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Commentary

Cultural stress: The undiagnosed epidemic of our time

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ABSTRACT

Global technologies that have made the world more interconnected have also, inadvertently, amplified the forces of stress that are now with us 24 hours a day, seven days a week. The accumulated impact of this stress I call cultural stress anxiety syndrome and call on integrative medicine practitioners to recognize that it is exacerbating whatever acute stressors are also present in our patients' lives. In this Commentary, I outline seven major components of cultural stress (time pressure, digital intrusion, digital dependency, isolation, sedentary lifestyle, poor sleep, and uncertainty), describe their health consequences, and finally, offer cultural stress-specific remedies I have utilized in my own practice, along with studies that affirm their efficacy. My hope is that we, as integrative medicine practitioners who are cognizant of the role that stress plays in disease development, will more fully appreciate the added impact of cultural stress, and advise our patients on the importance of proactive stress management.

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1. Introduction

The American futurist Alvin Toffler [1] sounded the alarm back in 1970 in his best-selling book *Future Shock*. Toffler explained that the rate of technological change was accelerating—and would continue to accelerate—so rapidly that it would create "shattering stress and disorientation," or *future shock*. He further argued that the majority of our future social problems would be attributable to this condition and, in particular, drew attention to the phenomenon of *information overload*, which would overwhelm both individuals' and societies' capacity to process and synthesize incoming data for the purpose of sound decision making. In the 50 years since the book's publication, connective digital technologies, computer science, cyber-culture, and the 24-hour news cycle have all confirmed the accuracy of his prediction.

The contemporary analyst Will Self says the trend actually began with the railroad, which sent passengers hurtling through space and time with no means of control. This experience was anxiety-provoking in itself, but, in addition, trains ran on "clock time," a construct previous humans had never needed to follow so rigidly. Humans soon adapted to it, however, with the result that any deviation from the train's schedule provoked a new form of anxiety over their lack of control [2]. Self quotes the German historian Wolfgang Schivelbusch, who wrote in *The Railway Journey: The Industrialization of Time and Space in the Nineteenth Century* [3], that railroads not only transformed the physical landscape, but also humans' perceptions of distance, time, autonomy, speed and risk, with the unexpected consequence that "the more efficient the technology, the more catastrophic its destruction when it collapses."

All three of these analysts use the term "shock" to describe the conditions of modern living. I use the term "cultural stress." In my 50 years of practicing medicine, I have had a close-up look at how these societal changes are affecting our patients' health and well-being. Symptoms became noticeable in the early 2000s, coinciding with the widespread availability of the smart phone, cellular networks, and internet service. My patients began complaining of feeling chronically exhausted and emotionally distressed, although they could point to no single, specific cause. It was not *one* thing; it was *everything*. They were falling behind the demands of work and home, the cost of living, the commute, and the pressure to "keep up." They had no time to exercise; they had difficulty sleeping; their diets were a mess; they seldom saw their kids; their lives felt out of control. In the last 20 years, these symptoms have become ubiquitous. I call this bundle of symptoms cultural stress anxiety syndrome (CSAS).

In contrast to the acute stress of an accident, a divorce, a job loss, or a death in the family, cultural stress is the constant, pervasive, ever-increasing stress of modern living. It is the 24-hour news-cycle delivered directly to our cell phones. It is constant digital connectivity, which blurs the boundaries between work and personal life. It is on-demand delivery of goods and services, sever-

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ing neighborhood and community relationships and adding to our long sedentary hours in front of screens. It is the pace of technological change, compounding professional, economic, and social anxiety. It is our global economic system, which sows uncertainty as it outsources jobs overseas or to new technologies. It is disconnection from nature and the slower pace of natural systems. It is the noise, traffic, pollutants, and "always on" tendencies of modern life. More recently, the coronavirus disease 2019 (COVID-19) pandemic has compounded these stressors, rendering us isolated for long periods of time (itself a significant stressor), uncertain how to protect ourselves—even with a vaccine that was developed so rapidly many doubt its legitimacy—and unable to be with our loved ones, even on their deathbeds.

