What’s Playing in Your Waiting Room?
Patient and Provider Stress and the Impact of Waiting Room Media

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Abstract
Patients enter the healthcare space shouldering a lot of personal stress. Concurrently, health care providers and staff are managing their own personal stressors as well as workplace stressors. As stress can negatively affect the patient–provider experience and cognitive function of both individuals, it is imperative to try to uplift the health care environment for all. Part of the healthcare environmental psychology strategy to reduce stress often includes televisions in waiting rooms, cafeterias, and elsewhere, with the intent to distract the viewer and make waiting easier. Although well-intentioned, many select programming which can induce stress (eg, news). In contrast, as positive media can induce desirable changes in mood, it is possible to use it to decrease stress and uplift viewers, including staff. Positive media includes both nature media, which can relax and calm viewers and kindness media, which uplifts viewers, induces calm, and promotes interpersonal connection and generosity. Careful consideration of waiting room media can affect the patient–provider experience.

Keywords
stress, burnout, cognitive function, health care environment, media psychology, emotion contagion, kindness, compassion

Overview
The health care environment is a high stress experience for many patients and staff. In addition to their personal stressors, many patients have significant amounts of anxiety regarding the visit itself, including how they will be treated or if the provider will find a problem. Providers must manage their own personal stressors while providing empathy, caring, active listening, and clear thinking to patients and colleagues in a time-constrained encounter that also demands completion of required administrative tasks.

In addition to its relationship to overall patient and staff satisfaction, stress in the health care environment is important for how it affects decision-making and other executive functions (EFs) as well as how people will subconsciously spread their emotions to one another. An important aspect of the health care experience—the waiting room environment—can either exacerbate or attenuate that stress. In order to better appreciate this complex dynamic, a brief review of the impact of stress is provided accompanied by how the waiting room environment with a focus on the effects of media—can alter the patient’s and the provider’s experience.

Patient and Provider Stress During a Health Care Visit
A patient entering the healthcare space does so likely shoul- dering a significant amount of stress or allostatic load. Even before being seated in the waiting room, a typical American is tied for fourth place as one of the most stressed citizens in the world (1). This is due to many possible stressors, including health and the cost of health care, financial hardship, interpersonal issues, discrimination, workplace stress, mass shootings, climate change, and loneliness, among many (2). Patients may also have physical stressors, including disability, pain, heavy workloads, and so on.

Any individual person, of course, can be experiencing a differential mix of these stressors at any given time. The general, population-level observation resonates with estimates of stress burden in the primary care setting, that is, that 60% to 90% of patients have emotional distress and somatization (3). This observation preceded the COVID-19 pandemic, which has markedly amplified the burden on patients, their families, and staff (4).

It is understandable, therefore, that patients will have varying degrees of tension over the visit. Patient anxiety is further augmented by whether the provider is going to say or find something untoward or that the patient would be

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characterized as difficult if they appear to challenge the physician (5). It is also amplified by prolonged waiting time—the perception of which can contribute to a negative outlook on the care experience by the patient and sometimes yield aggression and even violence (6–8).

A physiologic manifestation of tension is routinely visible in “white coat hypertension,” a well-recognized entity observed in 15% to 30% of patients (9). Consistent with sympathetic nervous system activation during stress, this substantial proportion of patients manifesting criteria-defined hypertension suggests that it is an underestimation of the stressed state of many others, that is, undoubtedly there are many patients who had increases in blood pressure but did not cross that threshold and thus were not labeled with this diagnosis.

Another clinical marker of anxiety is found in patients undergoing a health care procedure. For example, approximately 25% of patients coming to a dentist have moderate to severe anxiety, which is often accompanied by increased gagging (10), need for greater anesthetic (11) and more operative time. Similar observations have been made in other specialties (12,13), likely driven by heightened sympathetic activation with a decreased tolerance for pain (14).

Health care providers also shoulder a lot of stress. On top of many of the same stressors experienced by the general population, they must cope with multiple, concurrent demands and provide support to patients who need compassion in a time-constrained environment. Added demands such as electronic health records create a classic workplace stress of high workloads and low control (15). That providers have burnout, depression and suicide rates twice that of the general public (16–19) is a predictable consequence of these large allostatic loads. Evidence of that pressure in day-to-day interactions is found in the median time to interrupt the patient discussing their agenda: 11 s (20). It is also found in the higher rates of errors in overly stressed physicians (21,22).

