

Chapter 1

A New Paradigm in Children's Mental Health

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In The Science and Pseudoscience of Children's Mental Health

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Over the past two decades, there has been a meteoric rise in the number of children—now estimated to be one in six—diagnosed and treated for a range of psychological disturbances, including attention deficit/hyperactivity disorder (ADHD), autism, mood disorders, and learning disabilities.¹ What is happening? Explanations in the popular media tend to polarize around two viewpoints:

- 1) Childhood mental illnesses are caused by genetically influenced *chemical imbalances* in the brain. Magic bullet cures will come in the form of drugs that correct these imbalances in much the same way that insulin treats diabetes. Greater awareness and improved diagnostics have led to the spike in incidence rates.
- 2) We need to *let kids be kids*. Children by definition are inattentive and moody, and we have to let them run and play, and stop pathologizing normal behaviors in order to drug them into silence for the convenience of quiet classrooms and orderly households.

Neither of these perspectives has a monopoly on the truth. Certainly some children are diagnosed unnecessarily because their behavior is inconvenient to the adult world. In *All Work and No Play* and *Childhood Lost*, I described the pathogenic trends in American culture that undermine children's psychological health, such as developmentally insensitive school systems, the disappearance of creative play in early childhood, and screen technologies that remove them from essential developmental tasks and immerse them in violent and sexualized worlds.² At the same time, though, many children are struggling with very real symptoms, ranging from impulsivity and learning challenges to panic and rage; they are not merely "quirky" or "willful" kids. But even when we take into account the possibility that clinicians are becoming more adept at recognizing psychopathology, the staggering increase in the number of children who are struggling with psychological disturbances cannot be fully accounted for by a sharper diagnostic lens. Put more simply, these two viewpoints pit nature versus nurture or biology against environment. This is an outmoded dichotomy that has been replaced in serious scientific circles by *epigenetics*, a discipline that explores the interplay of genes and environments that shapes brain development and mental health.

The Science of Children's Mental Health

The *Diagnostic and Statistical Manual of Mental Disorders* (DSM) lists, describes, and codes every psychiatric condition that is recognized by the American Psychiatric Association (APA). The APA considers the manual to be foundational to diagnosis and treatment. Furthermore, almost all mental health professionals in the United States utilize the DSM because the diagnostic codes it contains are required for health insurance reimbursement.

On April 29, 2013, Thomas Insel, director of the National Institute of Mental Health (NIMH)—one of the most influential psychiatrists in the United States—posted a blog on the National Institutes of Health (NIH) Web site in which he wrote very critically of the DSM.³ The timing of his critique was significant, because it preceded the much-anticipated publication of the fifth edition of the DSM by just a few weeks. In the months leading up to publication, this new edition became a lightning rod for growing dissatisfaction with psychiatric practice, not only from outside of psychiatry but also within its ranks. Following are Insel's comments about the DSM on his NIH blog (emphasis added):

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 based on a consensus about clusters of clinical symptoms, not any objective laboratory measure. In the rest of medicine, *this would be equivalent to creating diagnostic systems based on the nature of chest pain or the quality of fever.* Indeed, symptom-based diagnosis, once common in other areas of medicine, has been largely replaced in the past half century as we have understood that *symptoms alone rarely indicate the best choice of treatment. Patients with mental disorders deserve better.*

Insel goes on to introduce the public to a new NIMH initiative called the Research Domain Criteria (RDoC) project, whose purpose is to transform diagnosis by incorporating genetics, imaging, cognitive science, and other levels of information to lay the foundation for a new classification system. . . . In this sense, RDoC is a framework for collecting the data needed for a new nosology. *But it is critical to realize that we cannot succeed if we use DSM categories as the "gold standard."* The diagnostic system has to be based on the emerging research data, not on the current symptom-based categories. . . . As two eminent psychiatric geneticists recently concluded, *"At the end of the 19th century, it was logical to use a simple diagnostic approach that offered reasonable prognostic validity. At the beginning of the 21st century, we must set our sights higher."*

And so we have in very clear language an incisive critique of the DSM and of psychiatry as it is currently practiced. Insel's comments have merit, and his sentiments echo those of Allen Frances, the psychiatrist who chaired the DSM-IV task force. Frances vigorously opposed publication of DSM-V, because of the lack of scientific rigor in vetting and creating diagnostic categories.⁴ I am in full agreement with Insel that psychiatry and the mental health field are urgently in need of a paradigm shift. As Insel states in his introduction to the RDoC, it will not succeed if it is built upon the edifice of the DSM.

