Chapter 2
Mental Health and Medical Education

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Introduction

Medicine attracts candidates who are highly driven, competitive, compassionate, intelligent, and goal oriented. They have already succeeded at getting into a medical school, a challenging task. And yet, we know that medical students experience anxiety and depressive symptoms at greater rates than the general population [6]. Over 25% of medical students have experienced major depression symptoms, and more than 10% of students have experienced suicidal ideation [30]. How is it that high-achieving students who have succeeded at matriculating into medical school struggle so much?

One model that attempts to explain how and why mental health disorders are expressed in some individuals and not others is the diathesis-stress model [25]. This model suggests that mental health disorders may be the result of an interac-

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tion between a pre-disposed vulnerability to a mental health condition (e.g., genetic makeup, family history, early losses or traumas, personality characteristics, social supports) and a stressor caused by life experiences. In addition, there are certain mental health disorders that are present in late adolescents, the same time that traditional students are entering medical school. Thus, is it possible that the unique stressors of medical school—and the age of the average medical student—may result in a worsening of mental health and well-being?

In this chapter, we aim to:

1. Identify some of the more common mental health disorders that occur in the medical student population (the young adult demographic).
2. Examine the climate of medicine, medical education, and accompanying LCME guidance for wellness.
3. Explore factors that can impact medical students' overall well-being and mental health.
4. Introduce key concepts of disability accommodations and insurance.
5. Review key take-home points.

Overview of Mental Health Disorders

Medical students can experience a wide range of mental health challenges. For some, maintaining mental health may be a lifelong struggle, one that is mitigated by supports (e.g., therapy, medication, social networks, exercise, and good sleep hygiene). For others, mental health challenges may be new and may be falsely dismissed as part of the normative transition to medical school. Medical students are not immune to the wide range of mental health issues that can be seen in the young adult demographic, including but not limited to anxiety disorders, mood disorders, eating disorders, substance use disorders, trauma and stressor-related disorders, obsessive-compulsive disorders, psychotic disorders, personality disorders, and sleep disorders. This chapter will focus on some of the more common anxiety disorders and mood

disorders, as these can affect a wide range of medical students and have been well studied. Unless otherwise noted, the descriptions of the symptoms and the demographic information related to the specific anxiety and mood disorders in this chapter are taken from the DSM V (2013).

Anxiety Disorders

Anxiety disorders are the most common psychiatric (mental health) disorders, especially in childhood and adolescence, where most typically have their onset. Given the demographic profile of medical students (most are in their 20s or 30s), a subset of students will have had an anxiety disorder earlier in their lives, be currently diagnosed with an anxiety disorder, or may struggle with anxiety that is partially treated. According to the National Institute of Mental Health, an estimated 22.3% of adults ages 18–29 and 22.7% of adults ages 30–44 had an anxiety disorder in 2016 [28].

Anxiety disorders generally involve a heightened fear response beyond what one would normally expect, tension and vigilance in preparation for future danger, and cautious or avoidant behaviors. The heightened fear response might culminate in a panic attack, where the person experiences an abrupt surge of intense fear or discomfort that could include symptoms like heart racing, sweating, trembling, shortness of breath, choking, chest discomfort/pain, nausea, abdominal distress, dizziness, lightheadedness, chills, heat, numbness, or tingling. During a panic attack, a person might feel that he/she is going crazy or worries that he/she will die. He/she might also feel like he/she is having an out-of-body experience or that his/her symptoms are not real.

Some of the most common anxiety disorders we see in the medical school population include:

1. *Specific phobia* is a marked fear about an object or situation, out of proportion to the situation or context. This fear causes distress and impairs one's functioning. The person might avoid the feared situation or object, or he/she might

try to endure it with great difficulty. Some examples include fear of flying, heights, animals, bridges, tunnels, receiving an injection, seeing blood, etc. The onset is typically in childhood, sometimes after a traumatic experience. Rates of the disorder peak in adolescence. The prevalence estimate is 7–9%, and women tend to outnumber men.

Impact on Medical Students Some students with phobias of bridges, tunnels, or flying might have challenges in *getting to* certain clinical rotations. Medical students travel to different cities or states during the residency application process as well. Some students with blood or injection phobias may have difficulty *during* clinical rotations. In these cases, the phobia could limit the student's educational experiences and career opportunities or even their ability to persist and graduate.

Tip
Students should seek treatment during the first year of medical school for specific phobias. These phobias can limit their opportunities and they are treatable.

2. *Social anxiety disorder* (social phobia) is a marked fear about social situations where the individual is exposed to possible scrutiny by others. This could happen in social interactions, meeting people, having a conversation, being observed, or performing in front of others (like presenting a patient during rounds). The person worries that he/she will show anxiety symptoms or act in a way that will be viewed negatively (e.g., will be humiliating, embarrassing, or lead to rejection). The fear is out of proportion to the context and causes distress or impairment in functioning. Sometimes the anxiety is limited to performance and not present in other social situations. The age of onset for 75% of people with the disorder is between 8 and 15 years. Adulthood onset is less common, and it may follow a stress-

ful or humiliating experience or life changes with new social roles. The prevalence estimate is 7%, and women outnumber men.

Impact on Medical Students Starting medical school, students come into a new environment where they know few people. The process of meeting and getting to know many people while making a major life change is stressful for anyone, but it can be particularly challenging for someone with social anxiety disorder. This might limit the student's ability to create a social support network. In the classroom and on clinical rotation, much of the teaching, learning, and evaluation might occur in small group settings where discussion is required and evaluated. Eventually students will be called upon to present patients and may be subject to rapid-fire questioning about medical knowledge in front of the team, which can be particularly difficult for students with social anxiety disorder. Some students with social anxiety disorder might also experience major depression and substance use disorders as a result of trying to mitigate their anxiety with substance use.

