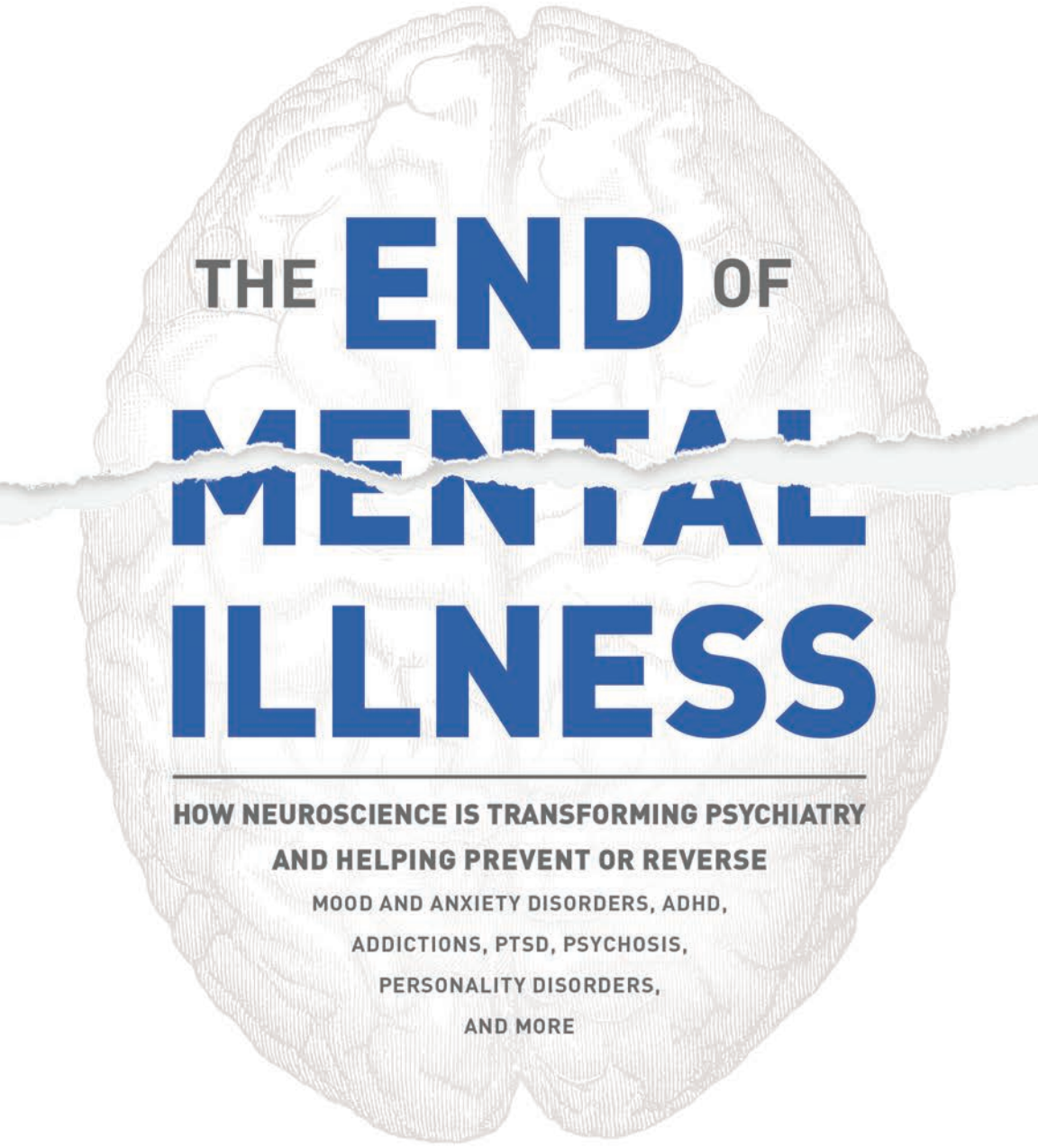
#1 *NEW YORK TIMES* BESTSELLING AUTHOR

DANIEL G. AMEN, MD



THE END OF MENTAL ILLNESS

HOW NEUROSCIENCE IS TRANSFORMING PSYCHIATRY AND HELPING PREVENT OR REVERSE

MOOD AND ANXIETY DISORDERS, ADHD, ADDICTIONS, PTSD, PSYCHOSIS, PERSONALITY DISORDERS, AND MORE

The world needs this book—today more than ever. By reframing the discussion of mental health to brain health, Dr. Daniel Amen obliterates the concept that mental health issues are someone's fault, or that people should just deal with them any differently than they would the flu or a broken arm. Most important, Dr. Amen gives everyone not just the permission but the validation and hope to seek help for a better tomorrow.

DARRIA LONG GILLESPIE, MD, emergency physician; national TV expert and host; author of bestselling book *Mom Hacks*

The End of Mental Illness is a radical new way to overhaul psychiatry, using the lessons from neuroimaging in the context of a whole-person functional medicine approach. My family has benefited from Dr. Amen's work, and I hope you will too.

MARK HYMAN, MD, Pritzker Foundation Chair in Functional Medicine, Cleveland Clinic Lerner College of Medicine; director of the Cleveland Clinic Center for Functional Medicine

Dr. Amen's approach has revolutionized our understanding of the causes and therefore the treatment of mental illness.

DAVID PERLMUTTER, MD, author of the #1 *New York Times* bestseller *Grain Brain* and *Brain Wash*

This is a great book. It presents a radical challenge to the psychiatric status quo and represents the best of the clinical transformative traditions. Dr. Amen makes disciplined observations and pursues them to the end for the sake of his patients without regard to the dense (and increasingly toxic) academic politics that make psychiatry impotent to accomplish much.

MANUEL TRUJILLO, MD, clinical professor in the department of psychiatry; director of the Public Psychiatry Fellowship program at New York University School of Medicine

Through his vast experience with neuroimaging, Dr. Amen has learned that the "wiring diagram" of our brain is not fixed but constantly changes depending on our choices, environmental factors, and experiences. By recommending that we balance our choices in the biological (diet and exercise), psychological (stress control), social (relationships), and spiritual components of our lives, he provides a desperately needed road map to maximize brain health and prevent or reverse many of the epidemic mental afflictions that are often poorly treated in our medical system.

JOSEPH C. MAROON, MD, vice chairman of neurosurgery, University of Pittsburgh Medical Center; team neurosurgeon, the Pittsburgh Steelers; author of *Square One: A Simple Guide to a Balanced Life*

A truly revolutionary work, at least I certainly hope it will be! Books like this challenge and change the existing paradigm of mental health and brain health. A fantastic and comprehensive approach for patients and health-care providers alike.

ANDREW NEWBERG, MD, bestselling author of *How God Changes Your Brain*; director of research at the Marcus Institute of Integrative Health at Thomas Jefferson University Hospital; adjunct professor of psychology at the University of Pennsylvania School of Medicine

A timely must-read that will change the way we think about brain health.

DR. MIKE DOW, *New York Times* bestselling author of *The Sugar Brain Fix*

Mental illness is a complex and often confusing world. There is a lack of certainty on what is going wrong and what to do about it. Dr. Amen's new contribution is a thoughtful and well-planned approach to looking at the actual brain's health as a fundamental aspect of maintaining a vibrant life in emotions, relationships, and career.

JOHN TOWNSEND, PhD, *New York Times* bestselling author of Boundaries series, *Leading from Your Gut*, and *People Fuel*; psychologist and leadership consultant; founder of The Townsend Institute for Leadership and Counseling

Daniel Amen, a staunch advocate for mental health and one of today's most important neuropsychiatrists, provides an insightful challenge to the mental illness industry: Focus on brain health rather than deficits! Read this book carefully. Reclaim your brain; reclaim your life.

JEFFREY K. ZEIG, PhD, The Milton H. Erickson Foundation

The End of Mental Illness is a powerful new book that directly attacks the outdated mental health paradigm of making diagnoses based on symptom clusters without any biological data. In simple, straightforward language, Dr. Amen shows readers how to optimize the physical functioning of their brains to improve their minds. It is brilliant, and I highly recommend it!

STEVEN MASLEY, MD, FAHA, FACN, FAAFP, CNS, author of *The Mediterranean Method*

Daniel Amen has been one of the real pioneers in using imaging technology to correlate brain blood flow and activity patterns with various types of mental health issues. More important, he has developed innovative dietary and lifestyle techniques that can improve these patterns with significant improvement for his patients. *The End of Mental Illness* extends his

leadership. If you want to keep the most complex organ in the body in top condition, this book provides the technical information to do so. I recommend it highly.

BARRY SEARS, PhD, author of *The Zone* and *The Resolution Zone*

Dr. Amen's book *The End of Mental Illness* is a defining mark in the history of psychiatry. Scientific research has completely eliminated the notion that nutritional deficiencies and nutritional supplements are a form of alternative medicine. Those of us who have practiced integrative medicine for many years understand that objective, biological testing is simply good medicine. Our current symptomatic treatment model in the field of psychiatry has been inadequate for those struggling with mental illness. Dr. Amen captures the essence of hope and healing by transforming a model of mental illness into a model of brain health. Please read *The End of Mental Illness* and make sure your doctors understand how neuroscience can redefine our current models of treatment.

JAMES GREENBLATT, MD, founder of Psychiatry Redefined; chief medical officer of Walden Behavioral Care

The End of Mental Illness offers a wealth of vital information, including fascinating SPECT imaging results, about how to create optimal mind-body-spirit health and overcome the stigma of "mental illness." Dr. Amen offers a multitude of options to create a healthy brain and a healthy, happy life.

JUDITH ORLOFF, MD, psychiatrist; author of *Emotional Freedom*

By outlining the compelling research he and his colleagues have published in peer-reviewed journals, and by including a myriad of elucidating case studies, Dr. Amen provides an optimistic yet realistic approach to life that demonstrably improves brain health. Given his prescience in collecting what is now surely one of the largest databases of brain scans and behavioral, cognitive, and emotional data, we can expect to see even clearer science and more comprehensive lifestyle and medical suggestions in the near future.

