A CRISIS OF OUR TIME

Exploring the Global Rise of Mental Illness Through Economics, Lived Experiences, and Expert Insights

Erika Karp
Executive Director,
Finance Leaders Fellowship,
Aspen Institute

Dr. Derek Yach
Global Health Consultant,
Global Health Strategies LLC

Executive Summary

According to the World Health Organization (WHO), 450 million people suffer from some form of mental illness over the course of their lives. So, it's no surprise that many of us have experienced, or know some-one who has experienced, severe struggles with mental health. This is a full-blown crisis exacerbated by a lack of infrastructure, lack of funding, and a lack of health equity. This is despite the fact that mental health issues are the leading cause of disability globally. Also, according to the WHO, mental health condi-tions are the primary cause of suicide. And suicide is the second leading cause of death for people age 15 to 29. This is a crisis of our time.

In this report, we offer a snapshot into both the magnitude and the scope of the mental health crisis facing humanity. In addition to briefly framing the issues, we share summaries of dozens of interviews we held with both "expert practitioners" working both in the public and private sectors and individuals with a "lived experience" touched by mental health struggles.

In the course of our work, we looked for recurring themes that could promote a dialogue about seeking sustainable, scalable solutions to the crisis. Among those themes are the challenges of building an infra-structure for access to quality mental healthcare, the continued lack of parity between the provision of services for mental health versus physical health, and the pervasiveness of stigma associated with diseases of the mind.

Further, although most of us do not think of mental health as related to investing, and if we do, we might find the notion distasteful, there are indeed a growing number of developing technologies and treatment modalities that hold promise for expanding access to mental health services and offering innovative prac-tices. We highlight a handful of examples. The individuals who generously shared their personal struggles also shared the resources and practices that they found most helpful.

We acknowledge the global nature of the crisis and the role that both the pandemic and other contextual factors have played in substantial increases in anxiety disorders and other mental health issues. Further, we are seeing increases in specific demographics, such as poorer mental health among women, with one in five women experience a more common mental disorder (such as anxiety or depression), compared with one in eight men. No demographic is immune.

Given the crisis at hand, it is our hope that offering greater transparency to the world of mental health will stimulate a search for solutions.

The Magnitude of the Crisis

The Burden of Mental Health and Major Trends from 1990-2019

Mental health is emerging as the next frontier in medicine and healthcare. Reasons and responses are complex. The WHO Global Report on Mental Health released in late 2022 showed little progress since their first report 20 years ago. The US Surgeon General recently released major reports on aspects of mental health, including the first report of its kind on loneliness. In response to these reports, the White House recently published priorities for research and President Biden has taken action to close several gaps in addressing equity of access to mental versus physical health.

The first step in addressing mental health involves understanding the data.

The burden of disease is measured using a composite measure of deaths, diseases, and disabilities. Mental health is a major cause of suffering and is closely associated with suicide (self-harm). The data presented is based on the Institute of Health Metrics and Evaluation (IHME) work that for two decades has refined and updated data across all causes of death as well major risks. (1,2).

Trends across all causes and risks show that there have been substantial declines in infectious diseases, malnutrition, cardiovascular diseases, and several cancers. In sharp contrast, mental health disorders and alcohol-related disability adjusted life years (DALYS) have increased sharply over the last few decades, especially among people aged 25 to 74. This trend has been underway for several years and was worsened by the COVID-19 pandemic.

Figure 1 shows that depression, self-harm, anxiety, and schizophrenia have increased by between 20 and 60% in people 25 and 74 years of age between 1990 and 2019. These are unprecedented increases.

Figure 1: Leading causes of Mental Health DALYS, percentage increase 1990-2019 (1,2)

	% increase	Rank as a cause	% increase	Rank as a cause	% increase	Rank as a cause	% increase	Rank as cause
Age group	10-24 yrs.		25-49 yrs.		50-74 yrs.		75+ yrs.	
Depression	+21	4	53	6	107	14	*	*
Self-harm	-28	3	0	11	20	31	*	*
Anxiety	+18	6	62	15	*	*	*	*
Schizophrenia	*	*	60	22	*	*	*	*
Alcohol	-6	2	24	1	51	7	*	*
Alzheimer's $	*	*	*	*	*	*	184	4

R – Percent increase from 1990 to 2019

* – Not in the top 25 ranked causes;

$ – Alzheimer's is a neurological disease and is included here to show that most mental health disorders do appear probably due to diagnostic practices (Patients with Alzheimer's who have also been diagnosed with depression would only be included within the Alzheimer's category to avoid double counting.)

Alcohol is included above given its linkage with mental health. Anne Case and Angus Deaton's book, *Deaths of Despair,* have shown that in the US, alcohol and drug overdoses (data not shown here), and suicide together contribute to a decline in life expectancy for 75 million people, without a college education. This means that twice the population of California suffer from a decline of life expectancy due to mental health challenges.

The data documents from the Institute for Health Metrics and Evaluation (IHME) categorize diseases separately. However, they cluster together in complex ways (see Figure 2). People with common physical health conditions, like diabetes or COPD or chronic pain, also have elevated levels of depression. This creates challenges for healthcare as they have to holistically treat depression and associated conditions such as diabetes.

Figure 2: Multiple chronic diseases and mental health (3):
Key clusters of chronic conditions that include mental and neurological conditions. (3)

Cluster name	Strong associations (95%+)	Moderate associations (2–95%)	US insured population frequency (%)
Metabolic syndrome	Hypertension, diabetes	Neurological conditions	12.2%
Age-related	Osteoarthritis, hypertension	Neurological conditions	7.1%
Respiratory	Allergy, COPD	Depression	4.5%
Physical/mental	Depression, Chronic pain	Anxiety	1.5%
Cardiovascular	Hypertension, High cholesterol	Neurological conditions	1.5%
Mental health	Depression, anxiety	Alcohol Abuse, diabetes. osteoarthritis	1%

The burden of mental illness does not fall evenly across countries, nor by age, sex, and social class. As an example, Figure 3 shows the geographic distribution of alcohol disorders, self-harm, and depression.