Tip
Students who experience anxiety while engaging in small group discussions or presentations should reach out to counseling for assistance. Performance can improve, and students will enjoy the experience.

Tip
Students who experience anxiety about presenting patients or clinical encounters with patients may find relief using the basic principles of systematic desensitization, whereby schools expose the student to incremental patient encounters or patient presentations using a simulation lab and standardized patients.

3. *Panic disorder* consists of recurrent, unexpected panic attacks that result in excessive worry about future attacks, the consequences of an attack, or a significant change in behavior related to the attacks. Onset can occur in childhood but more commonly in adolescence or adulthood. Prevalence is estimated to be 2–3%, with women outnumbering men 2:1.

Some people with panic disorder also have *agoraphobia*.

Agoraphobia is a marked fear about situations where escape might be difficult or where help might not be available in the event of a panic attack or other symptoms. This must occur in two or more of the following situations: public transportation, open spaces, enclosed spaces, standing in line/being in a crowd, or being outside of the home alone. Onset can occur in adolescence or adulthood. The mean age of onset is 17 years old. The prevalence is 1.7%, and women outnumber men.

Impact on Medical Students Students with panic disorder and/or agoraphobia can engage in avoidance behaviors, e.g., missing class, skipping large groups, making early exits, and engaging in fewer social opportunities. This avoidance can negatively impact their academic performance as well as their overall social well-being. Some students with panic disorder and/or agoraphobia might also experience major depression.

Tip
Students who experience panic attacks while on the wards can use bathroom stalls as safe space to regroup and meditate or medicate. Bathrooms are usually close by when students feel an impending attack, and social graces dictate that others do not place critical inquiry on time spent in a restroom, giving the student a short but much needed and socially accepted reprieve.

4. *Generalized anxiety disorder* consists of excessive anxiety and worry (apprehensive expectation) about several events or activities. The worry is hard to control and is associated with heightened anxiety symptoms, and it causes distress or impairment in one's functioning. Half of all people who develop the disorder do so before the age of 30. Onset can begin in adolescence. The prevalence is 2.9%, and women outnumber men.

Impact on Medical Students The student with generalized anxiety disorder often worries about things that we might view as minor and require a great deal of reassurance. Difficulty with sleep is a common symptom of generalized anxiety disorder, and the student might show up late in the morning or appear tired. As a result, the student with generalized anxiety disorder might also experience major depression. It is important to remember that anxiety is a downward spiral that can quickly become worrisome. Small changes in behavior, that at first appear normative to the transition to medical school, may actually be the beginning of an anxiety disorder (see Fig. 2.1).

Anxiety Symptoms in Medical School While it is difficult to measure how many medical students experience anxiety disorders, some attempts have been made to look at anxiety symptoms in general. (Indeed, many of those symptoms are those of generalized anxiety disorder.) In a systematic review of depression, anxiety, and other indicators of psychological distress among US and Canadian medical students, the authors noted that several studies showed higher rates of anxiety symptoms among medical students compared to the general population [6].

Treatment of Anxiety Disorders The standard treatments for anxiety disorders include psychotherapy and/or pharmacotherapy. Cognitive-behavioral therapy (CBT) is one of the most frequently used treatment modalities, and it can be

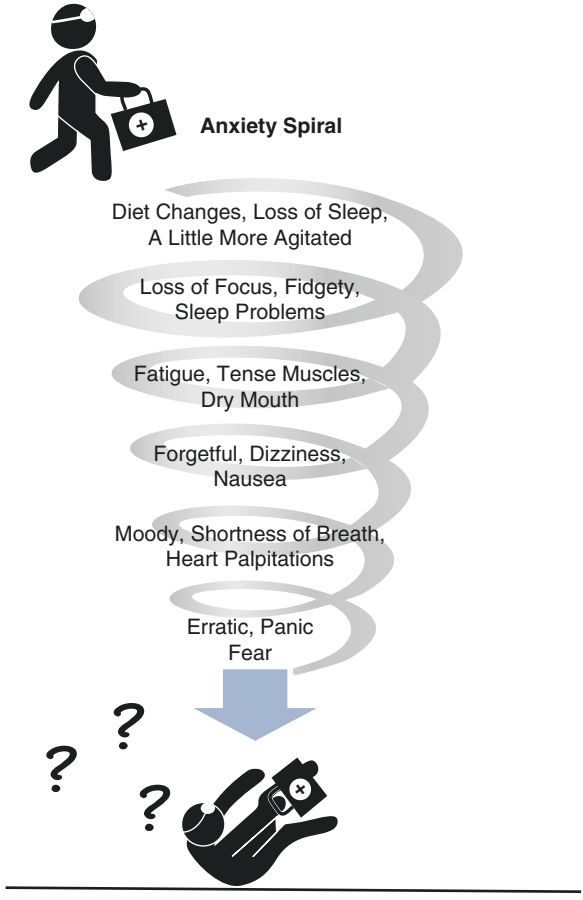

FIGURE 2.1 Anxiety spiral (Illustrated by: Amy Rutherford 2019)

used for all anxiety disorders. In addition, psychodynamic psychotherapy can be used for panic disorder. Psychiatric medication can be helpful in lessening the anxiety symptoms. Antidepressants like the selective serotonin reuptake inhibitors (SSRIs) or antianxiety agents like buspirone are daily medications used in the treatment of anxiety disorders. Other

medications are fast acting and can be taken only as needed, like beta-blockers for performance or social anxiety disorder and benzodiazepines for anxiety associated with panic or panic attacks. For those with panic or performance anxieties, sometimes just having the medication nearby lessens the anxiety.

Mood Disorders

The most common mood disorders are major depressive disorder and bipolar disorder.

