Cult Med Psychiatry (2022) 46:76–100
https://doi.org/10.1007/s11013-021-09737-2

ORIGINAL PAPER

‘The Explanation You Have Been Looking For’: Neurobiology as Promise and Hermeneutic Closure

Joseph E. Davis[1]

Abstract The biomedical aspiration of psychiatry has fundamentally reoriented clinical practice since the DSM-III in 1980 and reverberated in the public sphere. Over time, lay public understanding of the causes of mental suffering has increasingly endorsed biological conceptions. In this paper, I explore the sources from which a neurobiological model for mental suffering reaches ordinary people, and investigate its rhetorical appeal, personal appropriation, and consequences. Drawing on interviews and other data, I show that these sources—physicians, popular media, and advertising—share common ontological and moral assumptions. These assumptions, in turn, influence how people take up neurobiological explanation to account for their suffering, and how, paradoxically, they join it to their projects of self-determination. I conclude by considering how, from a phenomenological perspective, a neurobiological account fails to enhance self-knowledge or determination but leads to a hermeneutic dead end.

Keywords Psychiatry · Neurobiology · Chemical imbalance · Self · Narrative · Account

Introduction

In the 1950s, professionals, under the influence of Freudian ideas, began to redefine common forms of stress and anxiety in psychiatric terms just as new classes of psychotropic drugs for the general population were coming on the market (Herzberg

---

✉ Joseph E. Davis
jed8m@virginia.edu

[1] Institute for Advanced Studies in Culture, University of Virginia, 3 University Circle, Charlottesville, VA 22903, USA

2009). By the early 1970s, people were using prescription psychotropic drugs at rates comparable to today and psychotherapy was a growth industry (Parry et al. 1973: 774). But much of this practice—taking drugs and seeing a therapist—was conducted within a broadly psychodynamic frame of reference, with little recourse to somatic theories, disease models, or even medical diagnoses. All this began to change in the 1970s, when, especially in light of existing drug use, psychiatry began a decisive "biologization" of everyday forms of psychic suffering centered in the development of a new diagnostic language of mental disorders (Whooley 2019; Wilson 1993).

The new language would displace not only older psychological categories, such as neuroses, but vernacular ways of talking about many personal troubles as well (Whooley 2019: 173, 182–183). It would shift clinical practice toward medication and short-term behavior therapies and pave the way toward a wider conceptualization of most disorders as biological in nature (Mojtabai and Olfson 2008; Rose and Abi-Rached 2013). Despite a claim to be atheoretical with respect to etiology, the whole range of mental disorders would come to be regarded as primarily physical illnesses, "just like heart disease or diabetes" to quote the American Psychiatric Association (Davis 2020; Harrington 2019; Whooley 2019).[1] Other institutions, from pharmaceutical companies to anti-stigma campaigns to the popular media, followed suit and heavily promoted biogenetic causal explanations for mental health problems as well as the use of medications.

Over the same time period, the lay public across the industrialized countries has also increasingly come to share a biological view of mental distress and place increased trust in pharmacotherapy (Pescosolido et al. 2010; Schomerus et al. 2012). The consequences of this conceptual shift on lay beliefs and attitudes has been the subject of considerable research. Many studies have been concerned with the specific question of stigma. They conclude, almost uniformly, that attributing mental disorder to biological forces, by both the general public and patients, exacerbates stigmatizing attitudes and behavior toward those with mental illnesses (e.g., Angermeyer et al. 2011; Larkings and Brown 2018; Malla et al. 2015). Related studies have explored the relationship of biological beliefs among patients to treatment and prognostic expectations (see Lebowitz 2014 for a review; Schroder et al. 2020). Some studies have also considered the impact of biological beliefs on identity in the context of medication prescribing and use (e.g., Karp 2006; see Malpass et al. 2009 for a review). However, the uptake and engagement with these ideas by ordinary people remains understudied (among exceptions, see Browne 2018; Carpenter-Song 2009b; Stepnisky 2007). About what biological ideas mean for self-understanding, we know far less.

