Hide and Seek:
The Challenge of Understanding the Full Complexity of Stress and Stress-Reactivity

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Abstract

This paper presents an interactive model of stress in place of more standard additive models. This approach considers not just the manner in which multiple stresses impinge on and magnify each other, but also the bi-directional relationship between internal state and stress-reactivity. Such an outlook has profound implications for our efforts to understand why so many children today are over-stressed.

Introduction

We are constantly being asked the same question by parents and educators: “What is the major stressor on children and teens today?” Is it urbanization? Too little exercise? Too little time spent in nature? Too much screen time? Overscheduling? Too little sleep? School? Social media? Smartphones? Junk food? The fact that we get asked the same question over and over speaks to the widespread anxiety that children and teens are over-stressed, and to an intuitive awareness that the above factors are significant stressors. But we could easily ask this same question of ourselves, as no one seems immune in our over-stressed society.
What makes answering this question so difficult is that no two children – no two individuals – are the same. No two contexts are the same, and no one stays the same. What is a negative stress for one might be a positive stress for another, and what is a positive stress might easily turn negative (see “Good Stress Gone Bad,” this volume).

We clearly need to deepen our understanding of the nature of stress if we are to understand when and why someone is hyper-aroused, and what to do about it. The problem is, stress is not just ubiquitous, it is necessary, and by no means intrinsically negative. We need stress to be motivated and animated: to function at our best and develop physically, psychologically, and emotionally. Too much stress, however, impairs motivation, functioning, and development.

Hans Selye’s definition of stress continues to inform so much of our thinking on the subject “Stress is considered to be the physiological, psychological and biological reaction of the body to stimuli that requires one to consume energy in order to maintain homeostasis” (as cited in Viner, 1999 pp. 391 – 410). His point, which goes back to Cannon (1932), is that the brain responds to stress by triggering metabolic processes that keep homeostatic systems functioning within their optimal range. But there is not a single, unitary relationship between a given stress and a biological reaction. The individual is responding to multiple stressors at any one time, with multiple homeostatic systems involved. So, the answer to the opening question, in regard to the major stressors today, is: “All of the above” – even in cases where one particular stress seems to stand out.

The deeper point here is that, in place of an additive model of stress, we are really dealing with an interactive phenomenon: not just in terms of the manner in which stresses impinge on and magnify each other, but also in terms of the bi-directional relationship between internal physiological state and stress-reactivity. Whether a stress is positive or negative is as much a function of homeostatic balance as of the stresses themselves (Bernard, 1865/1957).

The fact is that there is an ongoing dance, as it were, between psychophysiological state and psychophysiological reaction. Accordingly, when we look at the above examples of major stressors, we need to consider:

1. Biological factors that strongly influence stress-reactivity;
2. The intensity/duration/persistence of the stressor;
3. The combined effect of the \textit{totality of stressors};
4. How internal state shapes the reaction to any particular stressor.

These four factors, together, underlie the variability that we see in stress-reactivity. One and the same stress can be energizing in a low energy/high tension state and damaging in a high energy/high tension state. But the major factor in these different conditions is the overall stress load. Hence, to respond in a healthy, adaptive manner to a high-stressed environment such as exists today, we need to work on all five of the domains addressed in Self-Reg: biological, emotion, cognitive, social, and prosocial (Shanker, 2016).

An illuminating analogy here is how humans have responded to the stresses of outer space. Chris Hadfield’s \textit{An Astronaut’s Guide to Life on Earth} (2013) provides a fascinating account of the ingenuity that has gone into enabling humans to survive in the most challenging of conditions. The combined effort of physiologists and physicians, working alongside engineers and astrophysicists, has made it possible to accommodate stresses that just a short time ago seemed insurmountable.

What NASA has accomplished in an astonishingly short period of time, evolution has done over eons, through the gradual process of natural selection. We have an exquisitely tailored nervous system for dealing with the stresses that predominated during most of this long evolutionary history; it is the effect of too many modern stressors, combined with lifestyle changes that override the Basic Rest-Activity Cycle (Kleitman, 1963), that shifts the stress pendulum from positive to negative, from anabolic to catabolic (Gluckman & Hanson, 2008).

The fact that a child or teen responds to a stressor in a negative fashion may tell us something about that stressor; it may tell us something about that child or teen. In most cases, it tells us something about the child or teen’s overall stress load. And the stressors involved go far beyond those listed at the outset of this paper.

\section*{Stress Inventories}

Over the past 50 years, researchers have sought to develop a quantitative measurement of stress, looking at everything from major life events to daily hassles. In the late 1960s, Holmes and Rahe (1967) created the Social Readjustment Rating Scale, which assigns a
value to various life events (for example, the death of a spouse is assigned a value of 100). These values are then added together to yield the total amount of stress that an individual is under.

This scale, and others like it (Kranner, Coyne, Schaefer, & Lazarus., 1981; Cohen, Kamarack, & Mermelstein, 1983), were developed to assess the relationship between stress and negative health outcomes. As valuable as these stress inventories are, they do not capture the interactive depth and complexity of the full gamut of stresses that we are witnessing today. As a step towards addressing this issue, we asked the students in the Shanker Self-Reg® Master Class Level 2 to identify stresses in each of the five domains of Self-Reg. The resulting list (see Appendix) represents the fruits of their labour and the power of the Self-Reg framework. This inventory presents various stressors of which, some are easy to identify and others that involve a deeper, closer look. It is through the Self-Reg framework that these individuals have been trained to reframe their perspective on what a stressor is, as well as to recognize the signs and symptoms of stress.

Conclusion

We come back to our opening question of why so many children and teens today are over-stressed. In place of any sort of linear causal explanation, we need to look instead at the many different kinds of stresses that children and teens – and that we ourselves – are under, at the strain this imposes on an over-worked autonomic nervous system, and at the impact such a condition has on the capacity to cope with those positive stresses that, when the subject is properly restored, promote psychological and emotional growth. As is always the case with any seemingly intransigent problem, the first step towards a solution is understanding the full complexity of what one is dealing with.
References


