Conservation of Resources Theory: Its Implication for Stress, Health, and Resilience

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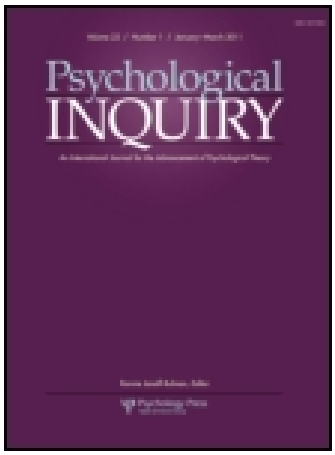

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Expanding the Science of Resilience: Conserving Resources in the Aid of Adaptation

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In considering resilience to stress there are several key organizing principles that will aid both research and understanding. Understanding resilience is critical to illumination of the stress process, be it for purposes of research, policy, or intervention. Bonanno, Romero, and Klein (this issue) provide an excellent review of thinking on resilience and delineate several key foci that require future attention. In particular, Bonanno et al. (this issue) aid the study and understanding of resilience by outlining the temporal elements of resilience. They also insightfully push the focus of resilience beyond just the individual level, to the level of the family and community. In their paper, they state that their "elemental approach provides a ready framework for integrating the various meanings of psychological resilience into a single unfolding process."

What we think can further guide this field is the introduction of several key constructs that help describe key organizing principles about resilience that map out the critical *constructs* and *processes* that characterize resilience. To be clear, many of these concepts have been discussed in some form by Bonanno in his seminal work on resilience (Bonanno, 2004; 2005; Bonanno, Galea, Bucciarelli, & Vlahov, 2006; Bonanno, Brewin, Kaniasty & La Greca, 2010), or have been spurred on our part by considering his thoughts and studies of resilience carefully (Hobfoll, 2011). However, we think we have mined, refined, and polished some of the ideas in a way that may further contribute to the field. Together with the contributions of Bonanno et al. (this issue), these might aid the advancement of knowledge on withstanding major and traumatic stressors and recovery in the face of major and traumatic stressors.

Introducing Additional Key Constructs of Resilience

That resilience is many things to many people is not surprising, nor a problem. To the extent that resilience is a process that stands in contrast to psychopathology or breakdown, it must have many facets. What is important is to clearly define what aspect of the resilience process or resilience outcomes a particular clinical intervention, study, or paper is examining. Drawing from diverse fields inside and outside of psychology will allow us to develop a comprehensive and universal approach to the study of resilience (Panter-Brick, 2014). Just as the terms related to stress were borrowed from the physics of metals (called materials science), we can turn to this same domain to better understand the properties of resilience (see Table 1). This exercise can do much to expand our horizons as to what we are looking for and what we are looking at when we examine resilience in humans and their habitats. One might argue that these terms are confusing, and we do not need more terms in an already confusing domain. But the point here is that just as in the case of the physics of metals, it would be the lack of these terms that make the field pre-scientific and conceptually immature.

In the physics of metals,

- **Resilience** is defined as the "ability of a material to absorb energy when deformed elastically and to return it when unloaded." (Key to Metals AG, 2001)

Likewise human resilience is the ability of people or their social systems (e.g., community, organization, society) to withstand the impact of major or traumatic stress, meaning that they remain functional or unharmed on some deep lasting level. Then we would expect them to return to their pre-stressor state when that stressor ends. We must be cognizant of the fact that just as in the case of metals, we are always referring to relative resilience, i.e., relative to the pre-stressor state, as described by Bonanno et al. (this issue). Resilience, however, becomes confusing as a stand-alone construct, so we offer several other constructs from material sciences and adapt them to humans and our understanding of resilience processes.