1. *Major depressive disorder* (sometimes commonly called "depression") is characterized by a major depressive episode: at least 2 weeks of persistently low mood or loss of ability to enjoy things, accompanied by several other symptoms, including changes in weight/appetite or sleep, impaired concentration, fatigue/low energy, agitation or retardation, worthlessness, excessive or inappropriate guilt, or recurrent thoughts of death or suicidal thoughts, plan, or attempt. These symptoms cause impairment in the person's functioning. Some episodes can be severe, causing significant impairment. The consequences can also be worrisome, including an increased risk of suicide.

The incidence of major depressive disorder begins to climb at puberty, reaching a peak in the 20s. Women tend to have 1.5- to 3-fold higher rates than men beginning in early adolescence. According to the National Institute of Mental Health (NIMH), the past year prevalence of a major depressive episode among adults nationwide in 2016 was 10.9% (ages 18–25) and 7.4% (ages 26–49) [28].

In a systematic review and meta-analysis of the prevalence of depression, depressive symptoms, and suicidal ideation among medical students, Rotenstein et al. [30] found that overall prevalence of depression or depressive symptoms in medical students was 27.2%. In studies that assessed depressive symptoms before and during medical school, the median absolute increase in symptoms during medical school was

13.5%. The various indices used in the studies showed depressive symptom prevalence to be 2.2 to 5.2 times higher among medical students than individuals of similar age in the general population. The percentage of students screening positive for depression who sought psychiatric treatment was 15.7%. The overall prevalence of suicidal ideation was 11.1% [30].

Impact on Medical Students The medical student with major depressive disorder often struggle silently. Some depressive symptoms, like trouble with sleep, concentration, appetite, and energy, can impair the student's ability to function at a high level. They often curtail social activities due to fatigue and loss of enjoyment, impairing their social engagement and ability to create a social support network. Medical students are at greater risk of suicidal thoughts and potentially suicide attempts. The data from Rotenstein et al. [30] showing that over one quarter of medical students experienced symptoms of major depression and that, of those who experience those symptoms, only 15.7% received treatment is worrisome. There is a tremendous amount of silent suffering among medical students, who may view the symptoms of depression and anxiety as part of the norm in the profession of medicine.

Tip
Students who lose the ability to enjoy things that usually bring them pleasure may be experiencing anhedonia, one of the key symptoms of major depression.

Treatment of Major Depressive Disorder Psychotherapy can be an effective treatment for mild and possibly moderate episodes of depression. CBT is the most commonly used modality, and IPT (interpersonal therapy) has been shown to be beneficial. Antidepressant medication can be used alone or in conjunction with psychotherapy, and it is necessary for moderate to severe episodes of the disorder, while

hospitalization is sometimes required for severe episodes. There are other non-medication treatments including ECT (electroconvulsive therapy) and TMS (transcranial magnetic stimulation). Novel treatments for major depressive disorder include the use of the dissociative anesthetic ketamine.

2. *Bipolar disorder* is a mood disorder where individuals experience episodes that can include increased energy, decreased need for sleep, inflated self-esteem or grandiosity, more talkative or pressured speech, racing thoughts or flight of ideas, distractibility, increase in goal-directed activity, and excessive involvement in risky activities. Depending on the degree and duration, these episodes can be called manic or hypomanic. Many individuals also experience depressive episodes, and some experience mixed episodes (symptoms with both mania and depression).

The prevalence of bipolar 1 disorder (with the presence of at least one manic episode) is 0.6%, and age of onset is late teens to early 20s. The prevalence of bipolar 2 disorder (with the presence of at least one hypomanic episode and at least one depressive episode) is 0.8%, and the average of onset is the mid-20s. Men may slightly outnumber women, although some data show similar prevalence rates. The suicide risk in bipolar disorder is high. Estimates are that up to a third of those with bipolar disorder may attempt suicide, up to 15 times that of the general population.

Impact on Medical Students The student with bipolar disorder in a manic or hypomanic episode might present with behavioral disruption and hard-to-follow thinking and demonstrate poor impulse control. Often a student needs to be on a short leave to treat the episode and make adjustments to medication. Sometimes this requires psychiatric hospitalization.

Treatment of Bipolar Disorder The mainstay of treatment for bipolar disorder is pharmacotherapy with mood-stabilizing medications. There are some psychotherapies that can also be

helpful in the management of bipolar disorder. For some episodes of mania, hypomania, or depression in bipolar disorder, hospitalization can not only be beneficial but also sometimes necessary.

Tip
Medical students with a history of mental health concerns or treatment should get connected to a mental health provider as soon as they arrive at school. Establishing care and a relationship with a provider is imperative, even when things are going well.

The Environment: Are We at Crisis Level?

In a recent commentary, leaders from the National Academy of Medicine, the Association of American Medical Colleges, and the Accreditation Council for Graduate Medical Education declared that clinician burnout, depression, and suicide had reached a "crisis level" [11, 27].

As a community, we continue to examine the impact of medical education on our students and examine the underlying causes. Recognizing the unique structure of medical education (e.g., the volume of information, inherent stressors in caring for others, long hours, difficult patients, poor learning environments, financial concerns, information overload, and career planning), it is easy to understand that medical education will likely represent the most stressful time in the student's life to date.

Burnout

Burnout is just one sign that medicine and mental health do not always align. We know that burnout, most often defined as a function of three indicators, emotional exhaustion

associated with work-related stress, feelings of detachment toward patients, and a low sense of personal accomplishment, is higher among physicians than in many other fields [33, 34]. Medical students, however, are not immune to this phenomenon, with more than half of medical students reporting symptoms of burnout [9, 10]. Physicians often experience burnout as a result of lack of control over schedule, time pressures, and the chaotic work environment inherent in medicine [20]. These environmental contributors hold true for medical students and are exacerbated by the transition to medical school, lack of sleep, volume of information, lack of time to engage in social supports, and the first-time exposure to suffering and death.

Burnout is a precursor to other unhealthy behaviors in medical students including unprofessional behavior [8], substance abuse [15], dropping out of medical school [9], and suicide [7]. Remember that the effects of burnout impact over 50% of medical students and can be accompanied by devastating consequences (see Fig. 2.2).

