



Healthy Habits: Positive Psychology, Journaling, Meditation, and Nature Therapy

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Mitigating Stress

Stress – A Helpful Versus Harmful Response?

Stress is an inherent part of life, evoked by a multitude of psychological and physiological triggers such as emotions, illness, lack of

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sleep, and even excessive physical exercise [1]. Stress is also common to the practice of medicine, as shown in Table 14.1. If one considers some of their “stressful” experiences along their medical journey, this may bring to mind reminders of exams, having had to perform clinical skills or procedures, manage acutely unwell patients, manage a difficult situation or adverse event, being sleep deprived on call, and even going through residency interviews. These experiences still vividly stand out in one’s minds given the emotional response, angst, and anxiety they provoked.

While the goal for many is to reduce stress when possible, it is important to remember that at times, stress can be a normal physiological survival response to maintain life and enhance performance. Consider the Yerkes-Dodson law, shown in Fig. 14.1. This is an inverted-U shaped graph which depicts how performance changes with one’s level of arousal or stress [3]. Too little stress

Table 14.1 Specific factors that can promote stress in resident physicians [2]

Factors contributing to stress
Academic workload
Exams and frequent evaluations/observation
Inadequate study habits
Poor time-management skills
Competition with peers
Time spent commuting
Time spent using technology or completing documentation
Conflicts in work-life integration
Romantic relationship management
Family demands
Financial difficulties
Inadequate nutrition or hydration
Sleep deprivation
Psychological/psychiatric condition
Other medical condition
Exposure to human suffering
Medical error or adverse events
Fears of failure or pressures to perform/excel

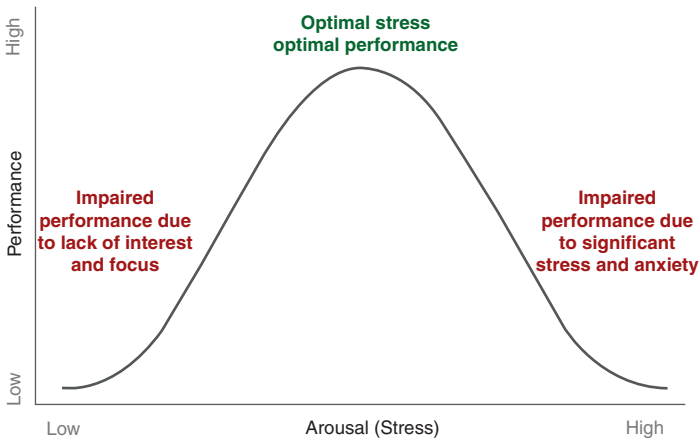


Fig. 14.1 The Yerkes-Dodson law. (Adapted from Ref. [3])

may mean one does not feel interested in studying, for example. A resident in this position could find it difficult to focus on the task at hand, perhaps even leading to avoidance or procrastination at the extreme. This could result in poor performance on their OSCE or difficulties in completing the procedure they were expected to perform on rotation the following day. In this case, some stress can be adaptive and perhaps even protective. (For more details on stress, see Chap. 8)

Of course, the Yerkes-Dodson law also suggests that one's performance improves with stress, but only up to a certain point [3]. With too much stress and arousal, performance begins to decline again as individuals experience significant anxiety and feel so overwhelmed that they are unable to focus and function. This is where stress can be harmful and when tools to reduce or combat stress can be imperative.

Review of Stress Physiology

Known as the “flight-or-fight” response, stress causes a cascade of events triggered by the sympathetic nervous system [4]. As shown in Fig. 14.2, and discussed elsewhere (see Chap. 7), the stress

hormone, cortisol, is released by the adrenal glands, which has subsequent impacts on the body. When the body is faced with a “stressor” (e.g., emotion, disease, toxin) the hypothalamic-pituitary-adrenal axis is activated. The release of cortisol triggers an acute release of epinephrine and norepinephrine which increases blood pressure and can cause palpitations, feelings of panic, and brain fog [4, 5].

As shown in Fig. 14.3, a chronic rise in cortisol has detrimental outcomes to several biological systems; one such example is the

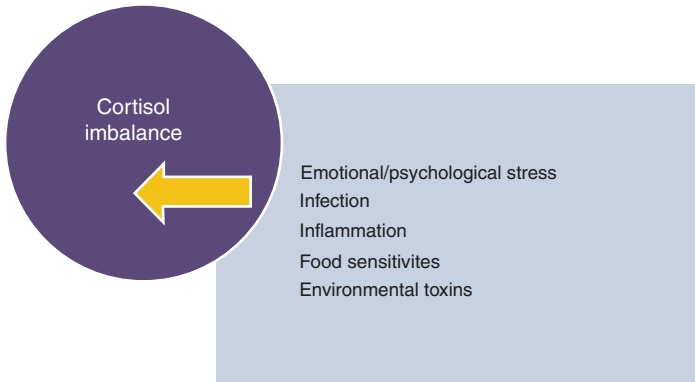


Fig. 14.2 Factors that increase cortisol

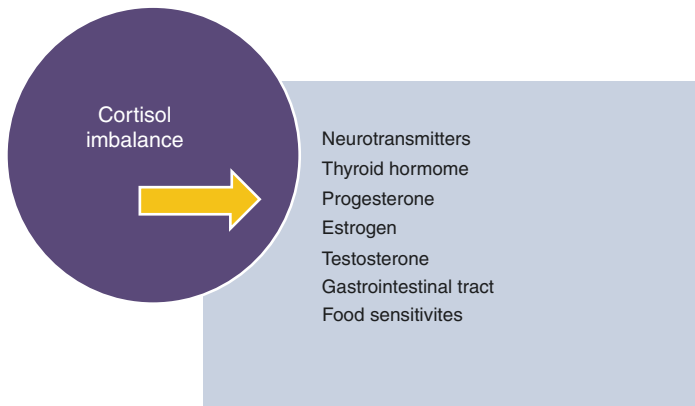


Fig. 14.3 The physiologic factors affected by stress

pancreas, manifested by increasing blood sugar and body fat as the pancreas struggles to keep up with the high demand of insulin, which results in weight gain [6]. Stress also impacts the gut, including the bacterial flora balance [7]. When the gut ecosystem is off balance due to stress, not only can this result in symptoms of abdominal pain, bloating, and ulcers, but there is a cascading effect on the immune system since 80% of the immune system resides in the gut [5, 7, 8]. Moreover, chronic cortisol can further affect the gut-brain axis, defined as the “relationship between the gut microbiome, digestive health, and cognitive function, memory, depression, anxiety and other mental and behavioral health issues” [8].

