of negative appraisals of a given event or situation with regard to functional outcomes such as mental health. In contrast to Kalisch and colleagues, we maintain that emotional reactions to events provide important information as to which events, environments, or social relations should be sought out and, importantly, which ones should be avoided.

The question of the optimal margin of positive illusions – in the context of the present paper, you may say of positive (re)appraisals – is not new, with some of it dating back to a heated debate in the late 1980s and early 1990s conducted by Taylor and Block (Colvin & Block 1994; Taylor & Brown 1988; see also Baumeister 1989). Too much realism is related to depression (Alloy & Abramson 1987), but too many illusions are linked with a loss of motivation (e.g., Colvin & Block 1994). Not surprisingly, it has not been possible to define or quantify where exactly the optimal margin between realistic and overly positive appraisals of an event lie. Also, it is still unclear: Is the relationship linear between positive (re)appraisals of negative events and short-term as well as long-term well-being and mental health? Or – more likely – is the relationship more complex, such that the association is linear up to a certain level of positive reappraisal, beyond which people fall out of touch with a given negative reality, which is then indicative of a delusion rather than an illusion?

Furthermore, it also may be useful to consider that different types of outcomes can be at stake when it comes to reappraisal. One distinction proposed by Staudinger (Staudinger & Kessler 2009) is between adjustment (i.e., fending off negative effects of negative events in order to regain or maintain subjective well-being) and growth (i.e., facing the negative and thereby being able to learn from negative events and gaining life-insight). In their lifespan model of resilience, Staudinger and colleagues define resilience, in the sense of adjustment, as one kind of developmental plasticity and distinguish it from growth as another kind of plasticity (Greve & Staudinger 2006; Staudinger et al. 1995). This definition of resilience is akin to the biological notions of homeostasis and allostasis. According to McEwen and Wingfield (2007), allostasis refers to the active process of achieving stability through change when faced with events that challenge the basic maintenance of functioning (i.e., homeostasis). Both concepts, homeostasis and allostasis, include the possibility of changing the functional set-points in order to adapt optimally to a changing environment. In this way, resilience can be considered as the basis for growth, including the setting of future goals that motivate behavior to change oneself and/or the environment in a way that promotes optimal development or even progress toward wisdom (Freund 2008; Staudinger & Kessler 2009).

Continuous positive reinterpretation of negative events might help a person to feel better, but also jeopardizes the veridicality of judgment. In other words, appraising challenging or threatening events as such (i.e., in a “negative” or realistic way) may be experienced as aversive but motivate a person to actively change the aspects of the situation/event or to acquire resources that will help him or her adapt successfully to the situation/event (Carver & Scheier 1998). Imagine a person who does not acknowledge the negative information of having been diagnosed with a malignant form of cancer. Exclusively appraising this situation as positive (e.g., as a message that highlights the value of life and to enjoy every moment of it), rather than also acknowledging that certain steps, even though aversive (e.g., undergoing chemotherapy), will have to be taken to cope with the life-threatening situation, might drastically shorten the person’s chances of actually beating the cancer. Or imagine (re)appraising the negative critique of your behavior by your partner as an expression of his or her insecurity, rather than facing the negative critique. The latter will motivate you to work toward changing your behavior that causes the partnership problems. In contrast, the former might upregulate your positive emotions and downregulate your negative emotions in the short run, but jeopardize the goal of maintaining a good relationship with your partner in the long run. In other words, resilience defined as the ability to maintain well-being and mental health in the face of daily hassles as well as more dramatic negative events might require acknowledging the negative in order to stay tuned with reality and change one’s behavior or the environment if necessary.

This view is consistent with the notion that emotional reactions, and in particular negative ones, serve as information that something in the person-situation-interaction requires to be changed (e.g., Clore & Storbeck 2006). Just appraising negative events differently (i.e., positive reframing) might in fact prevent such more active ways to change the situation or to acquire new resources or to extend one's behavioral repertoire in order to achieve a better person-environment fit.

Taken together, resilience defined as adjustment to negative events and resulting in stable mental health is likely to profit from positive reappraisals that help to maintain positive well-being, as assumed in the PASTOR model put forth by Kalisch and colleagues. We posit, however, that facing the negative—and, as a consequence, experiencing negative emotions—lies at the heart of the ability to adapt flexibly to one's environment, and thereby, to change oneself or one's environment in a way that promotes long-term resilience and serves as the basis for personal growth.

## Rethinking reappraisal: Insights from affective neuroscience

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**Abstract:** Kalisch et al. argue that appraisal and reappraisal are key mechanisms promoting resilience; however, experimental findings seem to contradict this simplistic view. We argue that a deeper look at affective neuroscience may provide complementary and stronger evidence on how emotional reactivity and emotion regulation may affect resilience.