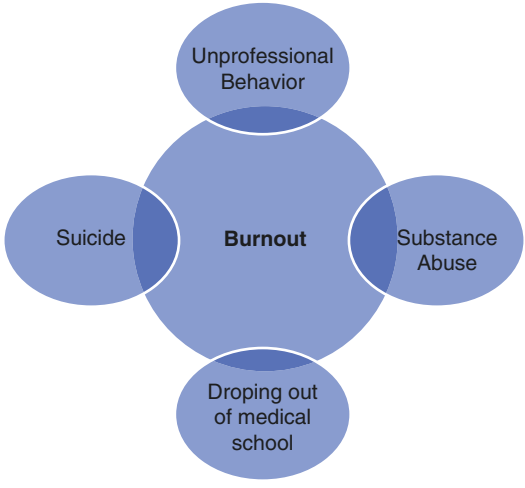

Figure 2.2 The impact of burnout on medical students

Depression

The data on the presence of depressive symptoms and depression among medical students paints a worrisome picture. In a study assessing levels of stress and depressive symptoms in two classes of students at one medical school, the number of students found to be at risk for depression in their first year of medical school was 28.4% in the second year and 39% in the third year [21].

A systematic review and meta-analysis of the depression and suicidal ideation among medical students noted an overall prevalence of depressive symptoms or depression in medical students was 27.2%. In those studies that compared depressive symptoms before and during medical school, the mean absolute increase in symptoms during medical school was 13.5%. The presence of suicidal ideation is also of concern, for among medical students, 11.1% reported having thoughts of suicide. Of those students who screened positive for depression, the percentage who sought psychiatric treatment was only 15.7% [30].

Suicide

Physician suicide rates have been known to be higher than that of the general population. The American Foundation for Suicide Prevention put out a fact sheet highlighting some of the most important statistics [1]. It has been estimated that 300 physicians die by suicide in the USA per year [5]. Physicians who died by suicide were less likely to be in mental health treatment compared with non-physicians who died by suicide [13]. The suicide rate among physicians is higher than the general population: among male physicians, it is 1.41 times higher; among female physicians, it is 2.27 times higher [31].

A recent study about the causes of death of residents in Accreditation Council for Graduate Medical Education (ACGME)-accredited programs from 2000 to 2014 noted that suicide was the fourth leading cause of death among female residents, but the leading cause of death among

male residents. A majority of the suicides occurred in the first 2 years of training. The overall death rate by suicide was lower among the residents compared to the population at large, although when the residents were broken into age groups, both men and women residents in the 35–44 and the 45–54 years age groups had a higher suicide rates than the general population [37].

With data showing the presence of suicidal ideation among medical students at 11.1%, what are the actual rates of medical student suicides [30]? This question is difficult to answer. Some earlier, limited studies showed suicide rates lower than the general population. With no central database and no organized way of connecting the cause of death (suicide) with occupation (student vs. medical student), it is hard to generate reliable data. Additionally, if a student dies, families have no obligation to communicate with the cause of death [4]. There is a need for a better way of measuring suicides among medical students in order to formulate better preventative measures.

Tip
Students having thoughts of suicide should have access to an emergency contact person at the school, and the National Suicide Prevention Hotline should be posted in multiple, easy-to-access locations (online, student handbook, badge stickers). The NSPH number is 1–800–273-8255 and is staffed 24/7.

Lack of Help-Seeking Behavior in Medical Education

Medical students are perceptive. They pick up on the stigma of depression and mental illness and worry that having a mental health challenge will harm their chances of honoring, matching, and securing licensure. Even if students sought treatment

prior to medical school, they might not seek treatment in medical school. In a 2002 study, researchers found that medical students are reluctant to disclose in this new setting over concerns about a lack of confidentiality, stigma associated with using mental health services, cost, fear of documentation on academic record, and fear of unwanted intervention [12]. More recent studies confirm this fear of stigma among medical students with identified psychological disabilities [24].

Liaison Committee on Medical Education (LCME) Guidelines for Medical Student Health Services

In response to the growing need for mental health services for medical students, the Liaison Committee on Medical Education (LCME), the accrediting body for schools leading to the M.D. degree in the USA, added three elements that must be followed in order to maintain accreditation (see Table 2.1) [19]. These elements necessitate that counseling services are in place to promote well-being and facilitate adjustment to medical school (12.3); that students have timely access to needed diagnostic, preventive, and therapeutic health services in reasonable proximity to the locations of clinical rotations; that students are excused to seek needed care (12.4); and that providers of mental health services have no involvement in the academic assessment or promotion of the medical students and maintained records in accordance with legal requirements for security, privacy, confidentiality, and accessibility (12.5). The LCME's guidance to medical schools helps schools understand their responsibility for supporting medical student well-being.

Many of the services offered in medical school are in *response* to poor mental health, versus an attempt to *proactively mitigate* mental health distress and build resilience. To proactively address mental health and wellness, school officials must first understand the specific factors contributing to the decline in medical student well-being.

Table 2.1 LCME requirements for health-care services and well-being programs

12.3 Personal Counseling/Well-Being Programs A medical school has in place an effective system of personal counseling for its medical students that includes programs to promote their well-being and to facilitate their adjustment to the physical and emotional demands of medical education.
12.4 Student Access to Health-Care Services A medical school provides its medical students with timely access to needed diagnostic, preventive, and therapeutic health services at sites in reasonable proximity to the locations of their required educational experiences and has policies and procedures in place that permit students to be excused from these experiences to seek needed care.
12.5 Non-involvement of Providers of Student Health Services in Student Assessment/Location of Student Health Records The health professionals who provide health services, including psychiatric/psychological counseling, to a medical student have no involvement in the academic assessment or promotion of the medical student receiving those services. A medical school ensures that medical student health records are maintained in accordance with legal requirements for security, privacy, confidentiality, and accessibility.