All of these stressors are new, particularly in evolutionary terms. They are prevalent throughout the developed world and increasingly impacting less-developed societies too.

2. The components of cultural stress

Epidemiological studies are clear about the deleterious effects of stress on health and aging [4–6]. Stress can trigger disease, exacerbate skin conditions, accelerate aging, and shorten lifespan [7–9]. Chronic stress is a major contributor to chronic inflammation, which underlies virtually all the degenerative diseases affecting modern humans, including cardiovascular disease, cancer, diabetes mellitus, chronic kidney disease, nonalcoholic fatty liver disease, Alzheimer's disease, Parkinson's disease, and a variety of autoimmune and neurodegenerative disorders [10]. Chronic stress is also associated with free radical damage and accelerates water loss, which Hungarian researcher Zs-Nagy [11] identified as the unifying factor in the degenerative processes associated with aging. Yet, although researchers acknowledge the role of *acute* stress in disease etiology, few physicians identify—or address—chronic cultural stress as a factor in their patients' symptoms. This must change because cultural stress is amplifying the symptoms or stressors that our patients are already experiencing.

As noted in my book *Conquering Cultural Stress: the Ultimate Guide to Anti-aging and Happiness* [12], the most significant elements of cultural stress consist of time pressure, digital intrusion, digital dependency, isolation, sedentary lifestyle, poor sleep, and uncertainty.

2.1. Time pressure

The speed of human interactions has increased exponentially in the last 50 years. Where it used to take a week to exchange information via postal service (longer if overseas), it now takes only minutes to communicate—anywhere in the world—via email, text or mobile app. Goods and services can be delivered overnight, if not sooner. The result has been an exponential increase in expectations and corresponding decrease in patience. We are not content to wait for days to receive an order or an answer, which has made us all slaves to the clock—because what we expect from others, they expect from us. Thus, we find ourselves responding to work-related emails just before bed or first thing in the morning. Even so, my patients tell me that they feel as if they cannot keep up. No matter how much they do—or how fast they respond—more is continually expected of them. They are hamsters on a treadmill spinning faster and faster.

2.2. Digital intrusion

Globally connected electronic devices are responsible for both the increasing speed of communication and the increasing stress that communication can engender. Yes, it is wonderful to be able to communicate with distant grandchildren at the push of a button; but it is less so for our employers to reach us as easily. Interconnected devices have blurred the boundaries between work and home, public and private. This makes it more difficult to leave work at the office. Increasingly, work invades time that is meant to be spent relaxing, rejuvenating, and recreating with family and friends. Although workplace stress has been rising for decades, the COVID-19 pandemic took it to a new level, particularly in the United States (U.S.) and Canada. Worldwide, according to Gallup [13], workers' daily stress reached a record high in 2020, increasing from 38% in 2019 to 43% in 2020. The U.S. and Canadian workforces saw the highest levels of daily stress globally, 57%, while in Western Europe, stress actually declined to 39% from 46% in 2019 [13]. Gallup found that "negative emotions—worry, stress, anger and sadness—among employees across the world reached record levels in 2020." In addition, Gallup reported that roughly seven in 10 employees worldwide are "struggling or suffering, rather than thriving, in their overall lives." These results confirm an October 2019 survey of nearly 2000 professionals by the consulting firm Korn Ferry, in which 76% of respondents reported that stress at work had had a negative impact on their personal relationships, and 66% said they had lost sleep due to work stress [14].

2.3. Digital dependency

Despite the disruptions our digital devices cause us, we cannot seem to put them down. For many of us, their use has become compulsive, if not addictive. Studies suggest that Americans check their phones hundreds of times a day—monitoring news updates, social media feeds, texts, or emails—pre-empting work, family, friends, and even meals [15,16]. But it is not just information that we get from our digital devices. Their use stimulates the brain's reward system, providing constant micro-doses of hormones that activate the sympathetic nervous system, which responds with a cascade of chemicals that accelerate heart rate and pulse, increase muscle tension, and divert energy from the brain to the muscles [15]. It can take from 5 to 30 min for hormone levels to return to normal, but given constant cell phone notifications, this seldom occurs. As a result, cell phone use has become a major contributor to cultural stress.