J. GALEN BUCKWALTER, PHD, research psychologist and CEO of psyML

As Dr. Amen helps us reframe the discussion from mental health to brain health, people will see their problems as medical, not moral. This new perspective decreases shame and guilt for those who suffer and increases forgiveness, patience, and compassion from their families. *The End of Mental Illness* will give you a totally new way of thinking about and getting help for

anxiety, depression, bipolar disorders, ADHD, addictions, OCD, PTSD, schizophrenia, and even personality disorders. Thank you, Dr. Amen.

DR. DERWIN GRAY, former NFL player; lead pastor at Transformation Church

When someone has a broken ankle, they don't call it "motion sickness," but sadly, when the brain malfunctions, we have used the stigma-filled and shaming term *mental illness*. Dr. Daniel Amen takes the focus off outdated labels and places it properly on the injured and damaged organ by looking at the way it functions, rather than just the symptoms it produces. The path set by Dr. Amen really could be the end of focusing on mental illness and the beginning of creating brain health, which is exactly what Dr. Amen has done for me.

STEPHEN ARTERBURN, MEd, *New York Times* bestselling author of *Take Your Life Back*; host of *New Life Live!*

Dr. Daniel Amen has made the natural progression from psychiatrist to brain imaging researcher to neuroendocrinologist in his quest for a greater understanding of the relationship between one's emotional constitution and the traumas encountered during life. Addressing the underlying inflammation precipitated by these traumas can lead to a normalization of the brain's function and a return to a life without mental illness. Dr. Amen has unraveled the code that decrypts the means by which illness can become wellness.

MARK L. GORDON, MD, neuroendocrinology, Millennium-TBI Centers, Encino, California

I have conducted research with and known Daniel Amen for many years. With *The End of Mental Illness*, he delivers an inspiring tour de force on brain health. This book will educate people, make them question the status quo as they seek to know their brains better, and inspire them to change their lives so that they might change their brains . . . for the better.

THEODORE A. HENDERSON, MD, PhD, child, adolescent, and adult psychiatrist; cofounder of Neuro-Luminance Inc. Brain Health Centers; president of the International Society of Applied Neuroimaging

The End of Mental Illness blends cutting-edge brain science with progressive regenerative medicine to deliver revolutionary treatment for anyone suffering from a brain illness. The therapies work—I have witnessed firsthand the tremendous improvements in both my family and clients. Thank you, Dr. Amen, for showing how we can better care for our precious brains.

DR. MARK CALARCO, national medical director for clinical diagnostics, Addiction Labs of America

My dream is that, in future years, after seeing more mental health tragedies, we don't find ourselves saying, "We should have listened closer to Dr. Daniel Amen's call for a paradigm shift in the treatment of mental illness. His scientific leadership could have prevented so many of our personal and national disasters." Dr. Amen lays out proven science-based solutions to this in his book *The End of Mental Illness*.

JIM FAY, coauthor of *Parenting with Love and Logic*

Audacious claims and revolutionary ideas come from "out of the box" thinkers like Dr. Daniel Amen. He is leading the way in the fight to end mental illness, and he's doing it based on solid science and extensive clinical expertise.

WILLIAM S. HARRIS, PhD, president of OmegaQuant Analytics, LLC; professor of medicine, University of South Dakota

As usual, Dr. Amen is on point about mental illness and the use of advanced technologies to help diagnose and treat them. I applaud Dr. Amen's attention to SPECT scans, genetics, QEEG, and other modern technologies as tools to aid the prescriber. The day is coming soon when not using these techniques will be considered out of the norm, if not malpractice.

DANIEL A. HOFFMAN, MD, FAPA, retired neuropsychiatrist

The End of Mental Illness is a courageous, science-based approach to tackling our society's most pressing problems. Every day we read about suicide, drug addiction, and abnormal behavior ending in horrific crime. This book helps us understand these difficult behaviors and, most important, gives clear solutions. The book is very aptly titled and is a superb read.

ANDREW W. CAMPBELL, MD, editor-in-chief of *Alternative Therapies in Health and Medicine*; editor-in-chief of *Advances in Mind-Body Medicine*; editor of *Integrative Medicine: A Clinician's Journal*

Dr. Amen brings a functional medicine approach to mental health so you can learn how to support your brain health, reclaim your mood, and take care of yourself naturally. By sharing how the brain works and what we need to do to care for it, Dr. Amen hopes to end the stigma of mental health issues and replace it with compassion and understanding.

ALISA VITTI, HHC, author of *In the FLO*; founder of FLOliving.com

Having lost a brother to suicide and dealing with the life struggles of more than 14,000 students who attend my schools each year, I found in *The End of Mental Illness* the empowerment I need to bravely move forward without

the shame and stigma associated with mental health issues. Dr. Amen delivers this valuable information with his neuroscience knowledge, but he is also a brilliant storyteller, which makes his message both relevant and relatable. In addition to a solid plan, *The End of Mental Illness* provides hope—a commodity rarely offered in the world of psychiatry today.

WINN CLAYBAUGH, dean and cofounder, Paul Mitchell Schools; author of *Be Nice (Or Else!)*

Dr. Amen is again well ahead of his time with this comprehensive, insightful, and compelling book. This book is a must-read for any individual or mental health professional who desires to obtain a more clear understanding of how to heal our brains for a happier and healthier life. Dr. Amen's refreshing biological and brain-based approach to understanding and resolving brain-related issues has the power to revolutionize the mental health industry.

DR. KRISTY HODSON, EdD in organizational change and leadership from the University of Southern California

A SAMPLE OF OTHER BOOKS BY DANIEL AMEN

Feel Better Fast and Make It Last, Tyndale, 2018

Memory Rescue, Tyndale, 2017

Stones of Remembrance, Tyndale, 2017

Captain Snout and the Super Power Questions, Zonderkidz, 2017

The Brain Warrior's Way, with Tana Amen, New American Library, 2016

The Brain Warrior's Way Cookbook, with Tana Amen, New American Library, 2016

Time for Bed, Sleepyhead, Zonderkidz, 2016

Change Your Brain, Change Your Life (revised), Harmony Books, 2015, *New York Times* Bestseller

Healing ADD (revised), Berkley, 2013, *New York Times* Bestseller

The Daniel Plan, with Rick Warren, DMin, and Mark Hyman, MD, Zondervan, 2013, #1 *New York Times* Bestseller

Unleash the Power of the Female Brain, Harmony Books, 2013

Use Your Brain to Change Your Age, Crown Archetype, 2012, *New York Times* Bestseller

The Amen Solution, Crown Archetype, 2011, *New York Times* Bestseller

Unchain Your Brain, with David E. Smith, MD, MindWorks, 2010

Change Your Brain, Change Your Body, Harmony Books, 2010, *New York Times* Bestseller

Magnificent Mind at Any Age, Harmony Books, 2008, *New York Times* Bestseller

The Brain in Love, Three Rivers Press, 2007

Making a Good Brain Great, Harmony Books, 2005, Amazon Book of the Year

ADD in Intimate Relationships, MindWorks, 2005

Preventing Alzheimer's, with William R. Shankle, MS, MD, Penguin, 2004

Healing Anxiety and Depression, with Lisa Routh, MD, Putnam, 2003

New Skills for Frazzled Parents, MindWorks, 2000

The Most Important Thing in Life I Learned from a Penguin!?, MindWorks, 1995

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The End of Mental Illness: How Neuroscience Is Transforming Psychiatry and Helping Prevent or Reverse Mood and Anxiety Disorders, ADHD, Addictions, PTSD, Psychosis, Personality Disorders, and More

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To Alizé and Amelie.

Your history is not your destiny.

Let's end mental illness with your generation.

MEDICAL DISCLAIMER

The information presented in this book is the result of years of practice experience and clinical research by the author. The information in this book, by necessity, is of a general nature and not a substitute for an evaluation or treatment by a competent medical specialist. If you believe you are in need of medical intervention, please see a medical practitioner as soon as possible. The case studies in this book are true. The names and circumstances of many of those profiled have been changed to protect the anonymity of patients.

Contents

Before You Begin

Daniel Amen, MD, believes that brain health is central to all health and success. When your brain works right, he says, you work right, and when your brain is troubled, you are much more likely to have trouble in your life. His work is dedicated to helping people have better brains and better lives.

Sharecare.com named him the web's #1 most influential expert and advocate on mental health, and the *Washington Post* called him the most popular psychiatrist in America.

A military-trained psychiatrist, he spent 10 years on active duty in the US Army—first as an infantry medic and X-ray technician and later as an officer in the Medical Corps. He is board-certified in child and adolescent psychiatry and general psychiatry. He holds active medical licenses in nine states.

He was given the Marie H. Eldridge Award for research by the American Psychiatric Association for his work on suicide, and he received the Distinguished Fellow Award from his peers at the American Psychiatric Association (the highest award given to members). He has presented his research and clinical work at scientific meetings around the world, including Harvard's Learning & the Brain conference and the National Science Foundation.

Discover magazine listed his research using brain SPECT imaging to accurately distinguish post-traumatic stress disorder from traumatic brain injury as one of the top 100 stories in science for 2015.

He is the principal investigator on the first and largest brain imaging and rehabilitation study on active and retired NFL players, showing high levels of damage but also the possibility of recovery for many, using the principles in this book. He was a consultant on the 2015 movie *Concussion* starring Will Smith.

Amen Clinics, which he founded in 1989, has the world's largest database of functional brain scans (SPECT and QEEG) related to behavior, totaling more than 170,000 scans on patients from 121 countries. Amen Clinics has some of the best published outcomes on complex psychiatric patients. On average, their patients have 4.2 diagnoses and have failed 3.3 providers and

5 medications. At the end of 6 months, 75 percent report being better; 84 percent if they maintained treatment at Amen Clinics.

Dr. Amen has hosted 14 public television specials about the brain, which have aired more than 110,000 times across North America during the past 12 years. He is passionate about brain health education.

Together with Pastor Rick Warren and Dr. Mark Hyman, Dr. Amen is also one of the chief architects of The Daniel Plan, a program designed to help people all around the world get healthy through religious organizations. This program has already been put in place in thousands of churches, mosques, and synagogues.

Dr. Amen and Professor Jesse Payne created the high school and college course Brain Thrive by 25, which has students from 7 countries and all 50 states. Independent research has found the program decreases drug, alcohol, and tobacco use; decreases depression; and improves self-esteem in teens.

In November 2017, a video of Dr. Amen's passion story (six minutes) was anonymously posted and now has more than 40 million views.[1]

No doubt Dr. Amen and his colleagues at Amen Clinics are disrupting psychiatry, the only medical specialty that virtually never looks at the organ it treats.