Key Stressors in Medical School that Can Impact Students' Well-Being

Lack of Sleep

Medical students are often surprised to find that work, clinical duties, and studying take up a substantial part of their day. In a time-limited 24-hour day, when precious hours are needed to study for an exam or to pre-round on patients for the following day, students tend to sacrifice sleep to make up some of the needed time. Soon, the 7 hours of recommended sleep [3] is no longer the norm, with students resorting to 4 and 5 hours per evening in an effort to accomplish all of their other work.

Research suggests, however, that 4–5 hours of sleep and consistent sleep deprivation have significant consequences for medical students including "nodding off" while driving, feeling more overwhelmed and "down," and expressing greater dissatisfaction with their quality of life [16]. Poor sleep has consequences for the public at large, including weight gain and obesity, diabetes, hypertension, heart disease and stroke, depression, impaired immune function, increased pain, impaired performance, increased errors, and greater risk of accidents [3].

Poor sleep (defined as less than 6 hours) is associated with elevated risk of depression in the first months of internship and medical errors in residents [17], and concern has been expressed by the psychiatric community that the continued sleep deficits and poor sleep habits that begin in medical school may continue into training and practice, with compelling negative consequences for the physician workforce and the health of the public [14].

Tip
Students should aim for 7 hours of sleep per night or "restful" sleep that ensures optimal performance and concentration and should practice good sleep hygiene and remove electronic devices from their sleeping space.

Tip
Students who try to learn when exhausted don't perform well. Sleeping for even a few hours and then returning to studying can be far more effective than studying while exhausted.

Lack of Connection

Socialization and connectedness are critical to ongoing well-being. Medical school can be a time when students, taxed with multiple competing demands, draw inward and devote a disproportionate amount of time to studying at the expense of socializing with family and friends. However, a significantly greater risk of depression has been associated with inadequate support from family, friends, and other medical students [35]. It is therefore important for medical students to connect to their peer group and to stay in touch with family and friends. To facilitate this sense of connectedness, medical schools should foster both small and large group activities that go beyond simple learning and offer an opportunity to investigate shared interests, hobbies, and future goals.

Medical schools can also provide space for sharing and support. When medical students are given the opportunity to share struggles and approaches to maintaining wellness with their peers in a supportive and safe space, they discover that they are not alone. The realization that others have similar challenges, feel overwhelmed, or struggle with depression or anxiety can normalize these feelings. Cohorts often have a positive impact on peers' help-seeking behaviors. When one student seeks mental health services and has a positive outcome, it may influence others' decisions about seeking help.

Tip
Provide students with the opportunity to share their experiences. Often, a second- or third-year student discussing the benefits of mental health services can be a great motivator for first-year students, still navigating the medical school environment, to seek help.

Lack of Exercise

The same demands on students' time often lead to a decrease in exercise. In a recent single-site study, decreased exercise frequency was significantly correlated with lower professional efficacy [36]. While the benefits of exercise are fully covered in Chap. 5 of this book, it is understandable how the cascade of events (increased need to study leading to deficits in sleep, exercise, and social connectedness) can quickly contribute to a decrease in overall wellness leading to negative psychological and physical effects.

Relentless Pace

The curriculum of medical school can feel all-consuming and unforgiving. Students compare medical school to trying to drink water from a firehose. The pace of the first year or two of medical school is often based in lecture halls and small group rooms. It tends to be fast; the breaks are few; knowledge builds upon prior knowledge: it might feel like one can never catch a break. Students with mental health issues who are struggling and who might need to take time off frequently avoid doing so, because missing even a short period of time can put one behind. Medical schools can help students put their mental health first by developing a few alternative paths to completing coursework in the first 2 years. Allowing students to step out and re-enter the following year at the same time in the curriculum, having planned remediation periods for the didactic years (e.g., over Thanksgiving and Christmas break, summer), allows students to "catch up" and catch their breath when a mental health challenges place them off track.

Students who require time off in the clerkship year can often step out of a clerkship, allowing them a 2–8-week break depending on the rotation. Allowing the students to resume or retake the clerkship at a later date allows them to seek the mental health help they need in a timely manner. While stepping out might lessen some of the student's elective time, it may enable the student to stay on track toward graduation.

Tip
The first-year curriculum, while challenging, often includes a more predictable and flexible schedule. It is the *perfect time* for a consultation and possible treatment if a student has any mental health concerns or finds themselves developing psychological symptoms.

Tip
Students who require hospitalization in the clinical year may be able to step out of rotation and re-enter without causing major disruption to their plan of study or graduation. Students should be aware of this option to encourage help-seeking behavior for students in acute distress.

High-Stakes Environment

The high-stakes environment of medicine is well-documented. Within medical education there are specific times of higher stress, for example, the time period leading up to the US Medical Licensing Examination (USMLE) Step 1, the transition from the preclinical curriculum to the clerkship year, and the time devoted to the National Resident Matching Program, commonly known as "the match." In a recent commentary, the authors lament about the impact of the Step 1 examination saying, "it is disconcerting that the test preoccupies so much of students' attention with attendant substantial costs (in time and money) and mental and emotional anguish" (Ref. [29], pg. 12). Scores from the Step 1 are often used in screening applicants for residency. In some cases, they are used to determine, or limit, a student's future prospects for specialization and matching. Many of the more competitive residencies (e.g., orthopedic surgery, dermatology,

ophthalmology, otolaryngology, etc.) maintain high threshold scores for consideration despite the lack of predictive value for future success [22]. Prober and colleagues also discuss the unintended consequences in the use of such high stakes on mental health and wellness. They cite the high incidence of burnout, depression, and suicidal ideation and note that "an undue emphasis on USMLE Step 1, driven by its common role in screening for residency selection, contributes unnecessarily to this stress."