Device dependency is even more pernicious for those with addictions to internet sex, gambling, and shopping [17]. Estimated one-in-five internet addicts (those who identify their compulsive use of the internet as a problem) [18] engage in cybersex. The ACE Model of Cybersexual Addiction explains the three factors that facilitate cybersexual activity: anonymity, which serves to increase the likelihood of the behavior; convenience, because cyberporn and sexually-oriented chat rooms are just a click away; and escape, or relief from mental tension that is derived from the experience. These aspects serve to reinforce the behavior and lead to compulsivity.

Similar factors have increased internet gambling compulsions. The fifth edition of the *Diagnostic and Statistical Manual of Mental Disorders* (DSM-5) includes a new category of nonsubstance behavioral addiction within the substance addictions category [19]. Disordered gambling is classified as the first behavioral addiction, although the category also includes other excessive behaviors, such as "internet gaming disorder." It was the growing evidence of distress and dysfunction related to excessive and problematic internet use—and specifically internet gaming—that led the DSM-5 Taskforce to officially call for further research on this behavior [19].

Although the DSM-5 does not include shopping addiction (or, more technically, "compulsive buying" or "oniomania") in its list of behavioral disorders, mental health professionals have recognized it as a problem for more than a century, first describing it in the early 1900s. The internet has made compulsive buying more

effortless—even though a 2015 review of research on compulsive buying found that respondents "rarely or never use the items purchased." Rather, for these people, online shopping is a constant preoccupation, which is gratified by the activity, not the possessions themselves [20].

By far the most directly lethal consequence of device dependency, however, is distracted driving. According to DMV.org [21]: 26% of all car crashes in 2014 involved cell phone use; at least 8 people are killed every day because of a distracted driver; thousands of people are injured every day due to a distracted driver; in 2015, 42% of teens say they have texted while driving—and texting and driving is the leading cause of death in teens.

It takes a tremendously powerful, while seemingly harmless, compulsion to entice people to risk their lives for a few seconds of non-urgent communication. And still, even these problematic uses of digital technology pale in comparison to the single most deleterious impact its dissemination has had on mental health: the constant comparisons to the curated lives of others, which so often make users feel inadequate. Fear of missing out, low self-esteem, depression, and even suicide, particularly among adolescents and young adults [22,23] are the skyrocketing consequences of adolescent and young adult social media use.

2.4. Isolation

It is an irony of the digital age that, though we are more "connected" via devices than ever before, we are also suffering an epidemic of loneliness and isolation. As texts, emails, social media networks and video conferences have replaced regular in-person communication, our rates of anxiety, depression, suicide, substance abuse, and domestic violence have skyrocketed. The COVID-19 lockdown presented a dramatic, large-scale social experiment in the effects of collective social isolation and the results were sobering [24,25]. Loneliness has long been considered a risk to older adults, as spouses, friends, and the social networks that they comprise die; yet one of the most distressing indicators of cultural stress is the number of young people who report feeling isolated and alone. In a study by the Centers for Disease Control and Prevention comparing the effect of the COVID-19 pandemic to the year prior, 63% of young people reported experiencing substantial symptoms of anxiety and depression [26]. A report released in March 2022 by the World Health Organization documented the extent of the impact: the first year of the COVID-19 pandemic spurred a massive 25% global increase in anxiety and depression—and confirmed that young people were among the hardest hit [27].

The ubiquity of goods and services delivery has also increased our sense of isolation. The less we need to leave home to fill our desires for food, clothing, household items, entertainment, and even education and medical care, the fewer relationships we have with the shopkeepers, teachers, practitioners, and other community members we once visited in person.

Indeed, much of our device dependency itself can be traced to feelings of boredom, loneliness, anxiety, and isolation. We turn to our devices to distract us from these feelings. But unlike actual relationships, our devices are unable to return the favor. Yes, they can "notify" us, but they are unable to substitute for actual companionship. One Millennial's explanation for the lack of romantic relationships among her peers, relative to earlier generations, was simple: "We hook up because we have no social skills. We have no social skills because we hook up" [28].