The cascading effect of hormonal imbalance secondary to stress can impact the health of medical students and physician trainees. Studies have shown that stressors affecting medical students can be associated with “depression, burnout, somatic distress, decreases in empathy, serious thoughts about dropping out of medical school, suicidal ideation, and poor academic performance” [4]. Medical students and medical trainees pursue a career to care for patients who present with illness and suffering. However, what tools and options do these physicians in training have to keep themselves healthy and combat the negative effects of sustained high stress levels associated with the demands of becoming a physician, to maintain their performance and well-being?

Tools to Cope with Intense Stress

Today, it is not uncommon for individuals to practice yoga, schedule routine massage therapy sessions, or meditate on a regular basis. These practices are now more socially accepted than ever and are incorporated into, for example, child and adolescent education programs, with benefits to physical health, psychological well-being, social skills, and academic performance [9]. In North American medical training, where burnout is rampant, policy changes have been put in place, such as restricting the work week to a maximum of 80 hours to improve patient safety and minimize trainee burnout [10, 11]. Medical training institutions are now

deliberately providing programs that empower frontline hospital staff and trainees with “nontraditional” outlets to deal with psychological stress and improve well-being, such as mindfulness training [12, 13].

Strengths and Virtues: Utilizing Positive Psychology to Propel One Forward

When unrelenting stress persists, this can lead to burnout which in turn can lead to the development of a mental health condition. Stress in this case depletes one’s resources and stamina, such that one is no longer functioning at their best. When physicians are affected by burnout or the ill sequelae related to this, it is often believed that they are lacking resilience or capacity to maintain their well-being. Mental health/resilience and mental illness/burnout had formerly been considered dichotomous ends of a single linear spectrum (as seen in Fig. 14.4). Recent research suggests otherwise. For example, a study of over 280 physicians from the UK discovered that physicians could have high levels of resilience, while also being affected by burnout and secondary traumatic stress, illustrating that burnout and resilience may in fact be unique and distinct entities [14].

Over the last few years, the idea of burnout vs. resilience and mental illness vs. mental wellness has evolved such that these terms are now understood to be distinct phenomenon on related but separate spectra. A two continua model, as shown in Fig. 14.5, has been proposed [15]. This demonstrates that well-being is not solely defined by the presence or absence of disease or distress but rather by a state of emotional and psychological health in which one is accepting of themselves, adaptable and flexible in the context of daily stressors, engaged in social relationships, and carries with them a sense of purpose and confidence in their own abilities



Fig. 14.4 Traditional model of resilience versus burnout

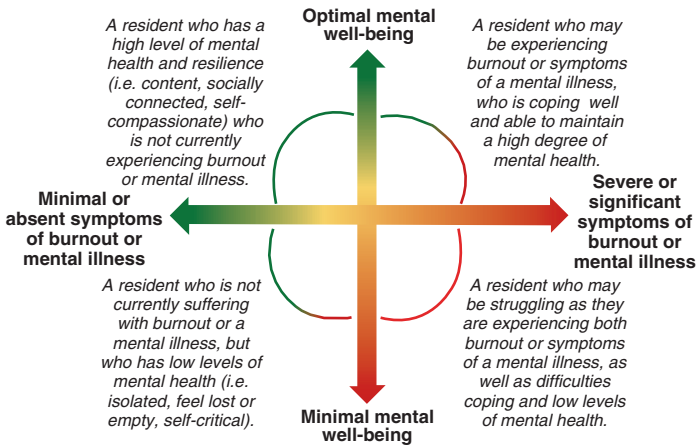


Fig. 14.5 The two continua model of mental well-being and mental illness. (Adapted from Ref. [15])

[15]. Beyond this, it demonstrates that it is possible for a physician to possess such skills and positive mental health, while still experiencing symptoms of a mental health condition or even burnout [15]. This is important to consider as physicians tend to internalize burnout or their struggles as a form of personal weakness or as reflective of some type of deficiency. Yet this self-blame may not be entirely fair or justified as there are many other external factors and those beyond one's control that can lead to impairment and development of injury or illness. This idea is similar to the notion that a person can still develop a cold despite taking the best preventative efforts.

So how can one utilize this model to foster overall well-being? Regardless of where physicians find themselves within the continua, adopting a strengths-based approach can be utilized to promote overall mental health and well-being. This approach can also be used to foster coping and to work through the challenges and stressors that may be contributing to burnout and suffering. Strength-based interventions are a component of positive psychology. This is a practice which acknowledges and develops one's strengths or skills that otherwise would be minimized by innate cognitive distortions and biases. Positive psychology also

helps one to learn to reframe negative situations or challenges in a way that is empowering.

Within medicine and medical training, challenges and stressors are a common daily experience. As many physicians can attest, such experiences can lead to becoming bogged down and stuck in a negative cycle which may fuel self-criticism and highlight one's vulnerabilities. This can further promote cynicism and feelings of defeat, leading such situations to appear daunting to overcome or move beyond. By acknowledging personal strengths and utilizing them at work, mood and self-concept can be bolstered as well as building confidence in the face of adversity or stress.

Though a paucity of data exploring the use of such an intervention among healthcare providers remains, current research is promising and has demonstrated that utilizing strengths, with patients suffering from mental health conditions, can be associated with positive affect, overall well-being, life satisfaction, and even recovery from mental illness [16]. When utilized in the workplace, benefits with regard to engagement and finding meaning in one's work, as well as a sense of competence and job satisfaction were noted, which may help to prevent and protect against burnout [17, 18].



Skill-Building Exercise: Living in Line with One's Strengths and Values

For some, the concept of utilizing personal strengths may seem simple. While it can be a straightforward and effective tool, reflecting on and acknowledging personal strengths may be uncomfortable, particularly for those who may be self-critical. Knowing how and when to best practically apply this tool can also seem overwhelming when starting out. Consider utilizing the following steps to help guide you:

1. **Identify your *core* or *signature* strengths.** These are a set of strengths that are deemed to be central to your identity, and highly valued [19–21].
 - (a) To assist with this, consider using a free online survey for character strengths (e.g., the online VIA Character Strengths Survey; see section “Additional Resources”) or reflect on what a loved one or colleague might say about your strengths and abilities.
 - (b) Following your own personal reflection or completion of the survey, identify your top four to five strengths.
 - (c) Reflect on these findings:
 - Are you surprised by the results?
 - How might you be utilizing these strengths already?
 - How have these strengths helped you succeed and overcome obstacles in the past?
2. **Utilize these strengths in your day-to-day activities, and particularly when challenges or difficulties arise.** Research has shown that applying at least four of your core strengths in your work can help promote more positive experiences [17].
 - (a) Think about your current rotation, clinical activities, or extracurriculars. Are these utilizing or building on your strengths? If not, consider ways in which you could capitalize on or incorporate these strengths in your daily commitments.
 - (b) Think of a time recently that was difficult, when you felt you struggled or when you were particularly hard on yourself. Instead of thinking about this from a perspective of something that needs repair or fixing, consider how this weakness or vulnerability may in fact be considered a strength. What does this say about your character or your values? Consider how such strengths may be utilized to help you overcome such challenges in the future.

