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Stress and the Healthcare Worker

As Complicated or as Simple as Fear and Hope

Eudene Harry, MD

Healthcare workers have high rates of substance abuse, burnout, depression, anxiety, and suicide. Often these events are associated with elevated stress levels on the job. Due to the increased risk of adverse health outcomes, decreased productivity, and increased potential for error, it is imperative that organizational and individual stress management strategies be implemented to enhance both patient and worker experience.

KEY WORDS: Stress; healthcare worker; burnout.

Fear and hope are two sides of one of the most intricate coins. The interplay between these two emotions can determine how we feel on a daily, and sometimes even on an hourly, basis. No one is more familiar with the dance of fear and hope than the healthcare provider. Every day we see it in the eyes of our patients, our colleagues, our coworkers, our family, management, and finally when we take a moment to look into the eyes reflected back at us in the mirror.

With each new change, demand, request, or perceived threat, we sense that flash and jolt that warns that the winds may be shifting against us, taking us off the path we always thought we were meant to follow. We search ourselves for the hope, resolve, and resources to meet those challenging winds; adjust our sails; and keep moving in the direction of growth and continued hope for the future. It is when we come up lacking that we may feel that yoke of distress coming to rest squarely on our shoulders.

Statistics tell us that as healthcare providers, the tipping of the scale in favor of fear and despair maybe reflected in the higher rates of substance abuse, depression, anxiety, and suicide often seen among healthcare professionals, compared with the general U.S. population.[1] We ourselves may feel it reflected in the burden of responsibility we carry to ensure flawless patient experiences and outcomes or else be viewed as a failure by patients, colleagues, the organization, and, maybe more importantly, ourselves. We feel it when our family life threatens to crumple and wilt from neglect as we struggle to find the balance between the long and often erratic hours we dedicate to the profession and those we spend at home. We feel it when we wrestle with the knowledge that our voices, no matter how loud, are not being heard in decisions that threaten our livelihood, our sanity, and even our ability to take care of our patients and family alike.

Under duress with excessive workload, sleep deprivation, patient expectations, and threat of litigation, we may find ourselves teetering on the edge of imminent burnout, manifested as emotional exhaustion, a sense of disconnection with patients, and low sense of satisfaction and accomplishment. Finally, as healthcare providers, even though we may believe that we are somehow blessed with a magical quality that protects us from chronic illness, we may very well find ourselves plagued with the signs and symptoms of cardiovascular disease, diabetes, hypertension, gastrointestinal upset, osteoporosis, and other chronic conditions induced or exacerbated by stress.

Stress threatens our productivity and our decision-making abilities.

This is the dance of hope and fear in the workplace. When the balance tips in favor of fear and survival, we experience the life-stealing, soul-draining, and dream-ending power of "stress." It threatens our productivity and our decision-making abilities and increases the risk of potential errors. If we are able to identify at-risk individuals—not to punish them but to offer support—or organizational weaknesses—not to disparage but to redirect and buttress—then maybe we can begin to see a glimpse of the healthcare profession that truly takes care of all, including its own.

With one in two physicians surveyed expressing some signs of burnout, two thirds of healthcare workers feeling that their work load is excessive, 45% looking for a new job, and 29% actively learning a new skill to leave the

profession,[2] this may seem to be a lofty goal indeed but, in my opinion, it is certainly one worth pursuing.

To take the word "stress" out of the nebula and solidly ground it in our consciousness, we as healthcare workers need to first remind ourselves of the pathophysiology of stress and understand that chronic exposure to fear, loss of hope, and helplessness can and does disturb the homeostasis of the body and mind. For decades, philosophers and scientists have come to similar conclusions—psychological stressors are just as detrimental to us as physical stressors. So whether we are literally being restrained and threatened or figuratively believe that our power and choices are stripped away from us, our survival instinct, our fight-or-flight mechanism, will come into play. Now, whether we fight, flee, or withdraw will often reflect our personality, experiences, and genetics.[3,4]

Several studies suggest that genetic influences and prenatal experiences may influence stress tolerance. For example, individuals who inherit the short variant of the serotonin transporter gene may be more susceptible to the negative impact of stress.[5] They have been shown to have increased activity in the amygdala (fear center in the brain) after exposure to a stressful event, and their risk for developing depression after a life stressor was doubled. Variants of other genes that code for neurotropic substances such as brain-derived neurotrophic factor have also been associated with a greater fear response from an incoming stressor as well.[6,7] Individuals with a variant of neuropeptide Y (NPY, a substance shown to reduce anxiety in the brain) that produces low NPY have been shown to have a much stronger response to negative stimuli than individuals with normal NPY levels.[8] In my opinion, genetic predisposition does not relegate us to a life of fear or hope. If anything, it should encourage tolerance for ourselves and others, not to give up and retire from life but rather give ourselves permission to follow or change course as indicated.

