



## An essential challenge

What is the “true cost” — both direct and indirect — of mental illness in the United States? How is COVID-19 impacting mental health issues and access? What are government and business leaders doing to address mental illness? What are the potential investment implications of these developments? The individual and societal costs from mental illness are significant, and less than half of those afflicted receive treatment due to a multitude of barriers to access. Employers have incentive to address mental health issues to improve productivity and broader measures of health. Leading companies take a proactive, multi-faceted approach. Policy responses to the COVID-19 pandemic have improved access to mental health care in some ways, and there are encouraging advances in treatment, including telemedicine and pharmacology. Although it is too soon to draw lasting conclusions, several trends have emerged during the COVID-19 pandemic — some worrisome, some promising. We seek to explore these developments in the following discussion.

## SECTIONS

1

**Overview of mental illness and access to care | pages 4–8**

Mental illness is widespread and undertreated in the United States. Those who are afflicted confront multiple barriers that limit access to treatment. For the purposes of this report, we focus specifically on depression and anxiety, the two most common disorders.

2

**The costs of mental illness | page 9**

Diseases like depression and anxiety carry significant costs to patients and society. Employers increasingly recognize the benefits of reducing both the suffering and the costs of mental illness, and investors recognize the possibilities associated with expanding and improving treatment.

3

**The impact of the COVID-19 pandemic | pages 10–11**

The COVID-19 pandemic has amplified many mental health issues. Vulnerable populations are even more at risk.

4

**The current government response and potential short- and long-term implications | pages 12–14**

The CARES Act and the actions of the Department of Health and Human Services (HHS) have improved certain access to mental health care in the short run. Some of these changes may improve long-term access and expand the opportunity for telemedicine providers.

5

**The impact on businesses, and their efforts to support employees' mental health | pages 15–16**

Companies showing leadership in helping to treat and prevent mental illness go beyond providing basic resources; they work to reduce the stigma of illness and to support employees with multi-faceted approaches.

6

**Potential solutions and innovations to watch | pages 17–20**

Pharmacological innovation is accelerating, with several new approaches to treatment. Additionally, digital tools, including telemedicine, are growing, in part due to the access and privacy improvements they offer.

## SECTION 1

# Overview of mental illness and access to care

Mental health is a sub-category within broader behavioral health. While behavioral health describes how behaviors impact a person's mental and physical health, mental health involves the specific biological factors that influence mental state and the emotional, psychological, and social well-being of a person.<sup>1,2</sup>

---

Nearly one in five U.S. adults live with a mental illness (46.6 million in 2017).<sup>3</sup> Examples of mental illness include depression, generalized anxiety, post-traumatic stress disorder (PTSD), obsessive compulsive disorder (OCD), attention deficit hyperactive disorder (ADHD), schizophrenia, and bipolar disorder. In this analysis, we focus on major depression and generalized anxiety disorder. These are two of the most common behavioral health disorders, impacting an estimated 7% and 3%, respectively, of adults in the United States.<sup>4,5</sup> Prevalence of depression and anxiety can be much higher (and increasing) in certain subsets of the population. For example, among U.S. teenagers, 13% (roughly 3.2 million people) reported at least one major depressive episode in the past 12 months.<sup>6</sup> Within that group, 20% of teenage girls reported at least one major depressive episode in the past 12 months, a meaningful increase from 12% in 2007.<sup>7</sup>

**43%**  
**of Americans**  
with a mental health issue  
received treatment in 2017.

The current standard of care for treating mood disorders such as depression often involves an individualized treatment plan crafted by a psychiatrist or other licensed healthcare provider. Using major depressive disorder (MDD) as an example, treatment will often fall into three main categories: pharmacological management, brain stimulation therapy, and/or non-pharmacological management (such as psychotherapy or cognitive behavioral therapy).<sup>8</sup> Combination therapy, which administers multiple antidepressants or combines various treatment categories, may be the next step when a person fails to respond to a single therapy regimen.

### Several barriers hinder access to mental health care

These barriers include inadequate healthcare coverage, high out-of-pocket costs for patients, a shortage of providers, and lingering stigma related to mental illness. The effect of these barriers in total is a low treatment rate: Just 43% of Americans with a mental health issue received treatment in 2017.<sup>9</sup>

**Insurance coverage:** People with mental illness are less likely to have health insurance than those without mental health problems. For example, a 2017 study published in JAMA Psychiatry found that 14.9% of those surveyed with moderate mental illness and 18.6% with several mental illness lacked health insurance. This compared with 12.0% of those surveyed without any mental illness who lacked health insurance.<sup>10</sup> The Affordable Care Act has helped narrow this gap from 2012 levels, but it persists.<sup>11</sup>

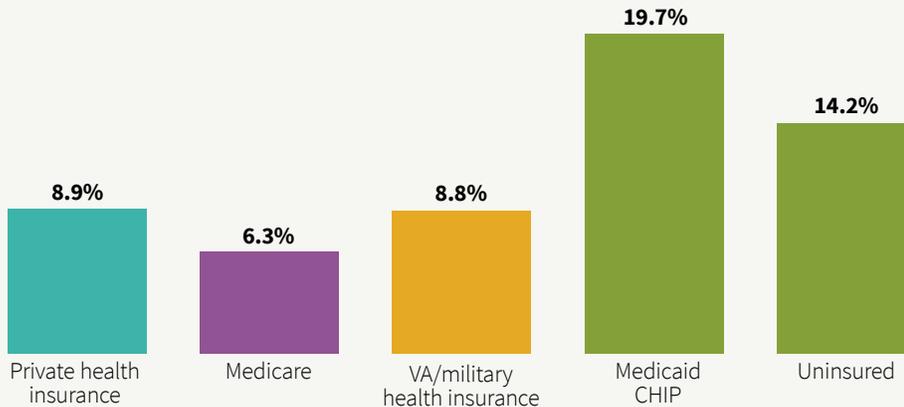
**Individual costs:** Out-of-pocket costs for behavioral health treatment are higher than for other prevalent chronic conditions, and have risen at a faster rate than broader health services costs. For example, a 2019 study published in JAMA found that individuals with mental health conditions had cost-sharing payments for out-of-network care that were \$341 higher than for those with diabetes.<sup>12</sup> Additionally, for the four years ending in 2018, the Healthcare Cost and Utilization report shows that out-of-pocket spending for all types of inpatient care grew only 6% cumulatively, while out-of-pocket spending associated with inpatient mental health treatment grew by 25%. Similarly, out-of-pocket spending associated with all professional healthcare services during this time frame grew by a cumulative 17%, while spending for psychiatric services during that period grew by 30%.<sup>13</sup>

### People with serious psychological conditions have a higher likelihood of having Medicaid coverage or being uninsured:

United States 2016

Percentage of people with serious psychological distress by insurance type

In the Medicaid and uninsured population, a higher percentage of people reported serious psychological distress (SPD) during the past year compared with people with Medicare, VA/military, or private health insurance coverage.



Sources: USC Schaeffer; National Survey on Drug Use and Health (NSDUH), 2016.

