

Stress Check: How Cultural Stress Is Impacting Health and Longevity, and What We Can Do About It

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COMMENTARY

Our phones recognize our face shapes better than our friends. Digital consumption is replacing human touch. Even when we're together, we are texting rather than talking. If personal connection was classified as a sustainable resource, we could hypothesize that it is non-renewable and fleeting—fast.

How is it that, in this age of being more connected than ever, we are at our loneliest? Advances in technology, enhanced screen time, and digital interconnectedness have collectively created a false sense of connection and a new type of stress: Cultural Stress (CS) and its pervasive, recognizable syndrome classified as Cultural Stress Anxiety Syndrome (CSAS).

Cultural Stress is defined as the stress of modern-day living. Perpetual distraction, time deprivation, anxiety, comparison, self-criticism, and constant access are a few examples of how incredible technological advances have brought on this new form of stress. Unlike the fight-or-flight response, Cultural Stress is the man-made, unnecessary, and chronic reaction to our evolving environment. Its indicators include isolation, loneliness, anxiety, depression and a sedentary lifestyle that overlap and enhance each other [1].

A Sedentary Lifestyle: The New Normal

Sedentary lifestyle used to be a phrase assigned to those who failed to engage in enough exercise. Today, a sedentary lifestyle is applied to excessive sitting encouraged by increased screen time at work and at home [2]. According to the World Health Organization (WHO), all causes of mortality are doubled with a sedentary lifestyle, ranging from cardiovascular diseases to depression, anxiety, isolation, and resultant depression. This makes a sedentary lifestyle a major worldwide public health concern that is “insufficiently addressed,” further, the organization estimates that “nearly two-thirds of children are also insufficiently active” [3].

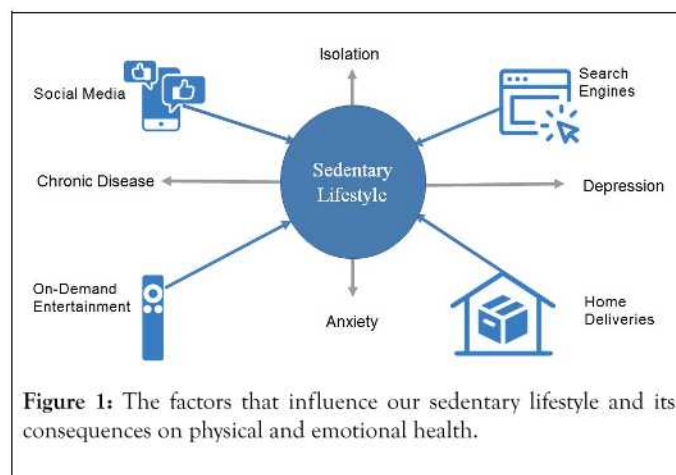


Figure 1: The factors that influence our sedentary lifestyle and its consequences on physical and emotional health.

Figure 1 shows the modern technological conveniences of a digitally connected society that are contributing to a sedentary lifestyle and its consequences (isolation, anxiety, depression and chronic disease).

Isolation: Today's technology affords us a constant awareness of daily life and increased connectivity, yet a more recent study shows that the result of constant technological connection is remoteness or loneliness. In addition, long commutes separate us from and disrupt time spent with family and friends, subsequently enhancing isolation minimizing face-to-face time with others and eliminating real, expanded communication that forms the basis for relationship building. The lack of real friendships, companionship and the support that comes from these relationships has been correlated to poor health prognosis, quality of life, an escalation of age-related deteriorations and even death [4,5].

Anxiety: While anxiety is a normal reaction to stress, constant anxiety or anxiety disorders can interfere with normal life activities. It is plausible that unrelenting Cultural Stress and isolation may produce and even lead to anxiety disorders in those who are most at risk of developing them. Once assigned exclusively to those who have experienced live combat while

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serving in the military, Post-Traumatic Stress Disorder (PTSD) is now a growing epidemic that includes things like terrorism and the constant stress from endless news cycle coverage [6].