Dr. Amen has published more than 70 peer-reviewed scientific articles, including some of the largest brain imaging studies ever done on 21,000, 46,000, and 62,000 SPECT scans. If you type in "brain SPECT" in the search tool at the National Library of Medicine's website, www.pubmed.gov, it will return more than 14,000 scientific abstracts.

More than 10,000 mental health and medical professionals have referred patients to Amen Clinics, and more than 3,000 have been trained in his brain health coaching certification course.

Scientists in Canada have replicated his brain imaging work, publishing studies showing it improved diagnoses and outcomes.[2]

Dr. Amen does not work for or hold stock in any pharmaceutical companies, yet he believes in using psychiatric medications when necessary. However, they are usually not his first choice because, once started, they are often very hard to stop.

Dr. Amen owns BrainMD, a nutraceutical company he founded after seeing on brain imaging studies the negative effects of some medications he had prescribed. He believes in the principle taught to all first-year medical students: "First, do no harm."

LOOK FOR THESE ICONS

As you read *The End of Mental Illness*, keep an eye out for the three icons below.

BRIGHT MINDS TIP

BRIGHT MINDS TIPS: Tips will highlight essential information.

BRAIN LOVE STORIES: When one person falls in love with their brain and optimizes how it functions, it tends to lead to many other people falling in love with their brains and a cascade of healing. When "brain love" goes viral, whole family, work, and community systems improve. We call these "brain love stories."

TINY HABITS

TINY HABITS: Helping people change has been Dr. Amen's passion for more than 40 years, so he partnered with BJ Fogg, director of the Persuasive Tech Lab at Stanford University, and his sister Linda Fogg-Phillips to learn the latest change technology. They believe creating "tiny habits" is the most effective way to facilitate big change: making small, incremental changes over time that evolve into big ones.

Introduction

WHY I HATE THE TERM *MENTAL ILLNESS* AND YOU SHOULD TOO

In times of profound change, the learners inherit the earth, while the learned find themselves beautifully equipped to deal with a world that no longer exists.

ERIC HOFFER

Stuck at a traffic light midday at the corner of Hollywood and Vine in Hollywood, California, on my way to record a podcast with storyteller and social media phenom Jay Shetty, I saw a thirtysomething man, about 5′10″, with dirty blond hair, ripped clothes, and blood on his face, talking to himself while gesturing wildly in the air. He seemed oblivious to everyone around him, and those walking on the street paid him no mind. After all, this was Hollywood and Vine. Most of my colleagues would have diagnosed him with schizophrenia or unstable bipolar disorder and wondered why he wasn't taking his medication to help the voices and visions stay away. When I saw him, I wondered when he'd had his last brain injury, if he had been exposed to mold or environmental toxins, if he suffered with severe gut-health issues, or whether he had an infectious disease like Lyme or toxoplasmosis ravaging his brain.

We are on the cusp of a new revolution that will change mental health care forever. *The End of Mental Illness* discards an outdated, stigmatizing paradigm that taints people with disparaging labels, preventing them from getting the help they need, and replaces it with a modern brain-based, whole-person program rooted in neuroscience and hope. No one is shamed for cancer, diabetes, or heart disease, even though they have significant lifestyle contributions. Likewise, no one should be shamed for depression, panic disorders, bipolar disorder, addictions, schizophrenia, and other brain health issues.

Over the last 30 years, my colleagues and I have built the world's largest database of brain scans related to behavior. We have performed more than 160,000 brain SPECT (single photon emission computed tomography) scans, which measure blood flow and activity patterns, and over 10,000

QEEGs (quantitative electroencephalograms), which measure electrical activity, on patients from 9 months old to 105 years from 121 countries. Our brain imaging work has completely disrupted how we help our patients get well, and this information can help you, even if no one ever looks at your brain. The human brain is an organ just like your heart and all your other organs, and you can only be as mentally healthy as your brain is functionally healthy.

It has become crystal clear to us that, as psychiatrists, we are not dealing with *mental health* issues, but we are dealing with *brain health* issues; and this one idea has changed everything we do to help our patients.

We are not dealing with* mental health *issues, but we are dealing with* brain health *issues; and this one idea has changed everything.

I have come to hate the terms *mental illness* and *psychiatric disorders*, and you should too. They place emphasis in the wrong domain (the mind or the psyche), when our imaging work teaches us that we must *first* focus on the brain. "Mental illness" and "psychiatric disorders" conjure up stigmatizing images of lunacy in people who are mad, disturbed, unbalanced, or unstable, even though these adjectives apply to an extremely small percentage of people who struggle with brain health/mental health issues.

Being diagnosed with a mental illness or a psychiatric disorder insidiously taints or stains everyone who struggles with perceived issues of the mind, making them less likely to ever want to seek help for fear they'll be diminished in the eyes of others. Just look at what happened to 1972 vice-presidential nominee Thomas Eagleton. The up-and-coming senator from Missouri, who had been the Show-Me State's youngest-ever attorney general, a devout Catholic, and a fiery opponent to the Vietnam War, was tapped to be presidential candidate George McGovern's running mate and was considered a perfect choice.[1] But when it was discovered that he had been treated for depression, he was asked to step down from McGovern's political ticket only 18 days after his nomination. Ever since this dark national memory, mental health issues have been considered lethal in political circles.

Yet, according to biographer Joshua Wolf Shenk, Abraham Lincoln "fought clinical depression all his life, and if he were alive today, his condition would be treated as a 'character issue'—that is, as a political liability. His condition was indeed a character issue: It gave him the tools to save the nation."[2] Shenk argues that because of depression, Lincoln knew how to suffer and how to rise above his bad feelings in difficult times. Of note, Lincoln had a serious head injury at age ten, when he was kicked in the head by a

horse and left unconscious.[3] You will see that head injuries are a common and often overlooked cause of emotional and behavioral problems.

[Lincoln's depression] was indeed a character issue: It gave him the tools to save the nation.

By labeling these issues as mental health or psychiatric instead of brain health, people suffer in silence because of the shame they feel. Consider the rash of celebrity suicides and deaths by overdose of people who were too embarrassed or ashamed to ask for help (from Ernest Hemingway, Judy Garland, and Junior Seau to Robin Williams, Mindy McCready, Philip Seymour Hoffman, Anthony Bourdain, and Kate Spade). On the outside, they seemed as if they had everything; on the inside, they were suffering.

If we do not erase—or at least lower—the stigma for these brain health issues, many more people will unnecessarily suffer and die without getting the help they need. We must do better because:

- About every 14 minutes, someone dies by suicide in the United States. Suicide is the 10th leading cause of death overall and the second leading cause of death for those 10 to 34 years of age.[4] Since 1999, suicide has increased 33 percent, decreasing overall life expectancy, while during the same period of time cancer has decreased 27 percent.[5] The last time America experienced a decrease in life expectancy was in the early 20th century, when the Spanish influenza and World War I killed nearly one million people. I've been surrounded by suicide, with an aunt who killed herself, as did my adopted son's biological father, and my son-in-law's father. The pain of suicide is unlike any other loss because people see it as a choice, rather than as a consequence of an illness.

- Every eight minutes, someone dies of a drug overdose,[6] and the recent opiate crisis in America is only getting worse year after year. In 2017, there were more than 70,000 drug overdoses, with 67 percent of them from opiates (an increase of 45 percent from 2016).[7]

- In 2017, teens and young adults in the United States were more prone to depression, distress, and suicide compared with millennials when they were the same age.[8]

- Thirty-six percent of girls will experience clinical depression during their teenage years, compared to 13 percent of teenage boys.[9] Both numbers are unacceptable.

- Twenty-three percent of women between the ages of 40 and 59 are taking antidepressant medication.[10]
- According to a large epidemiological study, 50 percent of the US population will struggle with a mental health issue at some point in their lives.[11] Anxiety disorders (28 percent), depression (21 percent), impulse control disorders (25 percent), and substance use disorders (15 percent) are the most common. Half of all cases start by age 14, and 75 percent start by age 24.
- According to the World Health Organization, 25 percent of all health-related disability is due to mental health and substance use conditions—eight times more than disability caused by heart disease and 40 times more than cancer.[12]

Shame holds people back from getting the help they need. No one is shamed for cancer, diabetes, or heart disease; likewise, no one should be shamed for depression, panic disorders, bipolar disorder, and other brain health issues.

Even though I have loved being a psychiatrist for the past 40 years, I am not a fan of my professional label because psychiatrists are often dismissed as unscientific and scorned by other medical professionals and the general public. In 1980, when I told my father, a highly intelligent and successful entrepreneur, that I wanted to be a psychiatrist, he asked me, "Why don't you want to be a 'real' doctor? Why do you want to be a nut doctor and hang out with nuts all day long?" At the time, his words upset me, but 40 years later, I have a deeper understanding of why he was concerned. In a similar vein, I've heard countless patients say, "I'm not going to see a psychiatrist because I'm not crazy." Stigma reigns. I prefer the term *clinical neuroscientist* to psychiatrist.

REIMAGINING *MENTAL* HEALTH AS *BRAIN* HEALTH CHANGES EVERYTHING

Early in my career, I learned that very few people *want* to see a psychiatrist. No one wants to be labeled as defective or abnormal, but once people learn about the importance of their brain, everyone wants a better one. What if *mental health* was *brain health*? That is what the brain imaging work we are doing at Amen Clinics teaches us daily. Think of it this way. Your brain can have problems just as your heart can have problems. Most people who see cardiologists, however, have never had a heart attack. They are there because

they have risk factors—a family history of heart disease, high blood pressure, or too much abdominal fat—and they want to *prevent* a heart attack. To end mental illness, we must develop a similar way of thinking.

Reframing the discussion from mental health to brain health changes everything. People begin to see their problems as *medical*, not *moral*. It decreases shame and guilt and increases forgiveness and compassion from their families. Reframing the discussion to brain health is also more accurate and elevates hope, increases the desire to get help, and increases compliance to make the necessary lifestyle changes. Once people understand that the brain controls everything they do and everything they are, they want a better brain so they can have a better life.