Figure 3: Model-based age-standardized county estimates of the percentage of adults aged ≥ 18 years self-reporting a diagnosis of depression.
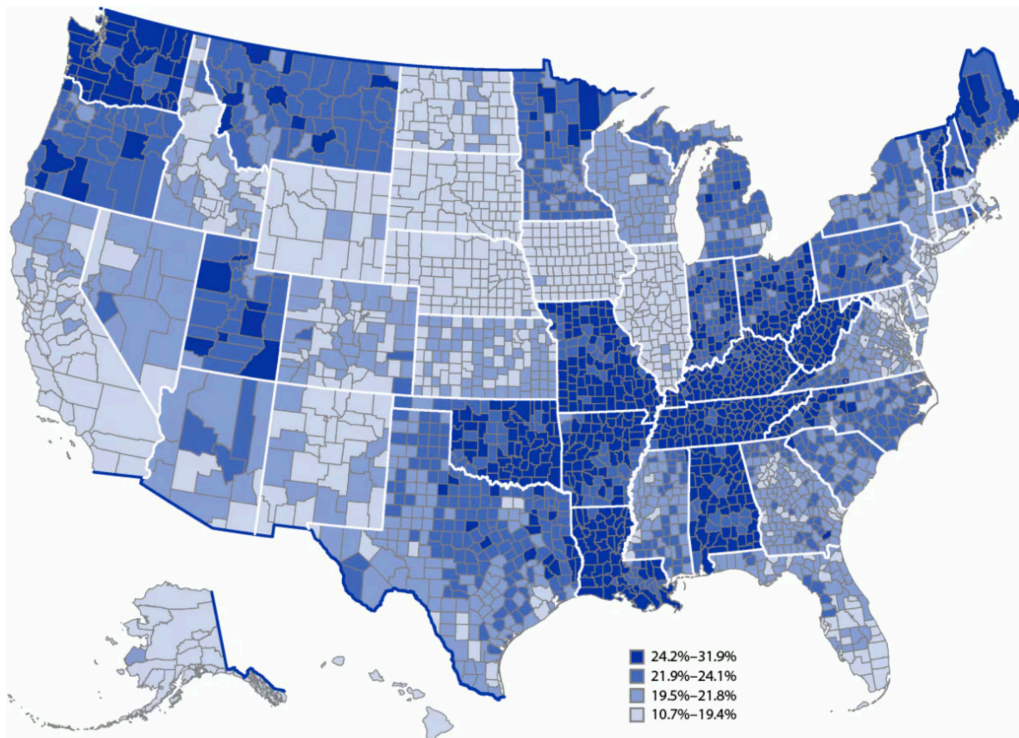
The highest risks for alcohol disorders include Russia and ex-Soviet countries, the Middle East, and the US, where Midwestern states stand out as being at the highest risk. The same is true for self-harm in the US, Russia, and ex-Soviet countries. The US data has been well described by Case and Deacon in their book *Death of Despair*. Depression is more evenly distributed with two exceptions: high rates in the US Midwest and central Africa.

Mental Health Ecosystem

The US lacks an organized and cohesive system to treat mental health illness. While there is a standard of care implemented for behavioral health, low access and high cost of care are prohibitive challenges. As a result, the most vulnerable populations are not able to access and utilize mental health services. One of those vulnerable populations is the homeless and those on the brink of homelessness.

Katherine Koh and Benjamin Gorman provided an explanation as to how we got the present reality that half of the 600,000 people who experience homelessness every night, and half of all people in prisons, suffer from a diagnosable mental illness. The deinstitutionalization of large mental hospitals started in the mid-20th century and assumed that better care would happen within communities. That required a shift in training and funding as well as a serious commitment to parity between mental and physical health. Such a shift did not materialize and instead, poorer, more vulnerable people, heavily skewed to minority groups, are increasingly found in prisons where mental health care remains seriously inadequate. Police respond to mental health emergencies without adequate training or support, often leading to grim outcomes.

An Economic Perspective

Quantifying the Economic Impact of the Mental Health Crisis

Existential crises abound for humanity; climate change, war, famine, pandemic disease are all top of mind when considering the greatest challenges we face. But does the decline in mental health we are experiencing broadly rise to the level of these massive – often physical – challenges? Yes, it does.

The WHO found that the two most common mental disorders, anxiety and depression, cost global GDP $1 trillion in 2010. Lost output for the same time period attributed to mental, neurological, and substance abuse disorders – which often intersect – was estimated between $2.5-$8.5 trillion. This is expected to double by 2030.

Interestingly, the WHO study analyzed the economic return of investing in the mental health and well-being of people in the study. The analysis suggests that while lost productivity is an existential crisis in both human suffering terms and economically (which are also interlinked), investing in better health and labor force outcomes dramatically outweighs the costs of achieving them — in this study, up to 3:1 when only economic benefits are considered, and up to 5.7:1 when the value of health returns (considers tangential benefits beyond direct economic productivity) are also considered. Splitting these considerations between direct and indirect costs and outcomes is important and is something that the World Economic Forum also has considered in their research. McKinsey provides additional insights to source innovations.

Figure 4: Different approaches used to estimate economic costs of mental disorders.
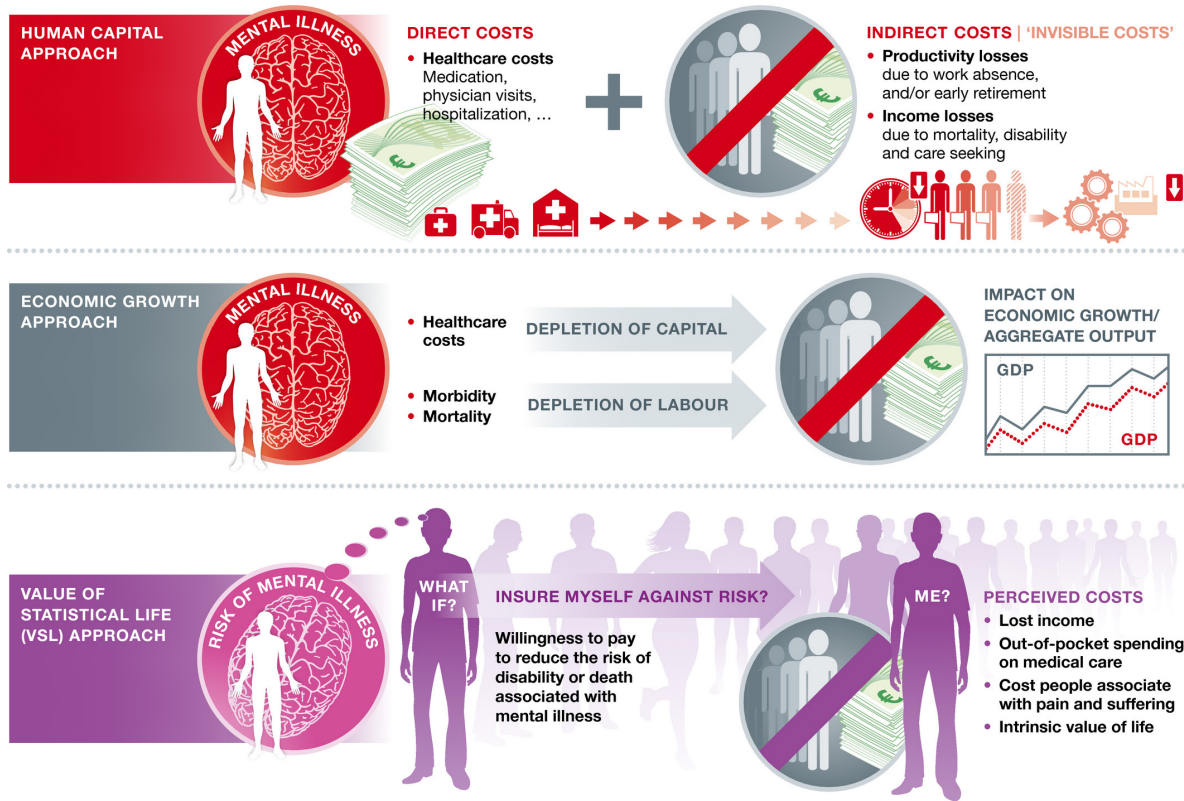
As further noted in the Trautmann paper published in the European Molecular Biology Organization (EMBO) journal in 2016: "studies on economic costs vary considerably due to deficiencies in the definitions of disorders; populations or samples studied; sources of costs and service utilization; analytical framework; and incomplete cost categories because of lack of data and definitions."