As healthcare providers, we understand that there are a variety of things that can activate the hypothalamic-pituitary-adrenal (HPA) axis besides the stress or survival response.[9] For example, getting prepped for a big presentation, a surgical procedure, or the board exam, or completing a big project can all activate the HPA axis to help make us more alert and efficient. The key is believing that we have the resources and ability to acquire the knowledge and materials needed to complete the tasks at hand. I often refer to this as a challenge. A challenge transforms into a stressor when the situation at hand far exceeds our resources and our ability to cope. This in turn causes the HPA axis to get stuck in overdrive and become less sensitive to the feedback mechanisms in place, thus negatively impacting many systems.

As we are aware, the activating stimulus triggers the hypothalamus to release corticotropin-releasing hormone (CRH), which acts on the anterior pituitary to release adrenocorticotropic hormone (ACTH) to facilitate the activation of the sympathetic nervous system through the release of two of the substances that have received the most press in the world of stress: cortisol and adrenaline. While they contribute to many of the adverse effects attributed to stress, they are by no means the only players in this game.

There is a harmonious symphony that is orchestrated in the brain among the prefrontal cortex (PFC; attention, cognitive reasoning, and inhibition), the amygdala (fear), the hippocampus (memory), and the brainstem structures such as the locus coeruleus (norepinephrine) and the substantia nigra (dopamine) that helps to enhance attention and organizational planning, and control of emotional responses.[10] Through its own connections with these centers, the PFC is able to regulate its own catecholamine input thus optimizing its function.

However, under stress and duress, the amygdala usurps control and overstimulates the release of catecholamine from the brainstem, thus flooding the PFC with an overabundance of these stimulatory neurochemicals that can paradoxically reduce focus, attention, and decision-making ability.[11] Couple this with the volume loss in the hippocampus due to excessive glucocorticoid exposure, and you now have a recipe for errors, frustration, and depression.[12] Excessive glucocorticoid and adrenaline exposure can also contribute to heart rhythm irritability and increased risk of developing cardiovascular disease, diabetes, high blood pressure, intestinal irritability, musculoskeletal pain and injury, osteoporosis, decreased immunity, elevated cholesterol levels, and headaches, to name a few things.

Healthcare providers seldom seek medical help or intervention outside of themselves.

Of course, not all of these effects of stress can be explained by the induction of the HPA axis. In study published in *Cytokine Journal* in 1998,[13] psychological stress increased the production of proinflammatory cytokines such as interleukin 6, tumor necrosis factor alpha, and interferon gamma. Chronic inflammation has been linked to numerous chronic illnesses including cardiovascular disease and autoimmune disorders such as rheumatoid arthritis. These proinflammatory cytokines have been shown to be capable of activating the HPA axis. This then further spurs the cycle. These cytokines have also been associated with further increasing risk for anxiety and depression. As you can see, we have now become part of the two-thirds of individuals who seek medical intervention secondary to stress issues with one important difference: healthcare providers seldom seek medical help or intervention outside of ourselves.

Briefly skimming some of the pathophysiology of the stress response is in no way intended to give the impression

of completeness. After all, chronic stress affects so many systems that volumes have been written and will continue to be written on the topic. I acknowledge that I have barely scratched the surface. My goal is to start the conversation and raise awareness that stress may very well rival nutrition when looking at health risks.

Stress may very well rival nutrition when looking at health risks.

We must be ready and willing to begin to identify stress in ourselves and our at-risk colleagues.[14] Once we have done so, we must decide if these stressors originate from procedural issues within the organization or from individual adaptation and coping style. Often we will find that it is a combination of both, and therefore steps must be taken to address both. If it is an issue within the company, does the healthcare worker feel as if he or she has a voice in making decisions on issues that affect his or her job? Does the employee believe that he or she has been given the resources to complete the job effectively, and have his or her role and responsibilities been clearly defined? Is there a system in place that allows for the individual to express concerns to managers and corporate heads without fear of negative reciprocal actions?

For example, a major concern among many healthcare providers is a sense that they are being overworked and must be all things to all people. One organizational solution that many institutions have already incorporated is a team approach to care. Often this is a multidisciplinary team consisting of a variety of caregivers, such as a doctor, nurse, and pharmacist. This allows each person to focus on his or her strengths, but most importantly it allows for the exchange of ideas on improving patient outcome. The payoff is that you may have happier, healthier patients and healthcare workers who once again connect to the passion that led them to this career in the first place.

Individual stress management techniques may need to be implemented as well. Cognitive behavioral therapy (CBT) has been found to be an effective method for coping more effectively with stressful situations. Researchers used PET scans to demonstrate that CBT and selective serotonin reuptake inhibitors (SSRIs) had similar clinical effects on reduction of social anxiety symptoms.[15] Interestingly, the PET scans of the brain showed a reduction of blood flow to the areas of the brain thought to be involved in the fear response—the amygdala and the hippocampus—during social anxiety producing tasks such as public speaking in both the CBT and the SSRI groups. One year later, the CBT group still demonstrated the same flow pattern when exposed to anxiety stimulus and still showed benefits. Other possible interventions shown to be effective are meditation, biofeedback, yoga (shown to reduce inflammation), laughter, socialization, and friendships.[16-18]

In this era where healthcare seems to be on everyone's mind, let us not forget that to deliver good care healthcare workers must also be on the receiving end of good care. It is the only way to successfully bring back the health in healthcare.

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