negatively and, hence, feel ashamed, insecure, and worthless (Leary & Baumeister 2000). Such negative self-feelings, in turn, increase students’ risk for later depression and anxiety (Sovislo & Orth 2013). Brummelman et al. (2014a) designed a 15-minute intervention to prevent secondary-school students from seeing failure as a threat to their self-worth. Students reflected on times when they were accepted and valued by others unconditionally. One 14-year-old girl wrote: “I was working on a task with a friend of mine, and I made a lot of mistakes. But we are still good friends, and she still values me.” To encourage students to fully reflect on this experience, they were asked to describe it in great detail. Would this exercise imbue students with the feeling of being valued for who they are, even when they perform poorly (Rogers 1961)? Three weeks later, students received the first report card of the school year. Without intervention, students who received poor grades experienced increased negative self-feelings; with it, they did not. Thus, the intervention buffered students’ negative self-feelings in the face of distal academic failure.

How do seemingly small interventions yield effects that last weeks, months, or even years? The interventions do not shut people’s eyes to adversity. Nor do they simply remain accessible in people’s minds: the accessibility of messages wanes over time (Srull & Wyer 1979). Rather, the interventions set in motion self-sustaining processes, whereby small initial improvements compound over time (Cohen & Sherman 2014). When people are more confident about their belonging or their regard from others, they express more welcoming social behavior and thus build better relationships (Walton et al. 2014). These relationships, in turn, reinforce people’s confidence in their social standing.

Kalisch and colleagues emphasize the need for longitudinal research on resilience. Mere longitudinal studies are not always sufficient, however. Psychologist Walter Dearborn remarked, “If you want to understand something, try to change it” (in Bronfenbrenner 1979, p. 37). Longitudinal field experiments such as those described above go well beyond nonexperimental longitudinal studies. First, they provide a causal test of resilience mechanisms, and they reveal how these mechanisms unfold over time to affect outcomes. Second, they enable researchers to investigate how contextual factors (e.g., timing, setting) moderate intervention effects. Research shows that interventions can be more effective when timed early (Cook et al. 2012; Raudenbush 1984). Interventions to combat loneliness in school, for example, might be more effective on students’ first day of school than several days later, when students’ relationships with peers and teachers have become more fixed (Brummelman et al. 2014b).

Researchers and policy makers increasingly recognize the power of brief, stealthy, and psychologically precise interventions to improve people’s lives and society at large. Such “wise” interventions do not prevent adversity. Rather, they help people construe adversity in adaptive ways so as to promote growth and improvement. As such, they simultaneously provide a causal test of resilience mechanisms and bring about positive change in people’s lives.

Rediscing confidence as a mechanin and optimism as a construct

doi:10.1017/S0140525X14001484 e97

Charles S. Carver⁎,a and Michael F. Scheierc

⁎Department of Psychology, University of Miami, Coral Gables, FL 33124; aCenter for Advanced Study in the Behavioral Sciences, Stanford University, Stanford, CA 94305; bDepartment of Psychology, Carnegie Mellon University, Pittsburgh, PA 15213.
carver@umiami.edu scheier@cmu.edu http://www.psy.miami.edu/faculty/ccarver/ http://www.psy.cmu.edu/people/scheier.html

Abstract: The target article asserts that resilience results from a generalized tendency to appraise stressful circumstances positively. Apparently unbeknownst to the authors, essentially the same idea has been advanced before and studied extensively from a different research perspective. This raises a broader issue: the critical need, when projects attempt to span disciplines, to fully examine work from all relevant backgrounds.

Kalisch et al. conceptualize resilience as resistance to adverse outcomes during and after experiences of threat (for greater differentiation concerning resilience as a concept, see Carver 1998). They seek to identify a mechanism underlying resilience, as opposed to developing a list of variables that are associated with resilience. That is, although resilience is affected by many situational variables and individual difference variables, it almost certainly reflects functions that are fewer in number than the many variables that influence those functions.

Consistent with many other people, Kalisch et al. treat stress as being a product of a subjective appraisal of the likelihood and intensity of a bad outcome in a given situation, either acute or chronic. Further, they note that given the perception that an adverse outcome is likely, the more important the outcome is, the greater is the resulting stress (cf. Carver 1998; Carver & Scheier 1998, Ch. 13, 16). This is all very consonant with many existing theories.