So, considering the economic costs both directly and indirectly is important. Thus, looking at the impact of investing through both financial and social impact lenses is required to fully understand the magnitude of the mental health crisis.

As expanded on in the Trautmann study, more than 50% of general populations in middle- and high-income countries will suffer from at least one mental disorder at some point in their lives.

While the problem is large, there are methods to address it. The WHO found that in order to ensure an economic Net Present Value (NPV) of $310 billion, there needs to be an estimated investment of $147 billion in potentially effective treatment for depression and anxiety between 2016 to 2030. It is important to note that this recommendation only considered workforce participation and productivity effects.

Other impacts that should be considered outside of the economic opportunity are the health and social effects that investments would have – which could further improve economic effects – such as improved opportunities for individuals to pursue leisure interests, social/community activities, and household production roles for social factors, and in terms of health factor effects, decreased life-years spent by individuals in a diminished state, including positive effect on mental and physical health of close family members and friends in caregiver capacities. In the workplace, better mental health programs have been shown to improve recruitment and retention, enhance workplace productivity, and reduce employee healthcare costs. All of these effects, beyond the calculated economic impacts, are intrinsically valuable and worth considering for impact-focused investors.

Stories of Lived Experience

Bipolar Disorder

Jeff was years into a very successful career at several tech start-ups when he first sensed that he might be experiencing mental illness.

People knew that he had a big personality and vision for the business. The competitive tech landscape demanded this. And his venture capital backers expected this of him. Frenzied decision making was not that unusual in the field and in the Bay Area. Sometimes he'd railroad through proposals and push away obstacles without considering all angles. Despite some signals he says of himself that "it was just me being me… that's how we [tech founders] roll. More intense all the time. No need for sleep." Back then he "lived for the rapid-fire idea generation, flashes of brilliance; but flashes of rage."   But then he reported this happening more frequently, with displaced and dangerous outbursts. But then it evolved beyond the limits of reality. Jeff lost the ability to distinguish…couldn't be contained and led to a psychotic break.

He ended up in a psych hospital for weeks on heavy medication to sedate and allow his brain to grab hold of what was real and not. His symptoms included paranoia where he saw the TV talking directly to him. There were undercover police and famous people in the patient areas who were also psychotic. "There was God stuff in there too. I was OK to be at the hospital though. I needed to be held."

He speaks of the shame he experienced. And the feeling that no one could know; not his closest friends, and certainly no one at work. He had told his company that he'd decided to take a few weeks away to travel the world.

Jeff was discharged after his doctors felt he was stable. He feels as though he may have been faking it to get out.

Despite being stable and properly medicated, Jeff reports living in a constant state of fragility. "I can never forget what happened to me…I won't want to" -- except for the bipolar depression, which he said lasted for months and months. He said that it was, "so much worse than any sort of physical pain. He couldn't find a way to describe it. "Dark deep ache, despair, never ending pain, suicide to make it go away?"

It was only after his break and recovery that Jeff started doing research on his illness. The hardest part was that he didn't feel he could enlist the support of friends and colleagues.

His first research was with the National Institute for Mental Health (NIMH) site. Then, he considered various support groups (although he has not joined). Currently, the combination of various psych meds and psychotherapy seems to be working. Sometimes he finds it tiresome to stay compliant, but it would be very risky not to.

Jeff's doing substantially better now. He retains his creativity and motivation, but not the psychotic elements. "I don't want to be considered 'crazy' despite my illness. And this article just appeared on my radar: Pitchbook's The Weekend Pitch, September 10th, 2023. "Maybe if my condition were better understood there would not be so much stigma."

Sexual Abuse

"I was the perfect victim…He made me feel attractive and loved."

Jane was a suburban tomboy forced to become a college girl instead. She felt shame and stigmatized by anything that was not "perfect" as defined by her society. She did not fit the expectations. Jane was the ultimate teen at risk who began using drugs and sleeping with drug dealers to access more.

Her abuser began with "playful inappropriateness." He was in his late twenties, attractive, musically talented, and in a position of authority in her place of worship. She now knows it was manipulation and predation, but back then she felt that it was "their special secret" and she was "in love." The affair proved that she was "normal." The relationship became an addiction for her, a way to feel that she was successful at something. That was empowering.

And then she discovered the Bridges Journal feminist chat group. She had, "a god moment" affirmation from others who are unknowingly helping you meet a challenge. She began a learning legacy that drove her to understand her pain and trauma, as addressed in the film *The Wisdom of Trauma*.

She studied hard and became a Judo expert. "That's mine. That's where I set boundaries." She gave back to women by teaching in a women's prison and decided to focus on prevention. She had tried to find compassion and even empathy for the perpetrator. She took away his power and confronted him stating that "You are nothing." And now, she is truly empowered. Her ventures include the creation of MyPower to engage and empower women throughout the world. It is the good that has come from her trauma and pain.

Jane's program is her way of helping fellow survivors to not only process their trauma, but to also grapple with any resulting mental illnesses. By empowering them to be confident in their own space, they become confident in their boundaries. Those who have experienced childhood sexual abuse have a higher risk of developing anxiety disorders, depression, eating disorders, dissociative disorders, and personality disorders.

Child at Risk

"I actually thought that you could just put us on a couch, get us through the pain and depression, heal my children, and heal me. But life is wildly more complicated than that."

Depression was not a stranger to Stacy's family. Her husband had effectively killed himself after struggling with addiction and depression. For years she thought he self-medicated to handle the stress of his high pressured financial services position. Only later did she understand that he suffered from bipolar disorder. Thankfully, he had left some wealth for Stacy and their children. Both of Stacy's daughters suffer from mental health challenges. Bipolar is often a genetically inherited mental health disorder. With her first-born, it started with learning delays that led to behavioral issues. After struggling into adolescences, Stacy sent her to a therapeutic boarding school. In the long run this created discourse between mother and daughter that took years to overcome but set her daughter on a path of emotional healing and self-acceptance.