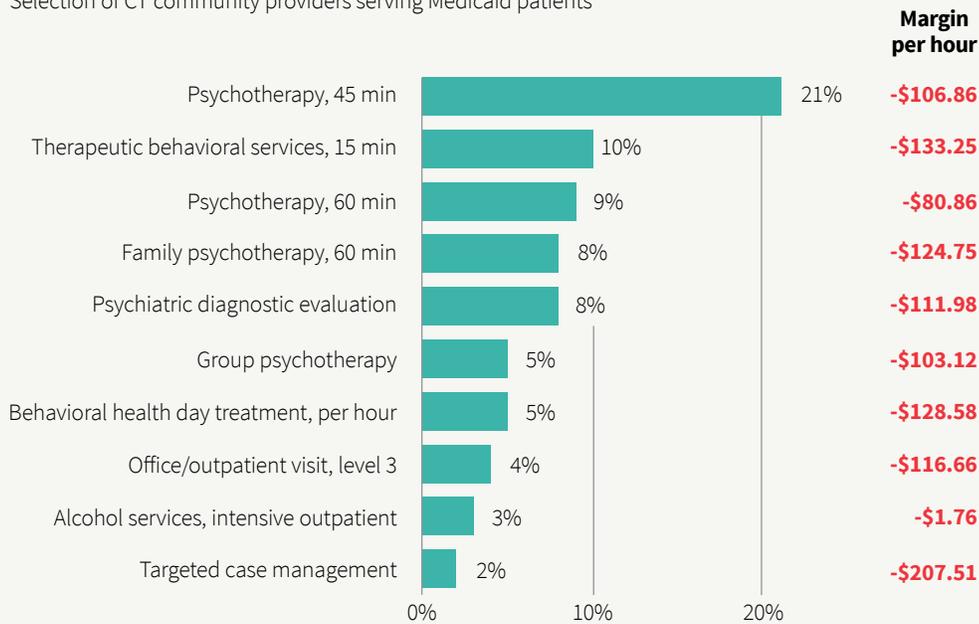
**Declining reimbursement rates:** Reimbursement rates for psychologists have trended downward over the past two decades. In 2015, Medicare paid approximately \$85 for a 45-minute psychotherapy session (the most common mental health service). This rate is down 30% versus 2001 when adjusted for inflation.<sup>14</sup> These sharp reimbursement declines give psychologists less incentive to take new Medicare and Medicaid patients, reducing access to care for vulnerable populations.

The chart below focuses on one state, Connecticut, where delivery costs for the most common mental health services are often higher than the revenue received under Medicaid rates. This results in negative margins for providers, disincentivizing investment in behavioral health services.

### Medicaid reimbursement rates for behavioral health services by community providers are low Connecticut 2014

#### Top 10 procedures by volume

Selection of CT community providers serving Medicaid patients



The 10 most utilized behavioral health services account for 75% of total service by community providers.

The service delivery cost for these procedures is higher than the revenue under Medicaid rates, resulting in negative margins and providers operating at a loss.

The annual loss for these procedures is more than \$27 million for approximately 250,000 service hours.

Sources: USC Schaeffer; Prioritizing Community Based Services in CT, CT Community Providers Association, February 2015.

**Lack of providers:** The United States is experiencing a shortage of mental health providers, which is even more pronounced in rural areas. A 2018 study found that less than half of the population found mental health services to be extremely accessible, with rates of 45%–46% in suburban and urban locations, and 39% in rural areas.<sup>15</sup> Even when respondents had services available to them, they cited proximity, cost, and wait times as key hurdles to accessing treatment. For example, roughly 38% waited longer than a week for mental health services, and about 45% reported having to travel more than one hour roundtrip for an appointment, or knowing someone who had had to do so.<sup>16</sup> The majority of rural Americans live in areas with shortages of mental-health-professionals, and more than 65% of rural Americans get their mental healthcare from a primary healthcare provider.<sup>17</sup> This added challenge for rural access to care has stayed roughly the same for six decades. Notably, despite all of the above barriers to access, as of 2018 only 4% of respondents had tried telehealth services.

**Lower compensation for providers:** One key reason for the longstanding shortage of care providers is the lower relative compensation for behavioral health professionals. According to a 2020 medical compensation report, psychiatrists are among the lowest earners of all physicians, with an average annual income of \$268,000. This compares with the average specialist salary of \$346,000.<sup>18</sup> For psychologists, these numbers are meaningfully lower: According to the American Psychological Association (APA), the median salary in 2015 for psychologists was \$85,000.

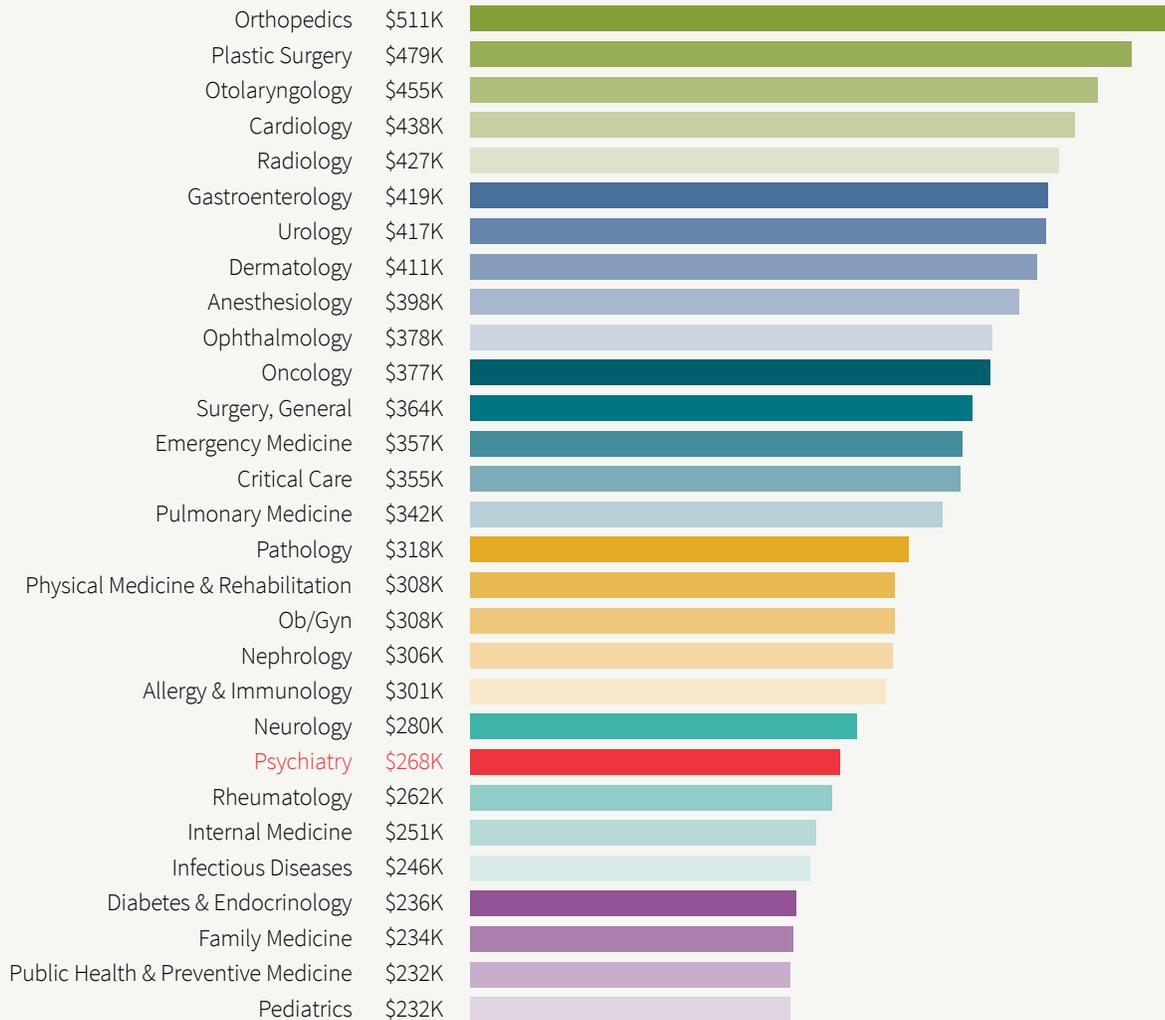
## HRSA predicts significant shortages of psychiatrists, and other mental health providers by 2025:<sup>19</sup>