- (c) Think of a challenge you are currently facing, or which may be arising in the future. Consider how your core strengths may help you to work through or cope with this challenge.

***Bonus Tip:** Consider setting SMART (Specific, Measurable, Attainable, Relevant, and Timely) goals for yourself to help apply your strengths and skills, and to turn these strengths into positive habits [22].*

Journaling: Harnessing the Healing Power of the Written Word

Journaling and diary writing have been practiced for centuries. Though initially used to document observations, chronicle travels and discoveries, or detail life events and experiences, it was not until the 1960s and 1970s that this practice was discovered to have therapeutic value, such as promoting personal growth and wellness [23].

Currently, several different forms of journaling and written expression exist; however, writing in general is thought to be beneficial, and considered to be one of the most effective creative outlets that helps to lessen psychological distress [24]. Written disclosures are postulated to be effective through the facilitation of emotional expression, which provides a safe and adaptive release of emotions, as well as cognitive processing which helps to restore a sense of meaning and instills motivation for ongoing growth and development [25].

Regardless of the form or purpose of writing, evidence has supported its use in optimizing wellness. A meta-analysis demonstrated that written emotional expression even among healthy individuals conferred benefits with regard to one's physical health, psychological well-being, and overall functioning [26]. Other studies which have explored the use of journaling, particularly about stressful or difficult events, have demonstrated reductions in distress and depression, reduced physiological arousal and

long-term physical health problems, as well as promoted more effective coping skills, improved social supports, and strengthened relationships [24, 25].

Written expression has also been explored among medical trainees across specialties, specifically as an educational tool. Such studies have demonstrated that journaling or reflective writing can be used as a means to develop meaning and expand one's understanding, build capacity for critical thinking and reasoning in the face of uncertainty or adversity, and hone essential communication skills [27, 28]. From a therapeutic perspective, writing can promote self-reflection and introspection and facilitate release of stress and self-soothing to heal and recover from the array of difficult and traumatic human experiences to which providers are exposed [28]. Perhaps most importantly, writing has been shown to promote and build empathy among medical trainees, which may serve to protect against the decline in empathy and rise in cynicism that is often seen during one's medical career [27].



Did You Know?

There is no “one size fits all” when it comes to journaling practices, content, or habits. Some variations in the practice of journaling are highlighted in Table 14.2.

Gratitude journaling has garnered considerable attention as it has been shown to be an effective psychotherapeutic intervention [30]. Through consciously attending to the positives in life, one's mindset can be shifted away from negativity and rumination, and this places greater value and meaning on certain experiences or aspects that would otherwise be taken for granted or minimized. Even in the most difficult of situations, gratitude promotes mindful compassion, allowing one to both acknowledge the challenges or pain that one may be experiencing and to also discover a silver lining of unrecognized benefits that can be transformative and healing [30].

Table 14.2 Journaling strategies

Type of journaling practice	Description
Morning pages	A simple freeform style of journaling, perfect for beginners or skeptics. The only guidelines are solely to write three pages, of whatever comes to one's mind, first thing in the morning. This practice can help to center and clear the mind, release troubling emotions, and promote creativity.
Gratitude journaling	Reflecting and documenting on aspects of the day that one is grateful for. This exercise focuses on what is already in existence in one's life. This practice can elicit positive moods and build long-term resilience.
Reflective and expressive writing	Denote emotional responses to different events that took place throughout one's day. This will provide a forum to process and cope with stressful events, while dealing with both positive and negative experiences.
Bullet journal or personal planning journal	Journaling can consist of a laundry list of to-do's, personal goals, and general experiences that one does not want to forget. This is an aid to "unclutter" the mind and focus on the important things in life. This also is an exercise that provides greater personal organization and in essence decreases stress.
Compassionate journaling and letter writing	Covered further in Chap. 15.

Adapted from Ref. [29]

Gratitude journaling, which often takes the form of creating a list of the benefits or gifts one has experienced, can work in several ways. It has been shown to be associated with positive health outcomes such as reductions in blood pressure, improved immune functioning, increased energy, as well as better quality sleep [30]. Psychologically, expression of gratitude regularly works to foster happiness and optimism, self-acceptance, life satisfaction and meaning, as well as to strengthen interpersonal relationships and promote prosocial behavior [30, 31]. Gratitude is also a method of developing resilience and is thought to have a protective effect by reducing the lifetime risk of anxiety, depression, and substance use disorders [30–32]. Given this, gratitude may also be helpful

for the physician as a tool to maintain wellness and protect against burnout, as has been suggested by preliminary small studies examining the use of gratitude among psychiatry and family medicine residents [33, 34].



Skill-Building Exercise: Gratitude Journaling

Gratitude practices are known to be both effective and simple. Without much time commitment, they can be easily integrated into one's schedule at the end of a day before sleep. Reaping the most benefits from expressing gratitude requires some regular practice. Consider offering some gratitude over the next few weeks, using the steps below:

1. *Reflect*

- Consider the past few days, even if they have felt mundane and boring, or have been highly stressful and difficult.
- Begin to identify things in your life that you feel grateful for, took pleasure in, or are proud of. This may be simple everyday pleasures, personal strengths or accomplishments, recognition of something beautiful, joyful, or positive, or having received gestures of kindness from another.

2. *Record 3–5 items*

- Research has shown that the act of writing out what one is grateful for, rather than simply thinking about this, helps to organize one's thoughts and promotes deeper acceptance, which increases the efficacy of the practice [30].
- After some time to reflect, choose three to five items or experiences that you are feeling especially grateful for, and write this down in a journal.

3. *Savor*

- To let the value and meaning of these experiences really sink in, take a few moments to savor and appreciate these.
- If this is difficult, imagine what it would be like if these things that you identified did not occur or were not in your life [35].

4. *Repeat*

- To reap the most benefits from this practice, it is important to begin to express gratitude regularly. You may find that particularly when starting out, you need to follow the above steps until this practice becomes more reflexive.
- While those who are particularly keen may aim to practice gratitude on a daily basis, research has in fact shown that gratitude journaling for 15 minutes once or twice a week may in fact be more effective than a daily practice [36].



Did You Know?

There are a wide variety of gratitude practices that help to foster the skill of gratitude. If gratitude journaling is not the right fit, consider some alternative gratitude practices, which are highlighted in Table 14.3.

