CHAPTER 17

Even Heroes Need Help: The Impact of COVID-19 on Physicians Already at Risk for Burnout

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A hero is an ordinary individual who finds the strength to persevere and endure in spite of overwhelming obstacles.
—Christopher Reeve

Growing up in a rural area in California, the child of immigrant Spanish-speaking parents, navigating healthcare was often challenging for the lead author on this chapter. In our various discussions about how to write this chapter in a way that offers context to the hero metaphor we heard so much in the early days of the COVID-19 pandemic, she felt a personal tie to the story. Below, we begin with her story to frame the chapter.

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> My family was relatively low income, their wages below the federal poverty level and my dad's job offered no benefits, which meant we relied on federally qualified health centers (FQHC). Stemming from a family with low health literacy in addition to language barriers, which meant that I acted as a translator at a very young age, I thought physicians were extraordinary. My mom would defer to the doctor's knowledge and would completely rely on the physician's decision making in treatment plans. At medical appointments, the physician was the authority. My parents were not partners or peers in the health decisions.
>
> This kind of behavior is not uncommon for individuals with low health literacy (Yin et al., 2012). (The problematic nature of this dynamic would not be completely clear to me until I was closer to adulthood.) Whether intentionally or not, my parents would place physicians in very high regards, placing them in high status. It was from this upbringing that I developed my understanding of physicians as exceptional, as being different from the people I knew. From my naivety, I assumed that they were unaffected by the same issues as their patients: How else could they do what they did? I assumed that they could see problems from an objective lens and derive solutions from their vast knowledge. I began viewing them as heroes. As I got older, my perception of physicians was challenged. The more I learned about physicians' work and interacted with them, in what felt like a peer level or in a non-medical context, the more I saw them not just as ordinary people but as people in need of support.

In 2019, through a collaborative project with colleagues at Dell Medical School at the University of Texas Austin and the University of California San Francisco School of Medicine, we began shadowing primary care physicians at a local clinic. The focus of that study is to understand the relationship between the objective times as stipulated in physicians' schedules, their subjective experiences of time, and how it relates to burnout. The initial driver for our interest came from a decades-long trend of high levels of burnout among physicians (Passalacqua, 2017) and extensive data showing that issues surrounding time and timing are key stressors that begin with medical training (Klitzman, 2007; Linzer et al., 2000; Özbilgin et al., 2011; Westbrook et al., 2008).

The seriousness of physician burnout and mental illness is reflected in statistics showing that physician suicide rates in the United States (U.S.) are currently the highest of any profession and twice that of the general population (Anderson, 2018). Additionally, the Association of American Medical Colleges estimates that, by 2032, the United States will have a

deficit of physicians (from 46,900 to 122,000) across all specialties. Prior to COVID-19, this was driven by a rapidly aging population, a stagnant rate of new physicians, and an alarming rate of turnover. Problems with burnout have been compounded in light of COVID-19, which has led many doctors to retire early or change professions (Abelson, 2020). During the early days of the pandemic, the public witnessed stark deficiencies in resources (e.g., a lack of personal protective equipment [PPE] and ventilators) and practices (e.g., overwhelmed emergency rooms and long hours). Rather than the tools needed to carry out their work, physicians were largely offered symbolic (rather than material or policy-based) support.

In this chapter, we interrogate the public celebrations of their sacrifice and active framing of physicians as “heroes” in light of ongoing threats to their work quality and personal wellbeing. Rather than supernatural beings (as is suggested by the hero frame), physicians are employees who—under normal circumstances—attempt to carry out their work despite limited resources, rigid schedules, and recurring trauma. We address the interrelationships among burnout, trauma, recovery, and resilience offering examples of how—during the pandemic—healthcare institutions and the general public placed additional, moral-based expectations on a system already teetering on failure. In the following section, we first describe the research setting that we found ourselves in during the weeks and months leading up to the global shutdown caused by COVID-19. We then examine the related literature on trauma, burnout, and recovery—which together make up the larger process of resilience, the focus of our conclusion.