These very real consequences are recounted in commentaries like "Murky Water" by Catherine Lapedis [18], where the author discusses her emotional exhaustion as a result of taking the USMLE Step 1, and how her school described the exam as deciding, "who would succeed ….who would choose their specialty….who would live in the same location as their loved ones and who would be separated."

This commentary, while sadly recounting the stressors that unnecessarily added to the Step 1 experience for the author, also conveys the most extreme impacts of the Step 1 on mental health. One of the authors' peers who also received her score that fateful day took her life, as recounted by the author, "Minutes later, Sarah called 911; reported, "I'm going to kill myself"; and hung up. She was gone before the ambulance arrived. Next to her body lay her laptop displaying the results of her examination. She had failed by one point."

Tip
Medical schools should espouse a balanced approach to the Step 1 exam. There are students who fail, retake the exam and pass, and go on to be happy, productive physicians.

Tip
Remediation and support teams should be more robust immediately preceding and following the Step 1 administration. Schools should be aware of students who fail in advance and reach out to offer support and future-oriented plans for remediation that focus on positive outcomes. As noted above, students should have information on hand for the suicide prevention hotline.

Distinguishing Between Adjustment and Anxiety/Depression

For many students, differentiating between adjustment to medical education and the beginnings of episodic or chronic anxiety and depression can be difficult. It is important to be aware of the signs and symptoms associated with the onset of anxiety and depression and distinguish these from the anticipated adjustments to medical school (see Table 2.2). At the first sign of clinical anxiety or depression, students should seek counsel from a medical professional. Addressing these issues early in medical education and early in presentation of symptoms not only lessens the duration of the student's stress but also reduces the overall impact on one's education. Students who engage in cognitive-behavioral therapy (as noted above) can begin learning skills and tools to improve mental health in the first few sessions.

Tip
When students find themselves more anxious and tense, they should ask for objective feedback and review the table on adjustment vs. symptoms of anxiety/depression.

Table 2.2 Comparison of adjustment and anxiety/depression

Anticipated adjustments	Symptoms of anxiety/depression
Slight decrease or increase in sleep	Significant increase or decrease in sleep
Feelings of being overwhelmed that fade quickly (within the hour)	Feelings of being overwhelmed or impending doom that do not subside quickly or impair your ability to focus or study
Tearful and temporary responses to negative clinical events (death of a patient, severe trauma in clinic)	Emotional lability, panic attacks, crying that does not subside within a brief period of time
Reduction in social time with friends, but still maintaining contact (in person, by phone, facetime, text) with family and friends	Continuous decline in time with friends and lack of contact with family and friends (no communication for many weeks)

Tip
Schools should offer students objective feedback when they notice a change in behavior or mood. Schools can review Table 2.2 with students, helping them identify whether their symptoms are due to adjustment or if there are reasonable concerns about anxiety/depression.

Ideally, medical students should aim to care for their overall well-being as they navigate medical education. As noted above, this includes getting plenty of sleep, maintaining an exercise routine, and tending to their mental health. For students with a history of mental health challenges, it is important to connect with a provider and establish care proactively.

Disability and Medical Education: Navigating the Landscape

There are times when a mental health issue rises to the level of disability. When this occurs, students may be eligible for protections under the Americans with Disabilities Act [2] and may be eligible for reasonable accommodations under Section 504 of the Rehabilitation Act [32]. Most post-secondary institutions—including medical schools—are required to provide students with appropriate academic adjustments and auxiliary aids and services. Medical schools, however, are not required to make adjustments or provide aids or services that would result in a fundamental alteration of the program or impose an undue financial or administrative burden on the institution.

One might ask how a well-qualified student in medical school could simultaneously be considered a person with a disability. A qualified student with a disability is a student with a disability who meets the academic and technical standards for admission or participation in the institution's educational program or activity.

Example
A medical student with bipolar disorder was recently started on a new medication for depressive symptoms and is doing well psychologically. However, the student has been noticing side effects that include drowsiness and slowed processing. This student finds that the side effects of the medication are now causing significant barriers in medical school regarding finishing exams in the allotted time. The student remains a qualified medical student meeting the technical standards, but due to the disabling impact of medication, he/she requires an accommodation, in this case, 25% additional time to complete his/her exams.

Importantly, students with psychological disabilities often remain highly qualified for medical school and a career in medicine. These students have the abilities outlined in the technical standards of medical schools and are capable of learning and applying clinical knowledge and providing excellent care to their patients. The disability-related barriers that exist are often a result of the medical school environment. By removing or attenuating the barriers, students are able to display their knowledge and abilities. In our example case, a student, as a result of medication, may find that it takes longer to read questions on an exam or that the questions need to be read multiple times before they can fully process the information. In a time-limited scenario, this student may face a distinct barrier to the exam: time. The student has the clinical knowledge to answer the questions correctly but might run out of time due to the functional limitations (slowed processing or interrupted concentration) that result from the side effects of their medication. In this instance, the student could be both a qualified medical student and a person with a disability who is eligible for reasonable accommodations (extra time) under the ADA and Section 504 of the Rehabilitation Act.

Psychological disabilities are only one of the categories of disability. Others include learning, chronic health, physical, and sensory disability. Many students may find themselves at the intersection multiple categories.

Example
A student who is diagnosed with a chronic health condition—for example, an autoimmune disease—may find that because of his/her primary diagnosis, he/she experiences a co-occurring psychological disability, like depression or anxiety. In this case, the student may already be receiving accommodations for the autoimmune disease (e.g., ability to take breaks on the wards, intentional breaks between clinical rotations) but may also require a release from clinic to attend appointments with their therapist due to the secondary disability of anxiety.