The core of the target article is Kalisch et al.’s assertion that the key to resilience is a tendency to make relatively positive appraisals of potentially threatening stimuli (sect. 4.2.1). Positive appraisals result in less emotional distress, less hypothalamus-pituitary-adrenal (HPA) activity, and more productive coping of various sorts. Kalisch et al. put it succinctly: “If a person has a tendency to see things negatively, she will more frequently be in a negative emotional state, and therefore more likely develop stress-related dysfunctions” (sect. 4.2.2). We regard that as a very reasonable assertion (Carver & Scheier 1998).

In our view, although Kalisch et al. never used the word expectancy, a large share of what they describe as “appraisal style” – maybe all of it, actually – appears to be captured by the concept of generalized expectancies for good versus bad outcomes. We regard that as a very reasonable assertion (Carver & Scheier 1998).

From this point of view, then, the key to resilience would be generalized appraisals for positive versus negative outcomes from ongoing or upcoming life experiences. Confidence about outcomes would, in several respects, foster better results. Such a mechanism has a good deal to recommend it. Is it new? Are any existing constructs based on a similar mechanism? No, it is not new; and yes, there is a construct predicated on such a mechanism: It is termed optimism (Scheier & Carver 1985). It is based explicitly on the mechanism of generalized expectancies concerning life outcomes as an influence on diverse aspects of behavior. Over a period of nearly 30 years, it has been studied quite a lot, in relation to a great many emotional, coping, adaptational, and health outcomes (for reviews of various aspects of that literature, see, e.g., Boehm & Kubzansky 2012; Carver & Scheier 2014; Carver et al. 2010; Rasmussen et al. 2009; Segerstrom 2006).

Consistent with the reasoning that Kalisch et al. presented, but apparently completely unknown to them, a great deal of research has already shown that generalized optimism is associated with better emotional outcomes during stressful situations, more
adaptive profiles of coping with adversity, better adherence to health-promoting behaviors, lower frequencies of health-damaging behaviors, better life attainments, better social relations, and even better physical health (in several respects) over extended periods of time (Carver & Scheier 2014; Carver et al. 2010). Unfortunately, this considerable literature on the effects of generalized outcome expectancies was apparently unknown to either the authors or the reviewers of the target article.

This situation is unfortunate, and it illustrates a broader issue. A potential pitfall of multidisciplinary work, or of work that extends one discipline into a topic area that has been well explored by another discipline, is neglecting to consider the various constituencies and failing to review what they have already said. The target article clearly was more grounded in neuroscience and animal research than in human behavioral research and theory, and the failure to thoroughly examine the latter is a serious weakness.

Nonetheless, Kalisch et al. do add to the conceptual conversation. They emphasize that the appraisal processes are not fully conscious, and that they are fluid in operation (we agree with both points; these are ideas that, to our knowledge, have not been widely examined, and they should be). Kalisch et al. appear to be more interested in the neural circuits that support appraisal than in the subjective experience of appraisal, which presumably reflects their background in neuroscience. To their credit, they appropriately acknowledge that there often is a good deal of ambiguity about the meaning of neural activation (sect. 4.3.2). That is, in this case, there is ambiguity (among other ambiguities) about whether neural activation reflects appraisal contents or processes.

We are not as sanguine as they are about the prospects of gaining useful information about positive appraisals from neuroscience research or from animal research. But it is probably wisest to let a hundred flowers bloom and see what emerges. After all, it is widely known that positive appraisals are generally better than negative ones.

The challenges of forecasting resilience

doi:10.1017/S0140525X14001496, e98


Department of Psychology & Neuroscience, University of Colorado, Boulder, CO 80309.
luke.chang@colorado.edu
marianne.reddan@colorado.edu
jonathan.ashar@colorado.edu
hedwig.eisenbarth@colorado.edu
tor.wager@colorado.edu
http://cosanlab.com
http://wagerlab.colorado.edu

Abstract: Developing prospective models of resilience using the translational and transdiagnostic framework proposed in the target article is a challenging endeavor and will require large-scale data sets with dense intraindividual temporal sampling and innovative analytic methods.