Our Ongoing Fieldwork

The initial phase of our study began with observational data collected in the form of time shadowing, to understand the relationship between time and burnout in primary care medicine. We took an engaged research approach (Barbour et al., 2017) in our interactions with the doctors that began with the process of coordinating with doctors (over email or in person) which shifts to observe in advance. The process of time shadowing then involved three aspects. First, throughout a full shift (averaging five hours) we recorded each physician’s time spent in various locations (e.g., patient rooms, at their desk charting, talking to medical assistants, etc.). Because of the challenges in capturing such information in a physically

dynamic environment where individuals were constantly moving, we typically had two to three team members on site observing the same setting for reliability (as well as practical needs like bathroom breaks). We compared these time observations to what our colleague and collaborator, Urmimala Sarkar, Professor of Medicine at the University of California San Francisco, calls their *fictive schedule*, or the official schedule as determined by the clinic management. From these activities, we gain insight into the differences between what they "should be" doing and the work they actually perform. We stayed with each physician until the end of their shift, which often extended beyond the scheduled time.

A second aspect of the time shadowing included taking ethnographic notes based on salient observations throughout the shift. Depending upon the pace of work or unusual events, sometimes we held conversations with physicians and their team during their shift, including interns, medical assistants, nurses, administrators, and social workers to understand more about what we were observing. Because of the collaborative approach we took to the fieldwork, doctors sometimes asked to see how they were doing, and we showed them the times we were observing and asked any clarifying questions. A third aspect of the shadowing included a brief four-item semi-structured debriefing interview at the end of the completed shift where we asked how typical the shift was, how they felt about it, and whether they felt like they got enough time with patients.

Each physician was observed at least twice to capture a "typical" day. It was during these debriefing sessions that the remaining veil of heroism and imperviousness that the first author had placed on people in the medical profession as a child began to dissipate. During these debriefing sessions, the complexity of each physician's life and the personal and professional challenges they faced came into focus. In addition to the discrepancies they faced between their fictive schedule and their actual, emergent workday, they described a range of emotions. They experienced guilt in their limitation to help patients, pressure and stress from organizational structures to operate in a particular way, delays from inefficient technology, and the challenges everyone faces in just being human. Just like every other profession and every other person, their challenges and issues did not stop when they walked into work or stepped into a room with a patient.

In one debriefing interview, a physician began to cry when describing the exhaustion and frustration associated with the structural conditions she faced in practicing medicine. This mid-career, energetic, well-liked

doctor specializing in internal medicine talked about wanting to help patients while not having the organizational resources to do so. Contrary to what the resilience literature suggests, she described how mindfulness classes had not helped as a buffer against the stressors of the job. Neither had the things she did outside of work to bring more joy to her life helped her ability to cope. Despite her best countermeasures, coming to work still created a feeling of dread associated with facing the same insurmountable challenges day after day associated with inadequate institutional resources.

Thus, the issue of burnout in physicians—the focus of this chapter—was not created by the pandemic, it was exacerbated by it. COVID-19 contributed unique compounding issues to physicians and their work. A few weeks after the debriefing session described above, shelter-in-place mandates were issued across the country in hopes to assuage the spread of COVID-19. Our data collection efforts had to cease and we awaited some return to normalcy, a year later, before contacting our participants again. Nonetheless, we heard stories from and about other physicians about their experiences. We watched in horror as healthcare and government institutions continually failed them, offering platitudes and symbolic gestures in place of material resources.

Not All Superheroes Wear Capes

In much the same way that the first author placed the concept of hero on physicians, the global conversation around physicians and healthcare workers during the pandemic took the same heroic stance. The intentions of everyday citizens were wholesome. They felt helpless knowing the sacrifices being made by these individuals without adequate protection and resources. As Fig. 17.1 shows, in March a hashtag surfaced called #Solidarityat8 that was used to encourage people to go outside every night at 8 pm and cheer, shout, clap, honk their horns, ring bells, or turn on lights to show support for frontline healthcare workers and other essential workers. The Twitter feed for #Solidarityat8 shows people dancing for them, singing for them, showing their appreciation with words, photos, and video. By April, #Solidarityat8 had even given birth to howling as a way to honor doctors and other first responders. Scheier (2020) wrote for the *Los Angeles Times*:

> It began with Italians singing from their balconies. In Spain, people banged pots and pans.

