

Focal Article

How Much Do We Really Know About Employee Resilience?

Thomas W. Britt
Clemson University

Winy Shen
University of Waterloo

Robert R. Sinclair
Clemson University

Matthew R. Grossman
University of South Florida and PricewaterhouseCoopers

David M. Klieger
Educational Testing Service

Past research purporting to study employee resilience suffers from a lack of conceptual clarity about both the resilience construct and the methodological designs that examine resilience without ensuring the occurrence of significant adversity. The overall goal of this article is to address our contemporary understanding of employee resilience and identify pathways for the future advancement of resilience research in the workplace. We first address conceptual definitions of resilience both inside and outside of industrial and organizational psychology and make the case that researchers have generally failed to document the experience of significant adversity when studying resilience in working populations. Next, we discuss methods used to examine resilience, with an emphasis on distinguishing the capacity for resilience and the demonstration of resilience. Representative research is then reviewed by examining self-reports of resilience or resilience-related traits along with research on resilient and nonresilient trajectories following significant adversity. We then briefly address the issues involved in selecting resilient employees and building resilience in employees. The article concludes with recommendations for future research studying resilience in the workplace, including documenting significant adversity among employees, assessing multiple outcomes, using longitudinal designs with theoretically supported time lags, broadening the study of resilience to people in occupations outside the military who may face significant adversity, and addressing the potential dark side of an emphasis on resilience.

Thomas W. Britt, Psychology Department, Clemson University; Winy Shen, Department of Psychology, University of Waterloo, Waterloo, Ontario, Canada; Robert R. Sinclair, Psychology Department, Clemson University; Matthew R. Grossman, Department of Psychology, University of South Florida, and PricewaterhouseCoopers, New York, New York; David M. Klieger, Educational Testing Service, Princeton, New Jersey.

Correspondence concerning this article should be addressed to Thomas W. Britt, Psychology Department, Clemson University, 418 Brackett Hall, Clemson, SC 29634. E-mail: twbritt@clemson.edu

Given the importance of resilience for the functioning of individuals, teams, and organizations, there has been growing interest in understanding the construct of resilience across all areas of psychology, as well as within the broader domain of organizational science. Unfortunately, with the growth of interest in resilience has come confusion regarding the conceptualization of resilience, as well as distinctions between the assessment and the antecedents of resilience. In addition, it is unclear whether commonly used methods in organizational stress research can facilitate the understanding of resilience among employees exposed to different types of work demands or traumas varying in frequency, intensity, and duration. For example, although hundreds of studies have examined moderators (e.g., self-reports of resilience, social support, job engagement) of the relationships between work stressors (e.g., role ambiguity, organizational constraints, workload) and various outcomes (e.g., mental health symptoms, physical health symptoms, performance; Barling, Kelloway, & Frone, 2005; Gilboa, Shirom, Fried, & Cooper, 2008), we argue that these studies tell us virtually nothing about employee resilience. Rather, these studies tell us about factors that are related to fluctuations in outcomes as a function of relatively low-level work stressors.

The purpose of this focal article is to review different definitions and approaches to studying resilience in order to recommend standard terminology and identify future research directions to facilitate progress in research and practice within industrial and organizational (I-O) psychology. Our goal is to prevent resilience from becoming a “quicksand term” that different people use in different ways or with different implied meanings (cf. Connell & Nord, 1996), which then hinders both incremental accumulation of scientific knowledge and identification of best practices. We first discuss the different ways resilience has been defined and assessed by researchers. We then turn to a discussion of the role of resilience in personnel selection and an analysis of training programs to build resilience. The article concludes with recommendations for future research to advance understanding of resilience among employees. Our focus in this article is on individual employee resilience rather than team or organization resilience.

Defining Resilience

Meredith et al. (2011) reviewed the broad literature on resilience and noted that prior researchers had offered 104 definitions of the construct. She noted that these definitions differed according to whether they emphasized (a) basic abilities possessed by the individual, (b) the ability to adapt to adverse events, and (c) the availability of documentation demonstrating positive changes after adversity. The Appendix contains a representative sampling of 10 definitions of resilience. Some definitions of resilience refer to

the construct as a capacity residing within individuals (Masten & Narayan, 2012), others as an ability of individuals to maintain stable functioning in the face of a highly stressful or traumatic event (Bonanno, 2004), and still others as reflecting growth and positive changes after an adverse event (Maguen, Vogt, King, King, & Litz, 2006).

One of the key themes across the various definitions of resilience is whether an individual must show growth or positive changes following a stressful event to be considered resilient. Although some definitions require positive growth, most simply require successful adaptation. This issue has been the subject of considerable controversy in the literature (see Frazier et al., 2009). Therefore, although we do not advocate for including positive growth as a requirement for resilience, in the section on directions for future research we recommend how researchers should incorporate growth into the study of resilience.

In addition to highlighting adaptation versus growth in defining resilience, these definitions also reflect the distinction between resilience represented as a capacity residing within the individual (or team or organization) and resilience represented as the demonstration of adaptation on an important outcome. Fikretoglu and McCreary (2012) noted that most definitions of resilience highlight an individual showing signs of positive adaptation after having gone through significant adversity. Britt, Sinclair, and McFadden (2013) therefore defined resilience as “the demonstration of positive adaptation in the face of significant adversity” (p. 6).

Figure 1 provides a descriptive model organizing research relevant to the study of resilience among employees in organizational settings. This model was created from the domains of resilience research identified in Meredith et al.’s (2011) literature review. The model begins with an employee’s response to significant adversity. In this article, we make an important distinction between the *capacity for* resilience and the *demonstration of* resilience. When discussing the capacity for resilience, researchers typically address the personal, familial, organizational, and community factors associated with the ability or likelihood of an individual showing positive adaptation in the face of significant adversity (Masten, 2001; Masten & Narayan, 2012). The demonstration of resilience refers to the documentation that individuals who have encountered significant adversity have exhibited positive adaptation (Bonanno, 2004). As we will see, researchers attempt to document the demonstration of resilience in multiple ways, including examining whether individuals demonstrate physical and psychological health in the months (and sometimes years) following exposure to significant adversity. In Figure 1 we provide multiple domains in which to examine the demonstration of resilience. The figure also contains a description of processes that

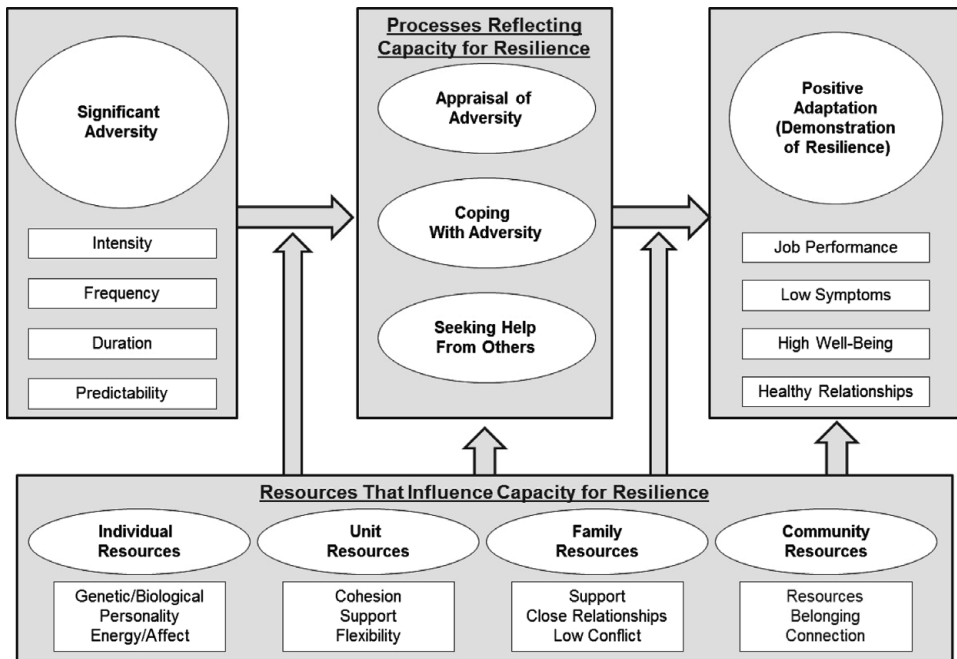


Figure 1. An Integrative Model of Resilience for Employees

have been examined as influencing the relationship between exposure and adaptation.