Kalisch et al. present a thought-provoking translational and transdiagnostic framework for studying resilience. In this commentary, we apply their theoretical framework toward prospective prediction of resilient responses to negative life events. Prospective prediction is employed in many domains that depend on accurately forecasting a future state. For example, investors develop models to predict the future value of companies and markets, and epidemiologists develop models to predict the spread of disease. In the area of resilience, a well-formulated model should be able to both forecast the trajectory of an individual’s resistance and recovery and generalize across forms of psychopathology and contexts. Such models could transform the study of mental health, but it is not clear how close we are to developing them.

Here, we describe three conceptual challenges for applying Kalisch et al.’s model of resilience in a forecasting framework: (1) resilience is a process unfolding over time, not an outcome that can be measured at a discrete time point; (2) cognitive processes alone are unlikely to predict resilience accurately; and (3) low base rates pose a challenge to predictive accuracy. To help overcome these challenges, we will need studies with large, diverse samples and dense intraindividual temporal sampling.

1. Defining resilient outcomes. Kalisch et al. define resilience as the empirically observed absence of lasting mental health problems following adversity and propose that it can be operationalized as the change in mental health symptoms before and after an adverse event, with a slope of zero indicating a resilient outcome. But at which time points should such a slope be measured? As time passes after a stressful event, the likelihood of returning to a baseline measure becomes greater, increasing the apparent “resilience” independent of any characteristics of the individual. Alternatively, we could estimate the functional form, or shape, of symptom severity as it unfolds across time.

As resilience is likely a dynamic process reflecting multiple mechanisms operating on different timescales, modeling the temporal trajectory may be particularly amenable to identifying which mechanisms are involved. This endeavor will require dense sampling of intraindividual data across time and the application of emerging statistical techniques for modeling trajectories, such as functional data analysis (Lindquist & McKeage 2009).

2. Multiple resilient processes. Kalisch et al. adopt a predominantly cognitive view of resilience, proposing a fundamental role for positive appraisal style, which comprises three distinct intrapersonal processes: (1) the initial appraisal, (2) subsequent reappraisal, and (3) inhibiting alternative interfering appraisals. We agree that appraisal and reappraisal are critical (Wager et al. 2008); however, to develop accurate, generalizable models of resilience, we will likely need to incorporate a broader set of mechanisms, including interpersonal ones. Social support can attenuate negative affective responses (Coan et al. 2006; Master et al. 2009) and has been associated with positive long-term health benefits (House et al. 1988; Uchino et al. 1996). These processes are likely not fully describable in terms of intrapersonal appraisals, but rather will require models of bidirectional, interpersonal feedback loops (Butler & Randall 2013; Schilbach et al. 2013; Zaki & Williams 2013). For example, our feelings of happiness appear to be directly influenced by our peers and can propagate dynamically through our social network over time ( Fowler & Christakis 2008).

Therefore, as we move toward prospective models of resilience, it will be important to incorporate both intra- and interpersonal processes. Ensemble algorithms from statistical learning offer a promising approach to integrate multiple mechanisms into a single model (Hastie et al. 2009; Schapire 1990).

3. The base rate problem. One of the challenges of selecting training data for a predictive model is dealing with a very high base rate of resilient outcomes and an extraordinarily low base rate of significant negative life events on a daily basis. To make this more concrete, based on the lifetime prevalence of depression (Kessler et al. 2005), the probability of an individual not being depressed on a given day is roughly 99.99%. Using Bayes’ rule to combine this high base rate of not being depressed with a low frequency of significant traumatic life events (0.002%; Kessler et al. 1995) reveals a very low conditional probability that an individual will not be depressed given an adverse life event (less than 5%). Therefore, in the general population, resilience defined as a null change across time is actually the standard response, and it will be difficult to identify when true resistance to and recovery from adversity occurs (King & Zeng 2001; Weiss 2004).

To account for these statistical issues, trauma researchers typically have focused on examining resilience to shared traumatic events such as the collapse of the World Trade Center. Such an