Her second daughter was born with unusual issues that multiple doctors, over many years, could not diagnosis. When her daughter was seven years old, doctors settled on cerebral palsy. Over time, as a child who faced differences and underwent drastic medical interventions, trauma related mental health issues began to emerge. She suffered from significant pain with no medical understanding where it was coming from. With age she increasingly lost mobility and experienced systemic breakdowns in her body. In her youth she was happy and able to, "see the glass as half full". As she aged, she was diagnosed with borderline personality disorder, bipolar disorder, depression, and acute anxiety still with no clear understanding of her physical health issues. It got to the point where Stacy had to find a group home for her daughter. The search was long as quality group homes are hard to find and generally not available on a private pay basis. Caregivers were badly trained. Activities for improving the lives of residents were few and far between. Even after she managed to find a "good" group home for her daughter, the conditions were not that much better. After being prescribed various medications for lung failure, Stacy's younger daughter gained 100lbs. She could neither stand nor walk. Her daughter went into hospice but survived. Then group home living would not accept her back, so she was forced to send her into Medicaid nursing home living. At one point her daughter hadn't received a shower in over a week. Then she received a rare genetic diagnosis which no one understands how to treat in an adult because most people do not survive through adolescences.

During this period, Stacy tried to maintain her own mental health. She learned about self-care through a yoga guru. She delved into eastern medical practices that focused on bringing a sense of peace. Through her journey she found that, "mental health is a critical piece of the social justice movement."

Like other interviewees, Stacy recommended that mental health professional training be revamped specifically amongst group homes and hospice care. Stacy is fortunate to have means yet was forced to enter her daughter into the Medicaid system to find ongoing services. Our system creates unnecessary challenges to finding group homes to take care of individuals with physical and mental health needs. Her daughter lives in a facility disregarded by the public sector and run by a for-profit corporation with little oversight by Medicaid. These facilities are understaffed, particularly since COVID, are unable to treat the needs of the residents who are multi-complicated, and there are no other options for family members with highly complicated medical and mental health disorders in our society. Her daughter's condition continues to deteriorate. As Stacy put it, "there's only so much that people can tolerate".

Terminal Cancer

With her family, Jan learned that the single most important thing she could possibly do over the coming year was to learn to advocate for herself in the healthcare system.

The next thing was to understand how to have conversations about death and dying. Having been diagnosed with terminal breast cancer, Jan had to decide how and when to have the planning conversations, most importantly with those she loved. And in particular, Jan began to more carefully "curate who was around." Jan said, "Investing in people is my faith." Her sense of purpose led to her strength of spirit.

With regard to her medical team, the above also applied. She found herself fighting to improve communication among and between her caregivers. She found her engineering degree prompted her to think how dangerous some types of "pop-up" mental health therapy could be. She wanted to learn how to address the supply chain of licensing practitioners in the field to ensure quality control and access across geogra-

phies. She felt despite the multiples specialties that came into play during her care, there needed to be a more human centric approach rather than just a protocol.

In the latest stages of her illness, she found that her adult kids were much better able to talk about the future than her husband was. She could talk with them about their own circles of friends and how they couldn't replace a community through social media. She talked with them about her passion for investing and how critical it is to be discerning. And she focused her own portfolio to look for opportunities to invest in progress in mental health, post-traumatic stress disorder, and chronic pain.

Having passed away since our conversation, we will never forget her extraordinary strength and courage. She had shared with us the names of the books that gave her the most support (*The Body Keeps the Score*, *The Last Lecture,* and *Many Lives, Many Masters*) and the acknowledgment that despite being relatively reticent about medications when she stopped her cancer treatments, she relied on cannabis and gummies to a degree. And she said, "Xanax is a friend." Jan had the extraordinary wisdom to attend to life's transitions in an organized and brave way.

Jan would be saying to us that she's now, "on to the next adventure…"

Obesity/Fat Phobia

Michelle Obama has stated that, "Childhood Obesity isn't some simple, discrete issue. There's no single cause we can pinpoint. There's no one program we can fund to make it go away. Rather, it's an issue that touches on every aspect of how we live and how we work." In discussions with teens in recent months, the echoes of this are painful. "People think it's just about eating less, but it's so much more complicated." "I'm judged for my weight and not for who I am, and it's like I'm invisible." On top of these challenges, teens are bombarded with negative messages from social media and all the stigmatization coming from that. According to the Canadian Medical Association Journal, this "fat shaming" is seriously harmful to health and may drive further weight gain. Anti-fat bias is rampant in all parts of society, including medicine, according to Professor Angela Alberga. This triggers physiological and behavioral changes linked to poor metabolic health and increased weight gain. "You actually experience a form of stress," Alberga explained. Cortisol spikes, self-control drops and the risk of binge eating increases, she said. Fat shaming is also linked to depression, anxiety, low self-esteem, eating disorders and exercise avoidance. All exacerbate the problem.

As mentioned, mental health and obesity are related in complex ways. For example, it's been shown that people with depression are more likely to experience obesity, and people with obesity are more likely to experience depression. Exacerbating the issue is that several of the psychiatric medications used to treat depression and anxiety can cause weight gain. According to *Psychology Today*, obesity may be the largest health epidemic to ever sweep the nation. But it is not a mental illness. But the stress of being obese in a thinness-obsessed society can undermine the well-being of even the most psychologically sound minds. People with larger bodies are often ostracized and treated as less than others. This form of oppression undermines the quality of life of millions who may resort to drugs, self-harm, or suicide. A 2015 CDC study with 659,288 eighth and eleventh grade students highlighted the extent to which adolescents spend a substantial amount of time consuming social media, TV, video games, and accessing the internet. Both media use of six or more hours, and resultant inadequate sleep increase the risk of obesity. On another distressing point, research has also shown that there seems to be an association between sexual abuse, physical

abuse, and obesity. There are often reports some form of emotional neglect during childhood, ranging from verbal abuse, emotional neglect, or other family stresses.

"It's exhausting feeling like I have to justify my existence because of my weight." "Fatphobia thrives on ignorance and fear, perpetuating harmful myths about weight and health." And as obesity impacts self-esteem and brings bias, it may become difficult for anyone to recognize and appreciate all the talents and capabilities of a person. Some argue that Health at Every Size (HAES), a public health framework, can emphasize that all bodies can be healthy regardless of size. Whether or not someone subscribes to this, to the extent that it might help reduce bias and stigma, it is constructive. Ultimately the hope is that a multi-disciplinary obesity treatment program can include mental health professionals who will assess and treat these issues in patients as needed.

Traumatic Injury/Paralysis/Chronic Pain:

Steven served in the United States military. While on his tour, he suffered an L4 spinal injury. While he has had two spinal surgeries, he still suffers from a substantial amount of pain. Even worse, due to his pain medication allergies, there is no foreseeable resolution. This is not low-grade pain; this is chronic and unabating pain. There was a time when Steven suffered a blood clot and said the pain was at a 9.5, 10 being a gunshot wound. This constant pain and loss of physical mobility led Steven to experiencing depression. Steven's new life as a disabled person met a whole new set of challenges. According to the WHO, 1 in 8 people have disabilities. Yet, major cities like New York City are not disability friendly.