Behavioral clinician shortage

POSITION	2025 PROJECTED SUPPLY	2025 PROJECTED DEMAND	SHORTAGE
Psychiatrists	45,210	51,290	6,080
Behavioral Nurse Practitioners	12,960	8,120	4,840
Behavioral Physician Assistants	1,800	1,350	450
Clinical, Counseling, and School Psychologists	188,930	197,150	8,220
Substance Abuse and Behavioral Disorder Counselors	105,970	98,040	7,930
Mental Health and Substance Abuse Social Workers	109,220	126,160	16,940
Mental Health Counselors	145,700	138,170	7,530
School Counselors	243,450	257,190	13,740
Marriage and Family Therapists	29,780	32,220	2,440

Source: Health Resources and Services Administration (HRSA)

## How much do psychiatrists earn?



Source: Medscape.com (<https://www.medscape.com/slideshow/2020-compensation-overview-6012684>)

**Stigma:** Social stigma also plays an important role in discouraging people from seeking treatment, and in making treatment more difficult to access. Despite greater attention to alleviating stigma in recent years, this challenge still keeps patients from seeking treatment, and contributes to high no-show rates and high discontinuation rates. For example, no-shows at general outpatient centers have been documented at rates of 23%–34%,<sup>20,21</sup> while no-show rates for patients with depression are closer to 40%.<sup>22</sup>

Importantly, challenges of stigma are even more pronounced in older patients and in the Black community.<sup>23</sup> Telemedicine is one potential solution that can help to improve no-show rates by making it easier and more private for patients to connect with their provider. (For more information, see Part 4.)

**SECTION 2**

# The costs of mental illness

Depression and anxiety carry with them significant costs to patients and society. In addition to our paramount concern for the health of friends, family, community members, and society, as investors we also pay attention to both direct and indirect costs of these conditions.

**Direct healthcare costs:** Mental disorders accounted for the most costly set of health conditions as of 2013, at an estimated \$201 billion, or 9% of total healthcare expenditures.<sup>24</sup> Of the \$200B+ in annual expenses, anxiety and depression accounted for roughly 40% of the total. For reference, this is more than heart conditions, which accounted for an estimated \$147 billion and cancers at \$122 billion of direct healthcare spend.<sup>25</sup> In 2020, official projections from the Substance Abuse and Mental Health Services Administration (SAMHSA) estimate that treatment spending on mental and substance use disorders from all public and private sources will total \$280.5 billion.<sup>26</sup>

**Broader societal costs:** Mental illness also has significant societal costs. Several studies show that major depressive disorder (MDD) is associated with much higher odds of failing to complete secondary school. Research shows a relationship between mental disorders and future unemployment and work disability.<sup>27</sup> A 2010 study found the comprehensive economic burden associated with MDD to be greater than \$210 billion, with about half of the total associated with workplace costs.<sup>28</sup> Outside the United States, the World Health Organization (WHO) has estimated a global cost of \$1 trillion from lost productivity due to depression and anxiety.<sup>29</sup>

## \$280.5B

is the estimated treatment spend on mental and substance use disorders from all public and private sources in 2020 according to an official projection from the Substance Abuse and Mental Health Services Administration (SAMHSA).

## SECTION 3

# The impact of the COVID-19 pandemic

Many mental health experts have warned that the stress and isolation associated with the COVID-19 pandemic and quarantine conditions could further accelerate the prevalence and intensity of mental illnesses.<sup>30</sup> The added strains from the crises of the pandemic and its economic impact, plus the longer-duration crises such as climate change and racial injustice in the United States, could have a number of effects on mental illness.

---

### **Impact of mental health on the spread of COVID-19:**

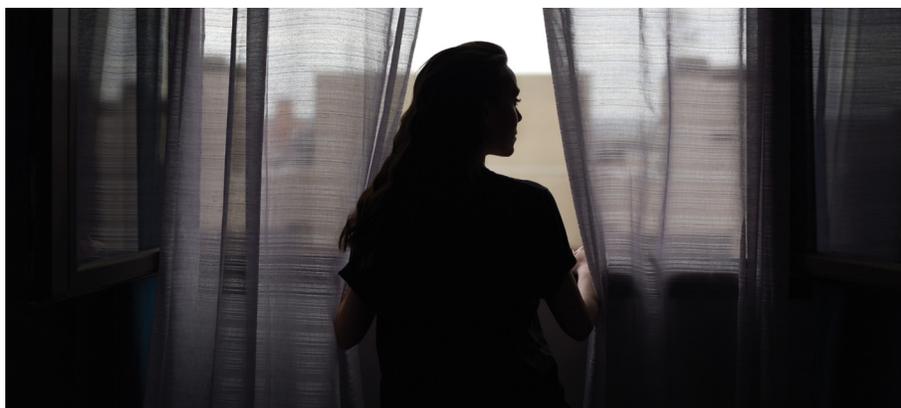
Several studies show that psychological factors play a role in adherence to public health measures (such as vaccinations).<sup>31</sup> Vulnerable populations dealing with serious mental illness may also have more trouble accessing treatment and testing for the virus.



**“Americans are reporting significantly higher levels of stress, especially parents with children at home during the COVID-19 pandemic.”**

### **Potential near-term increase in instances of depression and anxiety:**

We are seeing clear signs of increased stress in various geographies, and prolonged levels of stress can be linked to depression and anxiety.<sup>32</sup> In the United States, Americans are reporting significantly higher levels of stress, especially parents with children at home during the COVID-19 pandemic.<sup>33</sup> A large survey completed by the CDC in late June 2020 found that 41% of respondents had reported an adverse mental health condition, with 31% suffering from anxiety or depression.<sup>34</sup> This compares with roughly 10% prevalence of anxiety and depression pre-pandemic. Even more concerning, 13% of respondents had increased substance use to cope with stresses of the pandemic, and nearly 10% had seriously considered suicide in the previous month. These rates of suicide consideration were even higher for young people (18–24 years), people of color, unpaid caregivers, and essential workers.<sup>35</sup> Prescriptions for anti-anxiety drugs such as Xanax and Klonopin rose approximately 15% in March over February 2020, and antidepressant prescriptions were up by 14% during the same period, though there is some evidence this may have been due to stockpiling.<sup>36</sup>



“Social isolation across the globe due to stay at home and quarantine orders is a new factor in this pandemic.”

**Potential longer-term increase in depression/anxiety:** The evidence suggesting a prolonged impact on mental health is more mixed. Several mental health experts have predicted that the psychological effects during this pandemic will outweigh and outlast the physical effects.<sup>37</sup> Evidence from prior pandemics includes a longitudinal study after the SARS outbreak in China, which showed that 44% of SARS patients developed PTSD, as did 10% of Beijing hospital workers.<sup>38</sup> At the same time, many experts highlight the fact that the majority of people consistently show resilience in the face of trauma. Studies of the consequences of natural disasters like hurricanes and floods have found that approximately 10% of the affected populations develop prolonged reactions, with the greatest effect centered on those who are most directly impacted.<sup>39</sup> Of course, this pandemic is far more widespread and far longer in duration than natural disasters, so it is hard to draw direct implications from this prior research. One of the more comprehensive current U.S. surveys on this topic is by JAMA, administered in April 2020. It showed that 14% of respondents had high levels of psychological distress, compared with an average of 4% before the pandemic.<sup>40</sup> Again, it is still early to draw long-term conclusions from these indicators, as many mental health disorders are defined by symptoms lasting six months or more.