- **Toughness**. Another helpful term from materials science is "toughness," which is defined as the ability of a material "to absorb energy in the plastic range." (Key to Metals AG, 2001)

Table 1. *Definitions of Stress and Resilience Terms Borrowed From Materials Science.*

Construct for Psychosocial Study of Stress	Source in Material Science	Definition
Stress (also referred to as stressor)	Stress	The force applied from an external source.
Strain	Strain	The negative impact of a stressor on an individual or human system
Resilience	Resilience	The ability of individuals or human systems to absorb stressors and return to their original state when that stressor is lifted without creating permanent damage or harm.
Toughness	Toughness	The ability of individuals or human systems to remain functional when under stress, that is before the stressor is removed or appreciable time has elapsed for longer term adaptation to occur.
Resistance to Breakdown	Tensile Strength	The ability of individuals or human system to withstand a stressor without breakdown. A relatively less tough individual might be resistant to breakdown to a greater or lesser extent than a relatively tougher individual.
Plasticity	Ductile Strength	The ability of humans or human systems to undergo change in form (personality or social structure) without breakdown.

So, with humans, and their social systems, toughness refers to the relativity of resilience. By the "plastic range" we mean with humans that they remain functional during this period. Some individuals may be resilient in terms of their ability to recover, but might show appreciable harm or dysfunction when still experiencing the stressor. They would be seen as less tough, and we think this could be a good term to adopt in this form, just as the term resilience was itself directly adopted from materials science.

- **Tensile Strength**. A third critical concept is the "tensile strength" which is "the resistance of a material to a force tending to tear it apart, measured as the maximum tension the material can withstand without tearing." In humans, this aspect of resilience might be better referred to as ***resistance to breakdown***. (Antonovksy, 1979)

In humans and their systems, we would be aided in our understanding of resilience by this concept of resistance to breakdown. Specifically, whether an individual or social system can withstand a major or traumatic stressor, they may be harmed in some irrevocable or at least difficult to treat manner at some point. This is the concept of "breakdown" that Antonovsky (1979) referred to in his study of concentration camp survivors.

Tensile strength, or **resistance to breakdown** as we offer here, is a specific attribute of resilience, as some people or social systems may be relatively unharmed up to a point, but then experience the "straw that breaks the camel's back" effect. For example, parents of a child with a major illness may withstand the acute stress of having a critically ill child, but then may divorce—system breakdown. Likewise, Fullilove (2004) has discussed the concept of *root shock* to describe the destruction of African American neighborhoods that have been so reduced as to make recovery difficult. That this root shock occurred in large part through the process of "urban renewal," it can be seen that African American communities underwent severe harm in order that non-ethnic communities had healthier habitats.

- **Ductile strength**. Finally, ductile strength is the ability to undergo change in form without breaking. In humans we might call this aspect of resilience, ***plasticity***.

Ductile strength is sometimes discussed in the trauma literature when we discuss post-traumatic growth (PTG). When PTG occurs, individuals

undergo changes and these changes aid their resilience when experiencing the traumatic events or in their wake. But people and systems may change and be shaped by the stress process in both subtle and substantive ways that do not necessarily signal growth. Further, the change implied in ductile strength, or human placticity, is multifaceted. Not all aspects of the self, the family, the organization, or the community recover at the same speed, some never do, some become inflexible, cracks remain. Is the new whole robust and under what circumstances?

Applying these constructs to humans and the environments that they inhabit is instructive. Resilience is the ability of people, families or communities to withstand stressors and to return to their pre-stressor state when that stressor ends. Just as in physics, this is a relative construct, as the return to a fully unharmed or unchanged state is an ideal point that may be achieved relatively. The idea of toughness evokes other human patterns. Your steel car jack is tough, but once bent cannot be returned to its original shape. In contrast, your car tire is less tough, but has high ductile strength. It bounces back after each bump in the road. So, the question arises, is a rubber tire more resilient than the steel car jack? The answer is that it depends on which quality you are desiring. The rubber tire has high ductile strength, but lower tensile strength and lower toughness. Steel makes for a terrible tire, however.