"Nobody is without depression. Your mind will give up long before your body does." Steven pointed out that his social support network was necessary for his mental health recovery. Steven met his wife and felt that even with the injuries someone could still love him. His recovery was not without the support of other people. While his social support soothed him emotionally, meditation helped him grapple with the pain. Transcendental meditation gave Steve a way to bring focus to his life, despite his daily discomfort.

Addiction

The journey into the depths of addiction was a harrowing saga marked by daily drinking and deceit. Alexander was ensnared by alcohol, lying to loved ones and manipulating those closest just to continue his descent into darkness. Each secretive sip eroded relationships, leaving a trail of betrayal and hurt. Internally, he was consumed by an agony so profound, it seemed his soul was splintering.

The pivotal moment arrived with an arrest—a jarring plunge into reality. Alexander faced not only the cold bars of a cell but the shattered pieces of his life. The road to recovery began in the stark, uncompromising clarity of drug court in New Jersey, which provided a pathway back to life. Further support from family allowed access to an excellent rehab facility, followed by the structured embrace and long-term fellowship of a 12-step program—a community of souls, each with their own shadows, coming together to light the way forward. This fellowship became a beacon, guiding them through the storm he had created.

Now, 12 years into recovery, he stands in the light of a new day, one day at a time. He returned to school, completed an undergraduate degree in Chemical Engineering at Drexel University, and began a career as an engineer focused on climate change. It was fulfilling, yet Alexander's true calling came later when, in 2017, three family offices asked them to work on the first medical device to detox from opioids. As an

investor, he has been privileged to guide 27 initiatives aiding over 100,000 people on their own paths to recovery. The scars of Alexander's past remain, reminders not of weakness, but of resilience forged in the fires of his trials, which have empowered him to be uniquely qualified to help others do the same.

Looking back, Alexander recognizes the crucial role of accessible, compassionate healthcare and the unconditional support of fellowship. These were not merely aids; they were the very instruments of his salvation, lifting them from despair and enabling them to mend the bonds he had broken. Today, his life is a testament to the enduring power of recovery and redemption, a beacon for those still lost in the struggle. Alexander's journey illustrates the profound impact of healing and hope, not only for oneself but for all those touched along the way, the possibilities of which are truly limitless.

Expert Insights

The personal accounts collected above are both harrowing and difficult to read. Yet, we will not shy away from emotional discomfort as to do so is to ignore a pressing public health issue. These experiences while unique in circumstances, are common in terms of medical condition. To give context to the accounts above, we spoke to six experts in the mental health field. Their experience ranges from developing drug policy to running a social impact-oriented venture capital firm. Despite their widely varying background and expertise, they all agreed that in order to combat the mental health epidemic, private capital is vital.

Dr. Thomas Insel
Mental Health

Throughout all of our interviews, Thomas Insel was a name that was consistently mentioned as a preeminent expert on mental health care. Dr. Insel, a psychiatrist and neuroscientist, ran the National Institute of Mental Health for 13 years. From there, he joined Google's Life Sciences group. As evident, Dr. Insel has a long-vested career in the battle against the mental health crisis.

Dr. Insel noted that, unlike physical health, mental health provision is left to nonprofits. From his experience, providing better access is not the silver bullet. There needs to be more emphasis on engagement with populations outside the care system. The Veteran's Association has created such a model. Overall, behavioral health has become more like oncology or other physical treatments in that they try to find physical markers of disease. For example, AI tools have been developed to measure sentiment and speech velocity as accurate markers for depression and psychosis. Yet, AI diagnostic tools are not the missing silver-bullet in mental health care, they are simply one of the needed pieces.

In his book *Healing: Our Path from Mental Illness to Mental Health*, Dr. Insel points out that mental health treatment requires psychological and social supports, as well as medication. This includes housing support and supportive employment. The focus cannot be solely on acute care. The three P's need to be addressed: people, place, and purpose. Meaning patients need, "a place, a sanctuary where they have a reasonable environment…and they need a purpose." It is for this reason that Dr. Insel is in favor of the clubhouse model, as deployed by Fountain House, which was developed by and for people with mental health disorders/illnesses. It is a care model that addresses the social determinants of health. Investing in solutions for mental health needs to take this into account; companies that focus on isolated mental health services are not the answer to solving this crisis. Creating a more sustainable and collaborative mental health treatment ecosystem is important.

Josh Cohen
Venture Capitalist

Josh Cohen is a VC investor who believes investors can use their capital to make a difference. As the Managing Partner and co-founder of City Light Capital, Cohen is at the forefront of socially impactful investing. He has been heavily involved with the widely known mental health application Ginger.

Cohen explained that mental health is a nascent form of social impact investing. While there is an array of mental health-oriented apps on the market, the majority of them focus on access and treatment for patients who require less intensive care. Going forward, Cohen emphasized the necessity of focusing on higher acuity and the social determinants of mental health. The market for health investment currently makes up 1/3 of impact dollars. This number will only continue to grow, mental health investments included. Up to 25% of City Light's portfolio is in impact health. Given that the US consumer base for mental health stands at 100 million people, it is clear that the market will continue to grow.

Cohen made clear that mental health apps did not intend to be a replacement for professionally administered mental health treatment. "Zero companies in the portfolio are trying to replace therapists." He emphasized that mental health app users are not being counseled by bots. Cohen reminded us that mental health applications such as Ginger were intended to be a B2B model. Going forward, mental health innovation should focus on higher acuity social determinants of health. Cohen recommended Dr. Insel's book *Healing: Our Path from Mental Illness to Mental Health* to learn more about the current state of mental health in the US.

Dr. Ashwin Vasan
Public Health

Dr. Ashwin Vasan, the Commissioner of the New York City Department of Health and Mental Hygiene, told us that, "mental health is the next frontier of health". While there is plenty of room for innovation, there is no magic pill or something that will have an impact equivalent of antiretrovirals on the HIV epidemic. Dr. Vasan explained that the conversation up until now has focused on the supply and demand of care. In New York City, Dr. Vasan and the Health Department will pursue other factors that affect the mental health crisis, such as the contributions of social media platforms to declining youth mental health or the role of social isolation in exacerbating serious mental illness. Dr. Vasan and his team are also partnering with the World Economic Forum to create a center of public information. Further, NYC will focus on early identification and prevention of mental health illnesses/disorders through the training of school staff. Additionally, in November 2023, NYC introduced TeenSpace, a virtual mental health platform available to all NYC teens ages 13-17. While local city government initiatives such as those listed above can have an impact, Dr. Vasan made clear that public entities need assistance from the private sector to address the current and worsening crisis.

Dr. Vasan recently summarized several key points related to digital innovations that echo those of Dr. Insel:

Innovations in digital technologies hold promise in terms of improving access to services, diagnosis and support at scale, and being regarded as more engaging for patients then face to face interaction. Stronger evidence of impact and benefit at scale Is needed though. Both Dr. Vasan and Dr. Insel feel that to date, most of the innovation has attracted funds based upon its promise, not delivery of outcomes.