Figure 1 depicts an integrated view of some of the manifold situational and environmental stressors that patients and providers (including staff) may be experiencing in a health care office. For any individual on a specific day, the differential mix of these stressors may vary. For example, a patient may enter shouldering a particular personal problem and is worried about their health. Added to this, the provider may be running late, prolonging the patient’s wait time. Other potential stressors, such as the behavior of other patients and staff as well as the clinic environment can impact them. Although these may be separated into individual issues, nonetheless they are integrated in a holistic sense of how stressed someone feels, with many of these effects being subconscious.

What makes this a (more) complex dynamic is that negative emotions and mood (eg, sadness, anxiety, anger) from one cause can spillover onto other issues for that same person. Those other issues can appear worse than they

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Figure 1. Both patients and providers come to the health care setting with their own personal stressors, including finances, health, discrimination, among many others. In the health care setting, additional stressors are potentially imposed, as shown. One of those is how media and other environmental factors will affect them, often subconsciously. The providers will be burdened by a heavy workload in a time-constrained encounter. They will undoubtedly feel the pressure to stay on time and manage their workloads as well as be affected by interactions with staff and other patients. Finally, they likely have had some media exposure during the day, even briefly.
might otherwise under more relaxed conditions, an effect termed “mood congruence.” For example, in the presence of other stressors (eg, a family issue, an unengaged (emotionally cold) staff member), an additional stressor, such as waiting time, is assessed more negatively that it otherwise might have been.

All of these considerations (and more) apply to the provider and office staff, too, as shown in Figure 1. In particular, the provider must be able to adhere to the schedule yet manage a diverse array of issues and be able to actively listen, show caring, and provide an integrated and organized plan while trying to complete the patient’s records in a time-constrained encounter.

**Media Use As A Distraction**

One of the causes or triggers of negative mood in health care can be the media that is displayed in the waiting room, hallways, and elsewhere. Many waiting areas use a television as a distraction. The well-intentioned idea is to occupy the patient and allow the wait to pass more easily.

Very often practices choose commercially available cable programming, such as home and garden or a network that has a mix of talk shows, news, commercials, and so on or sometimes just news. Alternatively, some medical and dental offices may display educational material, services offered at the practice, and occasionally nature media (23).

What can be overlooked is that media has a rapid and often profound impact on viewers. For those waiting rooms still showing the news (as all or part of its programming), it is critical to recognize that negative news can rapidly induce stress, anxiety, and fear (24,25). A news story about a distant war can also induce mood congruence, wherein the mood created by the news can amplify anxiety about the viewer’s personal life issues or the upcoming visit.

And although neutral programming, such as home and garden shows, may be distracting, neutral media may be boring (26). Perhaps thought of as innocuous entertainment, boredom may be mildly-to-moderately stressful, especially when induced in people prone to boredom. Exemplifying its stress induction potential, chronic boredom is associated with increased incidence of disease and death (27). Finally, while educational materials and practice offerings maybe valuable, some patients and visitors may react with fear induction.

Thus, negative (and even neutral) media can instigate a stress response as well as augment the perception of, or reaction to, other stressors in what is likely a vicious cycle. As media is a potent and yet readily changeable aspect of the office experience, it is worthy of attention.

**Consequences of Stress on Cognitive Function and Communication During a Health Care Visit**

Some may view the stress experienced by both patients and providers (including staff) as a natural consequence of the health care environment that needs to be acknowledged and regretfully accepted. This passive acceptance disregards its potential impact. Beyond the activation of the sympathetic nervous system and triggering an inflammatory response, an immediately relevant consequence for that person is that stress also affects cognitive function and behavior that would be critical to patient engagement, activation, and success.

Stress rapidly impairs executive function (EF), the top-down mental processes that are critical for paying attention, assimilating new information, and making decisions (28). Contrasted to more automatic or habitual responses, the 3 core EFs include inhibitory control, working memory, and cognitive flexibility. From these core EFs spring problem-solving, reasoning, and planning/orrganization (29).

Inhibitory control includes the ability to pay attention and focus, such as what the health care provider is saying. Inhibitory control also describes the ability to inhibit a premature conclusion or to restrain undesirable behaviors, such as overeating. Working memory involves holding information in mind and mentally working with it, such as internalizing information from the provider regarding what a patient needs to do.

Finally, cognitive flexibility is the ability to change perspective or point-of-view. Localized in the prefrontal cortex (29), cognitive flexibility uses inhibitory control and working memory to allow for a shift in perspective (“what if I tried something this way?”) or facilitate empathy (“how does the other person feel?”). Adaptability and creativity depend on cognitive flexibility.

As stress disrupts EFs, it impairs decision-making and problem solving in both humans and animals (30,31). When experienced chronically, stress manifests in changes in the amygdala and prefrontal cortex (32) emphasizing that stress has significant biological ramifications.