Reframing the Discussion from Mental Health to Brain Health Changes Everything

- People see their problems as medical, not moral.
- It decreases stigma, shame, and guilt.
- It increases compassion and forgiveness from families.
- It is a more accurate description of the biology involved.
- It elevates hope.
- It increases compliance with treatment plans.

The End of Mental Illness will give you a completely new way to think about and treat brain health/mental health issues, such as anxiety, depression, bipolar disorders, attention deficit disorder/attention deficit hyperactivity disorder (ADD/ADHD), addictions, obsessive-compulsive disorder (OCD), post-traumatic stress disorder (PTSD), schizophrenia, and even personality disorders. It is based on a very simple premise: *Get your brain right, and your mind will follow.* In study after study, improving the physical functioning of the brain improves the mind.[13]

YOUR BRAIN'S HISTORY IS NOT YOUR DESTINY

The reason I dedicated this book to my two nieces, Alizé (15) and Amelie (10), is that they were born into a family plagued by mental illness—multiple

suicides, major depression, schizophrenia, drug abuse, manic depressive behavior, OCD, anxiety and panic disorders, ADD/ADHD, body dysmorphia, and criminal behavior. Their genetic vulnerability for mental illness was incredibly high from before birth. In addition, they were born into chaos, with parents who struggled with addictions, depression, and behavioral issues. In 2016, Child Protective Services, who deemed they were living in a dangerous situation, took them from their parents. The two girls still vividly remember the panic and horror of police taking them from their mother.

At the time, my wife, Tana, was estranged from her half-sister, Tamara, the girls' mother, but when we found out that the children were taken into foster care, we knew we must act. We wrapped brain health/mental health services around Tamara (at the time, the father refused to get help), and she was able to gain control over her addiction, depression, ADHD, and past head trauma (19 car accidents). Thanks to this progress, she was reunited with her children on Mother's Day 2017. Since that time, using the principles in this book, Tamara, Alizé, and Amelie have thrived. Like all people who experience this type of chaos, they have had ups and downs, but Tamara is gainfully employed at a job she loves, and the girls are both A students, happy, social, and purposeful. At the time of this writing, Alizé is an honor society student and participates in cross country and track and field. In the last year, she has been awarded Language Arts, Life Science, and Automation and Robotics Student of the Year.

Tana, Tamara, and I are committed to ending the cycle of mental illness in the girls as well as in their future children and grandchildren. This book is our blueprint. It is your blueprint too. The end of mental illness starts with you and the people close to you.

ALIZÉ (RIGHT) AND AMELIE

THIS BOOK IS YOUR BLUEPRINT

Part 1 will briefly introduce you to the history of psychiatry and mental health treatment. To illustrate this, I will reveal some of the surprising and downright shocking ways one of my patients, Jarrett, would have been treated throughout the ages. I'll help you reframe mental illness. We'll discard an outdated diagnostic paradigm based solely on symptom clusters and replace it with a brain-centered paradigm based on symptoms *plus* neuroimaging, genetics, and a personalized medicine approach to brain/body health. Then I'll share the 12 major lessons we've learned from our brain imaging work that completely changed the way we think about and help our patients. You will be introduced to the Amen Clinics Four Circles BRIGHT MINDS Program to end mental illness, which reveals the simple yet very powerful concept that, in order to have a healthy mind, you must first have a healthy brain. To do that, you must optimize the four circles of a whole life (biological, psychological, social, and spiritual), as well as prevent or treat the 11 major risk factors that damage the brain and steal your mind.

In part 2, you will learn how to create or eliminate mental illnesses. If you know how they're created, you will have the prescriptions to avoid and treat them. Here you'll discover the enormous impact that modern society has had on the exploding brain health/mental health crisis in America. This section will also explore the 11 BRIGHT MINDS risk factors that steal your mind and show you how to avoid them. I wrote about these risk factors extensively in my book *Memory Rescue* but only as they relate to memory; these same factors greatly influence other brain health/mental health problems. BRIGHT MINDS stands for:

Blood Flow

Retirement/Aging

Inflammation

Genetics

Head Trauma

Toxins

Mind Storms (abnormal brain electrical activity)

Immunity/Infections

Neurohormone Issues

Diabesity

Sleep

As you will see, once you reduce your risk factors, your brain—and mind—will be healthier.

In part 3, I'll share many practical strategies on how to boost your brain and optimize your mind, including how to think about psychiatric medicines versus nutritional supplements (nutraceuticals), the important health numbers to check every year, and the critical importance of your food. In addition, the final chapter summarizes the strategies on how to create and end mental illness.

Get your brain right, and your mind will follow. It's time to get the help you need by discarding an outdated, stigmatizing, unscientific paradigm.

Here's an example of why we need to discard the current outdated paradigm in favor of our new model.

HOW CHASE ELIMINATED HIS "MENTAL ILLNESS" BY HEALING HIS BRAIN

Chase was a smart, successful young man fresh out of college with a great job. But inside, he was suffering. Chase struggled with severe anxiety, uncontrollable mood swings, negative thought patterns, crippling panic attacks, a bad temper, and disrupted sleep. He had difficulty with work relationships and making friends. He couldn't talk to people and always seemed to be in a bad mood. He also lacked a clear sense of any purpose.

As a teenager, he saw a psychiatrist, who after asking him to fill out a questionnaire, diagnosed Chase with bipolar disorder (a severe mood disorder in which people cycle between depression and mania) as well as ADHD and intermittent explosive disorder (IED). Chase also had a family history of depression and addictions.

Over the years, he jumped from one medication to the next, trying to find something that worked. The side effects only made things worse, and he gained more than 80 pounds. This young man, who already had social anxiety, now had even more reasons to isolate himself. Chase's brain and body finally gave up; he had a nervous breakdown and was unable to work.

Chase's stepmother, Terry, suggested he come to our clinic in New York

City for an evaluation. Terry's daughter had struggled with learning and anxiety attacks but had a dramatic turnaround after coming to our clinic. That inspired Terry to visit one of our clinics, which helped her improve her own troubled brain to become a better businesswoman. Subsequently, Terry sent many other members of her family to our clinics for help.

As we do with all our patients, we did a comprehensive evaluation of Chase. As part of our diagnostic process, we took a detailed history, performed neuropsychological tests, ran a lab workup (Chase had low levels of vitamin D and testosterone), and scanned his brain to assess blood flow and activity patterns in the brain. SPECT looks at how the brain works. It is different than CAT scans and MRIs, which are anatomy studies that look at the structure of the brain. SPECT looks at brain function and, in my opinion, is much more helpful for people with complex brain health/mental health problems, like ADD/ADHD and bipolar disorder. You will learn much more about our work with SPECT in chapters 2 and 3.

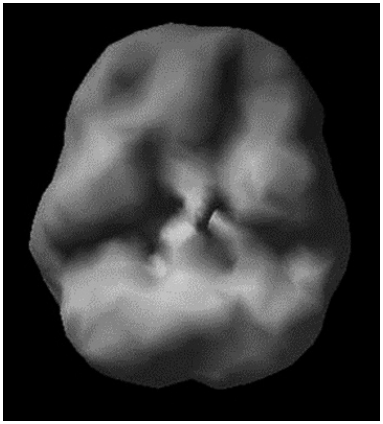
Chase's SPECT scan (see images on the following pages comparing his scan to a healthy scan) showed significantly low overall blood flow to his brain, especially to his prefrontal cortex (a brain region associated with focus, forethought, judgment, planning, empathy, and impulse control) and his temporal lobes (a brain region associated with mood stability, learning, memory, and temper control). His scan was consistent with past head trauma and toxicity, which caused us to ask Chase more pointed questions to try to understand why his brain looked so troubled.

It turned out that his family owned a NASCAR speedway, and Chase had been racing cars since he was a child, spending a lot of time around and breathing in toxic gasoline fumes. He'd had a number of significant concussions, including one from racing. Many people are misdiagnosed with bipolar disorder (mental illness) after they have had a significant concussion (brain illness) that affects their prefrontal cortex and temporal lobes.

BRIGHT MINDS TIP

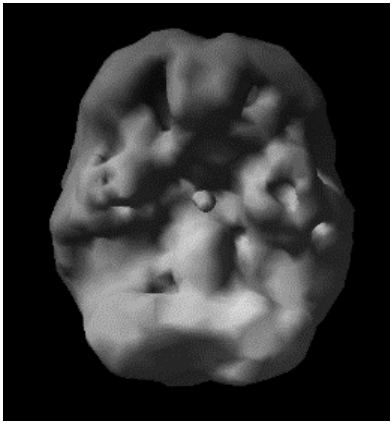
Many people are misdiagnosed with bipolar disorder after they have had a significant concussion. The right diagnosis is critical to effective treatment.

HEALTHY SPECT



Full, even, symmetrical activity

CHASE'S SPECT

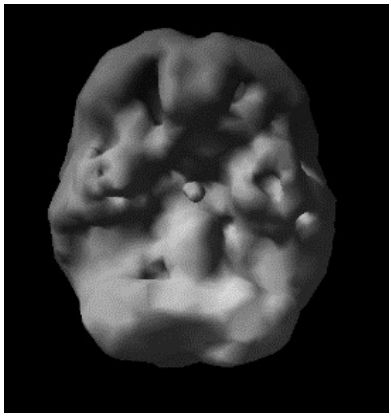


Low activity (areas that look like indentations), especially in prefrontal cortex and temporal lobes

CHASE PLOWS INTO A WALL

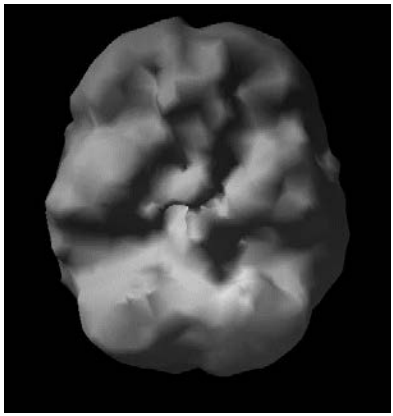
After seeing his scans and understanding the story of Chase's life, it was clear he did not have bipolar disorder, ADHD, and IED but, rather, the long-term effects of concussions and toxic exposure to the gasoline fumes, giving him these symptom clusters. We stopped his medications, gave him brain supportive supplements, and went to work rehabilitating his brain using the Amen Clinics Four Circles BRIGHT MINDS Program, which will be laid out in detail in upcoming chapters. As part of the program, we completely changed Chase's diet, encouraging him to only eat foods that served his brain health rather than ones that hurt it. Plus, he started exercising daily. Chase did everything we asked him.