Essential element to solutions calls for appropriate data sharing that protects individual privacy and data

rights. This can enable the creation of population data systems allowing for independent review of impact. Data sharing can face inevitable pushback from both investors and innovators who may face the argument that data monetization for the business rather than for the public good. A struggle for governance is emerging.

Regarding another governance issue, a case in Seattle, WA (see page 18) has presented emerging evidence of harm associated with social media, which has consequently led to an increased focus on regulation. Poorly designed regulations could thwart very real benefits that digital technologies can bring to mental health. Certain aspects of social media can and should be targeted through effective regulation such as instituting requirements for social media platforms, and giving more controls and default settings to caregivers who must be the first line in protecting youth mental health. Capabilities around algorithms and feed designs, interactions with strangers and notification systems, and protecting children through new access controls will all allow for progress.

Dr. Ethan Nadelmann
Drug Policy

Dr. Ethan Nadelmann has spent his career dedicated to the decriminalization of drugs and the impact of pharmaceutical drug development on mental health. He earned his BA, JD, and PhD degrees from Harvard University and MSc in international relations from the London School of Economics. Dr. Nadelmann later went on to lecture on drug policy at Princeton University. He has published papers in reputable journals such as: Foreign Affairs, the National Review, and The Nation. In 2000, he founded the Drug Policy Alliance, a non-profit dedicated to ending the War on Drugs. He has been frequently interviewed by the media and has a Ted Talk that has over two million views. Dr. Nadelmann has done research and advocates the potential of "illegal" substances to help alleviate the mental health crisis.

While pharmaceutical medications are helpful for those suffering from mental illness, they are just a part of mental health treatment. "Antidepressant drugs are seen as dropping dramatically short of the hopes of thirty years ago" he says. Mental health medication often leaves people feeling numb. It is for this reason a high number of those suffering from mental health resort to street drugs. Rather than leaving patients numb, street drugs leave you, "feeling good…and not plagued by your demons." He highlighted that the mental health crisis is intimately tied to that of illegal drug usage. This has contributed to the overdose epidemic. In the last three years, 100,000 people (about the seating capacity of Cameron basketball stadium at Duke University) a year have died due to fentanyl overdose alone. He went on to explain how psychedelics, marijuana, and MDMA have the potential to be beneficial for those suffering from mental health challenges. The FDA is poised to approve psilocybin mushrooms for the treatment of depression. Thanks to the book *How to Change Your Mind* by Michael Pollan and work done by the Multidisciplinary Association for Psychedelic Studies (MAPS), there is scientific evidence that psychedelics can help alleviate the symptoms of both mental and physical ailments. Given the severity of the mental health crisis, Dr. Nadelmann recommends investors first and foremost support research, specifically research on the linkage between psychedelics and mental health treatment. Investors interested in having a tangible impact on the mental health crisis cannot veer away from unconventional methods (psychedelics), innovation is and will continue to be a key component.

Danish Munir
Venture Capital

Danish Munir is a founding member of Grey Matter, a VC entirely dedicated to investments in the mental health space. Before founding Grey Matter, he created Genoa Telepsychiatry, the first telepsychiatry company in the US. With this experience, he is well versed in mental health investment infrastructure.

There are several challenges in creating an effective and compassionate mental health infrastructure. Some of these challenges include the acute lack of clinicians and a lack of evidence-backed solutions. Dwarfing these challenges, however, is the lack of shared ecosystems. Given the complexities of mental health disorders and diseases, it is not enough to support one facet such as medical pharmaceutical research. Data sharing and access for low-income patients is paramount. Despite the dearth of data producing mental health applications, there is no data sharing. This data would be invaluable for determining the effectiveness of treatment approaches to mental health. With regards to access, Munir explained how he pushed for systems to include previously ignored populations. One of Grey Matter's investments entails the installation of mental and physical health service kiosks. They are actively working with the Federal Clinical Health Center, which serves 30 million people (about the population of Texas) on Medicaid/Medicare.

Munir informed us that at the end of the day, current innovation is addressing the legacy of healthcare. Given the differences between counties, let alone states, private solutions find themselves providing their services to different entities, rather than a consolidated buyer, like the Federal government. The limitations of what has been achieved, increased access via tele-psychiatry, is the isolated ecosystem that private innovations find themselves in. Mental health care is heavily defined by policy and innovators need to be aware of the direction in which legislators are moving towards.

Ignacio Handal
Medical Diagnostics

Ignacio Handal serves as the Chief Executive Officer at Clinicom, a company specializing in the development of an augmented intelligence clinical decision support system for a wide spectrum of mental health conditions. With over two decades working in CNS Clinical Trials and biotechnology, Handal's expertise lies in navigating mental health diagnostics and interventions. More recently, in 2022, Handal received The Christine Pierre Clinical Trial Lifetime Achievement Award. When asked how much insurance companies already spend, he remarked that out of every dollar spent by an insurance company, 39 cents of goes directly towards mental health. Despite this significant allocation of resources, mental health diagnostics is still neither streamlined nor efficient. In fact, Ignacio informed us that physicians do not diagnose mental health illnesses correctly 39% of the time. This is because physicians on average receive only a few hours of mental health training. Compounded by the extreme physician shortage, receiving a correct diagnosis is a challenge. This is why direct access to psychiatric professionals is instrumental to ensuring patients receive the correct medical treatment.

Social Media and Mental Health

The Seattle Public Schools (SPS) took the first step towards holding social media companies accountable for the harm caused to students' social, emotional, and mental health in early 2023. Their complaint summarizes extensive evidence showing the relationship between social media use and anxiety, depression, thoughts of self-harm, and suicidal ideation. This evidence is strengthened by findings in the book *Generations* by Jean Twenge. She shows how Generation Z (born 1995-2012) have been deeply influenced by the arrival of smart phones and social media, initially called the iGen. This generation represents 75 million Americans. Based on massive survey data, she shows that they are more interested in a range of issues than Millennials: gender fluidity, free speech, physical and emotional safety, and racial awareness. They also report being more dissatisfied with life and depressed. This is reflected in dramatic increases in teen suicides over the last decade.

She systematically considers which factors could be driving these negative trends and concludes that the most likely explanation relates to the rise of social media over the period 2009 till now. Tests of temporality, youth uptake, and use showed close relationships to many aspects of mental health among youth: less sleeping, greater use of social media per day, less time with friends, less physical activity, and a greater sense of pessimism. All leading to increased reports of online bullying, suicidal ideation, isolation, and suicide. She describes how the technologie's design attracts and keeps young people engaged.