The point is that we need to expand our terminology to describe these concepts so that we can develop a range of important hypotheses about the qualities of resilience and how they function in response to different types of load. Bonanno and colleagues (this issue) take a critical step by outlining temporal processes of resilience. However, without terms to illustrate and describe resilience, our ability to test predictive models of resilience is limited. For example, it is possible that a combination of toughness and plasticity would offer the greatest benefits as this allows individuals, families, and communities to meet and adapt to a variety of stressful situations. Alternatively, it may be more important for resilience characteristics to match the specific situational load. These examples illustrate how a more nuanced and meaningful study of resilience can emerge from expanding our definitions of resilience characteristics.

Resilience Processes Informed by Principles of COR Theory

To apply these resilience concepts to humans and their systems, it is helpful to further understand that humans and therefore their social groups also have the potential for growth and regeneration on the cellular, personal, social, and societal level. Resilience is not a static phenomena, it is something that can be built or diminished over time. Hence, the concept of speed of recovery and regrowth or regeneration following stress must be considered and is an enormously powerful capacity. Adding to this, because humans can aid each other, a strong individual, family members, or group can share resources to restore the capacity of another individual, family, or social group which is under "load."

Principle 1. *Resilience is first and foremost a property of environments that are A) rich in personal, social, material, and energy resources, B) allow access to those resources, and C) provide safety and protection against resource loss and promote resource growth. These environmental circumstances can be understood within the construct of what we have called caravan passageways. Caravan passageways are the environmental conditions that support, foster, enrich, and protect the resources of individuals, families, and organizations, or that detract, undermine, obstruct, or impoverish people's resource reservoirs (Hobfoll, 2012, p. 229).*

Because psychologists most typically study individuals, their lens focuses on individuals and ignores this critical aspect of context. Together with Bonanno (Hobfoll, Mancini, Hall, Canetti, & Bonanno, 2011), we have found that the prevalence of resilience, as it is typically studied by Bonanno and others, is greatly overestimated in areas of high level violent conflict. That is, a much greater percent of the population show high levels of psychological distress and physical illness in severe, chronic stress circumstances. As many studies have pointed out, in contrast, those who live within resource rich and stable environments have high rates of resilience even when faced with significant short-term, or single episode, life adversity.

Individuals and families develop and maintain their resource caravans, or fail to develop and maintain them, mainly out of circumstances that are beyond their and their families' control. When people live within enriched and stable caravan passageways, they have fertile ground to develop and to inherit richer arrays of resources. Education, physical safety, wealth, and an environment that rewards effort, are mainly inherited by nature of where one is born and lives. It is environments that provide physical safety, good schools, wealth or relative wealth, safe leisure activities, non-toxic environments, the availability of good employment, first-class medicine, the degree of crowdedness, clean water, the availability of playgrounds, or green spaces. These resources are not something that are so much chosen, or earned, as given.

In the real-estate world, this is often referred to as "location, location, location." The average listing price of a home in one of the best neighborhoods

within Chicago on this date (12-2-14) was $1,080,201. At the same date, the city of Chicago was selling unsold, abandoned lots in the worst neighborhoods for $1 (Sfondeles, 2014). The upscale, high resourced neighborhood has low crime, excellent schools, excellent shopping, safe leisure activities, and excellent police protection. The best neighborhoods in Chicago have an unemployment rate of 5.2%, 2% crowded housing, per capita income of $87,000, and 13% poverty rate. The worst neighborhood in Chicago has 55.5% living below the poverty line, 40% unemployment, and per-capita income of just $9,016. If you live in the worst neighborhoods in Chicago you have only about a 50% chance of graduating high school, versus 97.5 % in the best neighborhood (City of Chicago 2012).

How caravan passageways become confused with individual resilience is illustrated more easily for health than mental health statistics, as these are better kept by public health departments. In Memphis Tennessee, for example, the five-year breast cancer mortality rate for non-Hispanic African American women was 44.3% versus 21% for non-Hispanic White women for the period 2005–2009. Said another way, White women were about twice as resilient to breast cancer than African American women. This cannot be substantively attributed to African American race, as at least 5 major American cities have five-year survival rate parity for breast cancer for White and African American women (Hunt, Whitman, & Hurlbert, 2014).