Fever Disorder: Moving Beyond Symptoms

If we look at the symptoms that drive the psychiatric diagnoses most commonly given to children, and to adults for that matter, they are generally very broad and do not point to the source of the illness any more than fever does. Lowering a fever can be of vital importance at the acute stage of an illness, but none of us believes that a steady diet of aspirin and cold compresses is in any sense a cure. The same is true of symptoms like hyperactivity and inattention. I often give my undergraduate psychology students the following exercise: generate 10 different reasons that a child might be hyperactive or inattentive. Hands fly up:

- Maybe he's eating a sugary diet.
- His parents are too permissive.
- He spends hours a day playing video games.
- He can't concentrate on his schoolwork because he is being bullied.
- He's got a big imagination.

... and so on. My students learn that a wide range of factors—prenatal exposure to stress hormones, drugs such as cocaine and alcohol, and environmental pollutants such as PCBs—are associated with attentional issues, as is neglect and abuse during infancy and childhood. And yet the belief that all children exhibiting hyperactivity or inattentiveness are suffering from the same well-understood, genetically influenced brain disorder, with objective diagnostic criteria and well-established treatment protocols, is widely held by parents and clinicians alike. I would argue that calling depression an illness is a similarly flawed notion, only slightly better than calling it a “weeping” disease. Even psychosis, which generally leads to a diagnosis of schizophrenia, has many root causes. To be clear, like fever, symptoms of depression and psychosis can be devastating and life threatening, at which time symptom relief becomes the top priority. But—in keeping with the NIMH's RDoC agenda—we need to move beyond the idea that everyone who is depressed, or psychotic, or hyperactive has the same disease, any more than we would assume that everyone who has abdominal pain, or headache, or fever does. In so doing, we can begin to address the underlying causes rather than just staunching the wound with a tourniquet.

Nature AND Nurture: Epigenetics

Most serious genetic research is now conducted through the lens of epigenetics: put simply, the understanding that environments, whether they be cellular or social, can activate or silence genes. In chapter 3, using the metaphor of a theater production, Richard Francis explains that the gene is more accurately understood as a member of an ensemble cast rather than as a director. Once we understand that genes, environments (“from neurons to neighborhoods”), and brain development are inextricably linked, there is no turning back. We can no longer categorize genes as “good or bad,” but rather as interacting in complex ways with hundreds of other genes, which are activated or deactivated by a complex array of environments.

Experience Expectant Brain Stimulation

An example of an epigenetic process is what developmental psychologists refer to as *experience expectant* brain stimulation.⁵ The human brain is born in an extremely immature state, which is why compared with other primates, we are so helpless at birth. Arguably, the two most distinctive features of human evolution are that we became two-legged and large brained. Becoming two-legged necessitated a significant redesign of the pelvis and birth canal, a redesign that does not easily accommodate our large-brained offspring. Hence our prolonged and somewhat complicated births. In order to survive birthing our babies, *all babies are born too soon*.⁶ The brain continues to mature at a rapid pace outside of the womb during the first few years of life, and then at a more moderate pace for the next two decades. Once outside the womb, *experience expectant* environmental stimulants—ones that we have evolved to expect through our long evolutionary journey—switch on the appropriate genes at the appropriate times to help orchestrate brain maturation. What are these *experience expectant* stimuli? They are nothing more and nothing less than the stimulation of all the senses through loving interaction with our caregivers, wrapped up in a relationship that psychologists call *attachment*. For this reason, as I discuss in chapter 4, the attachment relationship is essential for healthy brain development, which underlies mental health. These environmental catalysts for gene expression and brain development, which have evolved over the course of millions of years, are infinitely more effective than a *Baby Einstein* video. Conversely, when infants and children are neglected or abused, their emotional trauma, which can last a lifetime, can also be traced to epigenetic processes that undermine brain development.