The Spiritual Aspect of Mental Health

Lisa Miller, in her recent book, *The Awakened Brain*, documents decades of epidemiological, clinical, and imaging research that establishes a causal relationship between spiritual practices and the prevention or lessening of mental illnesses such as depression, schizophrenia and anxiety. She highlights that we are living in "an age of unprecedented mental anguish," characterized by what Nobel Prize winner Angus Deaton calls "diseases of despair," like suicide, drug abuse, and alcohol abuse. Recent data show that a decline in life expectancy in the US and UK are driven by this group of conditions. Young people are increasingly affected with the latest national trends in mental health related emergency room visits among youth for suicide increasing 5-fold over the last decade.

Most recently, the US Surgeon General released a major report on the impact of loneliness on mental and physical health, and workplace productivity. The report is a first in this field and points to a deep malaise affecting millions of people. We seem to have replaced hopeful and positive views of the future with short term concerns and despair.

The Surgeon General's report defines spiritual as referring to a connection at a deep level with other people, to a future purpose, to nature, and/or to a higher power. When experienced, people feel calmer, inspired, transcendent, and lifted from daily burden and pains. Multiple fMRI studies show where in the brain these experiences are visual and how their experience translates into "healthier "ages associated with less mental illness.

This new work adds a scientific basis to what has been known throughout history. For example, Maimonides (who lived in the 11th Century) believed that spiritual practice, such as prayer and meditation, could help individuals cope with stress and anxiety, find meaning and purpose in life, and cultivate inner peace.

These findings offer evidence to include spirituality into overall approaches to people with mental illness and loneliness and offer ways to prevent such illness in the first place. The work shows that spirituality is not only achieved through organized religion and prayer, but also through immersion in nature, connections to communities, and engagement in work with purpose.

Neurodevelopmental Disorders: Autism, ADHD, Schizophrenia and Others

Joan Fallon
Biologics

The US National Institutes of Health (NIH), National Institute of Mental Health (NIMH), and the Environmental Protection Agency (EPA) agree that neurodevelopmental disorders are disabilities that interfere with the functioning of the brain and neurological system. These conditions generally emerge during childhood and persist into adulthood. They negatively impact a person's functioning in one or more domains of behavior, which can include language/communication, intellectual/learning, behavioral, motor and social/emotional skills. These disorders manifest symptomatology or behaviors that exist on a spectrum and vary from person to person. Two of the most well-known developmental disorders are autism spectrum disorder (ASD) and ADHD.

The emergence of neurodevelopmental disorders in an individual is thought to be influenced by genetics, pre-natal environment or early life experiences. Multiple etiologies for these neurodevelopmental conditions have been posited, but it appears that they all share a multi-factorial etiology that may be ascribed overall to epigenetics. Some neurodevelopmental conditions such as autism have seen precipitous growth in numbers, an increase not attributed to better diagnosis.

Recently, schizophrenia has received significant attention as it is another neurodevelopmental condition that presents during childhood and has seen significant increases in numbers. While autism is diagnosable by age three or earlier, the diagnosable clinical features of schizophrenia often appear in the late second decade into the third decade of life.

The mental health impairments in these neurodevelopmental conditions affect the lives of those with the disorder as well as those people in their "care circle"– parents, siblings, care givers, as well as teachers, extended families, and peers.

Taken together, autism, ADHD, and schizophrenia affect 10% of American's population. In other parts of the world, such as the Middle East, that prevalence is greater than 20%.

Medicine has yet been able to capture the developmental changes and treat these conditions effectively, since they have both multi-factorial etiology and symptomatology. Behavioral modification, alternate learning approaches, along with polypharmacy, is the current approach to treating these conditions. Still,

even with this approach, the developmental biology of these individuals is not sufficiently altered to make meaningful gains toward the goal of restoring full function.

It is clear that the lack of effective treatments and/or blueprint for a coherent policy to affect the current state of research for these conditions necessitates policy reform. That reform needs to recognize that children with neurodevelopmental conditions have a clear need for treatment, while their condition simultaneously impacts society in myriad aspects, including economic, social, and educational.

For example, Autism Spectrum Disorders have a significant impact on the family unit and communities, including the school systems that supply the majority of care for children with autism from ages 3 to 21. ASD is characterized by deficits in social, emotional and communication areas. Currently in the US, the prevalence of autism is 1 in 36 children. In California, the prevalence is 1 in 22.

The disorder's lifelong persistence, high level of associated impairment and morbidity and the absence of effective treatment places a major economic burden on multiple aspects of our social structure. The considerable costs of adult care and loss of productivity from parents have serious implications for the financial future of the affected families and potentially society.

US, local and state systems, including education infrastructure, are hard-pressed for resources to care for children with severe forms of autism. Once childhood is over, their work, living situations and ongoing care becomes either the purview of the government or families willing to pay exorbitant sums of money to house and care for them.

Despite autism's massive increase in prevalence and the absence of a standard of care for its treatment, programs to facilitate treatment for these children still face significant obstacles.

When it comes to disease or illness, the medical and research communities pay far more attention to adults who lose function (as in dementia or Parkinson's) than to children who fail to typically develop. As a result, neurodegenerative diseases appear to garner more attention and resources than neurodevelopmental diseases and conditions.

Medical funding for research comes from various sources such as the US government through the NIH or other means such as private foundations. If we examine the NIH budgets for various diseases and conditions, we find interesting and somewhat concerning trends with respect to neurodevelopment conditions.

Unfortunately, it appears that, while the US federal government's eyes have been opened to the surge in autism, its wallet has not. While the US government has passed the Autism Cares Act (up for renewal in 2024), providing for treatment and care for children with autism and some funding for research, it is clearly nowhere close to what is necessary – or what is spent on neurodegenerative diseases such as Parkinson's or Alzheimer's. In the period from 2011 to 2023, while the NIH spent nearly $3.5 billion on researching Alzheimer's, its budget for autism research was only $350 million.

There is a significant need for awareness and reform with respect to the impact and need for resources to be focused on children and neurodevelopmental conditions.

Companies Creating Mental Health Solutions

Currently in the US, there are only 115 notable companies working to provide mental health services to the public. Included amongst the 115 are Ginger/Headspace, Modern Health, Talkiatry, and Blueprint. All of these companies operate as digital mental health applications and target access amongst those with low acuity. Out of the three Ps (people, place, and purpose), only one category is satisfied through these services. Investors hoping to make a difference and truly impact those who suffer from mental health illnesses should put capital towards other parts of the much-needed mental health ecosystem. This includes training for mental health professionals, the club house model, and increased research on non-traditional approaches to mental health.

Ignoring workplace mental health is expensive. (24/100 employees require mental health support, 1/100 require more acute support). Indirect costs are seen in terms of poor adherence for diabetes, arthritis, and heart disease leading to increased healthcare costs for business and employees. It also leads to high turnover and to talent attraction decisions.