CHASE'S BEFORE SPECT



Low activity, especially in prefrontal cortex and temporal lobes

AFTER SPECT



Overall improvement

Before

After

In just a few months, his confidence soared. Several months later, his brain showed significant improvement. (His skin also cleared up, and he had lost 80 pounds—other signs that his brain was healthier.) Now he has an even better job where he says he has great working relationships, lots of friends outside the office, loves trying new things, and is in a committed relationship.

After learning about his brain, Chase still loves watching car racing but says he'll personally never race again. And not just because of the concussions but also because of the toxins he was inhaling: gas, oil, burned rubber, and all the other chemicals he does not want inside his body.

Chase desperately needed a radical new approach; both his physical and mental health were going the wrong way.

Chase had been given three major psychiatric diagnoses—bipolar disorder, ADHD, and IED—from his psychiatrist, who used checklists and groups of related symptoms, known as symptom clusters, from the American Psychiatric Association's Diagnostic and Statistical Manual of Mental Disorders (DSM), and his treatment was doing him more harm than good. Yes, on the surface, it is much easier to try different medications, hoping for a quick fix, and not have to bother with changing your life. But the medications we use in psychiatry are often insidious, meaning once you start them, they are very hard to stop. They change your brain to need them in order for you to feel normal. In the long run, it is generally easier to do a bit of work to change your habits, so you need fewer medications or, in some cases, none at all.

On the surface, it's easier to try different medications, hoping for a quick fix, and not have to bother with lifestyle changes. But psychiatric medications are often insidious, meaning once you start them they are very hard to stop. They change your brain to need them in order for you to feel normal.

The way we evaluated and helped Chase is very different from the typical way most people are diagnosed and treated for "mental illnesses." In 2020, if you suspect you have a mental health issue, you are likely to visit a psychiatrist or primary care physician (who prescribe 85 percent of psychiatric medications), who will ask you to describe your symptoms. In most cases, your doctor will listen, do an examination, then look for symptom clusters. Based on this, they will give you a diagnosis and treatment plan, usually involving one or more psychiatric medications.

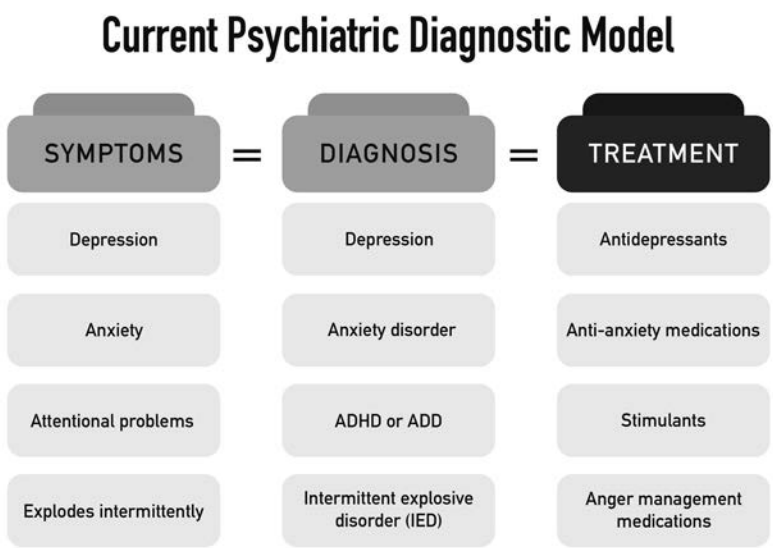
For example, if you are anxious, you usually get an "anxiety disorder" diagnosis and end up with a prescription for an anti-anxiety medication, which has been found in some studies to be associated with an increased incidence of dementia.[14] If you have attention problems, you may end up with a diagnosis of ADHD and a prescription for stimulant medication, such as Ritalin or Adderall. These medications can help many people, but it's important to be aware that they can also make some people worse.

Or you may say, "I'm depressed." Your doctor will then label you with

a diagnosis that has the same name as your symptoms—depression, in this example—without taking any biological information into consideration. Treatment is typically an antidepressant medication.

According to psychiatrist Thomas Insel, the former director of the National Institutes of Mental Health (NIMH), "For the antidepressants . . . the rate of response continues to be slow and low. In the largest effectiveness study to date, with more than 4,000 patients with major depressive disorder in primary care and community settings, only 31 percent were in remission after 14 weeks of optimal treatment. . . . In most double-blind trials of antidepressants, the placebo response rate hovers around 30 percent . . . The unfortunate reality is that current medications help too few people to get better and very few people to get well."[15] This is consistent with what Insel's predecessor, Steve Hyman, former director of the NIMH, wrote in 2018, that in the last half century we have failed to progress significantly in medications to treat psychiatric illnesses.[16]

A typical example of this outdated diagnostic method is for people who have temper problems, like Chase, and who explode intermittently. They often get diagnosed with IED, which is an ironic acronym. These people are often prescribed anger management classes or any number of medications.



From our experience with tens of thousands of patients at Amen Clinics and after 40 years in the field, I'm convinced that making diagnoses solely based on DSM symptom clusters, such as anxiety, depression, temper outbursts, or a short attention span, is inadequate and disrespectful to patients.

Symptoms don't tell us anything about the underlying biology of the problems our patients have. All other medical professionals look directly at the organs they treat, but psychiatrists are taught to *assume* what the underlying biological mechanisms are for illnesses—such as depression, ADD/ADHD, bipolar disorder, and addiction—without ever looking at the brain, even though our patients are every bit as sick as those with heart disease, diabetes, or cancer.

Making diagnoses solely based on DSM symptom clusters, such as anxiety, depression, temper outbursts, or a short attention span, is inadequate.

An explosive 2019 study in *Psychiatry Research* confirms what I've been saying for decades: Making psychiatric diagnoses based solely on symptom clusters is scientifically meaningless and disingenuous. The study, led by University of Liverpool researchers, focused on a meticulous analysis of five chapters in DSM-5: anxiety disorders, depressive disorders, trauma-related disorders, bipolar disorder, and schizophrenia. Their main findings highlight many of the shortcomings of the current diagnostic paradigm:[17]

- There is a major overlap of symptoms among diagnoses.
- Many diagnoses overlook the role of psychological trauma and head trauma.
- The current approach rarely takes the individual into account.

This study's deep dive into the numbers shows just how murky and inconsistent the diagnostic model is. For example, "there are almost 24,000 possible symptom combinations for panic disorder in DSM-5, compared with just one possible combination for social phobia." Equally concerning is their finding that "two people could receive the same diagnosis without sharing any common symptoms." And the sheer number of combinations of symptoms makes the ability to arrive at an accurate diagnosis nearly impossible. Take this stunning fact, for instance: "In the DSM-5 there are 270 million combinations of symptoms that would meet the criteria for both PTSD and major depressive disorder, and when five other commonly made diagnoses are seen alongside these two, this figure rises to one quintillion symptom combinations—more than the number of stars in the Milky Way." The researchers conclude that following a different approach may be more effective than remaining committed to what they called a "disingenuous categorical system."[18]

Rest assured, it doesn't have to be this way. Reframing the way we think about "mental illnesses" by looking at them as brain health issues is more

accurate. It is this discovery that completely changed the way we approach diagnosing and treating our patients at Amen Clinics. It is also the underlying reason why Amen Clinics has one of the highest published success rates for complex patients, who have failed an average of 3.3 providers and five medications.[19] In fact, 84 percent of the complex, treatment-resistant patients we treat at Amen Clinics report feeling better after six months.

This book will share some of those stories and provide the steps to end mental illness now, not just in the lives of Alizé and Amelie, but also in your own life and in the lives of your children and grandchildren.

1. Eliminate the term *mental illness* and replace it with the term *brain health/mental health issues*.
2. Discard an outdated diagnostic paradigm based solely on symptom clusters and replace it with a brain-centered paradigm based on symptoms *plus* neuroimaging, genetics, and a personalized medicine approach to brain/body health (chapters 1–3).
3. Assess and treat whole people in four circles—biological, psychological, social, and spiritual (chapter 4).
4. Prevent or treat the 11 major BRIGHT MINDS risk factors that damage the brain and steal the mind (chapters 5–15).
5. First, do no harm. Know the science comparing "mind meds" versus nutraceuticals. Nutraceuticals have more scientific support than most people know and are often an evidence-based option (chapter 16).
6. Know your important health numbers and re-check them on a yearly basis to help prevent brain health/mental health issues before they start (chapter 17).
7. Eat foods that enhance brain health rather than those that accelerate brain/mind illnesses (chapter 18).
8. Provide brain health/mental health education in schools, businesses, churches, and anywhere people congregate (chapter 19).

PART 1

REFRAMING MENTAL HEALTH AS BRAIN HEALTH CHANGES EVERYTHING

CHAPTER 1

FROM DEMON POSSESSION TO THE 15-MINUTE MED CHECK

A BRIEF HISTORY OF MENTAL ILLNESS DIAGNOSES AND TREATMENTS

The first known use of "headshrinker" as a slang term for a psychotherapist appeared in the Nov. 27, 1950 issue of Time *magazine, which asserted that anyone who had predicted the phenomenal success of the television Western* Hopalong Cassidy *would have been sent to a "headshrinker." The article explained in a footnote that headshrinker is Hollywood slang for a psychiatrist. . . . The headshrinker metaphor arguably reflects the feelings of fear, mystery, and hostility traditionally associated with the profession. Another theory holds that it implicitly refers to shrinking a patient's narcissistic, inflated sense of self. Although many mental-health professionals have come to accept the term with self-deprecating humor, it has also been criticized as a relic of an outmoded therapeutic approach that reduces people to mere causes and symptoms rather than regarding them as complex individuals.*[1]

When one person gets better, it can cause a cascade of help across generations of people. When I first met my wife, Tana, in 2006, I really, really liked her. Having been divorced for six years, I had told myself that before I ever married again, I would need to see the woman's brain scan before going to the next level. About three weeks after we met, I invited Tana to the clinic. She was a neurosurgical intensive care nurse, and we bonded over our love of the brain, so it wasn't that weird. Her brain was beautiful, and two-and-a-half years later we were married. Over the years, that one scan changed many other brains.