Fikretoglu and McCreary (2012) noted that prior researchers have been inconsistent in how they treat the two defining characteristics of demonstrating resilience: how “significant adversity” is quantified and what precisely is meant by “positive adaptation.” I-O psychologists face these same tasks when considering resilience at work. That is, researchers need to clarify what constitutes the experience of significant adversity at work and what constitutes positive adaptation to this adversity. We first consider what constitutes significant adversity at work.

In workplace research, adversity is typically studied by tracking exposure to workplace stressors such as those described earlier. Traumatic events that occur within the context of an occupation certainly constitute significant adversity. In addition, chronic exposure to particularly intense stressors, such as sexual harassment, abusive supervision, or physical stressors (e.g., extreme heat/cold or crowding), likely also represents significant adversity. However, we would argue that many of the traditional work stressors examined by organizational psychologists, including job ambiguity, work overload, and organizational constraints (Gilboa et al., 2008), do not constitute significant adversity, especially if these stressors are judged as not being present at a high intensity and/or for a long duration (see Brief &

Atieh, 1987). This does not mean that traditional work stressors do not have health implications but rather means that exposure to traditional work stressors may not constitute adversity in the context of resilience assessment. Stated differently, not all positive responses to stressful circumstances reflect resilience.

We argue that when studying employee resilience, researchers need to document the presence of stressors in the workplace that constitute significant adversity. Such documentation could occur through an analysis of objective features of the work environment (e.g., the presence of traumatic events, documented long work hours over an extended period of time, high levels of noise or crowded work conditions; Frese & Zapf, 1999) or through consistent employee reports of demands in the work environment that are judged to be of high intensity and/or of a long duration (e.g., multiple employee reports of sustained harassing/abusive supervisor behavior). One understudied population of employees for resilience research is first responders (e.g., police officers, firefighters, medical trauma teams), who are frequently exposed to significant adversity following disasters (see Benedek, Fullerton, & Ursano, 2007).

The second important task facing I-O psychologists studying resilience is specifying how “positive adaptation” is conceptualized for employees. Researchers studying resilience outside of organizational settings differ in the outcome measures used to assess positive adaptation. Researchers in clinical psychology typically focus on self-reports of mental health, with some studies including close-other reports of the target individual’s functioning or indices of positive psychological functioning (Bonanno, 2012). Researchers in developmental psychology typically study a broader range of outcomes as indicators of positive adaptation, including whether individuals meet milestones in social, emotional, and physical development as well as performance on competence-related tasks (Masten, 2001; Masten & Narayan, 2012).

I-O psychologists are well positioned to examine employee adaptation on multiple outcome measures, given their experience in the assessment of employee well-being and health, the broad domains of performance (i.e., task, contextual, and counterproductive), and the outcomes related to the work–family interface (e.g., work-to-family conflict). I-O researchers have examined how work-related stressors may be more predictive of some indicators of adaptation than others (e.g., stronger relationships are typically found with psychological distress than performance; Sonnentag & Frese, 2003) and how in some cases stressors do not show consistent relationships between indicators of adaptation. For example, in a recent meta-analysis, LePine, Podsakoff, and LePine (2005) found that the experience of challenge stressors (i.e., stressors that can be addressed through increased effort on

the part of the employee) was positively related to both strain and performance. Studies like these indicate that conceptualizing positive adaptation following adversity within organizational settings will require a more complex assessment of the dynamics and “tradeoffs” between different indicators of adaptation.

Assessing and Studying Resilience in Working Populations ***Personality-Based Conceptualizations of Resilience***

In this article, we conceptualize personality-based approaches of resilience as individual resources contributing to an individual’s capacity for resilience (see [Figure 1](#)). Personality-based resilience studies have drawn from at least three distinct conceptualizations of traits potentially related to resilience: (a) single trait models, which conceptualize resilience as a distinct trait; (b) composite trait models, which conceptualize resilience as a cluster of traits; and (c) all-inclusive taxonomies such as the five-factor model (FFM). Common characteristics of most of these models include the assumptions that (the capacity for) resilience is an individual-level characteristic, resilience is appropriately (if not optimally) assessed through self-reports, resilience varies along a continuum with high resilience at one end and vulnerability at the other, and resilience is a general quality (i.e., individuals demonstrate a relatively consistent level of resilience across multiple contexts). The models differ in their implicit and explicit assumptions about the extent to which one’s current level of resilience is malleable, the constituent parts of the resilience construct, and the extent to which resilience is synonymous with personality or is an outcome of personality-related processes. Space constraints prevent an in-depth review of each of these literatures, but we will offer illustrative examples of each approach.

Resilience as a unique personality trait. Some scholars conceptualize resilience as a unique characteristic, typically defined as one’s self-reported capacity to “bounce back” after stress. In the I-O literature, perhaps the most familiar example of this approach is resilience as a subcomponent of psychological capital (PsyCap). Luthans and colleagues describe PsyCap as an individual’s “positive psychological state of development composed of confidence/self-efficacy, optimism, hope, and resilience,” with resilience typically defined as the capacity to adapt “in the face of significant risk or adversity” (Luthans, Avolio, Avey, & Norman, 2007, pp. 542, 546). PsyCap is conceptualized as “state-like” rather than “trait-like,” meaning it is subject to change through intervention and, thus, potentially responsive to good management practices. A recent meta-analytic review supported positive links between PsyCap and health and well-being (Avey, Reichard, Luthans, & Mhatre, 2011), and some evidence supports the efficacy of PsyCap-focused interventions (Luthans, Avey, & Patera, 2008).

An important problem with defining resilience as the capacity to bounce back is that resilience is typically measured via self-reports (i.e., do people describe themselves as resilient). This approach does not directly assess why or how people differ in resilience, meaning that, for example, different people could bounce back quickly for different reasons. Moreover, much of the PsyCap literature combines the four constituent parts of psychological capital (i.e., self-efficacy, optimism, hope, and resilience) into a single overall measure, meaning the PsyCap literature does not directly inform an understanding of resilience (conceptualized as a malleable trait) or the psychological mechanisms leading to the ability to successfully adapt to stressors.

Resilience as a cluster of personality traits. A second personality-based approach to resilience conceptualizes resilience as a cluster of multiple traits (cf. Sinclair, Waitsman, Oliver, & Deese, 2013). Hardiness is perhaps the most familiar example of this research to I-O researchers. Hardiness is conceptualized as a cognitively oriented personality trait consisting of three characteristics that shape how people view events in their lives: commitment, control, and challenge (Kobasa, 1982; Maddi, Kahn, & Maddi, 1998). Commitment concerns the ability to find meaning and purpose in one's life and the accompanying belief that one's efforts and sacrifices are meaningful and valuable. Challenge reflects a tendency to interpret demanding events as opportunities for personal growth rather than as threats. Control reflects the belief that one is able to affect the world in positive ways through their actions (Bartone, 2005). Empirical research supports the role of hardiness in the stress-response process, including its incremental validity above and beyond FFM traits (Eschelman, Bowling, & Alarcon, 2010). In addition, like PsyCap, hardiness scholars view it as changeable through intervention, such as effective leadership (Bartone, 2006) or training programs (Maddi, 2007; Maddi et al., 1998).

The five-factor model approach to resilience. A third approach to resilience focuses on the dimensions of the FFM of personality (Costa & McCrae, 1992). Despite some critics, the FFM continues to be the most widely used framework of personality. Moreover, links of each FFM trait with health outcomes have been established in the literature, particularly for Neuroticism, Extraversion, and Conscientiousness (Sinclair et al., 2013). Meta-analytic summaries by Grossman (2014) and Eschelman et al. (2010) also support that each of the FFM traits is related to other measures of resilience. In fact, Grossman (2014) found that the FFM traits as a set accounted for almost all of the variance in self-report measures of resilience, and self-reports of resilience generally did not predict health and well-being outcomes (e.g., posttraumatic stress disorder and happiness) after accounting for relationships with FFM traits. Thus, evidence

suggests that dispositional characteristics are strong predictors of self-report measures of resilience and that these self-report measures of resilience may in fact be redundant with commonly assessed personality traits.