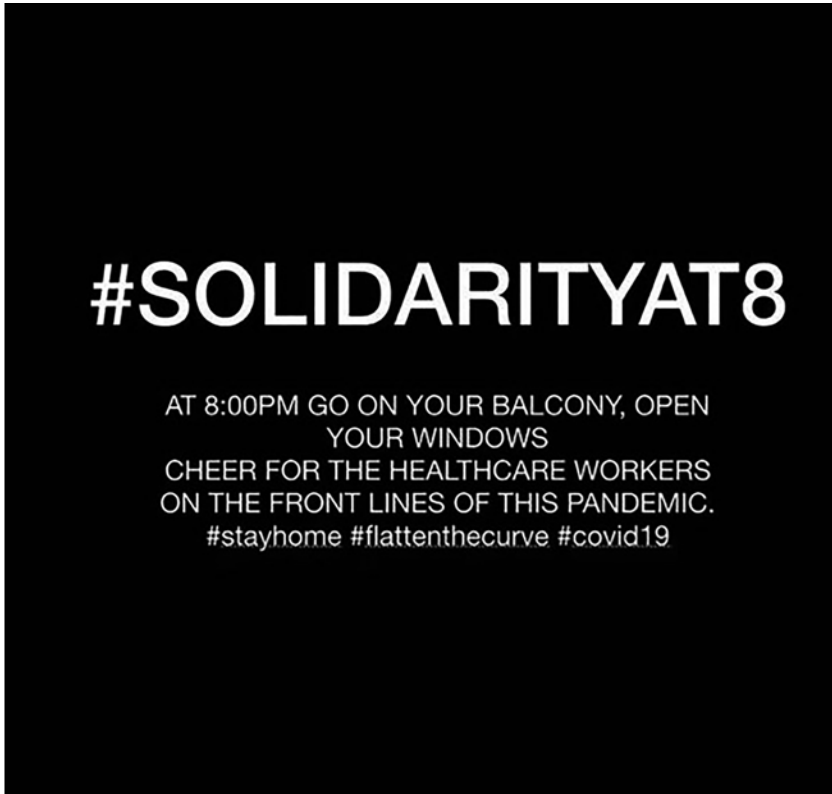

Fig. 17.1 #Solidarityat8 hashtag

But residents of this leafy hamlet north of the Golden Gate Bridge have come up with their own unique way of expressing their gratitude for doctors and nurses on the front lines of the fight against the COVID-19 pandemic. It also gives them some release from their worries and frustrations about the current plight of the planet.

They howl.

The "Mill Valley Howl," as it's come to be known, was started by a retired renewable energy consultant named Huge Kuhn. He was inspired by the social media campaign #SolidarityAt8, which encourages people from New Delhi to New York to go outside at the same time every night and cheer on medical workers fighting the coronavirus.

While this movement had wonderful intentions, and certainly served a cathartic function for the people at home howling or singing or banging their pots and pans together, it did little to help the physicians that we were studying just days before the shutdown.

More helpful were individual and community efforts to donate personal protective equipment (PPE) to healthcare workers (Diaz & Taylor, 2020). There was even a viral story of a farmer in Kansas who sent an N95 mask to Governor Andrew Cuomo to help protect a nurse or doctor (Spector, 2020). Along with the masks he sent, he wrote a letter with his request (see Fig. 17.2). Yet, despite the material and valuable resources offered by many, the impact was modest at best in addressing the preexisting, underlying working conditions that physicians faced before COVID-19. While hospitals and other organizations were erecting billboards and signs to salute the heroism of doctors and other healthcare workers, such as in Fig. 17.3, their already dysfunctional working conditions had deteriorated to intolerable by many (Abelson, 2020). The American Medical Association acknowledged this severity of the problem and underscored how physicians' basic needs were not being met (Berg, 2020):

> In times of crisis and stress, sometimes basic needs go out the window, including food, water, safety and sleep. For example, when physicians work 14- or 16-hour days they may not think about these basic needs….