Table 2.3 Common accommodations for psychological disabilities in clinical settings

Functional limitation	Accommodation
Slowed processing	1. Dragon dictate: speech-to-text technology to assist with charting 2. Assigned patients for presenting
Difficulty with concentration	1. Smart pens for recording patient intake 2. Reminders set on watch to direct use of time 3. Noise-cancelling headphones for charting
Panic attacks	1. Laminated list of how to present patient worn on badge (to facilitate ease of reference) 2. Pre-assigned patients for presenting 3. Ability to take 10-minute breaks throughout the day to meditate and practice calming techniques 4. Release from clinic for weekly therapy appointments
Anxiety	1. Release from clinic to go to weekly mental health appointments 2. Request clinical rotations in geographical areas that allow continued therapy

Below are some of the most commonly recommended accommodations for students with psychological disabilities in clinical settings (see Table 2.3) and in clerkship placements (see Table 2.4) [23, 26]. This list is not meant to be exhaustive and may vary between Undergraduate Medical Education (UME) and Graduate Medical Education (GME) programs.

Tip
Students with psychological disabilities that impact functioning should seek accommodations in medical school and on high-stakes exams.

Table 2.4 Common accommodations for psychological disabilities for clerkship placements

Need	Potential accommodation
Weekly appointments	1. Release from clinical duties to attend appointments. Time missed to be made up on alternative day
Continuous sleep	1. Weekend day call in lieu of overnight call 2. Hard stop on wards by 10 pm
Getting to the clinical site: parking/driving	1. Designated parking or access to parking space to allow student to leave and return quickly from appointments 2. Placement at clinical sites within a specified radius of a student's primary provider's location to facilitate weekly appointments
Clerkship order scheduling	1. Ordering of clerkship to allow for break time between physically taxing rotations (surgery/medicine/ob-gyn) 2. Scheduling of clerkships to provide equal distribution of physically taxing rotations (e.g., avoiding medicine and surgery back to back)
Prior treatment at the site	1. Thoughtful placement into clerkship sites to avoid having student rotate at locations where they were admitted or evaluated (e.g., through ED, in-patient psychiatry, ICU)

Institutions can take several steps to mitigate the impact of a mental health-related disability. In keeping with LCME guidance [19], medical schools should release medical students for mental health-related appointments. Many schools formalize this release through the dean of students, the disability support office, or the counseling services offices as a disability-related accommodation. Some schools choose to embed protected time into the curriculum for all students to attend to their various needs. Others maintain blanket policies that all students are allowed to miss a set number of hours weekly to engage in mental health or wellness activities.

Tip
Medical schools should consider embedding protected time into the curriculum for all students to attend to medical or mental health needs.

LCME guidance also requires that schools have medical care available in close proximity to the clinical site. Medical schools can accommodate a student by ensuring that the student's clinical rotations are relatively close to their mental health provider. Medical students benefit from continuity of care with their provider and by ensuring they make their weekly or biweekly appointments. For schools that are unable to place students nearby, they may consider providing a private and protected (reserved, quiet, no traffic) space for students to meet with their provider by phone or video conference. Indeed, schools might consider having all mental health providers become capable of providing telepsychiatry or teletherapy sessions during all years, but especially in the clinical years as an extension of the traditional services offered during the didactic portion of medical school. This allows for continuity of care in a less logistically challenging format.

Tip
Medical schools should explore ways of utilizing telepsychiatry/teletherapy, when clinically appropriate, to enable this generation of tech-savvy students, often pressed for time or at faraway locations, the chance to get the mental health care they need.

In 2018, the University of California, San Francisco, and the Association of American Medical Colleges released a special report titled *Accessibility, Inclusion, and Action*

in Medical Education: Lived Experiences of Learners and Physicians with Disabilities [24]. The report chronicles the lived experience of students, resident, and physicians with disabilities. Throughout the report, and in particular in the report's appendix, the authors offer recommendations for programs and students. Medical schools and residency programs should review this report to ensure that their practices align with the considerations offered in the report appendices.

Programs should also ensure that a qualified individual with experience in the ADA leads a robust and legally mandated interactive process for determining eligibility for services and reasonable accommodations. The 2018 report from The University of California, San Francisco (UCSF) and the The Association of American Medical Colleges (AAMC) outlines the interactive process in detail and provides thoughtful considerations for medical schools and residency programs engaging with the disability process. As well, the AAMC offers a webinar about supporting students with psychological disabilities in medical school and provides detailed recommendations about leaves of absence, release from overnight call, reasonable accommodations, and decision-making [26].

Sharing Experiences

When medical students are given the opportunity to share struggles and approaches to maintaining wellness with their peers in a supportive and safe space, they discover that they are not alone. The realization that others have similar struggles, feel overwhelmed, or struggle with depression or anxiety can normalize these feelings for other medical students who may incorrectly feel that they are alone in these feelings. Cohorts often have a positive impact on peers' help-seeking behaviors. When one student seeks mental health or disability services and has a positive outcome, it may influence others' decisions about seeking help.

Leaves of Absence

In some instances, students experiencing a mental health crisis may need to take a leave of absence (LOA). Taking a leave of absence should be an easy process, requiring only a physician signature stating that the leave is medically necessary. No information about the diagnosis, planned treatment, medication, or therapy should be requested. Medical schools should ensure that their LOA process does not serve as a deterrent by requesting detailed information about a student's mental health or requiring students to gain multiple signatures from faculty or administrators as part of the process. Students who see the LOA as an additional barrier or who have to disclose personal sensitive information about their mental health may "push through" rather than disclose a mental health issue if they are concerned about having to inform a medical school official who might be involved in evaluation, grading, recommendations, or promotion.

Confidentiality

Maintaining confidentiality of student mental health records and status as a person with a disability is paramount. If students do not trust the program, they will not disclose mental health challenges and are less likely to engage in help-seeking behavior. Medical schools should ensure that policies for registering with disability services, seeking mental health services, or taking a leave of absence address confidentiality or privacy of information.