Critically evaluating the personality literature. Because dispositional measures of resilience typically rely on self-reports, they have several practical advantages, including being inexpensive and easy to administer as well as having a high degree of face validity and user acceptability. Typical predictive validity evidence for such measures centers on their ability to predict health outcomes, and all of the traits cited above are supported by at least some evidence linking them to health outcomes. As Bonanno (2012) notes, however, the proportion of variance explained by personality traits in health outcomes studies is typically quite small, meaning that even if one accepts a dispositional basis to resilience, many other factors may contribute to one's demonstration of positive adaptation to adverse circumstances.

Although some non-I-O literature includes studies of how personality traits influence the response to adversity (e.g., Bonanno, 2004), I-O studies typically have not studied exposure to adversity, in part because there are no clear criteria to define significant adversity for most work stressors. Thus, studies of personality as a moderator of the response to work stress likely do not include many workers exposed to adversity. Given that such research does not directly capture exposure to adversity, it is also questionable to what extent correlations between personality traits and health outcomes provide any information about *resilience*. Cross-sectional research designs amplify this problem because they introduce causal ambiguity in the personality–health outcome relationship (Bonanno, 2012). As Bonanno notes, some studies introduce even more conceptual confusion by using these same trait-based resilience measures as assessments for resilience as an outcome, leading to a focus on the study of the trait itself “divorced from the actual context of coping with extreme adversity” (p. 754).

The models reviewed above are illustrative of a much larger literature. Although a diversity of approaches can be healthy in sparking scientific progress, it can also be problematic. A significant problem is that studies of the various trait resilience models tend to be highly “siloe”; for example, researchers who study hardiness typically do not examine its relationship with PsyCap. Many of these models share common elements, such as a positive outlook on life, a self-perceived ability to interact effectively with one's environment, self-control, and emotional stability; the extent to which each model contributes unique conceptual content to the study of personality factors in adaptation is unclear. This suggests a need for further research directed at understanding the relationship between various traits

conceptualizations of resilience and the extent to which each model predicts above and beyond the others.

Resilience Trajectories

In contrast to the personality-based approach to studying resilience, which typically relies on self-reports of dispositional resilience, a second approach is using resilience trajectories. This approach is more prevalent in clinical and developmental psychology (e.g., Bonanno, 2004; Masten, 2001). Researchers employing this approach typically use longitudinal designs to examine how different individuals adapt to adversity over time. Thus, this approach is past rather than future oriented, first identifying individuals who are resilient (via their patterns on outcomes variables of interest) following a documented adverse event or events and then searching for factors that successfully differentiate between groups with different outcome trajectories.

Few studies have assessed employee trajectories in the face of significant adversity to examine the percentage of employees who are resistant or resilient in the face of intense work demands. Similarly, few studies have ensured that employees being examined were exposed to adversity that would be *expected* to negatively influence adaptation. One example of a program of research that has done so is work by Galatzer-Levy and colleagues on police officers. Galatzer-Levy, Madan, Neylan, Henn-Haase, and Marmar (2011) examined the general psychological distress of police officers at academy training and then again at 6, 12, 24, and 36 months later, whereas Galatzer-Levy et al. (2013) examined posttraumatic stress disorder (PTSD) symptoms of officers at academy training and then again at 12, 24, 36, and 48 months later. In both studies, the authors only included officers who had been exposed to at least one life-threatening event while on the force.

In both studies, the authors found that a resilient trajectory (characterized by officers who reported low symptom levels across the different time periods) was the most common trajectory (~80% of officers in both studies). Interestingly, although the two studies examined employees in the same occupation exposed to the same stressors, different numbers of trajectories were found in each study. Galatzer-Levy et al. (2011) found evidence for three trajectories: a resilient trajectory (88.1%), a trajectory of initially high distress followed by reduced levels of distress (10.1%), and a trajectory of moderate initial distress that increased over time (1.7%). Galatzer-Levy et al. (2013) found evidence for four trajectories underlying the symptoms, with the new trajectory involving symptoms initially increasing and then decreasing over time. Interestingly, in this second study, neither the number of personally life-threatening events encountered by the police officers nor a comprehensive assessment of work-related stressors for police

officers was related to trajectory membership. However, lower levels of baseline negative affect were associated with membership in the resilient trajectory condition.

A second example of the use of resilience trajectories in an employee sample comes from Bonanno et al. (2012), who examined PTSD symptoms among a large sample of military personnel before they deployed on a combat operation and then at two additional time periods 3 years apart. The authors found evidence for four trajectories: (a) a resilient trajectory characterized by low symptoms across the four time periods (~85%), (b) a trajectory characterized by high levels of symptoms across the three time periods (~2%), (c) a trajectory characterized by low levels of symptoms at baseline that increased over time (~5%), and (d) a trajectory characterized by moderate levels of initial symptoms that decreased over time (~8%). Surprisingly, a greater number of deployments were not associated with a lower likelihood of belonging to the resilient category. However, higher levels of combat exposure were associated with a lower likelihood of membership in the resilient trajectory. Similar results were found by Dickstein, Suvak, Litz, and Adler (2010) for U.S. soldiers deployed on peacekeeping missions.

Resilience researchers outside of I-O psychology have also examined trajectories of functioning following individuals exposed to chronic stressors such as poverty, parental mental illness, and war (Masten & Narayan, 2012). These researchers also examined what happens when individuals experience an end to the chronic stressor—does their functioning remain impaired or do they regain normal functioning? Bonanno and Diminich (2013) recently referred to the latter trajectory as “emergent resilience,” reflecting a return to normal functioning after going through sustained stressful conditions. No research we are aware of has examined the trajectories of functioning for employees who have been exposed to intense and chronic stressors after the stressors ended. However, such designs could be used in settings where employees have been exposed to chronically stressful work conditions and then encounter less demanding jobs or work conditions and are monitored to see how long it takes them to reach optimum functioning.

The study of resilience trajectories among employees exposed to what would be considered traumatic stressors has the advantage of clearly documenting exposure to significant adversity and also examining indices of adaptation over multiple time points following the adversity. Implicit in this approach are two assumptions: (a) Resilience is a categorical variable, and (b) time is an integral part of the resilience process. Following from these assumptions, some individuals are classified as resilient based on their pattern of adaptation over time, and others are not. This is also evident from the common use of person-centered methods (e.g., cluster analysis, latent class analysis) in this area (e.g., Bergman & Magnusson, 1997).

Although some researchers who study resilience trajectories examine how quickly or to what extent individuals “bounce back” from obstacles, other researchers have argued that this approach more accurately characterizes recovery rather than resilience; resilient individuals never need to “bounce back” because they never show any great decrement in functioning (Bonanno, 2004). This illustrates one issue that hinders work on resilience trajectories—what specific trajectory or trajectories are reflective of resilience? In contrast to Bonanno’s (2004) perspective, other researchers may consider individuals who recover more quickly from adversity than most as resilient, and still others may consider only individuals who demonstrate enhanced functioning postadversity (i.e., posttraumatic growth) as truly resilient. Furthermore, each particular “type” of resilience trajectory may have different and unique antecedents. The importance of considering appropriate outcomes in the study of resilience trajectories is addressed in the section on directions for future research.

Should Organizations Select for Resilience?

Individuals are increasingly evaluated for resilience as they progress through the educational system and eventually into the job market or military service (Dragow et al., 2012). Increased attention on resilience reflects a greater recognition among educators and employers that the development and retention of resilience must begin early, represents a lifelong activity, and is indispensable for educational and vocational success. For younger individuals, these assessments typically are used to provide formative feedback to students and institutions. At higher levels of education and in the workplace, they usually are used summatively for admissions, hiring, classification, and/or benefit decisions.