Additionally, Dr. Linzer explained:

> There is a common fear of acquiring COVID-19 and giving it to family members, loved ones or colleagues…a lot of physicians are unsure about "what is required and doing things that are not easy to understand, and the consequences of not getting it right feel pretty severe."

Among the suggestions made by Dr. Linzer for addressing these stressors was to watch the number of hours worked and to focus on mental health resources: "People need to know about the effects of acute and chronic stress and how to alleviate it, whether it's pushing resilience, meditation or counseling." Therefore, below we address the interrelationships among trauma, burnout, and recovery within a larger process of continually achieving (or failing to achieve) resilience.

March 26, 2020

Dear MR. Cuomo,

I seriously doubt that you will ever read this letter As I know your are Busy Beyond Belief with the disaster that HAs Befallen our country. We currently (As of MARCH 26, 2020) are a nation in crisis. Of that there is no doubt. Your Approach has Been spot on correct. I commend you for that & for especially for telling the truth, something that has Been sorely lacking As of late.

I am a retired farmer hunkered down in N.E. Kansas with my wife who has But one lung and occasional problems with her remaining lung. She also has diabetes. We are in our 70's now & frankly I am Afraid for her.

Enclosed find a solitary N-95 mask left over from my farming days. It has never Been used. If you could, would you please give this mask to a Nurse or Doctor in your city. I have kept four masks for my immediate family. Please keep on doing what you do so well, which is to lead—

Sincerely, Dennis & Sharon

Fig. 17.2 Letter from Kansas farmer donating an N-95 mask to a nurse or doctor in New York

Fig. 17.3 Not all superheroes wear capes billboard

Trauma in the Time of COVID-19

The location where we spent months shadowing physicians and their patients suddenly became one of the central locations in Austin caring for COVID-19 patients. Around the country, and world, other similar sites with doctors already struggling to keep up with the demands of their work while coping with symptoms of burnout suddenly found a new *trauma* unlike anything they faced in the past: treating a deadly respiratory virus without adequate supplies of PPE to protect themselves and ventilators needed to treat patients. Trauma refers to "internal and external life prompts, stressors, adversity, opportunities, and other forms of change. The sources

may originate externally with resultant perceptions of seriousness or internally from thoughts and feelings. The stimuli can be new bits of information, new experiences, or recurring thoughts or feelings" (Richardson, 2002, p. 311). Trauma is the spark that ignites the resilience process.

An especially useful way to conceptualize trauma[1] before, during, and after the pandemic is by understanding that trauma can be either *cumulative* or *acute* (Winwood et al., 2006). Winwood et al. (2006) describe cumulative trauma as reflected in mental, physical, and emotional components (including a depressive element) caused by persistent fatigue. Acute trauma reflects an "'incapacitation'; an inability and/or unwillingness to engage with normal nonwork activities (including self-chosen pleasure activities) as a direct consequence of previous activity" (Winwood et al., 2006, p. 382). Cumulative trauma is experienced as a constant state and is the result of unaddressed and prolonged acute trauma. It develops over time and recovery from it is more complicated than what is required to mitigate acute trauma from one shift.

The challenge associated with treating the trauma experienced by certain physician specialties during COVID-19, such as the internal medicine and family medicine doctors we shadowed, stemmed from the extended and continually expanding period of time that COVID-19 cases were on the rise. The initial estimates of a 15-day time window needed for a worldwide shutdown to, could, contain the virus, soon grew from days to months to the unknown. Therefore, whether a doctor had previously experienced cumulative trauma or not, the likelihood of experiencing both acute and, ultimately, cumulative trauma as the pandemic continued was high. While most experienced the horror of the pandemic from a personal perspective, the millions of deaths lost worldwide were part of both the personal and professional landscape faced by these physicians.