A Multidisciplinary Lens

Insel stated in his NIH blog that the RDoC program will “transform diagnosis by incorporating genetics, imaging, cognitive science, and other levels of information to lay the foundation for a new classification system.” I could not agree more, that any meaningful advances in mental health must take place through a wide multidisciplinary lens. Advances in our understanding of

children's mental health have come from several different scientific disciplines, including developmental neuropsychology, functional neurology, environmental health, and developmental behavioral pediatrics, to name a few. We now know, for example, that prenatal exposure to environmental toxicants, depletion of micronutrients, and neglect or abuse in infancy and early childhood can alter gene expression, which in turn undermines brain development and function. We also know that the brain has far more plasticity—the capacity to change and grow in response to environmental stimulation—than we previously imagined, potentiating avenues for restoring mental health. This research moves us beyond merely cataloging symptoms and takes us to the source of children's psychological suffering.

The Pseudoscience of Children's Mental Health

On May 13, 2013, just two weeks after posting the blog in which he unveiled the NIMH's new research agenda, distancing it from the "19th century science" of the DSM, Insel issued a press release alongside president-elect of the APA Jeffrey Lieberman, in which he retracted his previous commentary on the DSM, claiming that in fact, the DSM and the NIMH's RDoC research program are not antithetical, but complementary

Today, the American Psychiatric Association's (APA) Diagnostic and Statistical Manual of Mental Disorders (DSM), along with the International Classification of Diseases (ICD) represents the best information currently available for clinical diagnosis of mental disorders. *Patients, families, and insurers can be confident that effective treatments are available and that the DSM is the key resource for delivering the best available care. . . . DSM-5 and RDoC represent complementary, not competing, frameworks for this goal.*⁷

In only two weeks, Insel moved from his position that the DSM "lacks validity," that its "symptom-based diagnosis . . . rarely indicate[s] the best choice of treatment" and therefore that "patients deserve better," to "patients . . . can be confident that effective treatments are available."

How do we make sense of this dramatic about-face? I believe that the earlier blog represents a rare, unvarnished glimpse of the truth from one of psychiatry's most powerful voices about his own discipline, whose diagnostic nosology is built on sand rather than science, and whose foundational principles cannot sustain or assist real advances in our understanding of human suffering. This wrinkle in the fabric of the discipline was quickly smoothed over by a consensus statement two weeks later by the two titans of psychiatry: the director of the NIMH and the president-elect of APA.

I could interpret this about-face on the part of Insel in a charitable way: Why alarm millions of patients suffering from mental health issues with the inconvenient truth that their diagnoses and treatments are not based in sound science? As Insel states in his original post, the RDoC is in its infancy and may

not have anything to offer clinically for a long time to come. I can understand the impulse to maintain patients' faith and optimism, especially if no other treatments are immediately available. But at the end of the day, it is patronizing and ethically questionable for clinicians to lie to their patients about the limitations of their understanding and the treatments that they offer, when real science and real treatment options with few (if any) adverse side effects are available. This shameless backpedaling gives higher priority to the reputation of the field of psychiatry than to patient care, in much the same way that partisan politics places party loyalty above the interests of the American public.

The Chemical Imbalance Theory and Drug Therapies

Many psychiatrists, if asked, will admit that the *chemical imbalance theory* of mental illness is simplistic and has little if any evidence to support it. Nonetheless, it is a meme that justifies the treatment of choice in psychiatry: medication.

It is widely believed that psychiatric drugs are rigorously tested and vetted by the Food and Drug Administration (FDA) and that they target well-understood chemical imbalances in the brain. In fact, the FDA only requires that two clinical trials prove that a given drug has a *statistically* greater effect than a placebo, regardless of whether these statistical differences have any clinical significance and of how many other clinical trials for the same drug fail to show a difference. Irving Kirsch's meta-analyses of the research on the efficacy of selective serotonin reuptake inhibitor (SSRI) antidepressants⁹ reveal that while antidepressants show a statistically significant difference over placebo pills (whose effectiveness in and of themselves is quite impressive), the difference is so small that it doesn't translate into a therapeutic improvement.⁹ Also, this statistical difference is attributable to the fact that antidepressants have a host of side effects, unlike placebo pills. Therefore, most patients in these trials "break blind," meaning that they can guess whether they are on an actual medication or not, which affects their expectations.