A few months after Tana was scanned, a neurologist diagnosed Tana's estranged father with Alzheimer's disease, but when I scanned her dad, his

SPECT scan showed he did not have Alzheimer's disease but, rather, depression masquerading as it. We prescribed natural dietary supplements for him, and several months later, he was able to teach a six-hour seminar at a local church. Then Tana's mother and uncle were fighting at work, so I evaluated and scanned them. It turned out they both had terrible attention deficit hyperactivity disorder (ADHD). On medication they got along much better, and their business improved. Then, a friend of Tana's from her early 20s saw us on a public television show together and reached out to Tana because her son, Jarrett, was really struggling.

JARRETT

Jarrett was diagnosed with ADHD in preschool. His mother said he was driven by a motor that was revved way too high. He was hyperactive, hyperverbal, restless, and impulsive, and he couldn't focus. He also didn't sleep well and interrupted everyone all the time. He had no friends—his classmates avoided him, and their parents kept their children away from him. His third-grade teacher said he would never do well in school and cautioned his parents to lower their expectations. He had seen five doctors and was prescribed five stimulant medications for ADHD. All of them made Jarrett worse, triggering mood swings and terrible rages. He put holes in the walls of their home and scared his siblings. His behavior had gotten so bad that his last doctor wanted to put him on an antipsychotic medication. This is when his mother brought him to see us. Jarrett's brain SPECT scan clearly showed dramatic overactivity in a pattern we call "the ring of fire." No wonder stimulants didn't work; it was like pouring gasoline on a fire. Our published research shows that stimulants make this pattern worse 80 percent of the time.[2]

On a group of natural supplements to calm his brain—together with parent training and structured, brain-healthy habits—Jarrett's behavior dramatically improved. His grades went up, the rages stopped, and he was able to make friends. He has now been on the honor roll for eight straight years. After searching for so long, his parents are grateful to have found the correct treatment plan for him, which has completely altered the course of his life. There is no telling what the future would have held for Jarrett if he had stayed on his previous path.

JARRETT AND DR. AMEN

HOW WOULD JARRETT HAVE BEEN TREATED THROUGHOUT HISTORY?

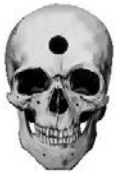
The word *psychiatry* originates from the Medieval Latin *psychiatria*, meaning "healing of the soul."[3] Many societies have viewed mental illness as a form of divine punishment or demon possession. This chapter will walk you through history to show you some of the strange and unsettling things that would have been prescribed in an attempt to heal Jarrett.

Ancient civilization

In ancient Indian, Egyptian, Greek, and Roman writings, mental illness was often seen as a religious or personal failure. As early as 6,500 BC, prehistoric skulls and cave art showed evidence of trepanation, a surgical procedure that involved drilling or scraping a hole in the skull to release evil spirits thought to be trapped inside.[4]

Treatment: Religious leaders may have attempted an exorcism for Jarrett or drilled a hole in his skull to release the evil spirits.

TREPANATION TO ALLOW TRAPPED EVIL SPIRITS TO ESCAPE



HIPPOCRATES

The Greek physician Hippocrates (460–370 BC) believed all mental illnesses came from the brain.[5] He wrote, "Men ought to know that from the brain, and from the brain only, arise our pleasures, joy, laughter, and jests, as well as our sorrows, pains, despondency, and tears. . . . And by the same organ we become mad and delirious, where fears and terrors assail us. . . . All these things we endure from the brain, when it is not healthy."[6]

Recognized as the "father of medicine," Hippocrates proposed one of the first classifications of mental disorders, including mania, melancholy, phrenitis (brain inflammation, fever, delirium), insanity, disobedience, paranoia, panic, epilepsy, and hysteria. Some of those terms are still used today. The renowned physician did not view mental illness as shameful; he believed that mentally ill people were not responsible for their behavior and advocated that their family care for them at home. He was a pioneer in treating mentally ill people with more rational techniques, focusing on changing a person's diet, environment, or occupation and adding medications, exercise, music, art therapy, and even divine solicitation.

It's incredible to consider that nearly 2,500 years ago, Hippocrates was already suggesting that mental illnesses should be treated as physical medical illnesses and treated with lifestyle changes (the main point of this book).[7] However, he also theorized that physical and medical illnesses were caused by an imbalance of four essential bodily fluids or humors (blood, yellow bile, black bile, and phlegm), which is partly to blame for the practices of bloodletting and purging (similar to taking laxatives to empty the bowels).

Treatment: Likely, Hippocrates would have had Jarrett exercise, listen to music, create art, and focus on an occupation that fit his restless nature. He may have also bled him to release excess blood and had him take some natural supplements.

GALEN

Galen (AD 130–201), another Greek physician during the Roman Empire and ultimately one of the most influential physicians in history, agreed with Hippocrates' four-humor theory of illness and associated them to four temperaments:

- Sanguine (blood: extroverted, social, risk-taking)
- Phlegmatic (phlegm: relaxed, peaceful, easy-going)
- Choleric (yellow bile: take-charge, decisive, goal-oriented)
- Melancholic (black bile: creative, kind, and introverted)

Like Hippocrates, Galen believed no difference existed between mental and physical illness[8] and noted that psychological stress could cause mental health issues. He is credited with the development of a tripartite theory of the soul, attempting to localize where the three parts were housed in the body: rational (brain), spiritual (heart), and appetitive (liver). In his book, *On the Diagnosis and Cure of the Soul's Passion*, Galen discussed how to treat psychological problems, which some have called an early attempt at psychotherapy.[9] He directed people with psychological issues to share their deepest passions and secrets, which can help them feel better.

Treatment: Galen would have prescribed Jarrett a treatment plan similar to Hippocrates, with the addition of talk therapy.

Middle Ages

By the Middle Ages, supernatural explanations of mental illnesses resurfaced in Europe in an attempt to explain natural disasters, such as plagues and famines. In the 13th century, mentally ill people, especially females, were treated as demon-possessed witches. In the 16th century, Dutch physician Johann Weyer and Englishman Reginald Scot tried to persuade their populations that those accused of witchcraft were actually people with mental illnesses in need of help, but the Catholic Church's Inquisition banned their writings. This practice did not decline until the 17th and 18th centuries. In the largest set of witch trials in America, between February 1692 to May 1693, more than 200 people were accused of being witches in Salem, Massachusetts; 20 were executed (14 females and 6 males), and others died in prison.

In the 16th and 17th centuries, asylums were created to house the mentally ill against their will. Inmates, many of whom were chained and beaten, often lived in squalor. Sometimes they were even exhibited to those willing to pay a fee. They were also subjected to a host of arcane medical practices, such as purging, blistering, or bloodletting.[10]

Treatment: Religious leaders may have attempted an exorcism on Jarrett, or physicians may have placed him in an asylum, where he would have been blistered, bled, or given laxatives.

18th and 19th centuries

In 1789, King George III of England descended into madness. His doctors were unable to say if he would recover or if someone else should replace him.[11] This crisis triggered physicians at England's insane asylums to begin looking

into the inheritance patterns of mental illness. Long before the discovery of DNA, doctors started collecting family histories of the insane, criminals, and those with intellectual disabilities among those in the asylums, prisons, and schools for "feebleminded" children. At the time, physicians who specialized in mental illness were called alienists because they treated people who were alienated from society. Some alienists thought stress caused mental illness, but most ascribed to the belief that it was transmitted through families by heredity.

Asylum directors started using family trees and surveys to study and track down affected relatives of their patients and institutionalized them as well, believing these people should be discouraged from reproducing. Asylum superintendents, legislators, and social reformers embarked on a deeply misguided eugenics movement to improve society by passing sterilization laws that were eventually supported by the US Supreme Court (1927 Buck vs. Bell case). They passed in 32 states and formed part of the rationale for Nazi Germany's atrocities. This movement continued into the 1960s, with more than 60,000 Americans undergoing sterilization.[12]

In 18th-century Europe, protests broke out over the conditions in the asylums, and reformers aimed to end the abusive practices. They took the patients out of chains and encouraged good hygiene, recreation, and occupational training.[13] In the United States, one of the signers of the Declaration of Independence, physician Benjamin Rush, who is considered the father of American psychiatry, established a more benevolent approach, unshackling patients, forbidding beatings, and lobbying for improved living conditions in Pennsylvania.

This doesn't mean that all of Rush's therapies were helpful. In his book, *Medical Inquiries and Observations upon the Diseases of the Mind*, he wrote that hypochondriasis, a form of melancholia or modern-day depression, needed to be treated by "direct and drastic interferences" that involved "assaulting the patient's mind and body" in an attempt to reset their constitution.[14] He recommended that doctors "plumb" patients' systems by bleeding (leeches), blistering, and cupping (similar to the current cupping trend that reached national attention when swimmer Michael Phelps was spotted at the 2016 Olympics with the telltale purple blotches on his back that arise from the treatment[15]). Rush also prescribed drugs, like mercury, arsenic, and strychnine—now known to be poisonous—to induce vomiting and diarrhea and suggested fasting for two or three days.[16] Once the body was cleaned out, he recommended stimulants, such as tea and coffee, ginger, and black pepper in large doses; magnesia, mustard rubs; hot baths to induce sweating followed by cold baths; and exercise.

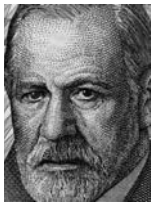
When Abraham Lincoln was severely depressed in January 1841, his physician Dr. Anson Henry subscribed to Rush's aggressive theories and likely subjected the future president to these punishing treatments. After Lincoln spent a week alone with Dr. Henry, he described himself "as the most miserable man living."[17]

Rush also believed many psychiatric illnesses were the result of blocked circulation. To improve brain blood flow in schizophrenic patients, Rush would strap them into the "gyrating chair," a device that spun them around until they became dizzy. It didn't work.

In the 1770s, Europe was influenced by German physician Franz Anton Mesmer, who attempted to treat the "energy blockages" he believed were at the root of mental illness. He thought all illnesses could be attributed to an insufficient flow of what he called "animal magnetism." By putting patients into a trance-like state and then probing certain body parts to restore energy flow, Mesmer drove his patients to states of crisis (delirium or seizures). In some patients, symptoms miraculously vanished after the treatment, rocketing Mesmer to celebrity status. In 1843, Scottish physician James Braid coined the term *hypnosis* for a technique originally derived from animal magnetism to induce hypnotic trances.