Digital mental health programs can be cost-effective and fit well in the context of many workplace programs. The key to success involves assuring high levels of employee engagement. This is heavily influenced by the attitudes and visible support for mental health programs by the CEO and senior management

Suicide and the "Deaths of Despair" See *Deaths of Despair and the Future of Capitalism* **by Anne Case and Angus Deaton, Princeton, 2020.**

The authors completed the first edition of their work before the pandemic. They documented the declining quality of life among non-Hispanic white Americans without college degrees over several decades. By the early 1990s, this demographic saw 150,000 annual deaths from a combination of causes including suicide, alcohol-related liver disease, and drug overdoses. These deaths primarily affected young and middle-aged individuals, contrasting with the pandemic where older African Americans experienced particularly high mortality rates. While improved access to vaccines and treatments could have mitigated many deaths during the pandemic, addressing the root causes of the earlier deaths among whites requires profound economic reform.

The trends represent a major reversal of continued improvements in life expectancy in the US for well over 50 years. The relationship between mental health and deaths of despair are clear: despair pushes vulnerable people to drink excessively, engage in illicit drug use, and commit suicide. Underlying this are profound shifts in income, wages, employment prospects, a decline in marriage and in religious engagements or communal activities. The authors discuss how macro changes are leading to a decline in "meaning" and change happens.

Robert Putman's *The Collapse and Revival of American Community,* published in 2000, sounded the alarm by showing how social capital was deteriorating in many ways. This has accelerated since. Note: this is a heavily US phenomenon and not seen in many European countries. Though research published shows that similar trends are underway in the UK.

Conclusion

This report is intended to raise awareness about the escalating mental health crisis. We have provided insights into the magnitude, scope, and impact of mental illnesses, illustrating how they affect nearly everyone worldwide. Additionally, we have discussed resources and potential solutions to address this crisis. The challenges, pain, and suffering highlighted by people interviewed in the 'Lived Experience' section barely scratch the surface of the realities they face. However, if this report succeeds in shedding light on the current tragic state of affairs, then we will have achieved our goal.

Glossary/Key Terms

Attention Deficit/Hyperactivity Disorder (ADHD): A disorder that results in an inability to pay attention, control impulsive behaviors, and the tendency to be overly active.

Anti-Depressants: Medication to alleviate symptoms of depression and/or anxiety.

Autism Spectrum Disorder (ASD): A neurological and developmental disorder that affects how people interact with others, communicate, learn, and behave.

Bi-Polar Disorder (BPD), *formerly known as Manic Depression:* This disorder consists of some occasions of an elevation of mood and increased energy and activity (mania), and on others of a lowering of mood and decreased energy and activity (depression). There is usually a recovery period between manic and depressive episodes.

Body Dysmorphic Disorder: A disorder which causes persistent anxiety and stress over a perceived body deformity.

Borderline Personality Disorder: A disorder that severely impacts a person's ability to regulate emotions. This causes an increase in impulsivity, insecurity, and impaired social relationships.

Chronic Obstructive Pulmonary Disease (COPD): A chronic inflammatory lung disease that causes obstructed airflow from the lungs.

Chronic Pain: Pain that carries on for longer than 12 weeks (about 3 months) despite medication or treatment.

Clinical Depression, *also known as Major Depressive Disorder:* A mental health disorder that causes a persistently depressed mood. Due to this, an individual may have trouble doing normal day-to-day activities, and may feel life is not worth living.

Clubhouse Model: A community-based location designed to support the recovery of people living with serious mental illnesses. The clubhouse provides a restorative environment

Depression: A common mental disorder, characterized by sadness, loss of interest or pleasure, feelings of guilt or low self-worth, disturbed sleep or appetite, feelings of tiredness, and poor concentration. It can be long-lasting or recurrent, substantially impairing a person's ability to function at work or school or cope with daily life. At its most severe, depression can lead to suicide. When mild, depression can be treated without medicines but, when moderate or severe, people may need medication and professional talking treatments. Non-specialists can reliably diagnose and treat depression as part of primary health care. Specialist care is needed for a small proportion of people with complicated depression or those who do not respond to first-line treatments. Depression often starts at a young age. It affects women more often than men, and unemployed people are also at high risk.

Fat Shaming: A form of body shaming that involves criticizing someone judged to be fat or overweight by mocking or critical comments about their size.

Generalized Anxiety Disorder: A disorder that consists of frequent, intense, excessive, and persistent worry and/or fear about everyday scenarios.

Hallucinations: Experience of hearing, seeing, smelling, tasting, or feeling things that are not real.

Lived Experience: A first-hand and personal experience dealing with a mental health challenge.

LGBTQ+IA: A term that collectively represents the Lesbian, Gay, Bisexual, Transgender, Queer, Intersex, and Asexual community.

Mania: Mental illness marked by periods of great excitement, euphoria, delusions, and overactivity. The four defining characteristics of mania include increased talkativeness, rapid speech, a decreased need for sleep, racing thoughts, distractibility, increase in goal-directed activity, and increased psychomotor activity.

Mental health condition: Related symptoms that together make up a specific condition.

Mental health screen: A mental health evaluation assessment that utilizes medically approved standards and tools.

Mood Disorders: A mood disorder causes an individual to feel a general emotional state inconsistent with their circumstances. As a result, this disorder interferes with an individual's ability to function,

National Institute of Mental Health (NIMH): The National Institute of Mental Health is a part of the National Institute of Health, the largest biomedical research agency in the world, which is within the U.S. Department of Health and Human Services. NIMH is the lead federal agency for research on mental disorders.

Obsessive Compulsive Disorder (OCD): A common anxiety disorder in which a person experiences uncontrollable recurring thoughts, engages in repetitive behaviors, or both.

Post Traumatic Stress Disorder: A mental health disorder that is triggered by a terrifying event – either experiencing it or witnessing it. Symptoms include flashbacks, nightmares, and severe anxiety.

Psychedelics: A class of psychoactive substances that produce changes in perception, mood, and cognitive processes. Commonly used psychedelics include Psilocybin (mushrooms), LSD, and Ayahuasca.

Psychiatrist: A licensed medical doctor who can diagnose mental health conditions, prescribe, and manage medication, and provide therapy.

Psychosis: A set of symptoms characterized by a loss of touch with reality.

Schizophrenia: A chronic brain disorder whose symptoms include delusions, hallucinations, disorganized speech, trouble while thinking, and a lack of motivation.

Selective Serotonin Reuptake Inhibitor (SSRI): A class of medications most prescribed to treat depression and a number of other psychiatric disorders.

Stigma: A negative or judgmental preconception regarding mental health challenges and those that experience them.

Suicide: The act of intentionally causing one's own death. Mental disorders, physical disorders, and substance abuse are risk factors.

Suicidal Ideation: A broad term used to describe a range of contemplations, wishes, and preoccupations with death and suicide.

Therapist: A mental health professional who helps individuals understand and work through their thoughts, feelings, and behaviors. Therapists can assess and/or diagnose mental health conditions.

World Health Organization (WHO): A specialized agency of the United Nations responsible for international public health.

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The Aspen Institute

2300 N Street NW, Suite 700
Washington, DC 20037
aspeninstitute.org

Dalberg

153 West 23rd Street
New York, NY 10011
dalberg.com