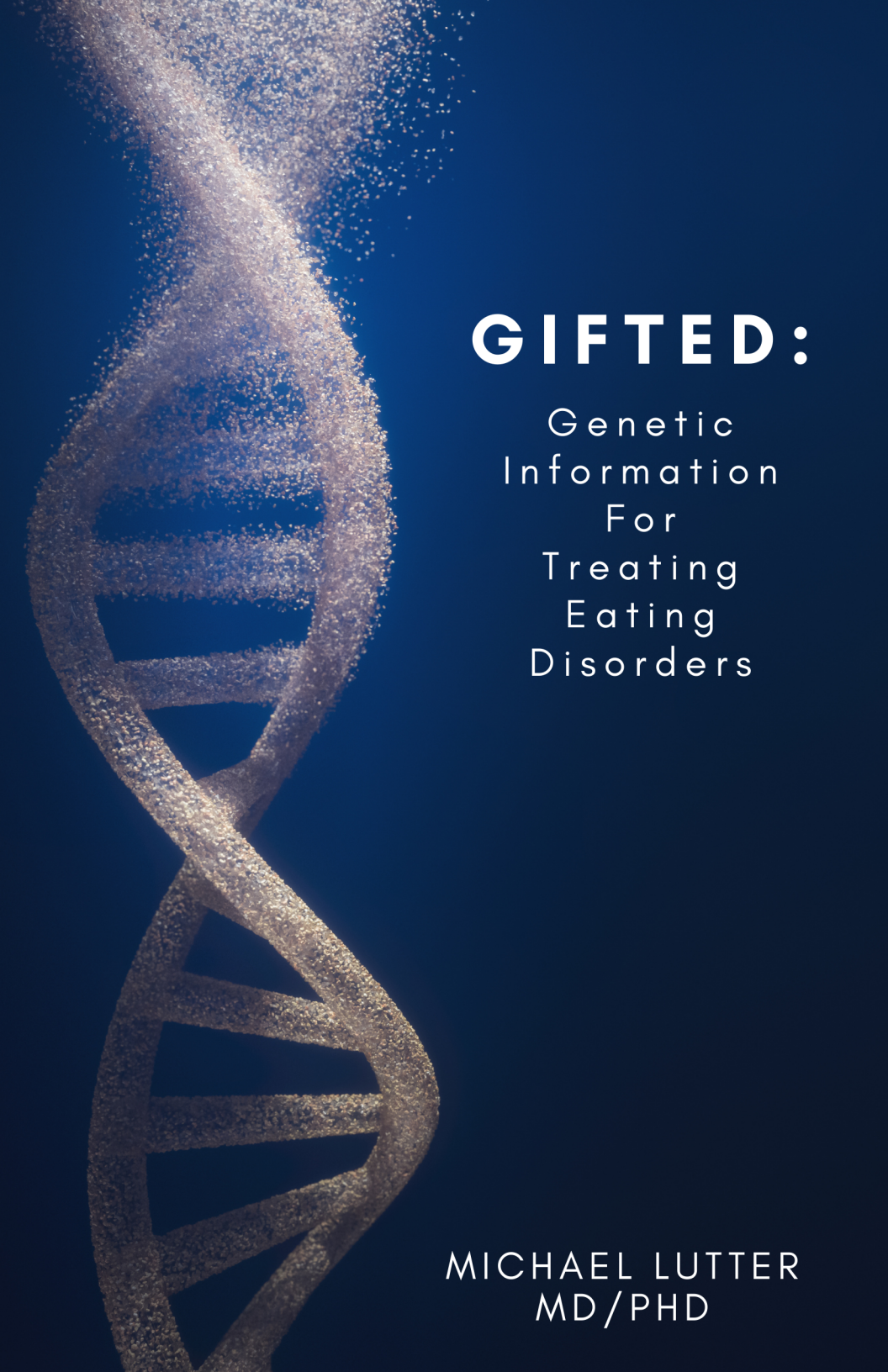
GIFTED:
Genetic
Information
For
Treating
Eating
Disorders
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Disclaimer: This book is not intended as a substitute for medical advice. The reader should consult a physician or medical provider in matters relating to his/her/their health and particularly with respect to any symptoms that may require diagnosis or medical attention.

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Chapter 1: Chest Pain Syndrome

In this first chapter, I present the concept of a syndromic illness. Syndromes are a group of symptoms that usually occur together, but for which there is no known cause. Syndromes are different from diseases for which there is a well-defined cause, often with specific diagnostic tests and treatments. Psychiatry remains the one field of medicine composed almost entirely of syndromes.

Imagine walking into a doctor's office with chest pain. The doctor proceeds to ask you a series of questions about your symptoms. What things does the pain prevent you from doing? Is your heart rate faster or slower than normal? Is your temperature higher or lower? Is your breathing faster or slower? Does the pain make it difficult to sleep or are you sleeping more because you are too tired?

After questioning you, the doctor determines that you have Chest Pain Syndrome, prescribes you a pain medication, and tells you to return in a month. You come back a month later and you still have the pain in your chest, so the doctor increases the dose and has you come back a month later. You return and the pain is no better, so this time he changes your prescription to a different pain medication. After another month without improvement in your symptoms, he adds a second pain medication that works slightly differently, so now you are taking two medications for your chest pain.