Mindfulness and Meditation: Awareness of the Present Moment

Meditation and mindfulness have well been in existence for centuries; however, it particularly grew therapeutically in light of Jon Kabat-Zinn's work in mindfulness-based interventions [38, 39]. Mindfulness may be defined as awareness that arises from attend-

Table 14.3 Gratitude practices

Type of gratitude practice	Description
Grateful contemplation	Only have a few minutes to spare? Spend 5 minutes simply reflecting and considering things that you are grateful for or recent positive experiences. This can help to improve one's mood in the short term.
Expression of gratitude to another	Expression of gratitude, appreciation, or thanks to an individual either through a small note, longer letter, or in-person during a visit/encounter. This often provides benefits with regard to happiness and psychological well-being to both the individual providing gratitude and the other on the receiving end.
Gratitude rounds	Protected time for 30–60 minutes in which residents and faculty meet to discuss satisfying and gratifying encounters with patients, express appreciation for colleagues who have been supportive, and review the aspects of their careers and training which they enjoy. Preliminary evidence supports that this helps promote collegiality, sense of connectedness with others, and boosts mood and sense of purpose/meaning through rediscovering one's joy of medicine.

Adapted from Refs. [31, 37]

ing purposefully and with curiosity to the present moment and without judgment [38, 39]. A typical mindfulness meditation session brings thoughts into the present, focusing on emotions and sensations that are being experienced “in the now.” While it can be initially difficult to quiet thoughts, time and practice can lead to experiencing the benefits of mindfulness meditation, including stress mitigation and reductions in psychological distress [40].

The potential benefits of mindfulness are far-reaching. Generally, mindfulness practices have been shown to increase activation of the parasympathetic nervous system, helping to calm the body through reductions in heart rate, blood pressure, tension, and cortisol [39]. Beyond this it has profound interpersonal and psychological benefits including fostering a sense of connectedness, enhancing empathy and compassion, reducing negative emotions, lessening rumination and anxiety, and reducing depres-

sive symptoms and risk of recurrence [39, 40]. Several studies have also demonstrated that such benefits may also extend to healthcare providers such as staff physicians, resident physicians, and medical students. This evidence supports the use of mindfulness as a valuable tool to cope with the stressors inherent in medical training by promoting positive affect and reducing stress and psychological distress [41]. Mindfulness practices have also been associated with sustained reductions in burnout among physicians, and reductions in anxiety and depression [41–44]. They are also thought to promote humanism in medicine through improving patient-centered care and enhancing connections between patients and providers, as well as enhancing empathic communication and attentive listening [45].

Mindfulness techniques vary, but in general, mindfulness meditation involves a breathing practice, awareness of body and mind, and muscle relaxation. The majority of focused mindfulness techniques begin by instructing individuals how to use a “meditative anchor” [46]. The most commonly taught meditative anchor is that of observing one’s breath. Developing full awareness of one’s breathing helps individuals to “step back and watch the mind” while in the present moment [46]. This can be particularly effective in regulating emotions, as by simply observing this and avoiding judgment works to decouple one’s emotions from maladaptive thoughts which often further amplify the emotional reaction [47], and provides needed time and space to process this. Some practical tips for implementing mindfulness are illustrated in Table 14.4 [46].

Individuals can incorporate mindfulness meditation into their daily lives in various ways since there is no strict requirement for sitting down in a quiet room as a necessary condition. Consider the following examples [48]:

- *While running on the treadmill*, turn off all screens and focus on breathing and where your feet are in space as they move.
- *While brushing teeth or in the shower*, feel the brush in your hand, the movement of your arm as you brush your teeth, and the sensation of your arm moving up and down, and your feet

Table 14.4 Tips for implementing mindfulness techniques

Tips	Techniques
Use meditative anchors (e.g., breath awareness)	<p><i>Examples:</i></p> <p>“I’m breathing in, I am fully aware of my in-breath” and “I’m breathing out, I am fully aware of my out-breath.”</p> <p>“I’m breathing in, I am here; I’m breathing out, I’m now.”</p> <p>“I’m breathing in, there is nowhere I need to be; I’m breathing out, I am already home.”</p>
Do not force the breath	The breath should follow its natural course and to calm and deepen voluntarily.
Adopt an appropriate meditation posture	<p>A good physical posture is needed to help promote a good mental posture.</p> <p>Formal seated meditation sessions are considered an important aspect of mindfulness training; however, there are other ways to practice mindfulness during everyday activities.</p> <p>The meditation posture requires stability, which can be achieved whether sitting upright, on a chair, or on a meditation cushion.</p>
Use “mindfulness reminders”	This is a strategy for maintaining mindful awareness during everyday activities. For example, this can be an hour chime from a wristwatch, which upon sounding can be used as a trigger by the person to gently return their awareness to the present moment and to the natural flow of their breathing.
Integrate mindfulness into everyday life	<p>The practice of mindfulness is less about finding the time to practice and more about remembering to engage a mindful attention-set during whatever activity one happens to be engaged in.</p> <p><i>Example:</i></p> <p>As you read this chapter, are you fully aware of your breathing? Can you feel your chest or stomach as they rise and fall with each breathing in and out? Can you feel your body weight on the chair you are sitting on? Are you fully present as you read this or is your mind wandering to what you will be doing next? In summary, are you fully aware of each moment of your life as you are experiencing it?</p>

Adapted from Ref. [46]

on the floor. If you are in the shower or bath, listen to the water falling, notice what the water feels like against your skin.

- *While driving*, you can put on soothing music or turn off the radio. Find the half-way point between relaxing your hands and gripping the wheel tightly. Notice when your mind wanders and redirect your attention to where you are.
- *While eating*, avoid any distractions such as the phone or television. Slow down the ritual of eating by taking time to notice the food, smell it, and savor the tastes and flavors.
- *While listening to music*, close your eyes and take a few deep breaths, before immersing yourself in the piece. Notice the beat, rhythm, volume, and instruments. If your mind wanders, gently return your attention to the music.



Did You Know?

With the evolution and rapid growth of technology, several smartphone apps and programs have been designed to help users track various components of their health, as well as engage in self-care, relaxation, and even mindfulness while on the go. While there will likely continue to be an influx of research investigating the utility of such technology, preliminary evidence is promising. Data suggests that mindful meditations delivered over just 10–20 minutes of guided audio recordings through an app such as “Headspace” led to reductions in psychological distress and work-related stress, and enhanced subjective well-being which was maintained even several months later [49]. Similar results have also been documented when mindfulness apps have been utilized by resident physicians, citing that they too noted improvements in both their capacity to be mindful and their mood [50].