**Social isolation is a newer risk factor:** Social isolation across the globe due to stay at home and quarantine orders is a new factor in this pandemic. Consistent evidence links social isolation and loneliness to worse physical and mental health outcomes. In fact, meta-analyses have shown a link between social isolation and overall mortality rates.<sup>41</sup> One newer — and possibly positive — factor that warrants further research is the impact of technology on social isolation. Does a virtual/video call count as “real” social connection? Interestingly, the JAMA study cited above found little difference in respondents’ feelings of loneliness in April compared with before the pandemic, indicating that there might be some benefits to various forms of virtual connection.<sup>42</sup>

**Crisis beyond COVID-19:** Finally, this pandemic coincides with several other forms of crisis, including the directly related economic crisis, the crisis of racial injustice in the United States, and a series of crisis points related to wildfires, floods, and other climate-related events. All of these circumstances are likely to contribute to further mental health challenges. For example, unemployment rates in the United States have reached levels not seen since the Great Depression in the 1930s. Researchers have found clear links in multiple studies over time between financial distress, particularly unemployment, and depression.<sup>43</sup>

## SECTION 4

# The current government response and potential short- and long-term implications

Access to mental health care has improved in some ways during the pandemic due to emergency spending and the easing of government regulations. The potential to make these changes permanent could enhance the business and investment potential for telemedicine companies.

---

### **Coronavirus Aid, Relief, and Economic Security Act:**

The CARES Act became law in March 2020, and included over \$2 trillion in funding to help buffer the public health and economic impacts of Covid-19.<sup>44</sup> For behavioral health programs, the CARES Act provides \$425M to the Substance Abuse and Mental Health Services Administration (SAMHSA), of which \$250M is reserved for behavioral health clinics, \$100M for mental health or substance use emergency grants, and \$50M for suicide prevention programs. Another part of the CARES Act appropriates \$200M to the Federal Communications Commission (FCC) to provide financial support to healthcare providers in necessary telecommunication and information services.<sup>45</sup>

Beyond direct spending, the government also loosened certain regulations related to telemedicine, enabling easier access to care for some patients. Telemedicine can be a powerful tool for behavioral health providers to expand their practice to underserved regions and populations, and can make caregiving possible when both healthcare facilities and patient mobility are constrained. In response to the public health emergency, the Center for Medicare and Medicaid Services (CMS) announced several new policies to encourage increased adoption of telemedicine. These temporary modifications include expansion of patient eligibility for telemedicine, easement of cross-state service restrictions, improvements in Medicare telehealth payment policies, a broader menu of services and approved technologies, and permission for providers to prescribe controlled substances during a telehealth visit.<sup>46</sup> Although many of these changes are expected to be temporary, they are meaningful and have allowed existing patients to continue treatment and newly affected patients to access treatment in recent months.



“Telemedicine can be a powerful tool for behavioral health providers to expand their practice to underserved regions and populations, and can make caregiving possible when both healthcare facilities and patient mobility are constrained.”

### Who regulates telemedicine in health plans?

<p><b>MEDICARE</b></p> <p>Regulated by the federal government</p>	<p><b>MEDICAID</b></p> <p>Regulated by both the federal and state governments</p>
<p><b>SELF-INSURED HEALTH PLANS</b></p> <p>Regulated by the federal government</p>	<p><b>FULLY-INSURED HEALTH PLANS</b></p> <p>Must comply with both federal and state requirements</p>

Source: Henry J. Kaiser Family Foundation.

That said, much of the direct impact from these temporary changes is limited to Medicare and Medicaid beneficiaries. Private health plans (including Medicare Advantage plans) have the freedom to choose which telehealth services their plans cover. Many have voluntarily expanded coverage and are reducing or eliminating cost sharing, but this dynamic varies across carriers.<sup>47</sup>

**Potential longer-term changes:** Several potential changes could meaningfully improve longer-term telemedicine adoption. For example, in June, the American Medical Association (AMA) and several other key medical associations called upon Congress to make the temporary waiver of geographic restrictions permanent.<sup>48</sup> Eliminating state licensure requirements on a permanent basis would remove a significant barrier to interstate telehealth access. Additionally, permanent reimbursement parity between telehealth and in-office visits would also be a major step forward for improved telemedicine adoption from providers. We do not yet know which of these temporary policy modifications may become permanent, and while we believe many of these measures make sense in the presence of a public health crisis, loosening restrictions may also come with drawbacks in terms of privacy and quality of care. For example, one policy temporarily waived but likely to return following the public health crisis is the requirement for approved HIPAA-compliant telemedicine services.

**Potential benefit to telemedicine providers:**

If some of these temporary emergency changes become permanent, the market potential for telemedicine solutions could meaningfully increase. As noted above, nearly 60% of the 46 million U.S. adults suffering from mental illness do not receive treatment. If we assume, for example, that roughly half of them might seek treatment with increased accessibility due to telemedicine options, this could lead to an additional 13–14 million individuals seeking treatment from companies like Teladoc, Amwell, Livehealth, and MDLive. These calculations align with a survey conducted by Teladoc, which suggested that 40% of its behavioral health users would not have sought treatment if Teladoc were not available to them.<sup>49</sup> (Note, this calculation includes U.S. adults only, with added potential opportunity to serve children, adolescents, and international patients.)



**“If some of these temporary emergency changes become permanent, the market potential for telemedicine solutions could meaningfully increase.”**

For reference, Teladoc (the industry leader) has 43 million paid memberships, but the company conducts only 8–9 million visits per year. This total has accelerated from a rate of 5–6 million annual visits before the COVID-19 pandemic and recent acquisitions, but reflects still-low overall utilization levels. Over the longer term, if Teladoc were to serve a reasonable portion of patients (about 30%),<sup>50</sup> and those patients seek treatment 4–5 times per year (in line with Teladoc’s 2019 reported mental health utilization rates), these dynamics could add about 18 million potential visits per year for Teladoc. At current levels of per-visit fees (\$50–\$100/visit), this suggests a revenue opportunity of more than \$1.3 billion. This calculation compares with Teladoc’s recent revenues of more than \$700 million for the trailing 12 months through June 2020 and BetterHelp’s 2019 estimated revenues of roughly \$100 million. (BetterHelp is the direct-to-consumer arm of Teladoc’s behavioral health business and generates most, but not all, of their behavioral health revenues.) While there is no guarantee that any of the aforementioned regulatory changes become permanent, the notes above show that the potential impact from modest improvements in telemedicine access could be meaningful for both patients and solutions providers.

As of 9/30/20, Teladoc accounted for 1.28% and 0.0% of the Sustainable Future and Sustainable Leaders strategies, respectively. As of the same date, Amwell, LiveHealth, and MDLive were not held in either strategy. The companies presented as investment examples represent the positions deemed most relevant to the applicable ESG investment theme being discussed. Company examples were selected without regard to whether such industries, or relevant securities, were profitable and are intended to help illustrate our fundamental research process. A security may be selected for a portfolio based on factors other than the ESG themes highlighted herein, and the inclusion of company information should not be interpreted as a recommendation to buy or sell or hold any security. It should not be assumed that investment in the securities mentioned was or will be profitable. Holdings are for a representative account and are shown for illustrative purposes only. Each account is managed individually. Accordingly, account characteristics may vary.