Treatment: Jarrett may have been institutionalized and sterilized, if not euthanized, and his family placed under suspicion. American physician Rush might have prescribed blistering and poisonous drugs like arsenic, followed by hot and cold baths. Germany's Mesmer might have hypnotized Jarrett to relieve the blockage of energy.

FREUD AND PSYCHOANALYSIS



In the late 19th century, Viennese physician Sigmund Freud voyaged to Salpêtriere Hospital in Paris, where he studied with the founder of modern neurology Jean-Martin Charcot, who was best known for his work with hysteria and hypnosis. Charcot used hypnosis as a cathartic energy release to enable healing. Freud later abandoned hypnosis in favor of psychoanalysis, the talking cure, which dominated psychiatry for the first half of the 20th century.

Freud, a neurologist, was determined to understand the human mind. He tried to understand it from a neuroscience or brain perspective, but gave up in 1895, when he concluded that the science of his time was not up to the task of explaining patients' symptoms. Eventually, he came to believe in the power of the subconscious, which could not be accessed during wakefulness

but could be accessed in hypnotic trances and later through psychoanalysis. For Freud, the mind was like an iceberg—the largest part was unconscious and hidden from sight. He argued that the mind had three parts: (1) the id (child self, selfish desires, and instincts), (2) ego (adult self that helps control the id to make more rational decisions), and (3) superego (moral self that is the voice in your head judging your actions).

He developed the "talking cure" of psychoanalysis to help rid mentally ill patients of the internal conflicts between their id, ego, and superego, which he viewed as the cause of many mental illnesses. For example, if a man wants to steal from his employer (id), he may sublimate the desire by writing crime stories or deny the desire altogether. But what if these defense mechanisms (sublimation and denial) are not strong enough? Freud hypothesized the person may develop a psychiatric disorder. By encouraging people to talk about their hidden fears and desires, Freud believed he could lead them to a cure. He encouraged his patients to talk about everything that came to mind, including their dreams, then he would psychoanalyze them. He believed many conflicts typically started in childhood. Psychoanalysis provided the launching pad for hundreds of schools of psychotherapy and "talking cures" still in existence today, including behavior therapy; cognitive behavioral therapy; psychodynamic therapy; and marital, family, and group therapy.

Treatment: Freud may have had Jarrett lying on the psychiatrist's couch four or five times a week, attempting to work out his internal conflicts.

KRAEPELIN AND THE BIOLOGICAL CAUSES OF MENTAL ILLNESS

A contemporary of Freud's, German psychiatrist Emil Kraepelin believed the primary cause of mental illness was biological with a strong genetic component. His theories were influential during the early 20th century and reemerged at the end of the 20th century when psychoanalysis fell out of favor. Viewing psychiatry as a branch of medicine, he began developing the modern classification system for mental disorders. He also protested against the inhumane treatments in psychiatric asylums and argued against alcoholism and capital punishment. He emerged as an advocate for the treatment, rather than the imprisonment, of the insane and rejected Freud's psychoanalytical theories as unscientific, especially those suggesting that early sexual urges were the cause of mental illness.

Treatment: Kraepelin would have diagnosed Jarrett with a brain that was misfiring and attempted to find a biological cure.

Early 20th century

FEVER, INSULIN SHOCK, ECT, AND LOBOTOMY CURES

Austrian physician Julius Wagner-Jauregg experimented with curing psychosis by inducing fevers. Misguided, he infected his patients with a by-product of the bacteria that causes tuberculosis. It was not successful. Undeterred, he began to use malaria parasites in 1917 to treat psychotic patients suffering from syphilis. Fifteen percent of them died, and the rest contracted malaria, but the fevers did temporarily decrease their symptoms. Wagner-Jauregg was awarded the Nobel Prize for his research in 1927.

In 1927, another Austrian psychiatrist, Manfred Sakel, administered large doses of insulin to purposely cause seizures in psychotic patients. Researchers discovered that if blood glucose levels went too low, people fell into a coma or experienced seizures, and this could temporarily alleviate symptoms. Unfortunately, the treatment was associated with negative side effects, such as obesity, and more severe consequences, including brain damage and even death.

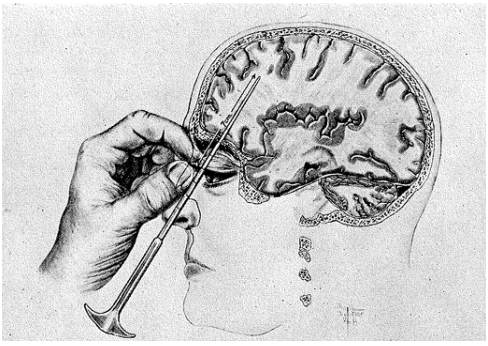
In 1938, Italian neurologists Ugo Cerletti and Lucino Bini were the first to deliver electric shocks to patients to induce seizures. They found that electroconvulsive therapy (ECT) had more lasting benefits than insulin-shock therapy with fewer side effects. ECT is still used today to treat severe cases of schizophrenia, depression, mania, and serious suicidal thoughts.[18] With anesthesia, muscle relaxants, and more targeted dosing, it can be an effective technique, but it can also cause memory problems, confusion, headaches, and muscle aches.

In 1935, Portuguese neurologist António Egas Moniz drilled holes into the skulls of 20 mentally disturbed patients and used a wire in 13 of them to sever the connections in the brain's frontal lobes. Moniz was hoping the procedure, called a lobotomy, would calm his patients, who suffered from anxiety, depression, and schizophrenia. It worked! Patients became more compliant, spurring wide adoption of the procedure, which was subsequently used on thousands of patients. Over time, however, it became apparent that it destroyed personalities and turned people into zombie-like beings. Despite these alarming side effects, Moniz also received a Nobel Prize for his work.

Treatment: Wagner-Jauregg would have given Jarrett malaria in an attempt to heal him. Sakel would have tried insulin-shock therapy on Jarrett. Cerletti and Bini would have subjected Jarrett to electric shock therapy to reset his brain. Moniz would have performed a frontal lobotomy on Jarrett, calming his aggression but permanently damaging his personality.

Today, there is a renaissance of surgical techniques for psychiatric illnesses, but they are very different from the frontal lobotomy of old. Very precise, nondamaging surgical interventions can be used to turn off or on certain circuits in the brain. This approach has been effective in Parkinson's disease and has shown some efficacy for obsessive-compulsive disorder (OCD) and some patients with refractory depression.

LOBOTOMY: SURGICALLY DAMAGING FRONTAL LOBES



The late 20th century

THE MIND MEDICATION REVOLUTION

Despite psychoanalysis and the other techniques listed above, there was little hope for a cure for serious mental illnesses until the 1950s, when a host of psychiatric medications became available to practitioners and patients. The first effective medication for schizophrenia (chlorpromazine, brand name Thorazine) was developed in 1951 to treat nausea and allergies and to calm patients before surgery. When it was administered to a hospitalized violent young man, it immediately calmed him and caused such an improvement in his behavior, he was discharged a few weeks later. Chlorpromazine and subsequently other antipsychotic medications, which reportedly block excessive dopamine in the brain, led to dramatic improvements for many psychotic patients and ultimately to a significant reduction in state hospital populations.

The 1950s also saw the release of methylphenidate (Ritalin), which soon was prescribed to help hyperactive children; chlordiazepoxide (Librium), the first benzodiazepine, for anxiety disorders; and imipramine (Tofranil) for severe depression. The age of psychopharmacology had begun in earnest, with medications for bipolar disorder, OCD, and other disorders flooding the market in the decades that followed.

While I was in medical school, Xanax was released for panic disorders with the erroneous notion that it was less addictive than Librium and the

other benzodiazepines. Since it was new, psychiatric residents prescribed it a lot, which is something I later regretted when I saw what it did to SPECT scans. Plus, whenever I prescribed it to patients, I found it was incredibly hard for them to get off it.

In 1987, with the FDA approval of the blockbuster antidepressant Prozac (fluoxetine), the mind drug revolution began to dominate psychiatry. Reportedly, Prozac had fewer side effects than imipramine and medications like it, leading to other selective serotonin reuptake inhibitor (SSRIs) antidepressant medications being approved for depression. Since Prozac was introduced, antidepressant use in the United States has increased 400 percent, and more than one in 10 Americans now takes one. Only medications to lower cholesterol are prescribed more often than antidepressants in the United States.[19]

After the global success of Prozac, the "chemical imbalance" theory of mental illness burst into the public consciousness, and many people began proactively asking their doctors to fix their down moods. Famously, after actress Carrie Fisher was cremated, her ashes were placed in a green and white Prozac-pill shaped urn.

Since Prozac was introduced, antidepressant use in the United States has increased 400 percent, and more than one in 10 Americans now takes one.

Taking pills may seem like an easier and quicker solution to bad moods than taking the time and effort to develop brain-healthy habits, build skills, or change troublesome behavior. Yet there is a dark side to the mind-meds that is often overlooked. Thousands of lawsuits claim that Prozac and other psychiatric medications increase violent or suicidal behavior. Virtually all antidepressants and antipsychotic medications have black box warnings, which, in simple terms means the FDA cautions patients in the strongest terms to pay close attention to potentially extremely harmful or dangerous threats to their health.

In 1991, just when I was beginning to use brain SPECT imaging, reports surfaced suggesting Prozac increased violent behavior. When it happened to one of my patients, it horrified me. It caused us to start reviewing scans to see if we could predict which scan patterns were associated with medications making patients worse, such as the negative reaction Jarrett had on multiple stimulants. We have published papers on ADD/ADHD[20] and depression,[21] revealing the SPECT patterns that are associated with both positive and negative responses to medications.

Despite the problems, the pharmaceutical industry is incredibly successful at marketing psychiatric medications to doctors and the general public.