In vocational and military contexts, several measures of resilience exist, mainly for selection or classification. The WorkFORCE Assessment for Job Fit assesses “flexibility and resilience,” defined as “adjusting well to changing or ambiguous work environments, handling stress, accepting criticism and feedback from others, being positive even when facing setbacks” (Naemi, Seybert, Robbins, & Kyllonen, 2014, p. 37). It consists of lower order dimensions of stability (i.e., adaptability to diverse job requirements and schedules) and optimism (i.e., positive outlook; Naemi et al., 2014). The Tailored Adaptive Personality Assessment System (TAPAS), which was the original basis for the WorkFORCE Assessment for Job Fit, assesses a number of personality characteristics that appear to be related to resilience (i.e., adjustment: “well adjusted, worry free, and handle stress well”; achievement: “hard working, ambitious, confident, and resourceful”; self-control: “cautious, levelheaded, able to delay gratification, and patient”; and responsibility: “dependable, reliable, and make every effort to keep their promises”) and has been used for

enlistment screening at military enlistment processing stations for the U.S. Army and Air Force (Drasgow et al., 2012).

Organizations are clearly interested in and attempting to select for resilience. However, evidence for whether they *should* select for resilience and *how* to best select for resilience seems to be less clear, especially in jobs or situations where the likelihood of experiencing significant trauma or adversity is low. Many of these measures of resilience (or more accurately, contributors to the capacity for resilience) appear to be relatively new, and their ability to predict outcomes of interest is still emerging. In addition, most criterion measures to date used in validation efforts of these assessments are one-time measures; therefore, it is unclear whether these resilience assessments are able to predict positive adaptation in the future or other change-oriented outcomes, particularly in the face of significant adversity. It is also largely unknown whether these assessments of resilience are likely to result in group differences and, as a consequence, adverse impact. Generally, additional validation work is needed.

Given the conceptual ambiguity surrounding resilience, it is unclear whether these assessments truly assess capacity for resilience or whether they are old wine in new bottles. In particular, many of these assessments appear to measure aspects of FFM personality traits. These assessments also seem very similar to stress tolerance scales, which have long been used by I-O psychologists (Ones & Viswesvaran, 2001; though we note their ability to predict adaptation and well-being in the face of adversity is unclear). Therefore, even if these resilience assessments demonstrate criterion-related validity, it is unclear whether they will exhibit incremental validity above and beyond existing selection tools (e.g., personality inventories assessing the FFM traits). In addition, given that these resilience assessments differ from each other in both the number and the content of factors, convergence between different assessments of resilience is uncertain at best. Some assessments may be deficient in covering the construct space; others may be contaminated (i.e., tapping content other than resilience). It is critical that future work better delineate whether these assessments, in fact, assess resilience as well as their relationships with existing selection constructs and methods in order to determine their utility.

Building Resilience

Given the assumed importance of resilience in organizational settings, programs have been developed to increase the resilience of employees and military personnel. We briefly describe three programs (i.e., Hardiness Training, PsyCap Training, and Comprehensive Soldier Fitness) and then address whether these programs can be argued to affect resilience.

Hardiness Training

Maddi et al. (1998) developed an initial hardiness training program that “engages cognition, emotion, and action in coping effectively with stressful circumstances and uses the feedback from this process to deepen commitment and control and challenge beliefs about oneself in the world” (p. 79). The training program has evolved over the years into a multicomponent program referred to as *HardiTraining* (Khoshaba & Maddi, 2001). The training is typically conducted in small group sessions with a trainer who uses inspirational videos and examples, applied exercises, and individual narratives to reinforce the skills being developed. The training is structured according to five major areas: hardy coping, hardy social support, hardy relaxation, hardy eating, and hardy physical training, with the last three areas representing “self-care.”

Hardy coping is addressed by having employees describe the stressful conditions they are under and then learn three key skills: situational reconstruction (i.e., being able to place a stressful situation into a broader context to better understand the situation), focusing (i.e., being aware of information from the body to gain emotional insight), and compensatory self-improvement (i.e., being able to accept situations that cannot be changed and focusing improvement in areas that can be changed). Hardy support involves employees examining how they interact with important others and learning how to resolve conflicts and give and receive social support. In self-care, employees learn the importance of relaxation techniques, proper nutrition, and exercise for maintaining arousal at a level to be able to effectively cope with stressful work demands. Maddi et al. (1998) found that managers receiving *HardiTraining* showed an increase in self-report measures of hardiness and a decrease in reports of psychological and physical symptoms, compared with two other stress management conditions.

Psychological Capital (PsyCap) Training

Luthans and colleagues (Luthans et al., 2008; Luthans, Avey, Avolio, & Peterson, 2010) developed an online and in-person training program to increase the four components of *PsyCap* discussed above, all of which have been argued to promote adaptive responding to work-related stressors. The program encourages employees to consider situations at work where they are stuck and to think about factors in those situations they could change. The program also includes self-reflection exercises, where employees think about their past thoughts, behaviors, and emotions in different work situations and about how what they learned in the training session could facilitate their performance in future situations. To evaluate the online version of the program, employees received either the *PsyCap* program or a control program (a decision-making intervention of the same duration and with the

same multimedia components). The results showed that those employees in the PsyCap program reported an increase in their PsyCap scores from pre- to posttest, whereas the employees in the control program did not (Luthans et al., 2008). To evaluate the in-person version of the program, Luthans et al. (2010) obtained self-assessments of PsyCap and employee job performance before and after the intervention and also had managers rate the employee's performance a week before and after the intervention. The results revealed an increase in ratings of PsyCap following the intervention, as well as an increase in self-rated and supervisor-rated performance.

Comprehensive Soldier Fitness

Comprehensive Soldier Fitness (CSF) is a resilience training program developed by the U.S. Army to increase soldiers' ability to adaptively respond to the stressful demands of combat by being more emotionally and mentally fit prior to and following deployment (see Seligman & Fowler, 2011). CSF utilizes a strength-based approach to resilience, which is designed to resonate with military personnel whose organizational culture emphasizes resilience and high levels of performance under stress. CSF uses real-world examples from the soldier's work environment to illustrate adaptive and maladaptive ways of responding to stressful situations.

CSF has multiple components, each of which is designed to increase soldiers' emotional, social, family, and spiritual (i.e., meaning or purpose) fitness. The primary training component involves the development of Master Resilience Trainers (MRTs; Reivich, Seligman, & McBride, 2011), who are noncommissioned officers (NCOs) trained in resilience skills and who then train their soldiers on the use of these skills. MRTs attend a 10-day course composed of four modules where they learn skills that will allow them to develop competences in six different areas: self-awareness, self-regulation, optimism, mental agility, character strengths, and (social) connection.

Evaluation of CSF has been addressed in a series of technical reports. Lester et al. (2011) found that soldiers who were part of units that had NCOs who had completed MRT scored higher on indices of fitness than did soldiers in comparison units, though these positive effects were mainly driven by younger soldiers, who presumably lacked the life experiences or coping skills of older soldiers. There is also some evidence of reduced mental health diagnoses among soldiers in units with MRTs (Harms, Herian, Krasikova, Vanhove, & Lester, 2013).

Although CSF is based on scientific evidence for the efficacy of the skills being taught, the program has not been without its critics (Eidelson, Pilisuk, & Soldz, 2011; Krueger, 2011). Most of the criticisms have to do with the program being fully implemented before knowing whether MRT actually produces more resilient soldiers back in the unit; other concerns have been

raised about the meaning and appropriateness of the spiritual fitness dimension. It is worth noting that most training in the military does not go through full scientific testing before implementation, and there was no standardized resilience training developed at the time CSF was introduced.

Do These Training Programs Build Resilience?

Each of the resilience training programs reviewed provided some evidence for the effectiveness of the training. However, the evidence often involved improvements in health, well-being, or performance at a single point following the administration of the training. Fewer studies have examined the effectiveness of resilience training programs over time. In this way, these resilience training programs have been evaluated in a manner similar to other organizational stress management interventions (see Richardson & Rothstein, 2008). In fact, virtually all organizational stress interventions have the goal of having employees demonstrate positive adaptation in the face of work-related stressors, and these interventions target competencies that are similar to those targeted in interventions billed as “resilience promoting.”