## SECTION 5

# The impact on businesses and how firms are responding to support employees' mental health

Beyond essential human empathy and corporate responsibility, employers have direct business incentives to address mental health. Direct and indirect costs of mental illness are one set of considerations.

**Absenteeism** — Depression in individuals can result in 26 additional absences per year when compared with employees who are not suffering from depression.<sup>51</sup> Absenteeism related to mental disorders accounts for an estimated 7% of global payroll, more than any other disorder.<sup>52</sup>

**Presenteeism** — Impaired work performance or productivity loss, known as presenteeism, is an even larger cost for employees than absenteeism. Though harder to calculate, it is estimated that the total cost of presenteeism is 3-4 times greater than the cost of absenteeism.<sup>53</sup>

**Healthcare costs** — The costs associated with employer-based insurance are more than twice as high for employees with mental illness, when compared with costs for other employees.<sup>54</sup>

Given the high costs noted above, it is not so surprising that treating mental illness has been shown to be effective for companies, with a high “return on investment.” The World Health Organization found that every dollar put into treatment produces a \$4 improvement in health and productivity for employees and businesses.<sup>55</sup> Though these costs and benefits are well understood, the employer approach to behavioral health to date has been somewhat piecemeal. One key offering has been Employee Assistance Programs (EAPs), which connect employees to professional assistance to treat mental health issues ranging from stress to depression.<sup>56</sup> While more than 97% of large U.S. companies offer EAPs, utilization of these programs is only about 3%–5%.<sup>57</sup> In response, organizations like the National Alliance on Mental Illness (NAMI) have launched initiatives and pledges for companies to destigmatize mental health and promote increased workforce engagement.

## 97%

of large U.S. companies offer employee assistance programs (EAPs), and utilization of these programs is about 3%–5%.

Many corporate leaders acknowledge the importance of mental health in the workplace, but only a subset of companies offer more than the traditional (and underutilized) offerings noted above. Indicators of corporate leadership in this area include providing education and training for managers, advocating for cultural acceptance and destigmatization of mental illness, offering a more complete range of supports and preventive care that includes elements like stress management and physical fitness tools, and creating a more flexible and accommodating workplace environment.<sup>58</sup>

For example, Deloitte announced its first Chief Well-Being Officer in 2015, and she launched Deloitte's Mental Health at Work campaign providing Mental Health First Aid training and other resources and educational opportunities.<sup>59</sup> EY launched their "r u ok?" program in 2016 to help destigmatize mental health and promote workplace discussions, which led to a 30% increase in calls to their mental health assistance line in the first three months.<sup>60</sup> Johnson & Johnson created a holistic program that treats mental health by providing resources in stress management, physical fitness, wellness, and financial budgeting,<sup>61</sup> and was part of the founding of One Mind at Work, a coalition of public and private sector leaders committed to workplace mental health. Microsoft focuses on mental health through its CARES initiative, which provides employees and immediate family members confidential counseling services 24/7 to address work-related or personal matters.<sup>62</sup>

The COVID-19 pandemic has brought mental health care even more into focus for employers. At Target, where workers were deemed essential during lockdowns, the company expanded online resources for employees to improve mental, physical, and emotional health in addition to stress, sleeping habits, and fitness.<sup>63</sup>

Other companies have focused on supporting employees in their new remote work environments. Salesforce.com shared resources on emotional health and provided face-to-face video counseling, and CEO Marc Benioff has made a point of noting this focus on calls with the investment community.<sup>64</sup> Walmart has also meaningfully increased the mental health resources available to employees, including providing three free counseling sessions and unlimited telephonic counseling.<sup>65</sup> Walmart is also reaching beyond its own employee base to its customers, and is expanding its offering of low cost (\$1 per minute) counseling at many of its new and growing group of health clinics. Expansion of these health clinics alongside existing Walmart locations could lead to better access to mental healthcare, especially in rural communities.<sup>66</sup>

Smaller companies, too, are leading the way in mental health support for employees. Etsy, the online marketplace for unique and creative goods, has provided unlimited mental health days as part of unlimited sick leave and unlimited coaching and therapy sessions for employees.<sup>67</sup>

As is the case with telehealth, we expect some of these recent changes to result in longer-term shifts and opportunities for employers and employees.

As of 9/30/20, Microsoft accounted for 0.0% and 7.36% of the Sustainable Future and Sustainable Leaders strategies, respectively. As of the same date, Johnson & Johnson, Deloitte, EY were not held in either strategy. The companies presented as investment examples represent the positions deemed most relevant to the applicable ESG investment theme being discussed. Company examples were selected without regard to whether such industries, or relevant securities, were profitable and are intended to help illustrate our fundamental research process. A security may be selected for a portfolio based on factors other than the ESG themes highlighted herein, and the inclusion of company information should not be interpreted as a recommendation to buy or sell or hold any security. It should not be assumed that investment in the securities mentioned was or will be profitable. Holdings are for a representative account and are shown for illustrative purposes only. Each account is managed individually. Accordingly, account characteristics may vary.

As of 9/30/20, Etsy accounted for 0.70% and 0.75% of the Sustainable Future and Sustainable Leaders strategies, respectively. As of the same date, Salesforce accounted for 1.85% and 2.15% of the Sustainable Future and Sustainable Leaders strategies, respectfully. Additionally, as of 9/30/20, Target and Walmart accounted for 1.75% and 1.84%, respectively, of the Sustainable Leaders strategy, while neither company was held in the Sustainable Future strategy. The companies presented as investment examples represent the positions deemed most relevant to the applicable ESG investment theme being discussed. Company examples were selected without regard to whether such industries, or relevant securities, were profitable and are intended to help illustrate our fundamental research process. A security may be selected for a portfolio based on factors other than the ESG themes highlighted herein, and the inclusion of company information should not be interpreted as a recommendation to buy or sell or hold any security. It should not be assumed that investment in the securities mentioned was or will be profitable. Holdings are for a representative account and are shown for illustrative purposes only. Each account is managed individually. Accordingly, account characteristics may vary.

## SECTION 6

# Potential solutions and innovations to watch

**Pharmacology:** There have been several waves of psychiatric-focused innovation from the pharmaceutical industry, starting in the mid 1950s with the approval of the antipsychotic, chlorpromazine (Thorazine). A second wave developed in the 1980s and 1990s with the emergence of the class of antidepressants known as SSRIs (with brand names like Prozac, Paxil, and Lexapro) and SNRIs (such as Cymbalta and Effexor XR).



**“In recent years, a renewal of interest in central nervous system (CNS) targets has emerged, with FDA approval of novel pharmaceutical and digital therapies for treating common mental illness.”**

In recent years, a renewal of interest in central nervous system (CNS) targets has emerged, with FDA approval of novel pharmaceutical and digital therapies for treating common mental illness. Sage Therapeutics and Johnson & Johnson have led the way in recently developed treatments for various forms of depression. In 2019, Johnson & Johnson announced the FDA approval of Spravato (esketamine), a ketamine-derived nasal spray for adults with treatment-resistant depression.