For instance, *The New York Times* featured a story from an emergency room physician, Dr. Colleen Smith, in Elmhurst, Queens, who was explicit and candid about what hospital staff faced in New York (Stein & Kim, 2020). She made a video to expose the conditions in March 2020 and described:

> [Machine beeping] "Today is kind of getting worse and worse. We had to get a refrigerated truck to store the bodies of patients who are dying. We are, right now, scrambling to try to get a few additional ventilators or even CPAP machines.… Leaders in various offices, from the president to the head of Health and Hospitals, saying things like, 'We're going to be fine. Everything's

> fine.' And from our perspective, everything is not fine. I don't have the support that I need, and even just the materials that I need, physically, to take care of my patients….On a regular day, my emergency department's volume is pretty high. It's about 200 people a day. Now we're seeing 400 or more people a day. At first, we were trying to isolate patients with cough and fever and be more careful around them, but we weren't necessarily being extra careful around all the other patients. And then we started to realize that patients who were coming in with no fever but abdominal pain actually had findings on their X-rays and chest CTs that were consistent with this coronavirus, COVID-19…. Ten residents and also many, many of our nurses and a few of the attending physicians got sick. The anxiety of this situation is really overwhelming…We're exposed over and over again. We don't have the protective equipment that we should have. I put on one N95 mask in the morning. I need to have that N95 mask on for every patient I see. I don't take it off all day. The N95 mask I wore today is also the N95 mask I wore on Friday. We're always worried that we'll be out of N95 masks. What's a little bit scary now is the patients that we're getting are much sicker. Many of the young people who are getting sick don't smoke, they're healthy, they have no co-morbidities….I don't really care if I get in trouble for speaking to the media. I want people to know that this is bad. People are dying…."

Similarly, even for healthcare workers not at the epicenter of the pandemic in large densely populated cities like New York, the basic problem of inadequate resources was the same. A local Austin news station (KVUE) ran a story featuring Dr. Natasha Kathuria who likened her experience to a war and explained that the lack of PPE was untenable: "If we can't protect ourselves, there's no way we can (treat patients)—it's like sending our army out to fight with no guns and saying 'Good luck!'" (Marut, 2020). Both Dr. Smith in New York and Dr. Kathuria in Austin gave video recorded interviews showing them visibly distraught and begging for help to do their jobs. Their poor working conditions contributed to acute trauma (because of the daily fear for their lives they described) as well as cumulative trauma (given how long the pandemic lasted). If left untreated this leads to burnout, a topic described next.

Physician Burnout and Recovery During COVID-19

According to Maslach and Jackson (1981), "Burnout is a syndrome of emotional exhaustion and cynicism that occurs frequently among individuals who do 'people-work' of some kind" (p. 99). The concept of burnout consists of three dimensions: *emotional exhaustion,*

depersonalization, and *reduced personal accomplishment* (Maslach & Jackson, 1984). The first dimension, *emotional exhaustion*, refers to being emotionally depleted by contact with other people. The second dimension, *depersonalization*, refers to apathetic and callous responses toward people at work, commonly those who should be the recipients of care or service as well as other organizational members. The last dimension, *reduced personal accomplishment*, refers to a decline in a person's feelings of competence and achievement in their work.

Burnout has been identified as a significant issue in healthcare workers, particularly in physicians. National studies have indicated that both physicians-in-training and practicing physicians report higher levels in all dimensions of burnout when compared to their non-physician counterparts (Dyrbye et al., 2014), with specialties such as emergency medicine, general internal medicine, and neurology reporting the highest frequency of burnout (West et al., 2018). In addition to increasing the likelihood of voluntary departure, burnout has been associated with reduction in patient satisfaction, greater likelihood of malpractice lawsuits, longer patient recovery times, mental and physical health issues for physicians, and reduced work satisfaction among various other issues (Hamidi et al., 2018; West et al., 2018). Results of a survey conducted on behalf of The Physicians Foundation in 2018 found that 78% of the 8774 physicians who responded indicated that they sometimes, often, or always experience feelings of burnout (The Physicians Foundation, 2018).