In this paper, I explore the channels through which a neurobiological model for mental suffering, popularly known as a "chemical imbalance," reaches ordinary people and with what promises to them and consequences for them. My evidence is drawn from interviews with members of the lay public about how they account for everyday suffering, as well as related studies and the writing of psychiatrists. I begin

---

[1] American Psychiatric Association, "What is Mental Illness." https://www.psychiatry.org/patients-families/what-is-mental-illness.

with the rhetorical reasons that prompt health professionals to convey neurobiological ideas to patients. Next, I consider how the clinical terms and reasons compare with other sources of information people have been exposed to, including from popular media and direct-to-consumer advertising. These sources are not at odds with doctor communications, I show, but share the same ontological and moral assumptions and work to shift explanation away from personal experiences and social circumstances. These assumptions, in turn, shape how people take up neurobiological explanation to account for their suffering, and how, paradoxically, they join it to their projects of self-determination. I conclude by considering, from a phenomenological perspective, how a neurobiological account, rather than enhance self-knowledge or awareness of the world, closes it off.

Methods

In addition to published research studies, I draw on in-depth interviews that I and researcher assistants conducted with people dealing with common mental health problems ($N = 80$). Potential interviewees were recruited through advertisements, which asked if they struggled with sadness, anxiousness in social situations, or concentration and attention issues and would be willing to talk about their experience. The ads ran on Craigslist and were posted in public places in four U.S. cities. Those who responded, ages 18 and over, were prescreened for eligibility. Because the study was concerned with everyday struggles, I excluded those with such diagnoses as schizophrenia, bipolar disorder, and post-traumatic stress disorder, those who had ever been hospitalized, and those taking the types of medication, such as antipsychotics, normally prescribed to those with serious conditions.

In choosing interviewees from among those who responded, the aim was to assemble a purposive sample (qualitative research is not representative). The final sample included men (27) and women (53), minority (7 Asian; 4 Hispanic, and 16 Black) and white (53) interviewees, and a mixture of those from higher and lower socioeconomic statuses. For the sake of comparison, interviewees were sought with different treatment experiences, whether on medication or seeing a professional therapist or counselor, along with a control group of those who had not sought treatment but were coping in other ways. Overall, two-thirds of interviewees had seen a professional at least once ($N = 53$), and many had experience with both medication and psychotherapy. Slightly more than half of interviewees were on a medication ($N = 43$), almost all for depression, social anxiety disorder, or attention deficit hyperactivity disorder, and about half ($N = 39$) of interviewees had some experience with psychotherapy, in most instances quite brief.

As other research has found (Goldstein and Rosselli 2003; Iselin and Addis 2003; Khalsa et al. 2011), there is a relationship between the form of treatment (if any) that people engage in and the way they understand the source of their struggles. To explore this relationship, the sample was designed to include at least some cases in the 4 cells of a 2 by 2 table of explanatory model (biological or psychological) and primary form of treatment (medication or psychotherapy). In the final sample, most of those who located the source of their struggles in a biological malfunction were on medication, sometimes with adjunct psychotherapy (*N* = 28). But there were also a few cases of people with this orientation seeing a psychotherapist alone (*N* = 4) or not pursuing any treatment (*N* = 4). Most of those who took a more psychological orientation to their suffering were not pursuing any treatment (*N* = 21), but a number were on a medication (*N* = 12), and a few were seeing a psychotherapist alone (*N* = 3). Finally, an outlier group took what might be called a solely circumstantial view of their struggles, neither biological or psychological, and either took a medication (*N* = 3) or had not pursued any professional treatment (*N* = 5). In this paper, I focus primarily on the interviewees with a biological orientation.

The semi-structured, 2-h, interviews sought to elicit the story of the struggle interviewees were experiencing, how it was affecting them and their situation, and what steps they were taking to ameliorate their predicament or rise above it. The common problems they described fell into roughly four categories, included shyness and painful self-consciousness in social situations, underperformance at work or school, struggles after the loss of a significant relationship, and disappointment with how their life was unfolding. We asked their view of the cause or reason for their suffering, sources of information they had pursued, and whether their understanding of the nature of their struggles had changed over time. We asked about their interactions with professionals, if any, and their experience with treatments, whether medication or some form of counseling. We asked about others they may have shared their struggles with and those whom they would not tell and why. The interviewee stories were thematically coded to identify the patterns in sources of information, models of explanation, normative expectations, and identity concerns that shaped how they understood their suffering and acted with respect to it (for a broader analysis of the data and description of the sample and method, see Davis 2020).