This is the first novel mechanism of action in decades to treat major depressive disorder (MDD).<sup>68</sup> Also in 2019, Sage announced FDA approval of Zulresso (brexanolone) injection, the first and only treatment specifically approved to treat postpartum depression (PPD).<sup>69</sup> Sage is also initiating additional clinical trials to test the efficacy of a rapid acting oral therapy targeting PPD and acute treatment of MDD.<sup>70</sup>

Several smaller companies are exploring the clinical potential of other psychedelic-derived active ingredients. Examples include psilocybin, found in over 200 species of mushrooms, lysergic acid diethylamide (LSD), and methylenedioxymethamphetamine, often found in illicit drugs such as ecstasy or MDMA.

As of 9/30/20, neither Johnson & Johnson nor Sage Therapeutics were held in the Sustainable Future and Sustainable Leaders strategies. The companies presented as investment examples represent the positions deemed most relevant to the applicable ESG investment theme being discussed. Company examples were selected without regard to whether such industries, or relevant securities, were profitable and are intended to help illustrate our fundamental research process. A security may be selected for a portfolio based on factors other than the ESG themes highlighted herein, and the inclusion of company information should not be interpreted as a recommendation to buy or sell or hold any security. It should not be assumed that investment in the securities mentioned was or will be profitable. Holdings are for a representative account and are shown for illustrative purposes only. Each account is managed individually. Accordingly, account characteristics may vary.

**Digital tools:** Digital tools and applications have grown quickly in recent years, and include both direct-to-consumer and employer-facing product offerings. When analyzing the wide range of digital solutions, it is important to note the similarly wide range of patient needs that they serve. For lower acuity conditions, app-based programs can be effective solutions. These include Happify, a digital program that aims to help users improve overall well-being through daily interactive activities, and Headspace, a meditation and sleep app.<sup>71</sup> While growth in digital tools for low-to-moderate patient needs has been prolific over the past several years, these solutions are not currently regulated, and limited research on effectiveness is currently available.



**“When analyzing the wide range of digital solutions, it is important to note the similarly wide range of patient needs that they serve. For lower acuity conditions, app-based programs can be effective solutions.”**

For more intensive patient needs, one potential solution is myStrength, which was acquired by Livongo Health chronic condition management platform, in 2019. The myStrength digital tool includes clinically backed cognitive behavioral therapy-based programs that interact with the user to address depression, anxiety, stress, substance use, chronic pain, and sleep challenges.<sup>72</sup>

Finally, a host of private companies such as Akili Interactive Labs, Pear Therapeutics, Click Therapeutics, and Cognoa have reported promising initial data behind their prescription digital therapies. These approaches could help improve access to care with potentially lower cost, easier delivery of treatment, superior safety profile, and ability to personalize treatment relative to current standards of care. A wide set of diseases may be treatable by prescription digital therapeutics in the future; today, these companies are focused on substance abuse disorders, ADHD, chronic insomnia, autism spectrum, and major depression. Prescription digital therapeutics like these provide a higher level of intended care, must be prescribed by a licensed professional for use, and come with more rigorous FDA-approval standards.

**Telemedicine:** Further still along the continuum of care are e-counseling platforms that provide users access to a network of thousands of licensed professionals. One such tool, BetterHelp (owned by Teladoc), offers members direct online access to licensed psychologists, clinical social workers, and marriage and family therapists. BetterHelp users can receive counseling in a variety of forms, including messaging, live chat, phone, and video conferencing. Members pay about \$40 to \$70 per week for counseling.<sup>73</sup> Talkspace is another popular e-counseling platform that provides access to a network of thousands of licensed professionals.

As of 9/30/20, Livongo Health accounted for 0.26% and 0.0% in the Sustainable Future and Sustainable Leaders strategies, respectively. As of the same date, Happify, Headspace, Akili Interactive Labs, Pear Therapeutics, Click Therapeutics and Cognoa were not held in either strategy. The companies presented as investment examples represent the positions deemed most relevant to the applicable ESG investment theme being discussed. Company examples were selected without regard to whether such industries, or relevant securities, were profitable and are intended to help illustrate our fundamental research process. A security may be selected for a portfolio based on factors other than the ESG themes highlighted herein, and the inclusion of company information should not be interpreted as a recommendation to buy or sell or hold any security. It should not be assumed that investment in the securities mentioned was or will be profitable. Holdings are for a representative account and are shown for illustrative purposes only. Each account is managed individually. Accordingly, account characteristics may vary.



**“Telemedicine has evolved into a powerful tool for treating mental illness, with benefits for both individuals and employers.”**

As noted on the previous page, telemedicine has evolved into a powerful tool for treating mental illness, with benefits for both individuals and employers. For services beyond counseling that might necessitate the consultation of a psychiatrist, such as prescriptions of medicine, popular telemedicine providers such as Teladoc, Amwell, Doctor on Demand, and MDLive have the ability to host virtual appointments that are often covered by insurance. While telemedicine has been growing in recent years, the COVID-19 pandemic has accelerated adoption, supported by the various regulatory changes noted above. This shift has potential to improve access for those who are distant from care providers, and also could also help address the high no-show rates noted earlier in this report. For example, David Henderson, M.D., Chair of Boston Medical Center’s Department of Psychiatry, commented in a recent interview that his department’s no-show rate has historically hovered at 45%. Today, given increased adoption rates of telehealth psychiatric services due to the COVID-19 pandemic, no-show rates have dropped to just 15% even as patient demand has increased.<sup>74</sup> Efficacy of telehealth appears to be comparable,

as BetterHelp has been found to be as effective as face-to-face counseling in a peer-reviewed study of active users.<sup>75</sup> However, while access, convenience, and privacy are powerful potential benefits, some of these technologies also provide new challenges for providers. An American Psychological Association (APA) survey showed that 76% of therapists found treating patients remotely to be more challenging than treating them in person.<sup>76</sup>

The unwelcome challenges of 2020’s multiple crises may increase the need for behavioral health and other forms of telemedicine, and shifts in regulatory restrictions may ease some of the challenges to adoption, leading to potential continued growth for companies like Teladoc, Amwell, and others.

As of 9/30/20, Teladoc accounted for 1.28% and 0.0% of the Sustainable Future and Sustainable Leaders strategies, respectively. As of the same date, Talkspace, Amwell, Doctor on Demand, and MDLive were not held in either strategy. The companies presented as investment examples represent the positions deemed most relevant to the applicable ESG investment theme being discussed. Company examples were selected without regard to whether such industries, or relevant securities, were profitable and are intended to help illustrate our fundamental research process. A security may be selected for a portfolio based on factors other than the ESG themes highlighted herein, and the inclusion of company information should not be interpreted as a recommendation to buy or sell or hold any security. It should not be assumed that investment in the securities mentioned was or will be profitable. Holdings are for a representative account and are shown for illustrative purposes only. Each account is managed individually. Accordingly, account characteristics may vary.



“Other health-focused companies are taking a holistic approach by emphasizing the connections between sleep, nutrition, physical health, and overall well-being.”