Skill-Building Exercise: The 1-Minute Mindful

Breathing Script

Although this exercise can be performed for longer than 1 minute, even in such short duration it will allow you to pause and be in the moment [48, 49]. Even when busy at work, take 1 minute of “quiet time.”

- Find a quiet and comfortable place. Sit in a chair or on the floor with your head, neck, and back straight. Lower your eyes. Breathe naturally.
- Focus on your breathing.
- Notice where you feel your breath (the air going in and out), whether at your nostrils, or the rise and fall of your chest or stomach.
- If you wish, place your hand on your chest or stomach and notice how your hand gently rises and falls with your breathing.
- If you wish, you can lengthen the breath.
- Continue focusing on your breath.
- If your mind wanders to other thoughts, bring your attention back to your breath. When you notice yourself carried away in your thoughts, you may wish to state: “I’m thinking” and then gently return to your breathing. Remember not to be hard on yourself if this happens – it is normal!
- As you practice, you may notice your mind empties of thoughts, and you become calmer and more peaceful.
- As the time comes to a close, become aware of where you are. Get up gradually.

Nature Therapy: Disconnecting from Medicine by Stepping into Nature

With urbanization and growth of technology leading to increased distractions and near constant stimulation, the time spent in nature has been on a downward trend toward minimal and near non-existent levels for many [51, 52]. This is particularly true for health-care workers who note even less contact with the outdoors, and which is postulated to have a subsequent negative impact on their perceived levels of stress at work and ability to adaptively cope with such stress [53].

Time in nature, however, has been known for centuries to be important to humans' well-being and can have a restorative effect with regard to both physical and mental health [51]. Nature's therapeutic benefits have been proposed to stem from immersion in an environment that does not require focused attention but which promotes a mindful and meditative cognitive state, and that permits space and distance from everyday stressors and taxing environments allowing one to feel a sense of something larger than oneself and to experience the beauty of the natural world [51–53].

These theories have been supported by research, which has demonstrated an array of benefits associated with time spent in nature, whether through simply observing or by walking or exercising in green spaces. Connection to nature reduces arousal through mediating the activity of the sympathetic nervous system, promotes energy and sleep, and reduces physical pain, likely related to increased physical activity [52, 54]. It also confers significant mental and emotional benefits such as by increasing concentration and memory, promoting curiosity and creativity, enhancing self-awareness and mindfulness, as well as improving emotional regulation and happiness [51–54]. With regard to mental health, nature therapy has been shown to promote resilience by reducing stress and mental fatigue, as well as leading to reductions in symptoms of anxiety and depression [51, 52, 54]. This has been shown particularly in high-stress work environments such as

healthcare, and as such may also enhance worker productivity and satisfaction [53].



Did You Know?

Time spent in nature does not have to be extensive to experience some of the wellness benefits! Studies have shown that when workers took 10-minute breaks which they spent outside, this was associated with improvements in their well-being and ability to focus, as well as greater reductions in stress [53]. Further to this, another study discovered that just 30 minutes immersed in nature promoted improvements in one's mood with the greatest effect seen within the first 5 minutes [53].

Don't have time to get outside? Do not fear! Research has also suggested that having plants in one's home or spending some time looking at nature through a window, photographs, or artwork can also convey positive health benefits [53].



Skill-Building Exercise: Mindfulness Breaks in Nature

One particular type of nature therapy is called “Forest Bathing” or “Shinrin-Yoku” in Japanese culture [54]. This has been a longstanding traditional component of Japanese medicine that is thought to be both therapeutic and healing, while also promoting overall well-being which may offer some protective benefits [54].

The practice of forest bathing involves immersing oneself mindfully in nature, which is accomplished by connecting with all five senses. This works to promote relaxation and enhance physiological functioning [54], likely through reductions in arousal and activation of the parasympathetic nervous system, which is amplified by the practice of mindfulness [52].

While traditional forest bathing recommends leaving one's distractions behind (e.g., phone, iPod), and going for a relaxed walk in nature for upward of 2 hours if possible, one can still achieve positive effects even after just 10–20 minutes. This may be more suitable and amenable to the busy resident's schedule and could be incorporated during a workday, post-call, or even during sacred free time. To practice some of the principles of *forest bathing*, or mindfulness in nature, try utilizing the following steps:

1. *Find a few minutes to spend in nature.*
 - This may be for 5–10 minutes during a lunch break or call shift, on your walk home, or on a post-call day. Whether you go for a hike, visit a nearby beach or park, walk around your neighborhood block, or simply sit in your backyard or in the gardens at your hospital, nature is readily accessible.
2. *Walk slowly and in a relaxed manner.*
 - Often when we are out in the natural environment, we are walking with a purpose or rushing from place to place. Practicing some mindfulness in nature, however, requires that we let go of our expectations and preoccupied minds (even just for a few minutes).
 - If you are out for a walk, consider walking slowly, almost aimlessly, letting your body and senses direct you.
 - If you are simply sitting outside, take a few deep breaths, ground yourself and immerse yourself in your surroundings.
3. *Connect with your senses.*
 - Check in with each of your senses. Notice what you hear, see, feel, and even smell. Take a few minutes to savor and appreciate these sensations and the beauty around you.

Check your Learning

Case Study: The Brain on Silent

Case Part I

Priyanka is a fourth-year radiology resident. During the past 4 years, she has experienced a number of stressors and challenges that are typical of postgraduate training. Overall, Priyanka has been doing well. She currently feels mentally healthy, other than some periodic fatigue. She describes enjoying her work, which she does find satisfying, and ensures she has a good sleep regimen, reads for fun at bedtime, and sets a biweekly dinner date with her friends. Priyanka has also become increasingly excited for the future as she has discovered a passion for interventional radiology, which she is hoping to pursue as part of her career.

Question. Considering the two-continua model of mental health and illness, which quadrant would Priyanka fit into currently?

- A. Poor mental well-being, significant burnout/mental illness
- B. Poor mental well-being, minimal burnout/mental illness
- C. Good mental well-being, minimal burnout/mental illness
- D. Good mental well-being, significant burnout/mental illness

Answer: C ✓

Given the information that is available, with regard to mental well-being, Priyanka currently demonstrates resilience and healthy coping strategies particularly around self-care and social relationships. Her work also provides her a sense of meaning and enjoyment, and she seems to be flexible and adaptable in the face of added challenges and stressors, such as additional projects or

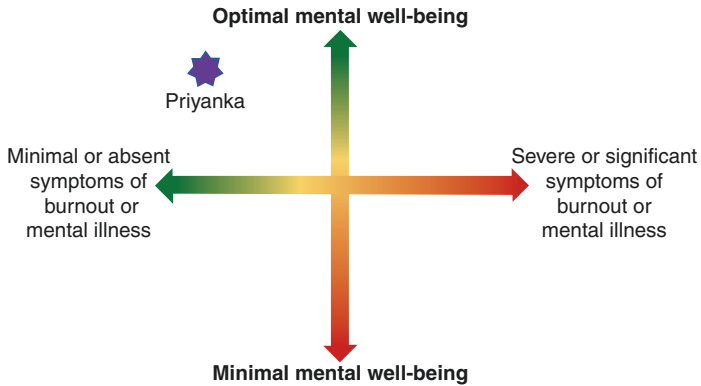


Fig. 14.6 An example of putting the two continua model into action

educational requirements. As such, on the mental well-being continuum she is in the green zone, near the top of the vertical spectrum.