The Growing Hold of Biological Explanations in Popular Views

For ordinary people, biology is a new framework for thinking about mental health problems. In the early 1960s, for example, researchers administered all of the 62 patients at the Colorado Psychopathic Hospital of the University of Colorado, Denver, a 100-item questionnaire exploring their attitudes toward psychiatrists, psychiatric illness, treatment, and hospitalization. The patients suffered from a wide range of problems—“neurosis, psychosis and character disorder”—and stayed, on average, a total of three months. “Our patients,” the researchers summarized, “tended to conceive mental illness in largely psychological terms … They saw it as concerned with feelings and emotions and disagreed that it was on a hereditary basis” (Jones, Kahn, and Macdonald 1963:83). And they viewed psychiatrists as working mainly with feelings and emotions, as requiring knowledge about their personal life in order to treat them, as aiming to teach them better ways of living, and as helping to find the “emotional causes of their illness” (Jones et al. 1963:83, 86).

This study was the first I could find that inquired into how people who receive mental health care explain their condition and their treatment. Involving individuals with problems serious enough to require hospitalization, the Colorado study found a distinctly psychological explanatory perspective and a commitment to psychotherapy. Over the years, a very limited number of further studies like it have been done in the United States. These studies have found that most patients place far more emphasis on psychological issues or adverse life events than on biogenetic factors, and among possible treatments, prefer psychotherapy (e.g., Addis, Truax, and Jacobson 1995; Wall and Hayes 2000; Weinstein and Brill 1971). Over time, however, explanation and preference have been changing. The lay public has increasingly come to share a biological view of the roots of mental distress.

Among those who have received mental health treatment, explanatory factors such as heredity and brain malfunctioning have grown in relative importance in recent decades in the US and throughout much of the industrialized world (Van Voorhees et al. 2005; Goldstein and Rosselli 2003; Prins et al. 2008; Read et al. 2015). The same trend also appears in broad public surveys of views about mental disorders and help-seeking. A comparison of findings from the 1996 General Social Survey (GSS), a nationally representative survey of the U.S. public, and the 2006 GSS, for instance, showed a significant increase in the percentage of the public that endorsed “chemical imbalance” and “genetic problem” as possible causes of depression and schizophrenia. The study also found an increase in public endorsement of medical treatment and prescription medicine for both conditions (Pescosolido et al. 2010). Similarly, a comprehensive review and analysis of studies of the public from many countries found a “coherent trend... towards a biological model of mental illness,” with the highest rates in the United States (Schomerus et al. 2012).

To be sure, in all these studies, endorsements of psychosocial factors remain common, as do endorsements of psychotherapy (McHugh et al. 2013; Link et al. 1999; Schroder et al. 2020). Ordinary people do not take what philosophers call an “eliminative reductionist” perspective, the perspective in which higher-order psychological processes, such as thoughts, emotions, and behaviors, are *completely* explained by more fundamental biological processes (see also Bann et al. 2004; Fullagar 2009:403). But the overarching trend has moved toward an ever-stronger endorsement of biological causes and medication, especially among those who have personally dealt with mental health problems.

The Sources Shaping Popular Perceptions of Brain Malfunctioning

Most interviewees who attributed their suffering primarily to neurobiological malfunctioning had but a very general sense for the influences on their understanding. In response to questions, some specifically identified their doctor as a primary source. Other interviewees noted the general influence of popular media and pharmaceutical advertising. All of these sources have been noted in the research literature (Deacon and Baird 2009; Fosgerau and Davidsen 2014; Lacasse and Leo 2005; Leo and Lacasse 2008). They convey, I will argue, very similar ontological and moral presuppositions.

Although not a source in the same sense, it is important to note the mediation of family and friends. By now millions of people have direct experience of being diagnosed and prescribed psychoactive medications. When individuals confront mental health problems, they generally do not do so alone (Horwitz 1982). They turn to carefully chosen confidants, whether friends or family members, for advice and support. It was these confidants' prior experience—variously with doctors, diagnoses, or medications—and feedback (and in a few cases, shared pills or shared information sources) that often played a crucial role in interviewee decisions about help-seeking and treatment. Abby, for instance, gets very flustered trying to make oral presentations at work and worries a lot. She started an antidepressant in the past year for social anxiety at the urging of her partner, who Abby says, "is all into psych too," and "knows all about medications and everything." Her partner "also has anxiety, so she was taking something [and] she just thinks that I would benefit from it because she knows how I get … So, I finally decided to do it." Although interviewees like Abby did not speak of confidants as advocating that they adopt a neurobiological explanation of their experience, once set on a medical course and diagnosed, they often arrived at one.