Abedini et al. (2018) describe two types of burnout: *circumstantial* and *existential*. Circumstantial burnout comes from "self-limited circumstances and environmental triggers" (p. 26). It can be addressed through practices such as nurturing their personal lives, resolving workplaces challenges, and taking time off work. Among the three means of resolving circumstantial burnout, none were available during the early days of the pandemic. First, the human toll and fear associated with COVID-19 as well as shelter-in-place mandates and closures of many public spaces (i.e., restaurants, bars, movie theaters, and recreational facilities) made it challenging for physicians to nurture their personal lives. Second, the lack of PPE and ventilators made it difficult to resolve workplace challenges. Third, taking time off work was not easy because of the rise in patients needing to be seen (as Dr. Colleen Smith described in Elmhurst, Queens).

Existential burnout comes from a loss of meaning in medicine and an uncertain professional role. It requires other methods of resolution including recognition of burnout, forming connections with others in their

workplace, finding meaning in medicine, feeling validated, forming a professional identity, clarifying professional roles, and focusing on career development. It would be comforting to imagine that the hero narrative allowed doctors to find the validation, meaning, and identity formation they needed to resolve existential burnout caused by the COVID crisis. However, the toll of the trauma and the lack of recovery were more highly documented than any stories of how being called a hero helped them to cope. To the contrary, Dr. Lorna M. Breen, the medical director of New York Presbyterian Allen, one of Manhattan's hardest hit hospitals, died by suicide while home recuperating from COVID-19 because of the work conditions she faced (Watkins et al., 2020).

> The elder Dr. Breen said his daughter had contracted the coronavirus but had gone back to work after recuperating for about a week and a half. The hospital sent her home again, before her family intervened to bring her to Charlottesville, he said…
>
> Dr. Breen, 49, did not have a history of mental illness, her father said. But he said that when he last spoke with her, she seemed detached, and he could tell something was wrong. She had described to him an onslaught of patients who were dying before they could even be taken out of ambulances.
>
> "She was truly in the trenches of the front line," he said.
>
> He added: "Make sure she's praised as a hero, because she was. She's a casualty just as much as anyone else who has died."
>
> In a statement, NewYork-Presbyterian/Columbia used that language to describe her. "Dr. Breen is a hero who brought the highest ideals of medicine to the challenging front lines of the emergency department," the statement said.

Note that the war metaphor resurfaced in this story and the hero metaphor was prominent and embraced. Our argument is not that their work was not heroic, but that sometimes this metaphor is invoked by institutions to sidestep the issue of personal safety and recovery. Key to war metaphors is a short-term time frame wherein individuals must continue, without relief, until the enemy retreats.

Reports of Dr. Breen's life suggest that she had done everything right to reduce symptoms of burnout prior to the pandemic. The story continues:

> Aside from work, Dr. Breen filled her time with friends, hobbies and sports, friends said. She was an avid member of a New York ski club and traveled regularly out west to ski and snowboard. She was also a deeply religious

> Christian who volunteered at a home for older people once a week, friends said.
>
> Once a year, she threw a large party on the roof deck of her Manhattan home.
>
> She was very close with her sisters and mother, who lived in Virginia.
>
> One colleague said he had spent dozens of hours talking to Dr. Breen not only about medicine but about their lives and the hobbies she enjoyed, which also included salsa dancing. She was a lively presence, outgoing and extroverted, at work events, the colleague said.

Thus, by all accounts she was engaged in the routine recovery behaviors touted as solutions in the resilience literature. Dr. Breen's story was heartbreaking. We appreciated that the story of her death made it clear to anyone who was paying attention that she had all the personal and social tools to thrive in her chosen profession, but that the insurmountable institutional structures she faced were too high. Her resilience was broken, stretched too far. Many commentaries were written during the months to follow warning of a rise in physician suicide unless countermeasures were taken to protect their lives (Gulati & Kelly, 2020; Kingston, 2020). Thus, we conclude this chapter with our shared vista on the issue of physician resilience.