Priyanka also presently does not demonstrate symptoms suggestive of burnout, nor is there any history to suggest other mental health conditions, such as depression, anxiety, or substance use that may be brewing. Given this, on the horizontal burnout/mental illness continuum, Priyanka also appears to be in the green zone, to the far left.

If one were to consider both continuums, then (see Fig. 14.6) this would place Priyanka in the upper left quadrant which suggests that she has good mental well-being, as well as absent or minimal symptoms presently of burnout or mental illness.

Case Part II

From a wellness perspective, Priyanka is flourishing. She does however recognize that it may be worthwhile to find some additional self-care or wellness strategies to integrate into her routine, ahead of her upcoming exam year. She is particularly motivated to

do so after speaking with some of her more senior colleagues who identified that building a wellness plan and having a self-care regimen during the exam year is critical, particularly to mitigate the high stress that tends to be involved.

Question. Which of the following are additional practices or tools that Priyanka could use to maintain and further optimize her well-being?

- A. Positive psychology such as optimizing one's strengths or offering gratitude
- B. Engaging in mindfulness meditations
- C. Spending more time outdoors during breaks or free time
- D. Utilizing creative outlets such as listening to music, dancing, or drawing
- E. All of the above

Answer: E ✓

In addition to the basics of caring for oneself (which has been addressed in other chapters in Section III), additional and complementary wellness practices that are evidence-based and have growing literature to support use among healthcare providers include positive psychology, which encompasses strength-based interventions and gratitude practices, mindfulness, and nature therapy.

While not specifically covered in this chapter, engaging in creative arts including music, visual art, and movement/dance have also been explored for their role in stress management and psychological well-being. More than simply a hobby or interest, such pursuits have been shown to reduce stress and anxiety, improve mood, and promote relaxation [55, 56]. In addition, programs which promote creativity have been specifically designed and added to medical education, including observation of and engagement in visual arts which have been shown to develop empathy and are associated with improved overall well-being among medical residents [57].

Case Part III

Priyanka is quite intrigued by the concept of strength-based interventions. She is curious to know more about how using her own strengths and skills may help to promote her wellness. Priyanka completes an online questionnaire to help her discover and utilize some of her core strengths. She learns that these include kindness, self-regulation, curiosity, teamwork, and perseverance.

Question. How might Priyanka utilize these strengths when encountering stressors or challenges?

- A. Reflect on recent positive interactions with patients or colleagues, as well as express gratitude to her preceptor for recent helpful feedback when reading a complex image.
- B. Craft a study plan around reading one of her interventional radiology textbooks on common examinable cases.
- C. Ask for help from a colleague or supervisor when encountering difficulty or an adverse event during a procedure.
- D. Recall the reasons that she went into medicine, her ambitions for the future, and the many lessons she learned and strengths she built among repeated perceived struggles or failures.
- E. All of the above

Answer: E ✓

All of the possible answers are correct, as each one touches on and involves activation of at least one of Priyanka's core strengths.

In answer A, kindness is being utilized. By reflecting on positive interactions, particularly in her role caring for others, this may help her to cope with a difficult day reminding her of the joy and meaning she finds in her work. Alternatively, use of a gratitude practice here could work similarly.

In answer B, Priyanka would be using elements of two of her core strengths: being curious and keen to learn. These strengths could be used to build interest and fuel motivation to begin studying for her upcoming exam. In addition, her skill of self-regulation, which also involves being disciplined, may help in crafting a reasonable study schedule and ensuring that she keeps to it. This may help her feel more prepared and less overwhelmed down the road.

In answer C, if Priyanka were to encounter a challenge and need help, her strength of teamwork could support openness in asking for help from either a trusted colleague or supervisor to problem-solve.

In answer D, if Priyanka were to feel defeated or overwhelmed with the prospect of finishing all of her program requirements, she could reflect on how she has persevered in the past, particularly throughout her medical training which has been wrought with various trials and tribulations. By reminding herself of how she has persisted in the past in spite of dark days or failures, and still managed to find success and grow professionally, this may further fuel her motivation and work ethic to continue.

BONUS Question. What is an effective strategy to help Priyanka implement some of these strategies and to incorporate her strengths more into her daily schedule?

- A. No active strategies are required, these are innate strengths after all!
- B. Goal setting
- C. Introspective reflection and contemplation

Answer: B ✓

As was mentioned earlier in the chapter, the use of goal setting, particularly implementing SMART goals, which are specific, measurable, attainable, relevant, and timely, can help to find small but meaningful ways for one's core strengths to be used on a more consistent basis. This may help not only to promote psychological well-being, but also enhance one's efficiency and performance at work, particularly in the face of obstacles.

Case Part IV

Priyanka really connects to the principles of positive psychology. In addition to utilizing her strengths, she is also keen to learn the art of practicing gratitude. She is unsure where to start, however, and how to go about this.

Question. Which of the following practices may help Priyanka begin to engage in offering and experiencing gratitude?

- A. Simply reflecting on what she is appreciative of and grateful for
- B. Writing a gratitude letter or expressing thanks or appreciation to another
- C. Keeping a gratitude journal in which she records a few things she is grateful for each week
- D. Participating in “Gratitude Rounds” led by her program
- E. All of the above

Answer: E ✓

All of the above practices are effective ways, whether informal or formal, and individual or collaborative, to engage in gratitude. As had been reviewed earlier in the chapter, certain forms of gratitude practice may be slightly more effective than others. For example, physically writing or documenting what one is appreciative for or the positive experiences they have encountered as opposed to simply reflecting on them has been shown to be more efficacious. However, all modalities of gratitude practice have been shown to promote positive affect and psychological well-being. At the end of the day, each individual also needs to find a practice that is right for them and can fit into their schedule without becoming yet another “to-do” that is only adding more stress.