One of the biggest controversies surrounding the creation of the fifth edition of the DSM was whether it would include pediatric bipolar disorder as a new category. In the early 2000s there was a 40-fold increase in the number of children diagnosed with this disorder, driven largely by the research of Joseph Biederman, who was considered to be the leading figure in child psychiatry. In 2008 Biederman was investigated for violating conflict of interest policies by accepting more than \$1.6 million from Johnson & Johnson and promising a boost in sales of the antipsychotic Risperdal to pediatric patients, as documented in e-mails to Johnson & Johnson executives.¹⁰ One of the grave concerns about including pediatric bipolar disorder in the DSM-5 was that it would have continued to boost prescriptions of antipsychotics, already numbering in the millions, to children. Antipsychotics are known to perturb the nervous and endocrine systems and to cause brain atrophy and increase mortality when used

long term.¹¹ At the same time, there is no research to support their long-term efficacy. Although pediatric bipolar disorder was not included in DSM-5, largely because of its association with Biederman, disruptive mood dysregulation disorder (DMDD) was, despite the fact that it is widely understood to be a code name for childhood bipolar disorder. It is unclear at this early date whether this new diagnostic category will or will not stimulate prescriptions of antipsychotics to minors, but it is certainly not a diagnosis that has a foundation in research.

Beyond the Chemical Imbalance

Diagnostic procedures and treatments outside of the language of chemical imbalances and drug therapies are conveniently placed in a box called “alternative medicine,” which for many is a euphemism for “new age” medicine, or junk science. The irony, as Robert Whitaker documents in chapter 2, is that it is the chemical imbalance theory that represents junk science. How has psychiatry—with its history of insulin coma therapy, shock therapy, and today, the wholesale treatment of millions of children with dangerous and ineffective drugs for questionable diagnoses—become the gold standard against which other disciplines and treatment approaches are measured?

The belief in the “chemical imbalance” and the “bad gene” as the cause of children’s mental illness lives on as a powerful cultural myth. It is stoked by the pharmaceutical industry, which has identified children as a fertile market for its products, and by the health insurance industry, seeking an easy and cheap solution to complex psychological issues with multifaceted causes. Personal, family, and cultural factors, as well as more compelling biological explanations, are swept under the rug if they don’t result in increased drug sales and the promise of a quick fix. We might dismiss this as “business as usual” in corporate America if the stakes weren’t so high. As I have described in my last three books—*No Child Left Different*, *Bipolar Children*, and *Drugging Our Children* (with Brent Robbins)—the drug cocktails that millions of children are consuming, damage their developing brains and bodies, while the real source of their suffering remains untreated. But this does not negate the value of biological research.¹²

The Science and Pseudoscience of Children’s Mental Health exposes the myth of the *chemical imbalance* and the *bad gene* and introduces the science of epigenetics as a compelling conceptual framework for understanding the science of children’s mental health. It presents research on the role that the quality of prenatal and early childhood care plays in brain development and mental health from a multidisciplinary, epigenetic perspective. Authors present research that sheds light on the impact of neurotoxicants such as heavy metals and pesticides, as well as the salutary effects of micronutrients. The underpinnings of autism spectrum disorder and concussion syndrome are explored from a functional neurology perspective, which views the brain as a complex, dynamic system

with much greater plasticity than we have heretofore understood, opening the door to breakthroughs in diagnosis and treatment.

Notes

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2. S. Olfman, ed., *All Work and No Play: How Educational Reforms Are Harming Our Preschoolers* (Santa Barbara, CA: Praeger, 2003); S. Olfman, ed., *Childhood Lost* (Santa Barbara, CA: Praeger, 2005).
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5. A. Schore, *The Science of the Art of Psychotherapy* (New York: W.W. Norton, 2012).
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8. SSRI antidepressants increase the availability of serotonin in the brain.
9. I. Kirsch, *The Emperor's New Drugs: Exploding the Antidepressant Myth* (New York: Basic Books, 2010).
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11. R. Whitaker, "Weighing the Evidence: What Science Has to Say about Prescribing Atypical Antipsychotics to Children," in *Drugging Our Children: How Profiteers Are Pushing Antipsychotics on Our Youngest, and What We Can Do about It*, ed. S. Olfman and B. Robbins (Santa Barbara, CA: Praeger, 2012), 3–16.
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