Phelan and Link (2005) refer to this as "fundamental cause." "When we develop the ability to control disease and death, the benefits of this newfound ability are distributed according to resources of knowledge, money, power, prestige, and beneficial social connections" (p. 29). It is notable that these same resource factors are related to mental health as well, and it is only because resilience studies in psychology have focused on the individual level that they miss the point of fundamental cause in understanding resilience. As such, Bonanno et al., (this issue) encouragement to focus on resilient environments is timely and instructive.

Next, Bonanno et al. (this issue) underscore the importance of developmental trajectories. Again, COR theory might be instructive on this issue.

Principle 2. *The resources required for resiliency are acquired and aggregate across the lifespan (Hobfoll, 2012). This means that, over time, those in resource rich environments are likely to accumulate resource gains and those in resource poor environments are likely to accumulate resource losses*.

Resilience develops as a product of growing up in a healthy, protected environment and having secure loving attachments. One major reason the disparity between those in protected environments and non-protected environments expands is that protective effects occur across time, and those in non-protected environments are exposed to multiple traumas and major stressors. Seen on a lifespan level, among U.S. children and adolescents, between 33 and 66% of youth who are exposed to trauma will experience multiple traumas (Copeland, Keeler, Angold, & Costello, 2007; Finkelhor, Ormrod, Turner, & Hamby, 2005). These traumas tend to accumulate in number and have an increasingly negative impact into adulthood (Ford & Courtois, 2013; Layne, Briggs, & Courtois 2014). As Turner and Turner (2005) found, social status, early adversity, personal and social resources and mental disorder are the key determinants of the build-up of life-long stress, or the relative protection from major and traumatic stressful events.

The accumulation of resources over time is highlighted by the fact that over-arching resilience constructs assess a multitude of resources. For example, Kobasa (1979) developed the concept of hardiness, which consists of 1) a strong sense of commitment, 2) an attitude of vigorousness toward the environment, 3) a sense of meaningfulness, and 4) an internal locus of control. Similarly, Antonovsky, developed the concept of sense of coherence. Studying concentration camp survivors, he found that 29% of the survivors were not emotionally impaired. Because Antonovsky was more culturally inclusive than most Western social scientists, his sense of coherence concept is more generalizable to East vs. West, or individualistic vs. collectivist culture. Specifically, he suggested that many people in the world, likely the majority, are not individualistic and do not expect a personal locus of control. Rather, sense of coherence has three components: 1) a belief that the world is comprehensible, meaning it is ordered an understandable, 2) manageability, meaning a belief that you have the skills or ability, the support or help, or the resources necessary to take care of life challenges, and 3) meaningfulness, which he felt was the belief that life is worthwhile and has purpose. These relationships extend along the life course and into old age. A study of older adults found sense of coherence to be correlated above .50 with self-esteem, self-efficacy, and dispositional optimism (Weismann, Nieharster, & Hannich, 2009). Moreover, self-esteem, self-efficacy, and optimism are highly interrelated (Scheier, Carver, & Bridges, 1994; Zalta & Chambless, 2012). This means that it is most common to find individuals with arrays of resources. Indeed, it is hard to conceive of having one without the others.

Another way to look at this issue is to view the characteristics of resilient people that have been considered for formation of resilience scales. Sense of commitment, engagement of support, close and secure attachments, self-efficacy, sense of control, action orientation, flexibility, optimism, being goal directed are frequently named (Connor & Davidson,

2003; Kobasa, 1979; Rutter, 1985; Lyons, 1991). The Connor-Davidson (2003) resilience scale reports a Chronbach's alpha of .89, which suggests a high degree of consistency across items. Indeed, only the faith-based items had low item-reliability and so internal consistency of remaining items would be even higher. This suggests that these characteristics are co-travelers and tend to aggregate or fail to aggregate as a set.