Key Takeaways

- It can be helpful to consider mental health/well-being and burnout/mental illness using the two continua model.
 - Individuals may wish to use these continua as a way to check in with themselves and assess where they fit at a particular time. This may help to govern what specific tools, resources, or actions are needed to restore or simply maintain well-being.
- Nurturing one's wellness can go beyond self-care and fulfilling one's basic needs.
 - There are several complementary practices and tools available that can be personalized to further optimize or maintain well-being as well as help to mitigate stressors or burnout.
- Positive psychology involves promoting wellness and approaching challenges through a more positive and compassionate lens.
 - Strength-based interventions involve utilizing one's core strengths to the fullest extent and can help one ensure they are living and working in line with their values and character.
 - Expressive writing offers an important outlet for physicians to share what may be weighing on them and to engage in a transformative experience to process and find meaning.
- Mindfulness offers physicians the ability to ground themselves and to find a reprieve from daily stressors.
 - Mindfulness can be achieved through formal meditation practice, of which there are a growing plethora of apps and videos to guide individuals; however, it can also be achieved through any typical daily activity.
- Time outdoors in nature and green spaces has been shown to be a prime environment for mindfulness and can have a therapeutic and restorative effect.

Additional Resources

Selected resources for promoting mental health and well-being are illustrated in Table 14.5.

Table 14.5 Selected resources

Recommended resources	Description
VIA Character Strengths Survey https://www.viacharacter.org	Offers a free, online questionnaire to discover one's core strengths.
Positive Psychology Center https://ppc.sas.upenn.edu	This website from the University of Pennsylvania offers extensive information pertaining to the research of positive psychology, educational videos and readings, as well as provide online courses (many of which are free) to gain further skills and tools utilizing positive psychology methodology and theory.
Greater Good https://greatergood.berkeley.edu https://ggia.berkeley.edu	Developed by University of California, Berkeley, the "Greater Good Magazine" online offers a wide variety of resources to promote well-being including articles, podcasts, videos, and surveys to assess different aspects of mental health and coping skills. In addition, they also offer "Greater Good in Action" which offers several step-by-step manuals to engage in various wellness practices from empathy to gratitude to mindfulness.
Mindful: Healthy mind, healthy life https://www.mindful.org	A nonprofit organization designed to build mindful communities. Offers information and resources regarding the science and health benefits of mindfulness, various practices, and online learning.
Global Wellness Summit Trends Report https://www.globalwellnesssummit.com/2019-global-wellness-trends/	The Global Wellness Summit is an annual conference in which wellness leaders from around the world gather to discuss and problem-solve shared issues. Each year a "Global Wellness Trends" report is developed from the conference discussions as well as input from medical professionals, economists and other experts. This document reveals several trends or ideas that may help to promote sustainability and wellness globally.

References

1. Understanding the stress response. Chronic activation of this survival mechanism impairs health. *Harv Ment Health Lett.* 2011;27(9):4–5.
2. Hill MR, Goicochea S, Merlo LJ. In their own words: stressors facing medical students in the millennial generation. *Med Educ Online.* 2018;23(1):1530558.
3. Cohen RA. Yerkes–Dodson law. In: Kreutzer JS, DeLuca J, Caplan B, editors. *Encyclopedia of clinical neuropsychology.* New York: Springer Publishing; 2011.
4. Goldstein DS. Adrenal responses to stress. *Cell Mol Neurobiol.* 2010;30(8):1433–40.
5. Fink G. Stress: concepts, definition, and history. In: Reference module in neuroscience and biobehavioral psychology. 1st ed. Oxford, UK: Elsevier; 2017.
6. Dedovic K, Duchesne A, Andrews J, Engert V, Pruessner JC. The brain and the stress axis: the neural correlates of cortisol regulation in response to stress. *Neuroimage.* 2009;47(3):864–71.
7. Mayer EA. The neurobiology of stress and gastrointestinal disease. *Gut.* 2000;47:861–9.
8. Wulsin L, Herman J, Thayer JF. Stress, autonomic imbalance, and the prediction of metabolic risk: a model and a proposal for research. *Neurosci Biobehav Rev.* 2018;86:12–20.
9. Siegel D. *The mindful brain: reflection and attunement in the cultivation of wellbeing.* New York: W.W. Norton & Company; 2007.
10. Reith TP. Burnout in United States healthcare professional: a narrative review. *Cureus.* 2018;10(12):e3681.
11. Pattani R, Wu PE, Dhalla IA. Resident duty hours in Canada: past, present and future. *CMAJ.* 2014;186(10):761–5.
12. Chung J, Contino K, Cerceo E, Soi P. Impact of system-wide resident wellness intervention on burnout, depersonalization, and self-accomplishment. *Pediatrics.* 2018;141(116A). https://doi.org/10.1542/peds.141.1_MeetingAbstract.116A.
13. Haughey B, Manzo RB, Kurland Y, Hollinger J, Patel P, Placzek E, Frank H. Wellness, for residents – by residents. *Pediatrics.* 2018;142(98). https://doi.org/10.1542/peds.142.1_MeetingAbstract.98.
14. McCain RS, McKinley N, Dempster M, Campbell WJ, Kirk SJ. A study of the relationship between resilience, burnout and coping strategies in doctors. *Postgrad Med J.* 2018;94:43–7.
15. Westerhof GJ, Keyes CLM. Mental illness and mental health: the two continua model across the lifespan. *J Adult Dev.* 2010;17:110–9.
16. Tse S, Tsoi EWS, Hamilton B, O’Hagan M, Shepherd G, Slade M, et al. Uses of strength-based interventions for people with serious mental illness: a critical review. *Int J Soc Psychiatry.* 2016;62(3):281–91.