**Broader wellness efforts:** Other health-focused companies are taking a holistic approach by emphasizing the connections between sleep, nutrition, physical health and overall well-being. For example, WW International (formerly Weight Watchers), offers nutrition and exercise programs as ways to promote employee well-being. WW’s Health Solutions division works to help employers increase engagement, reduce absenteeism, and attract and retain talent through custom wellness offerings.<sup>77</sup>

Corporate Fitness Works is another company that offers on-site fitness programs for companies to help improve morale, increase productivity and motivation, and retain talent.<sup>78</sup> Underlying these approaches is a deep body of research that confirms a link between exercise and lowered anxiety, depression, and negative moods.<sup>79</sup> One study found that people who exercised had 1.5 fewer days of poor mental health in the prior month compared with those who did not exercise.<sup>80</sup> Research shows a similar connection between nutrition and mental health, as poor food choices have impact on levels of neurotransmitters in the brain that can contribute to disorders, including depression.<sup>81</sup>

As of 9/30/20, WW International accounted for 0.52% and 0.0% of the Sustainable Future and Sustainable Leaders strategies, respectively. As of the same date, Corporate Fitness Works was not held in either strategy. The companies presented as investment examples represent the positions deemed most relevant to the applicable ESG investment theme being discussed. Company examples were selected without regard to whether such industries, or relevant securities, were profitable and are intended to help illustrate our fundamental research process. A security may be selected for a portfolio based on factors other than the ESG themes highlighted herein, and the inclusion of company information should not be interpreted as a recommendation to buy or sell or hold any security. It should not be assumed that investment in the securities mentioned was or will be profitable. Holdings are for a representative account and are shown for illustrative purposes only. Each account is managed individually. Accordingly, account characteristics may vary.

## Conclusion

The individual and societal costs from mental illness are significant, and less than half of those afflicted receive treatment due to a multitude of barriers to access. Employers have human, strategic, and economic incentives to address mental health more proactively and effectively. Doing so has the potential to improve productivity and broader measures of health for employees. Companies that lead on mental health issues often go beyond offering standard benefits to improve manager training, broaden employee resources, and normalize mental health treatment. Employers who prioritize mental health often see strong direct and indirect returns on this investment, which could accelerate attention and positive action in this area.

In addition to potential benefits of corporate leadership in addressing mental health, we call attention to several developments in treatment from both incumbent and newer pharmacological companies, an acceleration following decades of slower-paced innovation. Additionally, new digital offerings to treat lower acuity cases have been growing rapidly, though efficacy is yet to be confirmed and most of these offerings are currently unregulated. Finally, the rapid growth of telemedicine has the potential to significantly expand access and treatment.

The large population affected by mental illness and the meaningful benefits of effective treatment for patients could lead to important expansion and improvement of care. Potential for compelling investment opportunities exists among both corporate leaders and solutions providers.

## Endnotes

- 1 <https://www.brandman.edu/news-and-events/blog/comparing-behavioral-health-vs-mental-health>
- 2 <https://www.mentalhealth.gov/basics/what-is-mental-health>
- 3 <https://www.nimh.nih.gov/health/statistics/mental-illness.shtml>
- 4 <https://www.nimh.nih.gov/health/statistics/major-depression.shtml>
- 5 [https://www.nimh.nih.gov/health/statistics/prevalence/file\\_148021.pdf](https://www.nimh.nih.gov/health/statistics/prevalence/file_148021.pdf)
- 6 <https://www.samhsa.gov/data/report/2017-nsduh-annual-national-report>
- 7 <https://www.samhsa.gov/data/report/2017-nsduh-annual-national-report>
- 8 <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC5310101/>
- 9 <https://www.nimh.nih.gov/health/statistics/mental-illness.shtml>
- 10 <https://jamanetwork.com/journals/jamapsychiatry/fullarticle/2652826>
- 11 <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC4236908/>
- 12 JAMA paper “Cost-Sharing Disparities for Out-of-Network Care for Adults With Behavioral Health Conditions”
- 13 <https://healthcostinstitute.org/annual-reports/2020-02-13-18-20-19>
- 14 <https://www.apaservices.org/practice/advocacy/state/leadership/medicare-payment>
- 15 <https://www.cohenveteransnetwork.org/wp-content/uploads/2018/10/Research-Summary-10-10-2018.pdf>
- 16 <https://www.cohenveteransnetwork.org/wp-content/uploads/2018/10/Research-Summary-10-10-2018.pdf>
- 17 <https://www.nimh.nih.gov/news/media/2018/mental-health-and-rural-america-challenges-and-opportunities.shtml>
- 18 <https://bhw.hrsa.gov/sites/default/files/bhw/health-workforce-analysis/research/projections/behavioral-health2013-2025.pdf>
- 19 <https://www.medscape.com/slideshow/2020-compensation-overview-6012684>
- 20 <https://pubmed.ncbi.nlm.nih.gov/17470313/>
- 21 <https://pubmed.ncbi.nlm.nih.gov/20569761/>
- 22 <https://ps.psychiatryonline.org/doi/full/10.1176/appi.ps.201700128>
- 23 <https://ajp.psychiatryonline.org/doi/full/10.1176/appi.ajp.158.3.479>
- 24 <https://www.healthaffairs.org/doi/10.1377/hlthaff.2015.1659>
- 25 <https://www.healthaffairs.org/doi/10.1377/hlthaff.2015.1659>
- 26 <https://store.samhsa.gov/sites/default/files/d7/priv/sma14-4883.pdf>
- 27 <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC3292769/>
- 28 <https://psycnet.apa.org/record/2015-16781-003>
- 29 [https://www.who.int/mental\\_health/in\\_the\\_workplace/en/](https://www.who.int/mental_health/in_the_workplace/en/)
- 30 <https://www.washingtonpost.com/health/2020/05/04/mental-health-coronavirus/> and <https://unsdg.un.org/sites/default/files/2020-05/UN-Policy-Brief-COVID-19-and-mental-health.pdf>
- 31 <https://academic.oup.com/qjmed/article/113/5/311/5813733>
- 32 <http://www.js cimedcentral.com/Psychiatry/psychiatry-5-1091.pdf>
- 33 <https://www.apa.org/news/press/releases/stress/2020/report>
- 34 CDC Morbidity and Mortality Weekly Report, Vol. 69, No. 32, August 14, 2020.
- 35 <https://www.cdc.gov/mmwr/volumes/69/wr/mm6932a1.htm>
- 36 <https://www.nytimes.com/2020/06/21/health/coronavirus-mental-health-anxiety.html?referringSource=articleShare>
- 37 <https://books.google.com/books?hl=en&lr=&id=8mq1DwAAQBAJ&oi=fnd&pg=PR5&ots=jwsyX9YBsP&sig=1vaJmNIBj8G1b1udLm8PRyQvnrQ#v=onepage&q&f=false>
- 38 <https://books.google.com/books?hl=en&lr=&id=8mq1DwAAQBAJ&oi=fnd&pg=PR5&ots=jwsyX9YBsP&sig=1vaJmNIBj8G1b1udLm8PRyQvnrQ#v=onepage&q&f=false>
- 39 <https://www.nytimes.com/2020/06/21/health/coronavirus-mental-health-anxiety.html?referringSource=articleShare>
- 40 <https://www.nytimes.com/2020/06/21/health/coronavirus-mental-health-anxiety.html?referringSource=articleShare>
- 41 <https://www.sciencedirect.com/science/article/abs/pii/S0033350617302731>
- 42 <https://www.nytimes.com/2020/06/21/health/coronavirus-mental-health-anxiety.html?referringSource=articleShare>
- 43 <https://www.annualreviews.org/doi/pdf/10.1146/annurev.pu.17.050196.002313>
- 44 <https://home.treasury.gov/policy-issues/cares>
- 45 <https://www.fcc.gov/covid-19-telehealth-program>
- 46 <https://www.ama-assn.org/delivering-care/public-health/cares-act-ama-covid-19-pandemic-telehealth-fact-sheet>
- 47 <https://www.kff.org/womens-health-policy/issue-brief/opportunities-and-barriers-for-telemedicine-in-the-u-s-during-the-covid-19-emergency-and-beyond/>