Vanhove, Herian, Perez, Harms, and Lester (2015) recently conducted a meta-analysis of resilience training programs, making the same observation we did, which is that it is often difficult to tell the difference between resilience training and traditional stress management training programs. These authors evaluated 37 studies deemed resilience building. Overall, they found that there were small but significant immediate effects of these programs on performance and mental health outcomes, though these effects decreased over time. However, when the resilience training was targeted to employees in need, there was a trend for the effectiveness of the training to *increase* over time.

In addition to interventions that focus specifically on resilience, additional interventions that may affect resilience have been developed and assessed within groups of workers who respond to natural and man-made disasters. First responders to disaster situations are frequently faced with traumatic stressors that have the potential to negatively affect the psychological health of employees. Two interventions that have been targeted to these groups of employees are Psychological First Aid (PFA; Everly & Flynn, 2006) and Critical Incident Stress Management (CISM; Mitchell & Everly, 2000). PFA is designed to help employees provide a supportive and informational response to fellow employees who are showing signs of distress. CISM is a comprehensive set of approaches to allow groups of employees who have been through traumatic events (often encountered during disasters) to help employees process and respond adaptively to emotions created by the events. PFA is a more recent intervention, and although its recommendations are informed by prior research, the intervention itself has not received

extensive validation. CISM has been used since the mid-1980s in disaster-related settings, and evidence for the effectiveness of the intervention has been inconsistent (see Regel, 2007).

Given the distinction between the capacity for resilience and the demonstration of resilience offered in the present article, to our knowledge no resilience-building or related programs have shown that employees who participate in the program are actually more likely to demonstrate resilience when faced with future significant adversity. Providing this type of evidence would require employees being monitored posttraining to examine how they respond to significant adversity in the future. Once competencies such as hardiness, optimism, hope, and flexible coping strategies are linked to the demonstration of resilience, researchers who develop training programs that are shown to enhance these attributes would more convincingly be argued to be increasing the employee's capacity for resilience in the face of future adversity.

An Agenda for the Future of I-O Research and Practice on Resilience

The present review of the concept of resilience within I-O psychology highlights a number of critical issues that need to be addressed so that the research and practice community has a better understanding of what constitutes resilience, how to assess resilience, and what the predictors and consequences of resilience in the workplace are. In this final section we provide six recommendations for future research on the study of resilience in the workplace. Following these recommendations will help researchers generate a better understanding of resilience, which will result in more informed efforts to select for and build resilience in employees.

Recommendation 1: Stop Calling Everything Good Resilience

The largest obstacle to progress in the resilience literature is the use of the term resilience to refer to a wide range of positive attributes and processes that all have something to do with how people respond to stressful circumstances but share little else in common. Although this problem is not unique to the resilience literature, the consequences are nontrivial; they have the effect of creating research silos wherein researchers develop separate streams of research on similar (perhaps even the same) topics but where advances in one stream may not drive advances in another. A good example in the resilience literature is the separate streams of research that have emerged over time on PsyCap, core self-evaluations, and hardiness. Although these constructs have distinguishing features, they also share many conceptual similarities. Unfortunately, no published studies we are aware of have examined all three constructs simultaneously to determine whether they are empirically distinct and independently contribute to resilience-related

outcomes. The process of accumulating scientific knowledge about resilience is impeded by having multiple streams of research that investigate potentially redundant concepts with different labels and without efforts to integrate findings across streams.

Scholars can help address the terminology problem through stronger construct validation research aimed at developing a parsimonious nomological network of resilience constructs, particularly by focusing on identifying and resolving redundancies across multiple conceptual approaches. Practitioners can clearly describe the conceptual and empirical foundations for any programs they develop and demand such evidence from vendors prior to purchasing programs. We hope our discussion of the basic distinction between capacities for resilience and demonstration of resilience is a useful starting point for such efforts.

The most important problems probably pertain to sorting out the various qualities thought to indicate the capacity for resilience, particularly those in the personality domain. Further attention to the critical distinctions between various resilience-related trait models (as well as between these models and broader taxonomies, such as the FFM) would be an important first step in this effort. Researchers cannot simply pick their favorite trait model and study it in a vacuum without considering broader theoretical connections to other personality traits and models in the literature.

Recommendation 2: Clarify the Role of Time by Using Better Models and Research Designs

As we have discussed above, some studies have begun to focus on the demonstration of resilience as a specific trajectory of outcomes that can be distinguished from other trajectories following exposure to adversity. Given that resilience is fundamentally associated with adaptation processes, time is and should be intricately tied to the study of resilience. In order to enhance understanding of resilience, future researchers will need to build more sophisticated models of resilience that conceptualize resilience as a dynamic construct within a dynamic workplace system rather than the more simplistic causal models that currently dominate the field. This will be a challenging endeavor as temporal processes are currently a bit of a black box in I-O research; for example, temporal timelines of many organizational phenomena are largely unknown, and the use of different time lags for assessing outcome variables is currently more art than science.

Incorporating time into our study of resilience also has implications for the research designs employed. Researchers should primarily use longitudinal designs in studying employee resilience. Specifically, we recommend that (a) employees be assessed to establish baseline functioning as well as to gather information on relevant individual differences and contextual

factors, (b) significant adversity be documented (and, if possible, workers are tracked across multiple episodes of adversity), and (c) workers be assessed on multiple measures of positive adaptation at multiple time points postexposure to adversity (ideally in multiple domains; e.g., work, health, and family outcomes). This type of design could be particularly helpful in assisting researchers to link the two primary approaches to the study of resilience by establishing the relationship between trait measures, often self-reported, of resilience (i.e., capacity for resilience) and resilience trajectories (i.e., demonstration of resilience). Currently, it is unclear whether these two approaches are assessing the same underlying construct and what the degree of convergence is between these two methods of identifying resilient individuals.

Longitudinal designs can also help researchers to create more sophisticated theories and understanding of temporal issues in the study of resilience. For example, if speedier adaptation to adversity constitutes one type of resilience, then longitudinal designs will help establish how quickly most individuals adapt to different types of adversity in the workplace as well as what constitutes a quicker than usual pattern of adaptation. Furthermore, this type of benchmarking of the timeline of resilience or adaptation processes can be used to help evaluate the efficacy of resilience interventions, specifically, helping researchers to quantify, on average, exactly how much more quickly individuals who received the intervention return to baseline or the change in the proportion of individuals who never demonstrate any meaningful decrement in functioning or who demonstrate enhanced functioning compared with baseline.

Longitudinal designs, particularly when coupled with experimental procedures, will also be key in helping researchers to disentangle the temporal ordering of constructs. For example, the directional relationship between resources, broadly construed, and capacity for resilience and demonstration of resilience is currently fairly ambiguous—leading some researchers to include contextual factors (e.g., social support) as part of the construct of resilience itself. It could be that resilient individuals are more likely to seek out and gain valuable resources, leading to better outcomes; the presence of resources in one's work and personal life may build one's capacity for resilience or enhance the likelihood of demonstrating resilience; or there may be reciprocal relationships between the two domains. The current resilience literature is largely unable to speak to these issues due to the widespread use of cross-sectional designs. By tracking the co-occurrence and influence of correlates of capacity for resilience and demonstration of resilience over time, this approach can contribute to researchers' understanding of what constitutes the core of the resilience construct versus what constructs should be considered antecedents or outcomes.

Recommendation 3: Address the Resilience Criterion Problem

There is a need to clarify what outcomes researchers should focus on when studying resilience in the face of significant adversity and whether resilience trajectories across different outcomes will converge. Typically, prior research on resilience trajectories appears to have focused mostly on a single outcome (e.g., PTSD symptoms) or multiple psychological outcomes that tend to co-occur in an aggregate form (e.g., mental health–depression, anxiety, and social relationships and functioning). The study of resilience within the developmental science literature focuses on a wider range of outcomes, including meeting key developmental milestones in cognitive, social, emotional, and physical development (Masten, 2001).