17. Harzer C, Ruch W. When the job is calling: the role of applying one's signature strengths at work. *J Posit Psychol.* 2012;7:362–71.
18. Meyers MC, van Woerkom M. Effects of a strengths intervention on general and work-related well-being: the mediating role of positive affect. *J Happiness Stud.* 2017;18:671–89.
19. Xie H. Strengths-based approach for mental health recovery. *Iran J Psychiatry Behav Sci.* 2013;7(2):5–10.
20. Park N, Peterson C, Seligman MEP. Strengths of character and well-being. *J Soc Clin Psychol.* 2004;23(5):603–19.
21. Peterson C, Seligman MEP. *Character strengths and virtues: a handbook and classification.* New York: American Psychological Association & Oxford University Press; 2004.
22. Doran GT. There's a S.M.A.R.T. way to write management's goals and objectives. *J Manag Rev.* 1981;70(11):35–3.
23. Adams K. Journal therapy. In: Allison N, editor. *The illustrated encyclopedia of body-mind disciplines.* New York: The Rosen Publishing Group Inc; 1999. p. 361–3.
24. Kerner EA, Fitzpatrick MR. Integrating writing into psychotherapy practice: a matrix of change processes and structural dimensions. *Psychother Theor Res Pract Train.* 2007;44(3):333–46.
25. Ullrich PM, Lutgendorf SK. Journaling about stressful events: effects of cognitive processing and emotional expression. *Ann Behav Med.* 2002;24(3):244–50.
26. Smyth JM. Written emotional expression: effect sizes, outcome types, and moderating variables. *J Consult Clin Psychol.* 1998;66(1):174–84.
27. Chen I, Forbes C. Reflective writing and its impact on empathy in medical education: a systematic review. *J Educ Eval Health Prof.* 2004;11:20. <https://doi.org/10.3352/jeehp.2014.11.20>. eCollection 2014.
28. Blake TK. Journaling: an active learning technique. *Int J Nurs Educ Scholarsh.* 2005;2(1):1–13.
29. Scott E. The benefits of journaling for stress management. [cited 2019 Oct 11]. [VeryWellMind.com](https://www.verywellmind.com) [Internet]. New York: Dotdash Publishing; 2019. Available from: <https://www.verywellmind.com/the-benefits-of-journaling-for-stress-management-3144611>.
30. Emmons RA, Stern R. Gratitude as a psychotherapeutic intervention. *J Clin Psychol.* 2013;69(8):846–55.
31. Wood AM, Froh JJ, Geraghty AWA. Gratitude and well-being: a review and theoretical integration. *Clin Psychol Rev.* 2010;30(7):890–905.
32. Davis DE, Choe E, Meyers J, Varjas K, Gifford A, Quinn A, et al. Thankful for the little things: a meta-analysis of gratitude interventions. *J Couns Psychol.* 2016;63(1):20–31.
33. Brooks M. Gratitude journaling boosts wellness in psychiatry residents. *Medscape* [Internet]. 23 May 2019. <https://www.medscape.com/view-article/913456>. Accessed 3 Dec 2029.

34. Runyan C, Savageau JA, Potts S, Weinreb L. Impact of a family medicine resident wellness curriculum: a feasibility study. *Med Educ Online*. 2016;21(1):36048.
35. Drummond D. A gratitude journal is a weapon in the fight against physician burnout. The Happy MD [Internet]. <https://www.thehappymd.com/blog/gratitude-journal-for-physicians-eyore>. Accessed 3 Dec 2029.
36. Marsh J. Tips for keeping a gratitude journal. Greater good [Internet]. 7 Nov 2011. http://greatergood.berkeley.edu/article/item/tips_for_keeping_a_gratitude_journal. Accessed 3 Dec 2029.
37. Kilvert M, Louie D, Carwana M, Remington M. Finding joy and meaning in medicine: gratitude rounds for pediatric residents. Paper presented at: International Conference on Residency Education; 2019 Sept 27; Ottawa, Ontario.
38. Kabat-Zinn J. Mindfulness-based interventions in context: past, present and future. *Clin Psychol Sci Pract*. 2003;10(2):144–56.
39. Raski M. Mindfulness: what it is and how it is impacting healthcare. *UBCMJ*. 2015;7(1):56–9.
40. Keng SL, Smoski MJ, Robins CJ. Effects of mindfulness on psychological health: a review of empirical studies. *Clin Psychol Rev*. 2011;31(6):1041–156.
41. McConville J, McAleer R, Hahne A. Mindfulness training for health profession students – the effect of mindfulness training on psychological well-being, learning and clinical performance of health professional students: a systematic review of randomized and non-randomized controlled trials. *Explore (NY)*. 2017;13(1):26–45.
42. Fortney L, Luchterhand C, Zakletskaia L, Zgierska A, Rakel D. Abbreviated mindfulness intervention for job satisfaction, quality of life, and compassion in primary care clinicians: a pilot study. *Ann Fam Med*. 2013;11(5):412–20.
43. Goldhagen BE, Kingsolver K, Stinnett SS, Rosdahl JA. Stress and burnout in residents: impact of mindfulness-based resilience training. *Adv Med Educ Pract*. 2015;6:525–32.
44. Goodman MJ, Schorling JB. A mindfulness course decreases burnout and improves well-being among healthcare providers. *Int J Psychiatry Med*. 2012;43(2):119–28.
45. Beach MC, Roter D, Korthuis PT, Epstein RM, Sharp V, Ratanwongsa N, et al. A multicenter study of physician mindfulness and health care quality. *Ann Fam Med*. 2013;11(5):421–8.
46. Shonin E, Van Gordon W, Griffiths MD. Practical tips for using mindfulness in general practice. *Br J Gen Pract*. 2014;64(624):368–9.
47. Guendelman S, Medeiros S, Rampes H. Mindfulness and emotion regulation: insights from neurobiological, psychological, and clinical studies. *Front Psychol*. 2017;8:220. <https://doi.org/10.3389/fpsyg.2017.00220>.

48. 20 minute mindfulness meditation for being present/mindful movement. <https://www.youtube.com/watch?v=-2zdUXve6fQ>. Accessed 1 Dec 2019.
49. Bostock S, Crosswell AD, Prather AA, Steptoe A. Mindfulness on-the-go: effects of a mindfulness meditation app on work stress and well-being. *J Occup Health Psychol*. 2019;24(1):127–38.
50. Wen L, Sweeney TE, Welton L, Trockel M, Katznelson L. Encouraging mindfulness in medical house staff via smartphone app: a pilot study. *Acad Psychiatry*. 2017;41:646–50.
51. Brymer E, Cuddihy TF, Sharma-Brymer V. The role of nature-based experiences in the development and maintenance of wellness. *Asia Pac J Health Sport Phys Educ*. 2010;1(2):21–7.
52. Kaufman JA. Nature, mind and medicine: a model for mind-body healing. *Explore (NY)*. 2018;14(4):268–76.
53. Trau D, Keenan KA, Goforth M, Large V. Nature contacts: employee wellness in healthcare. *HERD*. 2016;9(3):47–62.
54. Hansen MM, Jones R, Tocchini K. Shinrin-Yoku (forest bathing) and nature therapy: a state-of-the-art review. *Int J Environ Res Public Health*. 2017;14:851.
55. Stuckley HL, Nobel J. The connection between art, healing, and public health: a review of current literature. *Am J Public Health*. 2010;100(2):254–63.
56. Martin L, Oepen R, Bauer K, et al. Creative arts interventions for stress management and prevention: a systematic review. *Behav Sci (Basel)*. 2018;8(2):28. <https://doi.org/10.3390/bs8020028>.
57. Zazulak J, Sanaee M, Frolic A, et al. The art of medicine: arts-based training in observation and mindfulness for fostering the empathic response in medical residents. *Med Humanit*. 2017;43(3):192–8.