Disability Insurance

While students are not required to take out disability insurance, medical schools are required by the LCME to offer the option to all students (see Table 2.5). Disability insurance can be used in multiple ways but is most often put into effect

Table 2.5 LCME element 12.6

12.6 Student Health and Disability Insurance A medical school ensures that health insurance and disability insurance are available to each medical student and that health insurance is also available to each medical student's dependents.

when a student needs to take an extended leave of absence (6 or more months). In the event of a disability-related need to suspend or discontinue medical education, insurance provides a low-cost protection and can serve as a source of income to pay living expenses and help with loan repayment in the event of disability. Costs are low for enrolling in disability insurance, and the average insurance coverage offers generous support to students who are out of school for any period of time due to disability. The authors recommend that all schools provide disability insurance coverage for all medical students, regardless of medical history.

Tip
Medical schools should provide disability insurance for all students. The very small investment provides excellent coverage, which may be the catalyst to ensuring students take a LOA and seek help when needed.

Concluding Thoughts

Medical school is hard. One in four medical students will experience a mental health issue. Depression rates for medical students are higher than age-matched peers. Over 10% of medical students think about suicide, the rate of burnout is 50%, and leaders in the medical community believe we have hit a crisis level.

Something about medical school correlates with worsening mental health and well-being. What is it? We should look

at the culture of medicine. Students hear stories about physicians who place their needs behind those of their patients, and they strive to become them. The selfless and noble physician is heralded as the ideal. How many of us have been regaled by tales of our physician forbearers who have worked longer, harder, and with barely a day off?

If students are struggling in any way, they can feel alienated when they sense that they might not be living up to that mythic ideal. Medical students are perceptive, and they pick up on stigmas. They worry that having mental health issues could affect their chances of residency and future success. They do not want to be perceived as weak. Thus, it is important that students be taught, mentored, and supported by faculty, staff, and educational leadership who understand this current environment, are mindful of the mental health issues of medical students, and are aware that these conditions can benefit from treatment, mitigating measures, reasonable accommodations, and guidance from medical education organizations.

We hope that this chapter serves as a valuable overview of the state of mental health of medical students today. We hope that medical schools use this as a guide to improve the medical education experience for all students. We must not only help the medical student in front of us, but we must also reach those students who may be suffering in silence.

Appendix A: Top 20 Tips for Medical Students and Administrators

Tip
Students should seek treatment during the first year of medical school for specific phobias. These phobias can limit their opportunities and they are treatable.

Tip
Students who experience anxiety around presenting students or clinical encounters with patients may find relief using the basic principles of systematic desensitization, whereby schools expose the student to incremental patient encounters or patient presentations using a simulation lab and standardized patients.

Tip
Students who experience anxiety while engaging in small group discussions or presentations should reach out to counseling for assistance. Performance can improve, and students will enjoy the experience.

Tip
Students who experience panic attacks while on the wards can use bathroom stalls as safe space to regroup and meditate or medicate. Bathrooms are usually close by when students feel an impending attack, and social graces dictate that others do not place critical inquiry on time spent in a restroom, giving the student a short, but much needed and socially accepted reprieve.

Tip
Students who lose the ability to enjoy things that usually bring them pleasure may be experiencing anhedonia, one of the key symptoms of major depression.

Tip
Medical students with a history of mental health concerns or treatment should get connected to a mental health provider as soon as they arrive at school. Establishing care and a relationship with a provider is imperative, even when things are going well.

Tip
Students having thoughts of suicide should have access to an emergency contact person at the school, and the National Suicide Prevention Hotline should be posted in multiple, easy-to-access locations (online, student handbook, badge stickers). The NSPH number is 1–800–273-8255 and is staffed 24/7.

Tip
Students should aim for 7 hours of sleep per night or "restful" sleep that ensures optimal performance and concentration and should practice good sleep hygiene and remove electronic devices from their sleeping space.

Tip
Students who try to learn when exhausted don't perform well. Sleeping for even a few hours and then returning to studying can be far more effective than studying while exhausted.

Tip
Provide students with the opportunity to share their experiences. Often, a second- or third-year student discussing the benefits of mental health services can be a great motivator for first-year students, still navigating the medical school environment, to seek help.

Tip
The first-year curriculum, while challenging, often includes a more predictable and flexible schedule. It is the *perfect time* for a consultation and possible treatment if a student has any mental health concerns or finds themselves developing psychological symptoms.

Tip
Students who require hospitalization in the clinical year may be able to step out of rotation and re-enter without causing major disruption to their plan of study or graduation. Students should be aware of this option to encourage help-seeking behavior for students in acute distress.

Tip
Medical schools should espouse a balanced approach to the Step 1 exam. There are students who fail, retake the exam and pass, and go on to be happy, productive physicians.

Tip
Remediation and support teams should be more robust immediately preceding and following the Step 1 administration. Schools should be aware of students who fail in advance and reach out to offer support and future-oriented plans for remediation that focus on positive outcomes. As noted above, students should have information on hand for the suicide prevention hotline.

Tip
When students find themselves more anxious and tense, they should ask for objective feedback and review the table on adjustment vs. symptoms of anxiety/depression.

Tip
Schools should offer students objective feedback when they notice a change in behavior or mood. Schools can review Table 2.2 with students, helping them identify whether their symptoms are due to adjustment or if there are reasonable concerns about anxiety/depression.

Tip
Students with psychological disabilities that impact functioning should seek accommodations in medical school and on high-stakes exams.

Tip
Medical schools should consider embedding protected time into the curriculum for all students to attend to medical or mental health needs.

Tip
Medical schools should explore ways of utilizing telepsychiatry/teletherapy, when clinically appropriate, to enable this generation of tech-savvy students, often pressed for time or at faraway locations, the chance to get the mental health care they need.

Tip
Medical schools should consider maintaining disability insurance for all students. The very small investment provides excellent coverage, which may be the catalyst to ensuring students take a LOA and seek help when needed.

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