In general, a wide variety of resilient outcomes have been assessed across studies, making it difficult to summarize and quantify this literature, because it is unclear to what extent these different outcomes are equivalent. Thus, it is somewhat uncertain whether the same individuals would be classified as resilient if different dependent variables were used. This concern will be particularly important as the study of resilience moves to the workplace, given the likely inclusion of additional domains of criteria. For example, will the same individuals be identified as resilient in the aftermath of adversity when looking at job performance as the criterion versus mental health? Should an individual only be classified as resilient if he or she demonstrates lack of impaired functioning across a number of domains (e.g., work functioning, family functioning, mental health, and physical health)? If so, what should be the key domains of focus? These are key questions that need to be addressed in order to move this field forward. Employees typically will protect their performance from being affected by significant work stressors, and they may be more likely to show mental health symptoms in the face of work demands (Sonnentag & Frese, 2003). Future research explicitly comparing the trajectories of functioning across different domains and explicitly modeling the tradeoffs that can occur regarding maintaining adaptation in one domain versus others is needed.

Recommendation 4: Consider the Possibility of Growing From Exposure to Significant Adversity at Work as a Distinct Trajectory From Resilience

As mentioned earlier in the article, there is a large amount of research outside of I-O psychology highlighting the benefits and growth that may result from being exposed to adversity. In fact, Masten and Narayan (2012) proposed “posttraumatic growth” as a distinct trajectory that can result from exposure to adversity. Although such a trajectory is possible, most researchers studying posttraumatic growth have assessed the construct by asking individuals to report on how a given traumatic event or significant stressor has changed them for the better (see Tedeschi & Calhoun, 1996). Critics of this

approach argue individuals are incapable of judging how much a given event has changed them and therefore a reported change may not be associated with an actual change (Frazier et al., 2009). These authors argue it is necessary to assess growth-related domains before and after traumatic events and to document the actual amount of change and predictors of those changes (see Marshall, Frazier, Frankfurt, & Kuijer, 2015, for an example). In the workplace, recent research on the distinction between challenge and hindrance stressors would suggest that high levels of challenge stressors might be more likely to be associated with growth related to self-confidence than with high levels of hindrance stressors (LePine et al., 2005). Furthermore, additional research is needed to examine to what extent the growth that may occur following significant adversity at work compensates for the harm done by the adversity (see Britt et al., 2015).

Although we recommend that researchers document the degree of actual change and its predictors rather than asking employees to report how they have changed when studying posttraumatic growth at work, this may be difficult in practice, given that many adverse events are not predictable. However, to the extent that these events occur during existing planned data collections, researchers may be able to capitalize on these situations (e.g., local and larger scale disasters or other adverse events) as a baseline from which to study resilience and posttraumatic growth among a larger population of individuals, including workers. For example, Fredrickson, Tugade, Waugh, and Larkin (2003) did so when the September 11th attacks occurred in the midst of their study on emotions, though their study did not focus on workers.

Recommendation 5: Expand the Population of Workers Among Whom We Study Resilience

Given the stressful conditions often endured by soldiers, it is not surprising that a significant portion of research on resilience among workers to date has been conducted in the military. Although military personnel are employees, given the strong and distinct organizational culture of military organizations and given that the stressors faced by military personnel may be rather unique, findings in this context may not always generalize to the broader working population. Therefore, we encourage future work on resilience to expand to include a wider cross section of workers and occupations in which significant adversity may be likely to occur. As discussed earlier, this may include first-response personnel in disaster situations (e.g., emergency responders and medical personnel) as well as workers who subsequently help to rebuild affected communities (e.g., builders and construction personnel), who are typically dealing with a “threat to life, health, property, or the environment” of such magnitude that it requires the assistance of individuals

outside the local community (Reissman, Kowalski-Trakofler, & Katz, 2011, pg. 340).

Another population that may be a fertile ground for I-O psychologists to study resilience is workers who are precariously employed. Indicators of precarious employment include temporary employment with a fixed end date, self-employment (but do not employ others; e.g., truck drivers, freelance writers), uncertain or unpredictable work schedules, irregular or variable wages, inconsistent or shifting work hours, and lack of benefits (Poverty Employment Precarity in Southern Ontario [PEPSO], 2015). A recent report suggests that although precarious work is generally associated with lower income, many middle class households also fall prey to precarious work and its negative consequences (PEPSO, 2015). Given that data to date suggest that it may be difficult to extract oneself from precarious employment, we propose that precarious employment likely constitutes significant adversity for a substantial portion of workers.

Recommendation 6: Recognize the Dark Side of Emphasizing Resilience in the Face of Significant Adversity

Although resilience research holds great promise for improving how employees respond to adversity, we urge caution with regard to an unquestioned focus on resilience in organizations. Adler (2013) has discussed this issue extensively in the military context, referring to what she labeled as the “shadow side to resilience” (p. 227). Adler argues that a strong emphasis on resilience could potentially send a message stigmatizing lack of resilience as a character flaw. Stigmatizing resilience-related problems can discourage employees from seeking help in the same way that organizational climate can discourage employees from reporting injuries or abusive treatment (Britt & McFadden, 2012). Adler notes that when resilience is stigmatized it also may encourage employees to further mistreat those with health problems. Such a focus also may encourage employees to blame themselves for their problems or fail acknowledge when they have serious problems, both of which can further limit their efforts to obtain needed help. One possible solution to these concerns is resilience-related training programs that directly address stigma-related issues as part of the training, an area in which the U.S. military has already done some work (e.g., Adler, Bliese, McGurk, Hoge, & Castro, 2009).

A second concern raised by Adler and others (e.g., Eidelson et al., 2011; Krueger, 2011) is that by focusing all efforts on enhancing resilience, this may inadvertently lead organizations to reduce their focus on changing the environment to reduce exposure to adversity. This issue has long been recognized in occupational health scholarship, where a focus on personal characteristics as an antecedent to occupational health can be construed as “blaming the victim” for the consequences of exposure to work-related adversity. Of

course, few, if any, resilience-related issues can be neatly reduced to attributions of blame solely to workers or solely to the work environment, but a focus on individual characteristics should in no way be used to absolve organizations for aspects of job design, work hazards, or leadership that promote ill-health or serve as adversity to workers. Rather, what is needed is research that clearly describes whether and how both personal and environmental factors contribute to resilience.

Conclusions

In this focal article we have attempted to set parameters for the study of resilience in the workplace, encouraging organizational researchers to document the presence of significant employee adversity and to study the adaptation of employees on different outcome measures over multiple time periods. Such an approach will allow organizational researchers to quantify the percentage of employees who demonstrate resilience under different types of significantly adverse work conditions as well as determine those personal, organizational, familial, and community factors that distinguish employees who demonstrate resilience versus other patterns of adaptation. As determinants of the demonstration of resilience in employees are uncovered, practitioners and researchers will have a better understanding of the most important attributes to select for and develop in order to maximize employees' capacity for resilience.

Finally, at different points in this article we have noted that most studies examining moderators of the stressor–outcome relationship should not be viewed as addressing the determinants of resilience in employees (unless they document the presence of significant adversity). It is worth noting that most of the authors of these studies did not specifically claim to be studying resilience *per se*. However, the term resilience often appears in studies of organizational stress, typically without a clear definition of what constitutes the construct. Furthermore, even if the term resilience is not used, authors studying moderators of the stressor–outcome relationship are frequently not specific about the limits of particular buffers regarding the magnitude of the stressor examined or the duration of their effectiveness. We believe that greater care needs to be paid to these important questions in order to further our collective goal of creating and maintaining healthy and productive workers and organizations. It is our sincere hope that the future study of resilience will contribute to this goal.