Principle 3. *The accumulation of resource losses is more rapid and powerful than the accumulation of resource gains over time. These losses and gains build on themselves in what are known as loss and gain spirals*.

COR theory posits and research supports that resource poor environments greatly undermine resilience. According to COR theory, the accumulation of resource losses is more powerful and rapid than the accumulation of equivalent resource gains (Hobfoll & Lilly, 1993). This means that events that cause severe resource loss will greatly undermine resilience building. Moreover, initial resource losses increase the likelihood of additional loss, further obstructing resilience building. This would especially be the case until a rich resilience reservoir of protective resources has been built (Ennis, Hobfoll, & Schröder, 2000). By contrast, gains are slow moving and take a lot of energy to create. This means that building resilience is necessarily a developmentally slow process and one that is quite difficult without resource rich passageways.

Research studies have shown that resource loss is a stronger predictor of psychological outcomes than resource gains in a variety of samples including pregnant women (Wells et al., 1999), inner city women (Hobfoll et al., 2003), and survivors of Hurricane Katrina (Zwiebach et al., 2010). In a particularly illustrative example of the comparative impact of loss and gain spirals, Littleton and colleagues (2009) prospectively examined 193 college women enrolled at Virgina Tech during the time of the mass shooting. Results showed that resource losses at 2-months post-shooting were stronger predictors of 6-month post-shooting distress than resource gains at 2-months post-shooting. This is consistent with COR theory's principle that losses are more damaging than gains are salutary. Additionally, pre-shooting lack of resources predicted resource loss at 2-month post-shooting, supporting the concept that those lacking in resources are more vulnerable to loss. Finally, resource loss at 2-months post-shooting predicted further resource loss at 6-month post-shooting and resource gain at 2-months post-shooting predicted further resource gain at 6-month post-shooting, providing evidence for the concept of loss and gain spirals. The fact that resources have an asymmetric and compounding impact on the potential for resilience building is critical for understanding resilience processes.

Remaining Key Issues

Bonanno et al.'s (this issue) insights also evoke several key questions that can be applied from this work and Bonanno's past multifold contributions. A key question that remains as to whether resilience outcomes and resilience processes are the mirror opposite of pathological processes or outcomes, or whether they are in some ways qualitatively different. Experience from our research has found the same factors that predict psychopathology and ill-being in reverse predict resilience outcomes and to characterize resilience processes (Hobfoll et al., 2012). This supports the mirror image model. However, we do not find that enough research has examined this question and it is ripe for meta-analysis.

However, there is also a problem with the study of the mirror-image question that gets to the heart of where resilience research might wish to go. Specifically, most research on resilience has sampled from the pool of concepts and constructs that were developed to study psychopathology, psychological distress, and physical illness. This might not be as much of an issue as one might think, because the search for protective factors has dominating much of the distress and disease literature in the stress domain for decades. Still, it is an area that begs exploration. Certainly the treatments that would be applied to treat psychological distress, mental illness, and physical disease are different than the interventions that would build strength, resilience and health, and work has already begun toward resilience building in terms of mental and physical health (e.g., Sood, Schroeder, Varkey, 2011; Parks & Schueller, 2014; Prince-Embury & Saklofske, 2014).

Relating to Bonanno et al.'s (this issue) call for research on family and community resilience, there is actually a wealth of research on family resilience and a robust literature on this domain (e.g., Black & Lobo, 2008; Benzies & Mychasiuk, 2009; Saltzman, Lester, Beardslee, Layne, Woodward, & Nash, 2011). In contrast, research on what Iscoe (1974) called the "competent community," or what S. Sarason referred to in his discussion of psychological sense of community and community strength are good starting points, but with little research support. Perhaps most instructive on this topic is the work of Moos (2002). Moos asserted that there exists several basic dimensions that characterize healthy and unhealthy communities: 1) level of involvement and social cohesion, 2) how much people help and support one another, and 3) how allow expression of feelings and

emotions (including positive and negative emotions), and 4) how they maintain order and organization (e.g., clarity of roles, control of behavior, organizational structure) in that context. Over dozens of studies, Moos developed a multifaceted system of studying community resilience, derived from these basic dimensions, and any study of resilience on the community level has a rich foundation in his work.