However, contra what has been argued by some (e.g., Karp 2006:64; Keller 2007), taking medication did not, of itself, lead to a biological account. As the history of drug taking from the 1950s to 1980s suggests, and interviewees who took medication without such an account demonstrate, taking psychoactive medication does not automatically set in motion or require a primary explanation in biological terms. Some interviewees spoke of their medication experience as reinforcing their belief in biological causation, but across the board the belief appears to have always been prior to starting a drug regime.

Physicians

While there do not appear to be studies of doctor-patient communication concerning biological explanations of condition genesis, there is considerable qualitative evidence that such explanations are routinely offered in clinical practice (Cohen and Hughes 2011; Fosgerau and Davidsen 2014; France et al. 2007; Fullagar 2009; Lacasse and Leo 2015; Schreiber and Hartrick 2002). In recent years, as "chemical imbalance," as a causal explanation for mood and other mental disorders has become the subject of controversy, some psychiatrists have insisted that this explanation has never been widely communicated to patients. The most prominent figure to address this issue publicly is the psychiatrist Ronald W. Pies, a professor at Tufts University School of Medicine and former editor of *Psychiatric Times* (Lacasse and Leo 2015:208). In several articles in the *Times*, he has argued against the idea that psychiatrists have been communicating to patients the simplistic theory that mental disorders are *wholly* caused by a chemical imbalance. This idea is a "myth" and an "urban legend" promoted by drug companies, according to Pies, and he has never heard a "knowledgeable, well-trained psychiatrist make such a preposterous claim" (Pies 2011a). What they have articulated to their patients, Pies maintains, from his experience of listening to “hundreds of psychiatrists” over the years, is something like this:

> We believe depression may be caused by a combination of biochemical abnormalities in the brain, psychological factors, and environmental stresses. This antidepressant may help address the biological issues, while ‘talk therapy’ can be helpful for the other issues. (Pies 2019)[2]

But Pies’ objection is a red herring. In seeking to exonerate his field, he accepts the idea that patients endorse some simplistic “imbalance” view of disorder and medication effect. However, as the surveys cited above indicate, there is no evidence that the lay public has adopted any such simplistic, or “pop-conception,” to use his phrase. My interview data also speaks against the notion that ordinary people endorse a *purely* biogenetic causal theory. Even those interviewees who took a strongly neurobiological perspective on the cause of their suffering typically qualified it with some references to other contributing influences, whether their personality or their circumstances. At issue for interviewees, apparently like Pies’ psychiatrists, was which explanation, biological or psychological or social, they prioritized.

Ella, for example, is working various temporary jobs and hoping to return to school. She was first diagnosed with depression as a teenager, shortly after her mother’s death. Despite some resistance from the African-American community, which she describes as unsympathetic to the reality of mental illness, she has come to the view that her problem is mainly “a chemical thing in the brain.” But she notes other factors too, attributing some of her feelings to the tragic death of her mother and to her tendency toward “taking things hard.” Though the chemical explanation is central, Ella did not take an entirely one-dimensional medical view of her struggles.

In fact, what many people report hearing from their doctors was not inconsistent with what Pies claims psychiatrists tell patients. Many interviewees had seen a psychotherapist, either before or while taking a medication, and some had done so at the suggestion of their psychiatrist or general practitioner.[3] In at least a few cases, interviewees report their doctor offering “differing opinions on what causes it [depression] and what doesn’t.” These words are from Rob, struggling with a history of painful romantic breakups. Among the proffered possibilities, he recounts, his doctor “explained the neuroreceptors with the serotonin thing in your brain.” Rob was reluctant to try medication but felt his earlier psychotherapy hadn’t resolved the “problem once and for all.” He seized on the serotonin explanation: “well maybe that’s it.”

---

[2] Studies of mental health professionals find a similar tendency to separately classify patient symptoms or conditions as biogenetic or psychosocial and to view treatments accordingly, with psychotherapy regarded as significantly less effective when they believe that patient symptoms are caused by biogenetic factors (Lebowitz and Ahn 2014).