References

- Adler, A. B. (2013). Resilience in a military occupational health context: Directions for future research. In R. R. Sinclair & T. W. Britt (Eds.), *Building psychological resilience in*

- military personnel: Theory and practice* (pp. 223–235). Washington, DC: American Psychological Association.
- Adler, A. B., Bliese, P. B., McGurk, D., Hoge, C. W., & Castro, C. A. (2009). Battlemind debriefing and battlemind training as early interventions with soldiers returning from Iraq: Randomization by platoon. *Journal of Consulting and Clinical Psychology, 77*, 928–940.
- Avey, J. B., Reichard, R. J., Luthans, F., & Mhatre, K. H. (2011). Meta-analysis of the impact of positive psychological capital on employee attitudes, behaviors, and performance. *Human Resource Development Quarterly, 22*, 127–152.
- Barling, J., Kelloway, E. K., & Frone, M. R. (Eds.). (2005). *Handbook of work stress*. Thousand Oaks, CA: Sage.
- Bartone, P. T. (2005). The need for positive meaning in military operations: Reflections on Abu Ghraib. *Military Psychology, 17*, 315–324.
- Bartone, P. T. (2006). Resilience under military operational stress: Can leaders influence hardiness? *Military Psychology, 18*, S131–S148.
- Benedek, D. M., Fullerton, C., & Ursano, R. J. (2007). First responders: Mental health consequences of natural and human-made disasters for public health and public safety workers. *Annual Review of Public Health, 28*, 55–68.
- Bergman, L. R., & Magnusson, D. (1997). A person-oriented approach in research on developmental psychopathology. *Development and Psychopathology, 9*, 291–319.
- Bonanno, G. A. (2004). Loss, trauma, and human resilience: Have we underestimated the human capacity to thrive after extremely aversive events? *American Psychologist, 59*, 20–28.
- Bonanno, G. A. (2012). Uses and abuses of the resilience construct: Loss, trauma, and health-related adversities. *Social Science & Medicine, 74*, 753–756.
- Bonanno, G. A., & Diminich, E. D. (2013). Annual research review: Positive adjustment to adversity—Trajectories of minimal-impact resilience and emergent resilience. *The Journal of Child Psychology and Psychiatry, 54*, 378–401.
- Bonanno, G. A., Mancini, A. D., Horton, J. L., Powell, T. M., LeardMann, C. A., Boyko, E. J., . . . Smith, T. C. (2012). Trajectories of trauma symptoms and resilience in deployed U.S. military service members: Prospective cohort study. *The British Journal of Psychiatry, 200*, 317–323.
- Brief, A. P., & Atieh, J. M. (1987). Studying job stress: Are we making mountains out of molehills? *Journal of Occupational Behaviour, 8*(2), 115–126.
- Britt, T. W., Herleman, H. A., Odle-Duseau, H. N., Moore, D., Castro, C. A., & Hoge, C. W. (2015). *How the potential benefits of high intensity work stressors may partially offset their costs*. Manuscript submitted for publication.
- Britt, T. W., & McFadden, A. C. (2012). Understanding mental health treatment seeking in high stress occupations. In J. Houdmont, S. Leka, & R. Sinclair (Eds.), *Contemporary occupational health psychology: Global perspectives on research and practice* (pp. 57–73). Hoboken, NJ: Wiley-Blackwell.
- Britt, T. W., Sinclair, R. R., & McFadden, A. C. (2013). Introduction: The meaning and importance of military resilience. In R. R. Sinclair & T. W. Britt (Eds.), *Building psychological resilience in military personnel: Theory and practice* (pp. 3–17). Washington, DC: American Psychological Association.
- Connell, A. F., & Nord, W. (1996). Uncertainty and values to the rescue. *Journal of Applied Behavioral Science, 32*, 445–454.

- Costa, P. T., & McCrae, R. R. (1992). *Revised NEO Personality Inventory (NEO-PI-R) and NEO Five-Factor Inventory (NEO-FFI) professional manual*. Odessa, FL: Psychological Assessment Resources.
- Dickstein, B. D., Suvak, M., Litz, B. T., & Adler, A. B. (2010). Heterogeneity in the course of posttraumatic stress disorder: Trajectories of symptomatology. *Journal of Traumatic Stress, 23*, 331–339.
- Dragow, F., Stark, S., Chernyshenko, O. S., Nye, C. D., Hulin, C. L., & White, L. A. (2012). *Development of the Tailored Adaptive Personality Assessment System (TAPAS) to support Army selection and classification decisions* (United States Army Research Institute for the Behavioral and Social Sciences Technical Report No. 1311). Fort Belvoir, VA: U.S. Army Research Institute for the Behavioral and Social Sciences.
- Eidelson, R., Pilisuk, M., & Soldz, S. (2011). The dark side of Comprehensive Soldier Fitness. *American Psychologist, 66*, 643–644.
- Eschelman, K. J., Bowling, N. A., & Alarcon, G. M. (2010). A meta-analytic examination of hardiness. *International Journal of Stress Management, 17*, 277–307.
- Everly, G. J., & Flynn, B. W. (2006). Principles and practical procedures for acute psychological first aid training for personnel without mental health experience. *International Journal of Emergency Mental Health, 8*(2), 93–100.
- Fikretoglu, D., & McCreary, D. R. (2012). *Psychological resilience: A brief review of definitions, and key theoretical, conceptual, and methodological issues* (Technical Report 2012-012). Toronto, Ontario, Canada: Defense R&D.
- Frazier, P., Tennen, H., Gavian, M., Park, C., Tomich, P., & Tashiro, T. (2009). Does self-reported posttraumatic growth reflect genuine positive change? *Psychological Science, 20*, 912–919.
- Fredrickson, B. L., Tugade, M. M., Waugh, C. E., & Larkin, G. R. (2003). What good are positive emotions in crisis? A prospective study of resilience and emotions following the terrorist attacks on the United States on September 11th, 2001. *Journal of Personality and Social Psychology, 84*(2), 365–376.
- Frese, M., & Zapf, D. (1999). On the importance of the objective environment in stress and attribution theory. Counterpoint to Perrewé and Zellars. *Journal of Organizational Behavior, 20*, 761–765.
- Galatzer-Levy, I. R., Brown, A. D., Henn-Haase, C., Metzler, T. J., Neylan, T. C., & Marmar, C. R. (2013). Positive and negative emotion prospectively predict trajectories of resilience and distress among high-exposure police officers. *Emotion, 13*(3), 545–553.
- Galatzer-Levy, I. R., Madan, A., Neylan, T. C., Henn-Haase, C., & Marmar, C. R. (2011). Peritraumatic and trait disassociation differentiate police officers with resilient versus symptomatic trajectories of posttraumatic stress symptoms. *Journal of Traumatic Stress, 24*, 557–565.
- Gilboa, S., Shirom, A., Fried, Y., & Cooper, C. (2008). A meta-analysis of work-demand stressors and job performance: Examining main and moderating effects. *Personnel Psychology, 61*, 227–271.
- Grossman, M. R. (2014). *Clarifying the nature of resilience: A meta-analytic approach* (Unpublished master's thesis). University of South Florida, Tampa, FL.
- Harms, P. D., Herian, M. N., Krasikova, D. V., Vanhove, A., & Lester, P. B. (2013). *The Comprehensive Soldier and Family Fitness Program Evaluation: Report 4. Evaluation of resilience training and mental and behavioral health outcomes*. Unpublished technical report. Retrieved from <http://digitalcommons.unl.edu/cgi/viewcontent.cgi?article=1009&context=pdharms>