- 48 <https://searchf.ama-assn.org/undefined/documentDownload?uri=%2Funstructured%2Fbinary%2Fletter%2FLETTERS%2F2020-06-25-Signed-On-Letter-Coalition-Telehealth-Permanent-FINAL.pdf>
- 49 [https://s21.q4cdn.com/672268105/files/doc\\_presentations/2020/03/InvestorDay2020.pdf](https://s21.q4cdn.com/672268105/files/doc_presentations/2020/03/InvestorDay2020.pdf), slide 18
- 50 Based on active monthly mobile app users.
- 51 Lerner D, Lee J. Measuring Health-Related Work Productivity with Self-Reports. In: Stang P, Kessler R, editors. Health and Work Productivity: Making the Business Case for Quality Health Care. Chicago: University of Chicago Press; 2006.  
<https://secureservercdn.net/198.71.233.214/e47.77e.myftpupload.com/wp-content/uploads/2018/12/Updated-OMI-White-Paper-R18.pdf>
- 52 Harder, H.G., Wagner, S.L., Rash, J.A., Mental Illness in the Workplace: Psychological Disability Management (Gower 2014)
- 53 Health, absence, disability and presenteeism cost estimates of certain physical and mental health conditions affecting US employers,” Journal of Occupational and Environmental Medicine 46 (2004): 398.
- 54 <https://www.pwc.com/us/en/industries/health-industries/library/employer-plans-mental-health-svs.html>
- 55 [https://www.who.int/mental\\_health/in\\_the\\_workplace/en/](https://www.who.int/mental_health/in_the_workplace/en/)
- 56 <https://ceoroundtable.heart.org/wp-content/uploads/2018/12/MENTAL-HEALTH-FULL-REPORT-FINAL-20181212.pdf>
- 57 <https://www.willistowerswatson.com/en-SA/Insights/2019/02/why-now-is-an-opportune-time-to-revisit-your-employee-assistance-program>
- 58 <https://www.regus.com/work-us/flexible-working-benefit-mental-health/>
- 59 <https://www.uschamberfoundation.org/blog/post/companies-making-mental-health-priority>
- 60 <http://workplacementalhealth.org/News-Events/News-Listing/R-U-OK-A-Meaningful-Question>
- 61 <https://www.uschamberfoundation.org/blog/post/companies-making-mental-health-priority>
- 62 <https://www.scrabbl.com/microsoft-s-approach-to-employee-s-mental-health--wellness#:~:text=Microsoft%20CARES%20is%20an%20initiative,emotional%20wellbeing%20to%20the%20employees.&text=Microsoft's%20vision%20through%20this%20program,work%2Drelated%20or%20personal%20matters.>
- 63 <https://corporate.target.com/article/2020/06/pay-and-benefits-update>
- 64 <https://www.businessinsider.com/pwc-michael-fenlon-how-to-lead-a-remote-workforce-2020-4>
- 65 <https://corporate.walmart.com/newsroom/2020/04/24/helping-our-associates-live-better>
- 66 <https://corporate.walmart.com/newsroom/2020/09/17/one-year-in-walmart-health-is-delivering-affordable-healthcare-and-expanding>
- 67 <https://medium.com/etsy-impact/etsys-covid-19-response-doing-right-by-our-employees-and-communities-4105edae6738>
- 68 <https://www.jnj.com/janssen-announces-u-s-fda-approval-of-spravatotm-esketamine-ciii-nasal-spray-for-adults-with-treatment-resistant-depression-trd-who-have-cycled-through-multiple-treatments-without-relief>
- 69 <https://investor.sagerx.com/news-releases/news-release-details/sage-therapeutics-announces-fda-approval-zulresso™-brexanolone>
- 70 <https://investor.sagerx.com/news-releases/news-release-details/sage-therapeutics-announces-development-plan-zuranolone-sage-217>
- 71 Meditation & mindfulness have been shown to help ease psychological symptoms of depression & anxiety in multiple studies. <https://jamanetwork.com/journals/jamainternalmedicine/fullarticle/1809754>
- 72 <https://mystrength.com/>
- 73 <https://www.betterhelp.com/>
- 74 <https://www.bmc.org/healthcity/policy-and-industry/telepsychiatry-ACO-costs-engagement>
- 75 <https://mhealth.jmir.org/2019/1/e10948/>
- 76 <https://www.nytimes.com/2020/07/09/well/mind/teletherapy-mental-health-coronavirus.html?referringSource=articleShare>
- 77 [https://healthsolutions.ww.com/contact-us?\\_\\_hstc=234236737.c2fb9f6e1bcacb1bc9bac757d380790f.1593004834751.1593004834751.1593124712825.2&\\_\\_hssc=234236737.1.1593124712825&\\_\\_hsfp=3932118324](https://healthsolutions.ww.com/contact-us?__hstc=234236737.c2fb9f6e1bcacb1bc9bac757d380790f.1593004834751.1593004834751.1593124712825.2&__hssc=234236737.1.1593124712825&__hsfp=3932118324)
- 78 <https://corporatefitnessworks.com/the-cfw-solution/>
- 79 <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC1470658/#:~:text=Exercise%20improves%20mental%20health%20by,self%2Desteem%20and%20cognitive%20function.&text=Exercise%20has%20also%20been%20found,self%2Desteem%20and%20social%20withdrawal.>
- 80 [https://www.thelancet.com/journals/lanpsy/article/PIIS2215-0366\(18\)30227-X/fulltext](https://www.thelancet.com/journals/lanpsy/article/PIIS2215-0366(18)30227-X/fulltext)
- 81 <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC2738337/>

For informational purposes only. Not an investment recommendation.

The views and opinions expressed are those of the authors, are subject to change with market conditions, and are not meant as investment advice.

**Consider these risks before investing:** International investing involves currency, economic, and political risks. Emerging-market securities carry illiquidity and volatility risks. Investments in small and/or midsize companies increase the risk of greater price fluctuations. From time to time, the fund may invest a significant portion of its assets in companies in one or more related industries or sectors, which would make the fund more vulnerable to adverse developments affecting those industries or sectors. Growth stocks may be more susceptible to earnings disappointments, and value stocks may fail to rebound. Risks associated with derivatives include increased investment exposure (which may be considered leverage) and, in the case of over-the-counter instruments, the potential inability to terminate or sell derivatives positions and the potential failure of the other party to the instrument to meet its obligations. The value of investments in the fund's portfolio may fall or fail to rise over extended periods of time for a variety of reasons, including general economic, political, or financial market conditions; investor sentiment and market perceptions; government actions; geopolitical events or changes; and factors related to a specific issuer, geography, industry, or sector. These and other factors may lead to increased volatility and reduced liquidity in the fund's portfolio holdings. Our investment techniques, analyses, and judgments may not produce the outcome we intend. The investments we select for the fund may not perform as well as other securities that we do not select for the fund. We, or the fund's other service providers, may experience disruptions or operating errors that could have a negative effect on the fund. You can lose money by investing in the fund.

**A world of investing.<sup>®</sup>**



***Your clients should carefully consider the investment objectives, risks, charges, and expenses of a fund before investing. For a prospectus, or a summary prospectus if available, containing this and other information for any Putnam fund or product, call the Putnam Client Engagement Center at 1-800-354-4000. Your clients should read the prospectus carefully before investing.***