Depression: A sedentary lifestyle induced by easier access to things like on-demand entertainment, home deliveries, and counting social media as interaction leads to social withdrawal, lack of exercise, rumination, alcohol and substance abuse, overeating and negative thinking that are precursors to depression [7]. Because life-changing or constant stress is a catalyst to depression, it is conceivable that constant exposure to CS can cause depression. CS stimulates a constant stress response in the body and this may precede down spiraling episodes of anxiety and depression and initiate CSAS.

Chronic Disease: Modern society encourages constant use of technology: having the world quite literally at our fingertips is minimizing movement and muscular activity. In 1970, 3 out of 10 Americans had high-energy output jobs and according to Johns Hopkins Medicine, it's now less than 20% [8]. There's no doubt that this decrease is directly linked to an increase in jobs that are dependent on constant computer access. This, combined with modern-day inconveniences like longer commutes, leads to sitting disease (a sedentary lifestyle) that has caused a surge in chronic diseases (heart disease, diabetes, etc.).

Let's take a hypothetical, yet realistic look at how one person's day could experience all the sedentary lifestyle influences shown in figure 1:

- She wakes up, immediately grabs her phone and checks her feed before getting out of bed. Already she's flooded with posts from people she follows (most aren't even real friends), images of perfection, expensive destinations, and targeted ads.
- She remembers she needs cleaning products for her apartment. Without moving anything but her fingers, she switches from her feed to an online delivery app to place an order for same-day delivery.
- She turns on the television and gets ready to work, listening to the news in the background.
- She drives to her job, which is only 13 miles away, but because of traffic, takes anywhere from 60 to 90 minutes.
- She gets to work and spends 3-4 hours in front of a computer. The only time she moves is to go to a meeting, to use the restroom, or refill her coffee cup.
- An afternoon meeting means she can't walk across the street to get lunch, so she orders her lunch via an online delivery app.
- After a long day, she finally leaves work, but must sit in her car for at least another 60-90 minutes for her long commute home. Unfortunately, she won't make it to her gym class tonight.
- Once she gets home, she's too tired to cook food, so she again orders something to eat via an online delivery app.
- While she waits for her food delivery, she turns on her television streaming service to binge-watch one of her favorite shows, picking up from where she left off last night before finally falling asleep.

- While watching this show, she is scrolling her social media feeds. Then, she visits a search engine to find out more about the actress from the show she's binge-watching. She finds her social media platform, likes her feed, and is suddenly scrolling through a picture-perfect, filter-friendly feed of incredible vacations, red carpet events, and a beautiful family.

This example, while hypothetical, does demonstrate a new normal. And, preliminary research reveals that CSAS and a sedentary lifestyle are encouraging health declines and may hasten senescence in adult populations. Research demonstrates that people with low social interaction are shown to live an average of 5.4 years younger than their highly social counterparts [9]. As the world becomes more connected than ever because of technology, and the Internet doubles as our social interaction, it is probable that stress sources and symptoms like loneliness and isolation will only increase and symptoms in patients will multiply.

It is a known fact that those who are aging are at the highest risk of developing depression, but, depression is not a natural part of aging. Because life-changing or constant stress is a catalyst to depression, it is conceivable that constant exposure to CS can cause depression. CS stimulates a constant stress response in the body and this may precede down spiraling episodes of anxiety and depression and initiate CSAS.

The relationship between stress and health has not clearly been established and is further challenged by unique variables including socio-economic status, multidimensionality of influences, and personality. And, a lack of patient awareness of CSAS combined with limited medical treatments and solutions that function in silos may not be modern enough to help people cope with CSAS. Furthermore, there is little research or literature that shows any measurement data related to programs or multidisciplinary interventions designed to counteract CS and its impact on whole-person health.

Inspired by an independent Inclusive Health Study on 100 patients that demonstrated an increase in happiness, positivity, and greater stress management as part of an Inclusive Health program (internal care, external care and emotional care), a pilot study on Cultural Stress Anxiety Syndrome and its implications on aging, gene expression and treatment strategies was initiated. The goal: to explore the benefits of an all-encompassing, inclusive health protocol to treat the multiple foundations of CSAS.