Much has already been gained by the clarion call to study resilience which perhaps was initiated by Bruno Bettleheim and Viktor Frankl, and re-energized and greatly empirically advanced by Bonanno, including in this issue. We have attempted to addend this work by adding several additional concepts that characterize human resilience. These include toughness, resistance to breakdown, and plasticity. Finally, we suggest that COR theory has already developed several principles related to resilience that are key to our understanding of the journey people make when they endure major and traumatic stressors. These evoke a more ecological picture of resilience and provide many testable hypotheses and so may be a more valuable heuristic where previous research has left gaps. Overall, we hope that we have done justice to Bonanno et al.'s (this issue) and earlier contributions (Bonanno, 2004; 2005; Bonanno, Brewin, Kaniasty & La Greca, 2010; Bonanno, Galea, Bucciarelli, & Vlahov, 2006).

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References

Antonovsky, A. (1979). *Health, stress, and coping*. San Francisco: Joseey-Bass.

Benzies, K., & Mychasiuk, R. (2009). Fostering family resiliency: A review of the key protective factors. *Child & Family Social Work*, *14*(1), 103–114. http://dx.doi.org/10.1111/j.1365-2206.2008.00586.x

Black, K., & Lobo, M. (2008). A conceptual review of family resilience factors. *Journal of Family Nursing*, *14*(1), 33–55. http://dx.doi.org/10.1177/1074840707312237

Bonanno, G. A. (2004). Loss, trauma, and human resilience: Have we underestimated the human capacity to thrive after extremely aversive events? *American Psychologist*, *59*(1), 20–28. http://dx.doi.org/10.1037/0003-066x.59.1.20

Bonanno, G. A. (2005). Resilience in the face of potential trauma. *Current Directions in Psychological Science*, *14*(3), 135–138. http://dx.doi.org/10.1111/j.0963-7214.2005.00347.x

Bonanno, G. A., Brewin, C. R., Kaniasty, K., & La Greca, A. M. (2010). Weighing the costs of disaster: Consequences, risks, and resilience in individuals, families, and communities. *Psychological Science in the Public Interest*, *11*(1) 1–49. http://dx.doi.org/10.1177/1529100610387086

Bonanno, G. A., Galea, S., Bucciarelli, A., & Vlahov, D. (2006). Psychological resilience after disaster: New York City in the aftermath of the September 11th terrorist attack. *Psychological Science*, *17*(3), 181–186. doi:10.1111/j.1467-9280.2006.01682.x

City of Chicago (2012). Census data: Selected socioeconomic indicators in Chicago, 2008–2012. City of Chicago Data Portal. Retrieved from: https://data.cityofchicago.org/Health-Human-Services/Census-Data-Selected-socioeconomic-indicators-in-C/kn9c-c2s2

Connor, K. M., & Davidson, J. R. (2003). Development of a new resilience scale: The Connor-Davidson resilience scale (CD-RISC). *Depression and Anxiety*, *18*(2), 76–82. http://dx.doi.org/10.1002/da.10113

Copeland, W. E., Keeler, G., Angold, A., & Costello, E. J. (2007). Traumatic events and posttraumatic stress in childhood. *Archives of General Psychiatry*, *64*(5), 577–584. http://dx.doi.org/10.1001/archpsyc.64.5.577.

Ennis, N., Hobfoll, S. E., & Schröder, K. E. E. (2000). Money doesn't talk it swears: How economic stress and resistance resources impact inner-city women's depressive mood. *American Journal of Community Psychology*, *28*, 149–173.