A Shared Vista on Physician Resilience Before, During, and After COVID-19

In one of our early conversations with a psychiatrist, an expert in resilience, responsible for supporting the mental health and wellness of physicians, we learned that there are no easy or fast answers. She told us that all the resilience interventions described in the literature—such as going for a walk, mindfulness mediation, or journaling—required that doctors actually had time to regularly practice them. She confessed feeling frustrated at the fact that she regularly counsels doctors to adopt practices that the larger institution of medicine will make nearly impossible. This was two years before COVID-19 emerged. In light of what unfolded during the early days of the pandemic, the situation felt hopeless to us as researchers reflecting on how our participants would likely fare during and after this colossal assault on their work and their bodies. We talked about how they were doing, worried about them, knowing that they would be asked to cultivate resilience, without any structural support to do so.

The concept of *resilience*, believed to originate in ecology (Batabyal, 1998), has been applied in a variety of social science disciplines, including communication studies (Buzzanell, 2010). Early psychological research on resilience focused on traits that prevented "at risk" children from developing psychopathological disorders (Garmezy, 1993; Masten et al., 1999). The idea of resilience as a trait soon lost its popularity for a more complex understanding of resilience as a process (Richardson, 2002). It was no longer understood as something someone possessed or lacked but was something in which an entity engaged. The construct of resilience has moved far beyond its original focus of children and expanded to studying adults, teams, organizations, communities, and even nations (Afifi, 2018; Buzzanell & Houston, 2018; Doerfel & Haseki, 2015).

Based on an extensive review of the literature, Krause et al. (2001) found that psychosocial job characteristics predicted the resilience process. Factors including time pressure, physically demanding work, low control over work-rest schedule, and long work hours predicted prolonged work disability. In contrast, improvements in these stressors led to greater resilience. Recent work by Shakir et al. (2020) extended these findings. In a study of neurosurgical residents in the U.S., the number of personal and social stressors faced by respondents was associated with reduced resilience and increased burnout. Similarly, when personal and social stressors were minimized their resilience improved.

None of the findings about resilience, recovery, and burnout are surprising. The COVID-19 pandemic would certainly qualify as a personal and social stressor as Shakir et al. (2020) describe. No one was responsible for its occurrence and, fortunately, it has already improved. We hope that it will continue to do so. However, many psychosocial job characteristics are under the control of key decision makers. These factors can be addressed and the data suggests these changes will minimize burnout, improve resilience, and decrease turnout. The vista we consider in conclusion is whether these issues will ever be addressed. Below are ten important professional events of our past and ten important professional events in the future that reflect our shared vista. We project an optimistic future because we are both optimists by nature. Nonetheless, the scatterplot for this chapter suggests that if we are too optimistic in our vista, the hero trope for physicians and other healthcare workers will continue, and doctors will trade adequate working conditions for electronic billboards that celebrate their heroism (Fig. 17.4).