After four months of no improvement (assuming you are still alive) the doctor is baffled. "I'm not sure why this isn't working? About one third of people with Chest Pain Syndrome get better after one of these medications", they tell you. At this point, the doctor gives you a few more options: Try another pain medication, make some lifestyle changes, or receive electrical stimulation on the area.

The description of this scenario might make you think that it takes place 100 years ago. Today, if you walk into a medical office with chest pain there is an

extensive array of tests and procedures that can precisely determine the cause of the pain and identify the right treatment. Doctors call this process a ‘work-up,’ and it is important to not only receive proper treatment, but also to avoid the trial-and-error process of trying multiple treatments since receiving the wrong treatment costs time and money, exposes you to the risk of side effects, and, in the worst-case scenario, can make your symptoms worse instead of better.

In the case of chest pain, a medical work-up tries to determine if it is caused by a heart attack (lack of blood supply to the muscle of the heart), pneumonia (viral or bacterial infection of the lungs), pulmonary embolism (blood clot to the lung), aortic dissection (tear in the wall of the major blood vessel leaving the heart), pleural effusions (fluid on the lining of the lungs), or a tension pneumothorax (a tiny hole in the chest wall that allows air to get trapped between the lung and the chest wall). Each of these causes is medically addressed by a distinct treatment that directly targets the cause of the chest pain, resulting in relief of the symptoms. Such medical workups are standard in most fields, but this approach does not currently exist for psychiatry.

As crazy and imprecise as this seems, this trial-and-error approach is a pretty close approximation of the current state of psychiatry. All the major psychiatric diagnoses remain syndromes, which means that instead of using tests to diagnose a disease, we use checklists of symptoms reported by the patient and signs observed by family members or clinicians. Major depressive disorder (or major depression) is a good example of this problem. Major depression is a common problem affecting 15-20% of people in their lifetime and as many as 5% of people are chronically depressed globally. Major depression is considered the number one cause of lost days of productive life in the world and is a major factor contributing to suicide, which is one of the top 10 causes of death annually[1].

In order to be diagnosed with major depression, you need to have one “mood symptom” (feeling either sad or irritable), plus four of the remaining eight

[1] https://www.who.int/news-room/fact-sheets/detail/depression

symptoms listed in the diagnostic criteria. These symptoms include lack of motivation, difficulty concentrating or making decisions, lack of energy, changes in physical activity, changes in appetite, changes in sleep, feelings of excessive guilt or worthlessness, and suicidal thoughts. Three of the criteria for major depression can change in either direction. Take physical activity, for example. In order to meet the physical activity criteria of major depression, you can either feel restless like you can't sit still or feel slow like you are stuck in mud. For appetite, you can either have no appetite and lose weight, or you can have increased appetite and gain weight. For sleep, you can either have trouble falling or staying asleep, or sleep too much.

When I was going through medical school and psychiatric residency, this discrepancy really bothered me. I knew enough about the neurobiology of sleep and appetite to know that lack of sleep/appetite are completely different processes in the brain than increased sleep/appetite. Yet, within the field of psychiatry, this contradiction is not a problem at all. Consider the case of two patients both diagnosed with major depression: The first person could be sad and not enjoy anything, have no energy, sleep all day, not take showers, change clothes, or brush their teeth for days, and feel like their arms and legs are heavy and difficult to move. The second person could report symptoms of feeling irritable and easily angered, restless like they can't sit still, not be able to sleep, and have no appetite. According to the current psychiatric diagnostic guidelines, they both have the same diagnosis of major depression, even though they *don't have a single symptom in common*.

Without knowing the cause of psychiatric disorders, prescribed treatments are bound to be imprecise. Almost all the current treatments for psychiatric disorders were discovered by chance observation and are used in a process very close to trial and error. A one in three recovery rate after treatment seems low for most fields of medicine (it certainly would not be tolerated for patients presenting to the emergency department with chest pain), but is common for the treatment of depression, psychosis, and substance abuse. In the example above of the two depressed patients, both would qualify for the exact same set of treatments, working through each treatment stepwise

until one medication (or combination of medications) is found to be effective. Similar protocols exist for anxiety disorders, bipolar disorder, and schizophrenia.

But how did psychiatry get to this point? Other fields of medicine have syndromes as diagnoses, like chronic fatigue syndrome or irritable bowel syndrome, but these tend to the exception. Psychiatry, however, is composed almost entirely of syndromic diagnoses. That is, we have no objective ways of identifying the cause of psychiatric symptoms, and almost no rational treatments. We know that psychiatric illnesses are a combination of genetic risk inherited from your parents and environmental stressors, but so far, we have had little success untangling the complex relationship between how mutations in your DNA interact with your life experiences to produce symptoms of sadness, worry, hallucination, persistent drug and alcohol abuse, compulsive hand-washing, or a fear of eating. In the coming chapters, I will present my theory that psychiatric researchers have historically made the wrong assumptions on how genetic variations increase the risk of mental illness, and that entrenched institutions have discouraged the field from shifting to new approaches. Additionally, I will present examples of better ways to diagnose and treat patients and discuss what must be done to truly revolutionize the field of psychiatry.

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