2.5. Sedentary lifestyle

Sitting has been called "the new smoking" because of its deleterious effects on health. Unfortunately, most of us are sitting more than ever. According to an advisory published in the American Heart Association journal, *Circulation,* Americans, on average, spend more than half their day sitting: commuting, seated behind a desk, eating, watching television, reading, playing card or board games, sewing or other crafts, talking on the phone, taking classes, and using the internet [29]. The normal office worker sits a shocking 15 hours every single day, and then spends another 7 hours, on average, sleeping. Delivery of goods and services and our post-pandemic trend to remote work, or work from home, have reduced our need to move even beyond the front door.

Numerous studies have shown the resulting deleterious health effects of this near total lack of movement [30], which is both a symptom and a cause of cultural stress. Our bodies were not designed for lack of movement. Sedentary behavior is consistently linked to more than 30 chronic diseases and conditions, including a 112% increase in the risk of type 2 diabetes and a 147% increase in heart disease risk [31]. Compounding the problem, the more time we spend sitting, the less time we spend getting the exercise that is itself a great stress-reducer.

2.6. Poor sleep

Not surprisingly, lack of exercise, constant stress, and the blurred boundaries between work and rest have also affected sleep. For Americans overall, sleep duration has been decreasing since the mid-1980s [32], which can have long-term consequences on health: sleepless individuals are more prone to obesity, heart disease, stroke, and diabetes [33], as well as mental health problems such as anxiety, unstable moods, and even thoughts of suicide. Sleep loss and subsequent hormonal instability also increase the risk for cardiovascular and endocrine diseases [34,35]. Several publications by McEwen [36,37] have presented links between sleep deprivation and circadian disruption and how they impact stress and other detrimental pathophysiologic effects. Studies have shown a direct correlation between sleep loss/sleeplessness and telomere shortening, which is associated with accelerated aging [7,38,39]. Of course, the reason most often given for sleep deprivation in adults is stress, or, to be more specific, cultural stress. As an example, Dr. Todd Arnedt, co-director of the University of Michigan Department of Psychiatry and director of its Sleep and Circadian Research Laboratory, told National Public Radio in 2019, "Probably the most common thing I hear from people is that 'I'm not able to shut my mind down at night; my mind is running about what I've got to do the next day'" [40].

The combined effects of cultural stress—isolation, loneliness, anxiety, depression, inescapable time pressure, lack of exercise, and sleep loss—often overlap and reinforce each other, creating a perfect storm of constant, pervasive insults that result in chronic inflammation, hormone disruption, telomere shortening, and ultimately, degenerative disease and death.

2.7. Uncertainty

Another irony of our times is that the incessant clamor of digital media has made contemporary humans "more informed" without necessarily being "better informed." Though we have access to more information than any other humans throughout history, we do not necessarily have the time or expertise to assess these information sources for accuracy. Worse, technologies to "augment reality" with digitally altered images, voices, and even complete, realistically rendered environments, are intentionally designed to fake reality. Given these technologies, how is the average citizen supposed to determine fact from fiction?

A recent tragic and compelling example of this is the uncertainty that surrounded the COVID-19 vaccine and purported COVID-19 treatments. Were the vaccines developed in record time

due to an unprecedented level of global cooperation, building upon decades of research into coronaviruses; or were they a pharmaceutical industry fraud perpetrated upon an unwitting public, whose long-term consequences we had not had time to investigate? Educated people could find advocates for either argument. This level of uncertainty—with potentially existential consequences—only exacerbated the stress of living through a global pandemic.

3. Our response as healthcare practitioners

As integrative medicine practitioners, we need to lead the way in helping our patients understand and address the tremendous toll stress is taking in their lives. Cultural stress has become such a constant part of our daily experiences that most people do not even identify it as an anomaly. Only a particularly challenging day, or week, or month, is categorized as "stressful." In fact, however, stress has become the matrix in which we live and is compounding whatever acute stressors or illnesses we are also experiencing.