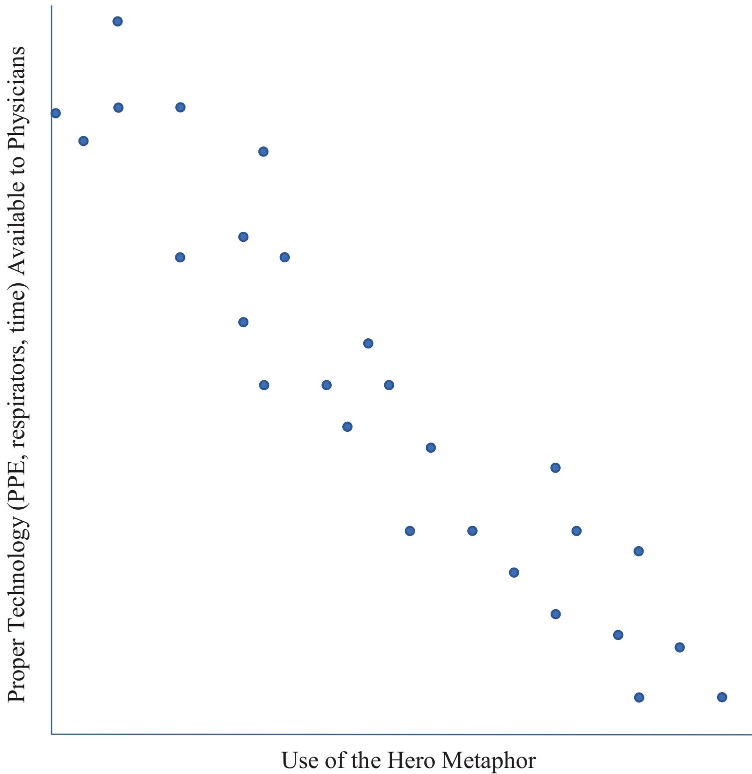

Fig. 17.4 Scatterplot depicting the relationship between the needed technology afforded to physicians and the use of the superhero metaphor

1994–2007: Ana works as a translator, accompanying her parents to the medical appointments in a rural part of Northern California. It was then that she began to see doctors as heroes.

March 2016: Dawna gives a talk about time in work at the South by Southwest conference in Austin Texas and meets Dr. Urmimala Sakar who introduces herself and invites Dawna to give a talk at the University of California, San Francisco (UCSF) Medical School.

September 2016: Dawna travels to UCSF, and during small talk between meetings, Dawna asks about a typical day for her and

Urmimala mentions the fictive physician schedule. Dawna is fascinated and they jointly decide to study the relationship between time and burnout in primary care medicine.

August 2017: Ana and Dawna begin to study resilience and meet with Dr. Carrie Barron, the Director of Creativity for Resilience at Dell Medical School.

2017–2018: The study gets underway and the research team (comprised both UT and UCSB members) begins to meet and iron out details needed for approval from their Institutional Review Boards. The initial team includes Ana, Urmimala, Dawna, Dr. Mike Pignone, Dr. Liz Jacobs, Kate Sebastian, R.N., and Dr. Deepak Maharaj.

April 2019: The UT Austin arm of the research team receives IRB approval and begins shadowing local physicians at a CommUnity Care Clinic.

March 2020: All research at CommUnity Care Clinic shuts down because of the COVID-19 pandemic.

March 2020: All the local healthcare organizations in Austin and around the U.S. begin erecting signs saying things like, "Heroes Work Here." Physicians and frontline workers beg for help from the U.S. government and receive mostly platitudes.

August 2020: Ana moves back to Northern California in order to complete her dissertation.

April 2021: Ana defends her dissertation prospectus "Time in Trauma: Burnout and Recovery of Physicians' Work" and advances to candidacy.

May 2021: Ana begins interviews with physicians at CommUnity Care and Zuckerberg San Francisco General Hospital.

June 2021: Dawna continues to work with Dr. Victor Montori at Mayo Clinic (and the co-founder of the Patient Revolution) to learn how to redesign time to create a model for careful and kind care.

July 2021: Ana completes remaining data analysis and dissertation write-up.

August 2021:	Ana files her dissertation and earns a doctorate in organizational communication and technology from UT Austin.
August 2021:	Ana begins her position studying time and resilience in healthcare.
September 2021:	Dawna completes her book, *Time by Design*, published with MIT Press.
2022:	Dawna's work with Victor goes live in the field at Mayo Clinic.
2026:	Ana becomes a leading advocate for healthcare reform.
2028:	Structural changes are made in healthcare delivery that increases the resilience of physicians and other healthcare workers.
2032:	Retention rates of physicians are on the rise, and more people go into the profession of medicine because important changes being made in medical training and healthcare delivery.

Note

1. In this chapter, we have opted to use the term of trauma, but it should be noted that the term is closely related and will be used interchangeably with the terms *stressors*, *disruption*, and *fatigue* to reflect the original language used in their respective fields (Huibers et al., 2003; Leone et al., 2011). All the terms are used to indicate the same construct within a larger process of resilience.

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