From 1997 to 2016, the industry increased direct-to-consumer prescription drug advertising from $1.3 billion to $6 billion.[22] Prescription drug ads often do not adequately explain side effects, and because of repeated exposure, many people tune out those statements at the end of TV commercials, often delivered in a rapid-fire manner, such as, "This drug may cause permanent liver damage, seizures, an allergic reaction that leads to fatal throat swelling and suicidal tendencies." Patients in the United States are more than twice as likely to ask for drugs seen in ads compared with those in Canada, where most direct-to-consumer advertising is prohibited.[23]

There is no doubt in my mind that psychiatric medication saves lives, especially for people who have the more serious brain-health/mental-health disorders, such as bipolar disorder and schizophrenia. Yet we should all be cautious with meds because, once they are started, they are hard to stop,[24] and they do not just reset your brain; they change it. An Oxford University study found most SSRIs—such as Prozac, Paxil, Zoloft, and Lexapro—do not just decrease negative emotions; they reduce all emotions, including love, happiness, and joy. Participants felt separated from their surroundings and cared less about important things in their daily lives. They felt like their personalities had changed.[25]

Treatment: Even though Jarrett had failed five prescription medications before seeing us, other doctors would continue the trial and error method of trying to get his symptoms under control.

THE DSM: A MORE SCIENTIFIC APPROACH?

In an effort to adopt a more objective and scientific approach and to increase standardization in a field that struggled with credibility, in 1952, the American Psychiatric Association (APA) released the first version of the Diagnostic and Statistical Manual of Mental Disorders (DSM-I), which categorized all mental disorders. Initially modeled after diagnostic tools used by the military and Veterans Administration, the DSM has since undergone revisions resulting in five subsequent editions (DSM-II 1968, DSM-III 1980, DSM-IIIR 1987, DSM-IV 1994, and DSM-V 2013). The DSM has had great success and nearly all mental health professionals in the United States and many around the world use it. Yet it is not without controversy.

In a 2005 lecture at the annual meeting of the APA, Thomas Insel, one of the most powerful psychiatrists in the world at the time as director of the National Institutes of Mental Health, caused an uproar when he announced the DSM was 100 percent reliable . . . but zero percent valid, meaning if you make a diagnosis with the criteria today for a certain disorder, like depression,

you will make it again tomorrow, but zero percent valid because it is not based on any underlying neuroscience.

After the DSM-V was released in 2013, Insel posted a blog:

> The goal of this new manual, as with all previous editions, is to provide a common language for describing psychopathology. While DSM has been described as a "Bible" for the field, it is, at best, a dictionary, creating a set of labels and defining each. The strength of each of the editions of DSM has been "reliability"—each edition has ensured that clinicians use the same terms in the same ways. The weakness is its lack of validity. Unlike our definitions of ischemic heart disease, lymphoma, or AIDS, the DSM diagnoses are [not] based on . . . any objective laboratory measure. . . . Patients with mental disorders deserve better.[26]

After using a number of the DSM versions on thousands of patients over the past 40 years, it is clear to me that it can help us categorize illnesses such as depression, bipolar disorder, schizophrenia, panic disorder, or borderline personality disorder, but it doesn't tell us anything about what causes them or how to predict which treatments will work because, as Insel suggested, it is not based on any underlying neuroscience.

What's more, each new version of the DSM adds additional mental disorders, which leads to an increase in the number of people diagnosed with problems—a concept called medicalization, where, in a given year, about one in five Americans will suffer from at least one DSM disorder.[27] Contrast that with rates from the 1950s when far fewer people were being diagnosed each year. The more disorders that are included in the DSM, and the more lenient their definitions, the easier it is to diagnose healthy people as having a problem. Predictably, the increase in "sick" people correlates with an increase in treatment, especially medications.

Treatment: Jarrett had been diagnosed with DSM-IV ADHD since the age of three, but none of the standard medications recommended had worked. In fact, they all made him worse.

THE 15-MINUTE MED CHECK

When I was in training in the late 1970s to mid-1980s, psychiatrists were able to spend time with patients. If patients needed to be hospitalized, psychiatrists could treat and stabilize them over weeks or months. In outpatient settings, psychiatrists performed both psychotherapy and medication management, often seeing patients one to two times a week. In the early 1990s, when

managed health care became more popular, insurance companies began to dictate how long patients could stay in the hospital and how many sessions they could have with therapists. Having been in the trenches at the time, it seemed to me that many of their decisions were based not on patient need but on attempts to optimize company profits.

Over the years, professionals have been squeezed to see more patients in less time in order to make enough money to pay back their student loans and support their families. Less trained and less expensive professionals were doing more therapy and psychiatrists were relegated to 15-minute monthly med checks. As med checks increased, so did the use of psychiatric medication, in part because it was the unique tool psychiatrists had in their toolboxes. As a side effect of the 15-minute med check, psychiatrists became more disconnected from the intimate details of patients' lives.

Treatment: Jarrett and his parents had seen 5 different doctors who all practiced with the 15-minute med check model. It was not helpful.

The 21st century

NONPSYCHIATRIC PHYSICIANS, NURSE PRACTITIONERS, AND PHYSICIAN ASSISTANTS ARE NOW WRITING MOST OF THE PRESCRIPTIONS TO MANAGE YOUR MIND

One of the most disturbing trends is that nearly 85 percent of psychiatric medications are prescribed by primary care physicians, nurse practitioners, and physician assistants in short office visits, and 72 percent of these prescriptions are accompanied by no diagnosis in the charts.[28] These medical professionals often do not have the time or the specialized training to develop comprehensive treatment plans or to tell you about safer and more natural solutions. Some primary care physicians do a wonderful job handling mental health issues, while others cause more harm than good.

Treatment: Many patients like Jarrett start by getting prescriptions from their family physicians or pediatricians. Sometimes this is helpful, sometimes not.

TRANSCRANIAL MAGNETIC STIMULATION (TMS)

TMS is a newer treatment to change the brain for the better. It uses brief magnetic pulses to stimulate activity in the areas of the brain known to affect mood, anxiety, and pain. This is *not* the same as ECT from the 1930s. TMS does not require anesthesia, plus it's less expensive and has fewer side effects than ECT. An Israeli study showed that TMS and ECT have similar efficacy.[29] The FDA has approved TMS for the treatment of resistant depression, but new evidence shows it can enhance memory and potentially help improve a wide range of

other brain-related issues, including depression;[30] anxiety;[31] addiction;[32] smoking cessation;[33] post-traumatic stress disorder (PTSD);[34] OCD;[35] cognitive problems, memory, and dementia;[36] and tinnitus (ringing in the ears).[37] At Amen Clinics, we use TMS differently than most of our colleagues. We change the settings based on what we see from our brain imaging work. Doing the same treatment settings for everyone is like giving every depressed patient the same medication, which seems to work about as well as giving a placebo.

Treatment: Jarrett may have tried a course of TMS.

MARIJUANA AND PSYCHEDELICS

The current trend, besides pharmaceutical medication, is using marijuana and psychedelic drugs—such as LSD, ketamine, psilocybin mushrooms, ecstasy, ayahuasca, and ibogaine—to treat psychiatric illnesses. At the time of this writing, using marijuana for at least medical purposes is legal in 30 states, with more on the way. As the perception of the danger of a drug goes down, its use goes up. Many clinicians are now prescribing marijuana and CBD (cannabidiol, one of the ingredients of the marijuana and hemp plants) oil to help patients with anxiety, depression, irritability, and aggression despite limited research. This new market has made many marijuana millionaires with an exuberance rarely seen. The FDA recently approved a cannabidiol solution, Epidiolex, for two seizure disorders.

Our brain imaging work over the last 30 years has given me pause in regard to marijuana, and at the time of this writing, the jury is still out for me on CBD. Over the last 30 years, I've seen thousands of SPECT scans of patients who were regular marijuana users. In 2016, my colleagues and I published a study on more than 1,000 marijuana users and showed that virtually every area of the brain was lower in blood flow compared to healthy scans, especially in the hippocampus, one of the brain's major memory centers.[38] In 2018, we published the world's largest brain imaging study on 62,454 SPECT scans on how the brain ages. Marijuana was associated with accelerated aging in the brain.[39] So caution is needed.

Other professionals are also studying and using psychedelics for addictions and depression, especially ketamine. Due to its hallucinogenic effects, ketamine has a reputation as a popular and illicit party drug, going by the nickname "Special K." It dulls pain and users often feel detached or dissociated from their own body. First developed in the 1960s, ketamine was administered as an anesthetic and given to soldiers during the Vietnam War. In 2000, researchers started studying ketamine as a treatment for depression and discovered that it improves mood much faster than traditional antidepressant

medications, and sometimes works when other drugs have failed. More than a hundred studies have shown that ketamine has antidepressant effects.[40] Unlike antidepressants, which work by enhancing neurotransmitters like serotonin and dopamine, ketamine is thought to change the way brain cells talk to each other—similar to a computer reboot or hardware fix. Ketamine is showing potential, but a new study argues for caution. It showed that the antidepressant effects of ketamine were eliminated with the opiate blocker naltrexone, meaning it worked by activating the opiate centers of the brain.[41] In the long run, could it have similar damaging effects as other opioids and be causing more harm than good?

Treatment: As Jarrett became an adult, his doctor may have treated him with marijuana or ketamine.

INSANITY IS OFTEN DESCRIBED AS DOING THE SAME THING AND EXPECTING A DIFFERENT RESULT:
The Psychiatric Diagnostic and Treatment System Needs a New Paradigm

When President Barack Obama called for more mental health services[42] after 20-year-old Adam Lanza murdered his mother and went to the Sandy Hook Elementary School in Newtown, Connecticut, where he fatally shot 20 six- and seven-year-old children and six adults, I knew that if we spent more money using the same symptom-based diagnostic and treatment model, we would still get the same disturbing results. Like Lanza, a number of our nation's most notorious mass shooters had seen psychiatrists or mental health professionals and had received "standard of care" treatment before their crimes, including Kip Kinkel (Springfield, OR, 1998), Eric Harris (Columbine, CO, 1999), Seung-Hui Cho (Virginia Tech, 2007), James Holmes (Aurora, CO, 2012), and Nikolas Cruz (Parkland, FL, 2018).

We do not need more of the same. We need a completely different paradigm rooted in neuroscience and hope. A new way forward in psychiatry will require ending the paradigm of mental illness, because psychiatric issues really are so much more. Your brain creates your mind. The issues that affect our minds stem from our brains, our bodies, our thoughts, our social and work interactions with others, and our deepest sense of meaning and purpose. We were able to help Jarrett change the trajectory of his life by addressing all of these factors in an integrative way. It started by looking at his brain, because if you never look, you never really know.