Effective stress management requires a holistic approach to well-being, but we must bring stress management to the foreground. It is not an add-on; it is foundational. All other health maintenance practices—diet, exercise, good sleep habits and skincare (after all, skin is our largest organ and our front line of defense against environmental insults)—are important, in large part because they help our bodies deal with stress!

With my own patients (and myself), I prescribe a four-fold treatment plan that includes a healthy diet and adequate hydration, daily exercise, good sleep habits and, on the psycho-social-emotional level, any practice that reinforces patients' personal authority over their own lives. Rather than turning to devices to distract or entertain themselves or allowing technology to violate the boundaries between work and play, I encourage them to silence their cell phone notifications, turn off their devices an hour before bed, and even unplug from them entirely one day each week. During this "unplugged" time, I recommend that they practice self-care and attend to their in-person relationships. Connection and community are really the most powerful antidotes to cultural stress.

Equally important is some kind of mindfulness practice. It can be yoga, meditation, journaling, inspirational reading, or even just long, slow breathing, with the eyes closed and the exhale longer than the inhale. This type of breathing signals the body that it is safe to switch into the parasympathetic nervous system, the "rest and digest" mode. My own patients have benefited from the daily practice of reflecting on 11 "Insight Cards," which consist of simple, positive affirmations such as "Be thrilled with who you are" [41].

For example, in a pilot study completed in 2015, six female patients were treated for 24 weeks with an inclusive health protocol (internal care, external care and emotional care) designed to reverse CSAS, rejuvenate cellular health, and slow related degenerative cell aging processes. Clinical tests, such as a comprehensive metabolic panel, blood pressure screenings, body mass index/weight, stress test, as well as questionnaires, interviews, and journaling, were used to establish baseline measures, mid-point, and final results. This included the Cohen perceived stress scale; patient health questionnaire; cultural stress questionnaire; dermatology self-reporting skin questionnaire; appearance questionnaire and video interviews; Omnia® and Visia® facial imaging; ClarityRX Pro® evaluations; blood pressure and body composition using RJL Systems' bioimpedance electrical analysis; skin biopsies, and a global gene expression analysis using Affymetrix microarrays.

As reported in the *Journal of Gerontology & Geriatric Medicine* [42] subjects eliminated the symptoms of CSAS, while gene expression analysis showed positive results in the regulation of genes that influence senescence. In specific, we found that treatments that support the cellular water principle theory—which aim to fortify cells and connective tissue, increase intracellular water, and boost cellular immunity—and address internal, external and emotional stress due to cultural stress were useful for encouraging maximal youth in aging patients and for avoiding age-related cellular degeneration.

Another pilot study whose interim results were presented at the 2017 Western Foot and Ankle Conference [43] showed positive results among 36 diabetes patients who were asked to read positive affirmations twice daily and journal once daily for a month as a means of reducing their symptoms of cultural stress. On day 30, the intervention group had a greater average improvement in Patient Health Questionnaire-2 scores, compared to the control group. The experimental group also showed physical health benefits, which are beyond the scope of this paper.

After 4 weeks of using the Insight Cards, participants' subjective ratings of stress were significantly lower than they had been at baseline. Although intracellular water and blood pressure were not measured at the end of the study, the significant reduction in Cohen perceived stress and self-reported feelings of less stress and greater ease suggest that the Insight Cards have utility for stress reduction.

In a third study [44], conducted in collaboration with a spa in Lodi, California, 97 spa clients were given the Insight Cards and instructed to reflect on them twice daily for the duration of the study. Perceived stress was measured via questionnaire at the beginning and end of the study, and, as before, participants' self-reported stress scores were significantly lower at the end of the study than they were at baseline, with the vast majority of participants (97%) showing a decrease in stress from the beginning to the end of the study.

Whatever the cultural stress management practice, the point is to cultivate an internal sense of agency and well-being, rather than being overly focused on external stimuli. Ultimately, I remind my patients, their sense of worth and meaning must come from within, not the constantly shifting forces of the outside world. In an era of 24-hour cultural stress, this solid grounding in the self is not indulgent or esoteric. It is as essential as a healthy diet, adequate sleep, and regular exercise.

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Declaration of competing interest

The author has no competing interest to declare.

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