With impaired decision-making, both humans and animals default to more habitual decision-making processes (such as food choices) (33) or are less able to assimilate and process new information (30,33). Avoidance behavior can also arise as a coping mechanism to avoid any additional stressors (34,35) perhaps explaining, at least in part, why over 80% of patients do not disclose key pieces of information, such as about their diet, exercise, taking medication, and so on (36).

**In the Exam (Hospital) Room**

Let us reconsider the patient–provider encounter focusing on the emotional states of both parties. Our prototypic patient may have active medical problems, is often older with perhaps mild cognitive decline, and may take multiple medications. His or her health care provider has a heavy schedule of patients allotted 15 to 20 min each to acquire follow up information, address new problems, and create, explain, and document a forward plan.
The integrated allostatic load our patient carries into the exam room impedes concentration and engagement. They likely respond more slowly than desired. Our provider, burdened by their own issues and under pressure from time constraints and charting requirements can be strained further by patients who respond with a slow cadence, compelling interruption. Their respective stressors and circumstances will most likely make it harder to listen to one another, process new information, and make decisions.

Another factor complicating this interaction is that emotions are contagious (37–40). Patients who are stressed, anxious, fearful, or angry can spread it to the provider (and staff), who can also spread it to other patients (41) and likely staff. This is a well-described, subconscious process (38,39); both parties likely affect each other without realizing it. Beyond the technical and transactional aspects of medicine, providers, as well as all of the staff, need to emotionally manage the issues of multiple patients and can spread both negative and positive emotions back to the patients.

An integrated view of the examination room interaction is depicted in Figure 2. What is particularly important is how their respective stressors will affect their thinking and behavior, followed by how each party will affect the other. And because of mood congruence, a more negative affect will drive a more severe interpretation of events and interactions, amplifying the perceived negative aspects of the care experience.

There is also evidence how the spread of negative emotions can affect decision-making in clinical care. For example, either directly experiencing or simply witnessing incivility (either as impatience or rudeness) caused anesthesia residents during a training exercise to more likely make incorrect decisions (and actions) regarding a simulated patient with a drop in blood pressure (42). Similar observations have been made for physicians and nurses in a neonatal ICU (43). In nonmedical studies, witnessing or experiencing rudeness also decreases working memory, decision-making, as well as helpfulness (44,45). Taken together, these provide significant motivation to uplift the healthcare environment to prevent, or at least attenuate, cognitive dysfunction.

Beyond how the patient assesses the quality of the visit, an important effect of stress in health care is the development of a positive interpersonal connection with the provider. Optimizing communication is a major driver in patient-centered care and that includes how the patient perceives the compassion or caring of the provider, which, in turn, affects patient trust and activation (46–48). Dissatisfied patients are less likely to engage in their own care as well as trust the provider (48). As stress will affect how patients perceive the provider’s intent and that stress will affect how the provider displays compassion, makes correct decisions and avoids errors, as well as draws satisfaction from their work, it is critical to relieve stress as much as possible.

Figure 2. The patient and provider enter the encounter, each being differentially affected by their own stressors. The weight of those stressors will influence how well they can listen and communicate with one another. Listening is a key aspect for the patient demonstrating that the provider cares about them, creating trust and greater patient engagement. In addition, the emotional state of each is affecting the other. A more negative mood of one party will affect the other and likely create a vicious cycle. Conversely, a more positive mood can positively affect the quality of that interaction.
Stress has Measurable Biological Consequences

Some clinicians might discount the role of psychological stress in clinical care and need to understand the biological consequences to bolster conviction of its importance for patients, for staff, and for themselves. Psychological stress, even in healthy volunteers, who are asked to solve math problems or give a speech, will acutely increase systolic and diastolic blood pressure, heart rate, as well as norepinephrine, cortisol, IL-6, CRP, TNF-alpha, and fibrinogen (49–52). These responses are also observed in response to negative media; study participants exhibit increased markers of inflammation increase as well as changes brain region activity in fMRI studies, effects that are not observed with positive images (53,54).

These acute effects are also seen with chronic stress (55), including increased arterial stiffness, even in normotensive individuals (51,56,57). Taken together, these and other observations link to longer-term studies of chronic stress, increased carotid intima media thickness (50) and directly and indirectly explain the phenotypic manifestations and exacerbations of diseases that the provider treats, including anxiety, depression, hypertension, asthma, diabetes, and atherosclerotic cardiovascular disease (58–61).

Beyond the important psychological and behavioral impact of stress, the biological response to stress in the clinical setting is adding its own pathophysiological burden for everyone involved and re-emphasizes the need to mitigate it.