Finkelhor, D., Ormrod, R., Turner, H., & Hamby, S. (2005). The victimization of children and youth: A comprehensive, national survey. *Child Maltreatment*, *10*(1), 5–25. http://dx.doi.org/10.1177/1077559504271287

Ford, J. D., & Courtois, C. A. (Eds.). (2013). *Treating complex traumatic stress disorders in children and adolescents: Scientific foundations and therapeutic models*. New York, NY: Guilford Press.

Fullilove, M. T. (2004). *Root shock: How tearing up city neighborhoods hurts America, and what we can do about it*. New York: Ballantine.

Hobfoll, S. E. (2011). Conservation of resources theory: Its implication for stress, health, and resilience. In S. Folkman (Ed.), *The Oxford handbook of stress, health, and coping* (127–147). New York: Oxford University Press.

Hobfoll, S. E. (2012). Conservation of resources and disaster in cultural context: The caravans and passageways for resources. *Psychiatry: Interpersonal and Biological Processes*, *75*(3), 226–231. http://dx.doi.org/10.1521/psyc.2012.75.3.227

Hobfoll, S. E. (2014). Resource caravans and resource caravan passageways: A new paradigm for trauma responding. *Intervention*, *12*(Supplement S1), 21–32. http://dx.doi.org/10.1097/WTF.0000000000000067

Hobfoll, S. E., Johnson, R. J., Canetti, D., Palmieri, P. A., Hall, B. J., Lavi, I., & Galea, S. (2012). Can people remain engaged and vigorous in the face of trauma? Palestinians in the West Bank and Gaza. *Psychiatry*, *75*(1), 60. http://dx.doi.org/10.1521/psyc.2012.75.1.60

Hobfoll, S. E., Johnson, R. J., Ennis, N., & Jackson, A. P. (2003). Resource loss, resource gain, and emotional outcomes among inner city women. *Journal of personality and social psychology*, *84*(3), 632. http://dx.doi.org/10.1037/0022-3514.84.3.632

Hobfoll, S. E., & Lilly, R. S. (1993). Resource conservation as a strategy for community psychology. *Journal of Community Psychology*, *21*(2), 128–148. http://dx.doi.org/10.1002/1520-6629(199304)21:2<128::AID-JCOP2290210206>3.0.CO;2-5

Hobfoll, S. E., Mancini, A. D., Hall, B. J., Canetti, D., & Bonanno, G. A. (2011). The limits of resilience: Distress following chronic political violence among Palestinians. *Social Science and Medicine*, *72*(8), 1400–1408. http://dx.doi.org/10.1016/j.socscimed.2011.02.022

Hunt, B. R., Whitman, S., & Hurlbert, M. S. (2014). Increasing Black: White disparities in breast cancer mortality in the 50 largest cities in the United States. *Cancer epidemiology*, *38* (2), 118–123. doi:10.1016/j.canep.2013.09.009

Iscoe, I. (1974). Community psychology and the competent community. *American Psychologist*, *29*(8), 607–613. http://dx.doi.org/10.1037/h0036925

Key to Metals AG (2001, March). Resilience. *Total Materia: The World's Most Comprehensive Materials Database*. Retrieved from http://www.keytometals.com/page.aspx?ID=CheckArticle&site=kts&NM=41

Kobasa, S. C. (1979). Stressful life events, personality, and health: An inquiry into hardiness. *Journal of Personality and Social Psychology*, *37*(1), 1–11. http://dx.doi.org/10.1037//0022-3514.37.1.1

Layne, C. M., Briggs, E. C., & Courtois, C. A. (2014). Introduction to the special section: Using the Trauma History Profile to unpack risk factor caravans and their consequences. *Psychological Trauma: Theory, Research, Practice, and Policy*, *6*(S1), S1.