In their target article, Kalisch et al. offer both a parsimonious theoretical approach to understanding the basic mechanism underlying resilience and a wide-ranging body of evidence in support of this position. A cornerstone of the paper is the theory of positive appraisal style as the key mechanism that buffers individuals from developing detrimental effects of stressors. Appraisal style is broken down into a set of three cognitive processes: (1) positive situation classification, (2) reappraisal, and (3) interference inhibition. The attempt to analyze resilient factors in terms of some simpler, underlying mechanisms is worthwhile and captures a portion of the variance in the measurement of resilience. We see two major problems in this approach, however, as it underestimates the role of emotional factors, on the one hand, and on the other, it overestimates the role of appraisal and reappraisal as the best and fundamental mechanisms in establishing resilience.

Appraisal theories rely on the simplistic assumption that events generate first appraisals and then emotional reactions, an assumption not supported by several neuroscientific studies of affect (see Panksepp & Biven 2012 for a discussion). Kalisch et al. downplay the role of basic emotional reactivity and regulation as important factors leading to resilience and readily jump to the “cognitive” side of resilience (appraisal and reappraisal mechanisms). Emotion, however, has a neurobiological primacy over cognition in terms of temporal dynamics (information is first received by subcortical emotional structures; see LeDoux 1998) and anatomical circuitry (direct links between perceptual systems and emotional structures; see Panksepp & Biven 2012).

From a developmental point of view (of great relevance when considering resilient mechanisms), it is now a matter of fact that

early in infant development, all animals are more dependent on the functions of lower emotional rather than higher cognitive brain structures (Chugani 1998). Early perturbations of such primary processes lead to their sensitization (Panksepp & Biven 2012) and late mental health problems (Heim et al. 2010), before cognition can have any (protective) role over the development of stress responses. These and other data point toward the direction of studying very basic emotional processes and basic (rather than high-level cognitive) regulation. Without a clear understanding of emotional reactivity and regulation, we can easily lose the focus of what really matters in terms of creating resilience.

Kalisch et al. claim that “reappraisal processes are particularly important in strongly aversive situations” (sect. 4.2.8, para. 3). Behavioral and neuroscientific evidence supports the idea that this strategy in the laboratory setting is effective in reducing psychological and physiological indexes of emotional reactions (Grecucci et al. 2013; Ochsner & Gross 2005). Extending these findings outside the laboratory, it was found that the frequency of use of reappraisal correlates with well-being and positive emotions (Gross & John 2003). This claim is in line with another set of observations coming from the clinical field, according to which there is a negative correlation between reappraisal and psychological disorders (Martin & Dahlen 2005). Such a pattern leads Kalisch et al. to propose that reappraisal is the key to wellness; however, such a conclusion simply is not justified by the available evidence. Not only does a correlation not mean causation, but at least three lines of evidence contradict this conclusion.

First, experiments in emotion-regulation choice, an emergent field that aims at understanding how we choose which strategy to adopt in a given situation (Sheppes et al. 2011), undermine the importance of reappraisal as a resilient mechanism. Sheppes and colleagues (2011) demonstrate that participants used reappraisal to regulate only low-intensity emotional stimuli, and used distraction for high-intensity stimuli. This result casts doubts on the use of reappraisal during stressful events that are by nature highly emotional. From a neurobiological point of view, experimental studies show a decrease in BOLD signal during induced emotional states in regions such as the prefrontal cortex (known to implement regulatory strategies) (Mayberg et al. 1999). Other studies demonstrate an inhibition of prefrontal cortex activity for emotional stimuli (Dolcos & McCarthy 2006). Hence, it may be unlikely that during highly emotional events reappraisal-based strategies may be fully available for regulating the experienced emotion.

Last but not least, from a developmental point of view, the evidence for the successful use of reappraisal as a regulation strategy is scant in children (DeCicco et al. 2014) and nonexistent in infants (for obvious reasons of immaturity of prefrontal regions necessary for reappraisal to happen). It follows that other protective emotion-regulation strategies may guarantee resilience in the face of early stressors.

Emotional reactivity and regulatory mechanisms (cognitive, but also experiential; see Grecucci et al. 2015) are keys to understand both pathological and resilient processes (Kring & Werner 2004; Tracy et al. 2014; Troy & Mauss 2011). We are very far, however, from a complete taxonomy of emotion-regulation strategies and from a sufficient knowledge of their efficacy, optimal frequency before becoming detrimental, short- and long-term effects, and other relevant variables.

To this end, a critical distinction should be made between functional and dysfunctional emotion-regulation strategies (F/DERS). DERS may be related to psychopathology; however, as pointed out by Alado and colleagues (2010), the relationship between emotion-regulation strategies and psychopathology is not linear, and varies as a function of type of strategies and type of psychopathology. When an emotion is elicited, self-regulatory mechanisms spontaneously reduce the emotional response. A failure in such regulation may be due not necessarily to the lack of FERS, but