We believe that if CS is decreased or eliminated and resultant CSAS is attenuated, then overall health may improve and senescence could be postponed [10]. As such, within this pilot study, we hypothesized if one can reduce stress including CS and resultant CSAS to improve overall health by engaging in inclusive health activities (activities that function on the cellular and mechanistic level, influence intracellular water balance and genetic expression), then one may benefit from positive health outcomes that influence senescence.

Our pilot study began with a simple understanding of the root causes of CS. We also devised a comprehensive program including internal, external and emotional treatments to assist patients with CSAS and work to reduce its effects on the cell

processes, which, in effect, could reduce the signs of aging and slow the progression of aging [11].

The study was aimed at adult patients (under 55 years of age). In the study, six female patients between the ages of 46 and 53 underwent a 24-week program to reduce CSAS and improve health, wellness and explore treatments that may slow related degenerative cell aging processes. General health parameters were collected throughout the study by personnel as well as patient self-assessment. Global gene expression analysis was carried out using Affymetrix microarrays to identify gene expression changes correlated with improved health outcomes because of the program.

To disarm the root causes of CSAS, the patients were asked to replace computer use, TV watching, commuting, and noise pollution (to name a few) with our three pronged, multidisciplinary Inclusive Health approach. The foundation of the treatment protocol: to create the best cellular health possible via the cellular water principle theory. Expanding on Nagy's theory that intracellular water (ICW) loss affects cell health [12], we believe that restoring ICW to cells through a multidisciplinary approach of internal, external, and emotional care can help reduce and even correct damage in organs and tissues [13].

Internal Care

- Nutritional guidance
- Eat a water-rich, low-acid diet
- Limit processed food intake
- Supplement to help with nutritional deficiencies and even sleep
- Engage in preferred method of exercise 2 times a week

External Care

- Experience skin-conditioning therapies to improve mind relaxation, including massage and facials every other week

Emotional Care

- Join support groups and sign up for new experiences
- Meditate on positive insight cards (life-affirming quotes and statements that encouraged gratitude and optimism) two times a day
- Journal once a day

Patients were also informed on how to determine, reduce and even avoid Cultural Stress triggers by practicing mindfulness, controlling responses to uncontrollable situations, overcoming negative self-talk, exercising, nourishing the body, and getting quality rest.

At the midpoint of the study, patients completed a self-assessment revealing a reduction in overall depression from 33% to 24%. By the end of the study, patients lowered CSAS symptoms and "gene expression examination showed positive results in down-regulation and up-regulation of the genes that influence senescence." To quote the study, "the women

successfully completed the program with various internal, external and emotional improvements."

Our finding: Multidisciplinary prevention is the best treatment for CSAS. Inclusive treatment for CSAS can produce positive changes in total wellness and may reduce aging. And, treatments that support the multidisciplinary cellular water principle theory (which aims to fortify cells and connective tissue, increase Intracellular Water (ICW) and boost cellular immunity) and address internal, external, and emotional stress due to CS may be useful to encourage maximal youth in aging patients and stave off age-related cellular degeneration.

Technology isn't going anywhere—nor should it. We don't have to go off the grid, further stress ourselves for exceeding our screen time, or shun our cell phones as part of an anti-technology crusade. We simply need to be mindful of managing Cultural Stress that is stimulated by technological connections while connecting with ourselves and each other on a human level. There is a clear, growing need for experimental studies surrounding Cultural Stress and how we can respond, monitor, and mitigate its effects. This study aims to offer new thoughts and approaches on how CSAS might be better treated with a multidisciplinary, pre-emptive approach while paving the way for further research and study as it relates to gerontology, epigenetics, and senescence.

CONFLICT OF INTEREST

Howard Murad, M.D., has financial interest in vitamin C, glycolic acid and nutraceutical products distributed and marketed to dermatologists, plastic surgeons, and the professional beauty industry under the name Murad.

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