Littleton, H. L., Axsom, D., & Grills-Taquechel, A. E. (2009). Adjustment following the mass shooting at Virginia Tech: The roles of resource loss and gain. *Psychological Trauma: Theory, Research, Practice, and Policy*, *1*(3), 206. http://dx.doi.org/10.1037/a0017468

Lyons, J. A. (1991). Strategies for assessing the potential for positive adjustment following trauma. *Journal of Traumatic Stress*, *4*(1), 93–11. http://dx.doi.org/10.1007/bf00976011

Moos, R. H. (2002). The mystery of human context and coping: An unraveling of clues. *American Journal of Community Psychology*, *20*(1), 67–88. http://dx.doi.org/10.1097/00044067-199511000-00013

Panter-Brick, C. (2014). Health, Risk, and Resilience: Interdisciplinary Concepts and Applications. *Annual Review of Anthropology*, *43*, 431–438. http://dx.doi.org/10.1146/annurev-anthro-102313-025944

Parks, A.C., & Schueller, S. M. (Eds.). (2014). *Handbook of positive psychology interventions*. Wiley-Blackwell.

Phelan J. C., & Link B. G. (2005). Controlling disease and creating disparities: A fundamental cause perspective. *The Journals of Gerontology: Psychological Sciences and Social Sciences*, *60* (Special Issue 2): 27–33. http://dx.doi.org/10.1093/geronb/60.Special_Issue_2

Prince-Embury, S., & Saklofske, D. H. (Eds.). (2014). *Resilience Interventions for Youth in Diverse Populations*. New York: Springer.

Rutter, M. (1985). Resilience in the face of adversity: Protective factors and resistance to psychiatric disorder. *British Journal of Psychiatry*, *147*(6), 598–661. http://dx.doi.org/10.1192/bjp.147.6.598

Saltzman, W. R., Lester, P., Beardslee, W. R., Layne, C. M., Woodward, K., & Nash, W. P. (2011). Mechanisms of risk and resilience in military families: Theoretical and empirical basis of a family-focused resilience enhancement program. *Clinical Child & Family Psychology Review*, *14*, 213–230. http://dx.doi.org/10.1007/s10567-011-0096-1

Scheier, M. F., Carver, C. S., & Bridges, M. W. (1994). Distinguishing optimism from neuroticism (and trait anxiety, self-mastery, and self-esteem): A reevaluation of the Life Orientation Test. *Journal of Personality and Social Psychology*, *67* (6), 1063–1078. http://dx.doi.org/10.1037/0022-3514.67.6.1063

Sfondeles, T. (2014, March 19). City wants to offer vacant Englewood lots for a dollar. *Chicago Sun Times*. Retrieved from http://www.suntimes.com/news/metro/26317882-418/city-wants-to-offer-vacant-englewood-lots-for-a-dollar.html#.VJMH4NLF834

Sood, A., Prasad, K., Schroeder, D., & Varkey, P. (2011). Stress management and resilience training among Department of Medicine faculty: a pilot randomized clinical trial. *Journal of general internal medicine*, *26*(8), 858–861. http://dx.doi.org/10.1007/s11606-011-1640-x

Turner, H. A., & Turner, R. J. (2005). Understanding variations in exposure to social stress. *Health*, *9*(2), 209–240. http://dx.doi.org/10.1177/1363459305050586

Weismann, U., Niehorster, G., & Hannich, H. (2009). Subjective health in old age from a salutogenic perspective. *British Journal of Health Psychology*, *14*(4), 676–787. http://dx.doi.org/10.1348/135910709´413124

Wells, J. D., Hobfoll, S. E., & Lavin, J. (1999). When it rains, it pours: The greater impact of resource loss compared to gain on psychological distress. *Personality and Social Psychology Bulletin*, *25*(9), 1172–1182.

Zalta, A. K., & Chambless, D. L. (2012). Confidence appraisals protect against anxiety in response to a transient stressor. *Psychology*, *3*(6), 441–446. http://dx.doi.org/10.4236/psych.2012.36062

Zwiebach, L., Rhodes, J., & Roemer, L. (2010). Resource loss, resource gain, and mental health among survivors of Hurricane Katrina. *Journal of traumatic stress*, *23*(6), 751–758. http://dx.doi.org/10.1002/jts.20579