- Khoshaba, D. M., & Maddi, S. R. (2001). *HardiTraining*. Irvine, CA: Hardiness Institute.
- Kobasa, S. C. (1982). The hardy personality: Toward a social psychology of stress and health. In G. S. Sanders & J. Suls (Eds.), *Social psychology of health and illness* (pp. 3–32). Hillsdale, NJ: Erlbaum.
- Krueger, J. (2011). Shock without awe. *American Psychologist*, 66, 642–643.
- LePine, J. A., Podsakoff, N. A., & LePine, M. A. (2005). A meta-analytic test of the challenge stressor-hindrance stressor framework: An explanation for inconsistent relationships among stressors and performance. *Academy of Management Journal*, 48, 764–775.
- Lester, P. B., Harms, P. D., Bulling, D., Herian, M., Beal, S. J., & Spain, S. M. (2011). *The Comprehensive Soldier Fitness Program Evaluation: Report 3. Longitudinal analysis of the impact of master resilience training on self-reported resilience and psychological health data*. Unpublished technical report. Retrieved from <http://digitalcommons.unl.edu/cgi/viewcontent.cgi?article=1128&context=publicpolicypublications>
- Luthans, F. (2002). The need for and meaning of positive organizational behavior. *Journal of Organizational Behavior*, 23, 695–706.
- Luthans, F., Avey, J. B., Avolio, B. J., Norman, S. M., & Combs, G. M. (2006). Psychological capital development: Toward a micro-intervention. *Journal of Organizational Behavior*, 27(3), 387–393.
- Luthans, F., Avey, J. B., Avolio, B. J., & Peterson, S. J. (2010). The development and resulting performance impact of positive psychological capital. *Human Resource Development Quarterly*, 21, 41–67.
- Luthans, F., Avey, J. B., & Patera, J. L. (2008). Experimental analysis of a web-based training intervention to develop positive psychological capital. *Academy of Management Learning & Education*, 7, 209–221.
- Luthans, F., Avolio, B., Avey, J. B., & Norman, S. M. (2007). Positive psychological capital: Measurement and relationship with performance and satisfaction. *Personnel Psychology*, 60, 541–572.
- Maddi, S. R. (2007). Relevance of hardiness assessment and training to the military context. *Military Psychology*, 19, 61–70.
- Maddi, S. R., Kahn, S., & Maddi, K. L. (1998). The effectiveness of hardiness training. *Consulting Psychology Journal: Practice and Research*, 50, 78–86.
- Maguen, S., Vogt, D. S., King, L. A., King, D. A., & Litz, B. T. (2006). Posttraumatic growth among Gulf War I veterans: The predictive role of deployment-related experiences and background characteristics. *Journal of Loss and Trauma: International Perspectives on Stress & Coping*, 11, 373–388.
- Marshall, E. M., Frazier, P., Frankfurt, S., & Kuijer, R. G. (2015). Trajectories of posttraumatic growth and depreciation after two major earthquakes. *Psychological Trauma: Theory, Research, Practice, and Policy*, 7(2), 112–121.
- Masten, A. S. (2001). Ordinary magic: Resilience processes in development. *American Psychologist*, 56, 227–238.
- Masten, A. S., & Narayan, A. J. (2012). Child development in the context of disaster, war, and terrorism: Pathways of risk and resilience. *Annual Reviews of Psychology*, 63, 227–257.
- Matos, P. S., Neushotz, L. A., Griffin, M. Q., & Fitzpatrick, J. J. (2010). An exploratory study of resilience and job satisfaction among psychiatric nurses working in inpatient units. *International Journal of Mental Health Nursing*, 19(5), 307–312.
- Meredith, S., Sherbourne, C., Gaillot, S. J., Hansell, L., Ritschard, H. V., Parker, A. M., & Wrenn, G. (2011). *Promoting psychological resilience in the U.S. military*. Santa Monica, CA: RAND Corporation.

- Mitchell, J. T., & Everly, G. J. (2000). Critical incident stress management and critical incident stress debriefings: Evolutions, effects and outcomes. In B. Raphael, J. P. Wilson, B. Raphael, & J. P. Wilson (Eds.), *Psychological debriefing: Theory, practice and evidence* (pp. 71–90). New York, NY: Cambridge University Press.
- Naemi, B., Seybert, J., Robbins, S., & Kyllonen, P. (2014). *Examining the WorkFORCE Assessment for Job Fit and core capabilities of FACETS* (ETS Technical Report RR-14-32). Princeton, NJ: Educational Testing Service.
- Ones, D. S., & Viswesvaran, C. (2001). Integrity tests and other criterion-focused occupational personality scales (COPS) used in personnel selection. *International Journal of Selection and Assessment*, 9, 31–39.
- Poverty Employment Precarity in Southern Ontario. (2015). *The precarity penalty: The impact of precarity on individuals, households, and communities—and what to do about it*. Retrieved from <http://pepso.ca/2012/12/15/precariety-penalty/>
- Regel, S. (2007). Post-traumatic support in the workplace: The current status and practice of critical incident stress management (CISM) and psychological debriefing (PD) within organizations in the UK. *Occupational Medicine*, 57(6), 411–416.
- Reissman, D. B., Kowalski-Trakofler, K. M., & Katz, C. L. (2011). Public health practice and disaster resilience: A framework integrating resilience as a worker protection strategy. In S. M. Southwick, B. T. Litz, D. Charney, & M. J. Friedman (Eds.), *Resilience and mental health: Challenges across the lifespan* (pp. 340–358). New York, NY: Cambridge University Press.
- Reivich, K., Seligman, M. E. P., & McBride, S. (2011). Master resilience training in the U.S. Army. *American Psychologist*, 66, 25–34.
- Richardson, K. M., & Rothstein, H. R. (2008). Effects of occupational stress management intervention programs: A meta-analysis. *Journal of Occupational Health Psychology*, 13, 69–93.
- Seligman, M. E. P., & Fowler, R. D. (2011). Comprehensive Solider Fitness and the future of psychology. *American Psychologist*, 66, 82–86.
- Sinclair, R. R., Waitsman, M., Oliver, C. M., & Deese, N. (2013). Personality and psychological resilience in military personnel. In R. R. Sinclair & T. W. Britt (Eds.), *Building psychological resilience in military personnel: Theory and practice* (pp. 21–46). Washington, DC: American Psychological Association.
- Sonnentag, S., & Frese, M. (2003). Stress in organizations. In W. C. Borman, D. R. Ilgen, & R. J. Klimoski (Eds.), *Comprehensive handbook of psychology: Vol. 12. Industrial and organizational psychology* (pp. 453–491). Hoboken, NJ: Wiley.
- Tedeschi, R. G., & Calhoun, L. G. (1996). The posttraumatic growth inventory: Measuring the positive legacy of trauma. *Journal of Traumatic Stress*, 9, 455–471.
- Tedeschi, R. G., & Kilmer, R. P. (2005). Assessing strengths, resilience, and growth to guide clinical interventions. *Professional Psychology: Research and Practice*, 36(3), 230–237.
- Vanhove, A. J., Herian, M. N., Perez, A. U., Harms, P. D., & Lester, P. B. (2015). Can resilience be developed at work? A meta-analytic review of resilience-building programme effectiveness. *Journal of Occupational and Organizational Psychology*. Advance online publication. doi:10.1111/joop.12123
- Winwood, P. C., Colon, R., & McEwen, K. (2013). A practical measure of workplace resilience: Developing the Resilience at Work Scale. *Journal of Occupational and Environmental Medicine*, 55(10), 1205–1212.

Appendix

Different Definitions of Resilience Found in the Literature

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1. “the ability of adults in otherwise normal circumstances who are exposed to an isolated/and potentially highly disruptive event . . . to maintain relatively stable, healthy levels of psychological functioning” (Bonanno et al., 2004, p. 20)
 2. “a relatively stable personality trait characterized by the ability to bounce back from negative experience and by flexible adaptation to the ever-changing demands of life” (Fredrickson et al., 2003, p. 367)
 3. “when beset by problems and adversity, sustaining and bouncing back and even beyond (resiliency) to attain success” (Luthans et al., 2006, p. 388)
 4. the “positive psychological capacity to rebound, to ‘bounce back’ from adversity, uncertainty, conflict, failure, or even positive change, progress and increased responsibility” (Luthans, 2002, p. 702)
 5. “growth and positive life changes that may result from exposure to traumatic incidents” (Maugen et al., 2006, p. 373)
 6. “a class of phenomena characterized by good outcomes in spite of serious threats to adaptation or development” (Masten, 2001, p. 228)
 7. “Resilience can be defined as the capacity of a dynamic system to withstand or recover from significant challenges that threaten its stability, viability, or development” (Masten & Narayan, 2012, p. 231)
 8. “a positive outcome resulting from the experience of adversity” (Matos et al., 2010, p. 307)
 9. “effective coping and adaptation in the face of major life stress” (Tedeschi & Kilmer, 2005, p. 231)
 10. “[Resilience is] the process of negotiating, managing, and adapting to significant sources of stress or trauma. Assets and resources within the individual, their life and environment facilitate the capacity for adaptation and “bouncing back” in the face of adversity” (Winwood et al., 2013, p. 1205)
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