Making the Health Care Environment Less Stressful

It is understandable, therefore, that the effect of the care environment on psychological well-being has been a focus of health care design (61–65) and is perhaps the simplest change to make to lower stress. Many environmental psychology factors, including noise, layout, color choice, and lighting have been studied and incorporated to varying degrees. For example, natural light from a window has been shown to affect recovery from surgery (64,65) or result in earlier discharge for patients with bipolar disorder (66). This effect also applies to staff; nurses who worked in windowless areas had more stress and decreased alertness than those who worked in areas with windows and external views (67).

Nature and Art in Healthcare

One area of special focus in environmental psychology has been how seeing nature—through direct experience or photography or art—might affect stress and healing. Florence Nightingale observed the importance of experiencing beauty, including exposure to natural light and the ability to look out the window or gaze at flowers. She noted that: “People say the effect [of natural beauty] is only on the mind. It is no such thing—it has a physical effect on the body.’” (64)

The extension of Nightingale’s observation is that exposure to nature, or scenes of nature, decreases stress and has been characterized as “restorative therapy” (68–71). Studies of restorative experiences suggested that the inclusion of plants, or images of plants and other natural elements, decreased reported anxiety or stress (70,72,73) and that this exposure could also help restore attention (63,68,69) as well as enable more rapid healing (71). That is, seeing or experiencing nature could aid in the cognitive dysfunction and delayed healing (74) that stress induces.

In alignment with a decrease in stress and anxiety, nature video or images have also been reported to decrease subjective pain (75) as well as markers of stress (70) and positively affect mood (76). As a result, nature imagery (eg, photography or art) has been incorporated into many health care settings, including emergency rooms and behavioral health clinics, where there is evidence of a positive impact (77,78).

Use Of Positive Media in Waiting Rooms

As the eye is naturally (and subconsciously) drawn to motion, the television is a significant element of the waiting room environment and will command more attention than static images or wall decorations (79).

In contrast to the impact of negative or neutral media described earlier, it is more advisable to show patients positive media while they wait. One aforementioned type of positive media is nature-based. Nature media induces relaxation, decreases negative emotions following a stress-induction period, as well as decreases heart rate, blood pressure, R-R variation (a measure of sympathetic-parasympathetic activity), and facial tension (73). Viewers primed with nature images react faster to joyful speech (80) and display improved EF, particularly attention control (68,71).

A second type of positive media that can reduce stress is that depicting kindness and compassion or other prosocial acts. Studies of this type of media have generally used short video clips (~2-7 min) from commercial programming such as The Oprah Winfrey Show and measured changes in affect and behavior (81–85). In those studies, viewers experienced “elevation,” which is a sense of relaxation while being uplifted, usually accompanied by physical sensations such as warmth (86). These and other studies showed that viewers felt a greater sense of feeling connected to others, including to members of other racial or cultural groups (84) and decreases in dehumanization of others (87).

The impact of kindness media was recently tested in a healthcare setting (pediatric dental clinic) (88). Fifty parents and staff were randomized to view either children’s commercial television or kindness media. This media is a multicultural blend of images of kindness and compassion complemented by kindness-related quotes, concepts,
suggestions, and humor that is streamed into the waiting room. In comparison to children’s programming, viewers of kindness media were more inspired, happier, calmer, and grateful. They were also more generous. This field study opens the prospect of using kindness media to help uplift the healthcare environment.

One of the features of media use is that these effects are largely subconscious or precognitive. That is, viewers’ emotions and behaviors are shaped by the visual primes that they are given, just as they are when seeing negative or violent imagery with increased sadness and aggression (89). As subconsciously interpreted, they are also processed rapidly, a
Envisioning an Uplifted Patient–Provider Encounter

Although the direct relief of stressors (e.g., financial problems) is highly desirable, these take considerable time, money, and cooperation. And although helping patients and staff engage in meditation, exercise, yoga, and other practices would be immensely beneficial, that, too, is also resource challenged.

Given the simplicity and low cost with which media can be deployed, however, consideration of media selection can be an immediate change that can help uplift the health care environment. Minimally, negative and neutral media should be removed. Above all, the news should not be displayed. To actively help reduce stress, use positive media like kindness and nature media. Kindness media can also uplift the environment by inspiring eudaimonia (transcendent happiness) and strengthening interpersonal connection.

It is anticipated that when a more uplifted and relaxed patient enters the examination room, the ported emotional state will spread to the provider, who can reflect it back through better communication and perceived caring, as well as pass it on to others, including staff. In the longer-term, this can help enable heightened patient activation and engagement and provider satisfaction and morale, with clinical outcomes as a beneficiary.

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