[3] Psychotherapists, in turn, also recommend the use of medication. According to a study of national trends, published in 2010, more than two-thirds of those who received psychotherapy also received a psychiatric medication (Olfson and Marcus 2010).

The context of the physician communication is required to understand such exchanges. The doctor-patient encounter is not some sort of educational session for the conveying of abstract, experience-distant concepts or theories. Nor do people get sent home with a psychiatry or neurobiology textbook to read. Rather, the doctor engages a patient about a very personal and painful experience, in a practical effort to address a crisis and search for answers. It is in this emotionally-laden, problem-solving, and time-delimited context that physicians speak and are heard.

The following observation from a prominent psychiatrist provides a sense for the circumstances in which talk of neurobiology often arises.

> When I find myself using phrases like "chemical imbalance" and "serotonin deficiency," it is usually because I'm trying to convince a reluctant patient to take a medication. Using these words makes their illness seem more biological, taking some of the stigma away from having a mental illness. The implicit message I deliver in using such language is 'your illness is biological, it is not your fault, and you are not going to be able to cure it by thinking it away.' (Carlat 2010: 75; see also Pies 2011b, who offers the same rationale)

The doctor admits that he falls into this way of talking with patients "all the time" (Carlat 2010: 75). Although "chemical imbalance" is a "myth," he says, it is a "convenient myth" because it helps patients deflect responsibility for their condition and gives psychiatrists "something to say when patients ask us questions about pathophysiology" (Carlat 2010: 13) or about how the drugs work, or to "enhance the placebo effect" (Carlat 2015).

In our interviews, many people spoke of a similar dynamic in their clinical experience. If their doctor spoke of biological causation—which could take various forms, including chemical imbalance or faulty wiring or genetic inheritance—the main reason, interviewees suggested, was rhetorical. References to a (minor) biological problem were made in the context of efforts to persuade them to either begin a medication or stay on the one they were already taking. Eric, for instance, sought help from a physician about a "meltdown" he was experiencing in his stressful work environment. In a single appointment, she diagnosed him with generalized anxiety disorder and recommended medication. According to his account, he was "game" to try medication but also worried about side effects and what it would do to him. She smoothed his acceptance by explaining "sort of the neurochemistry to me." Further, as other interviewees also noted, his doctor sought to normalize the psychotropic prescription—"twisted the idea in a positive light," in Eric's words—by comparing his condition to the types of physical problems doctors routinely treat with drugs. In Eric's case, it was high blood pressure (a common reference point along with diabetes). His doctor, notes Eric, did not rule out other steps he might take to relieve stress and anxiousness but emphasized that without medication they would be insufficient.

According to interviewees, introducing a biological explanation was also a way for the clinician to put an affirmative light on their situation and convey a positive prognosis. Lisa, for instance, a small business owner, said that in seeking to overcome her misgivings, her doctor explained her condition in terms of faulty brain wiring, what Lisa called a "nerve symptoms thing that's going on in the brain." The physician provided her with "the real explanation about the SSRIs and what they do," which Lisa found the "most helpful thing" because it helped her not to blame herself and "realize that if I had a heart problem, I would take medication to make sure my heart is okay." In a similar way, she says, the doctor reassured her that for her brain miswiring problem, "you're just taking stuff to make that better." And when Lisa is tempted to believe that "if I could just handle things better, I wouldn't need to be on meds," she now stops and says "no, look at the science."

Overall, only a minority of interviewees—only those, it seems, who expressed resistance to medication—recall their doctor addressing the question of problem causation (though some could simply not remember what their doctor might have told them). A larger number report that they had already come to see their struggle as involving faulty genetics, neurochemistry, brain wiring, or the like. Based on other sources of information, they came to the initial doctor visit convinced that they had a particular condition and needed medication. No persuasion from the doctor was necessary, and discussion of their symptoms, diagnosis, and prescription proceeded with little or no reference to underlying causes. In most of these cases, interviewees reported that their clinician agreed with their assessment of their problem and need for medication (in a few cases of disagreement, the patient changed doctors). Although a small number believed their explanatory understanding would not necessarily be accepted by their physician, most seemed to assume that by making the diagnosis and writing the prescription, the doctor was confirming their biological view of causation as well.

The assumption of shared understanding was grounded in the biomedical view that interviewees already took toward diagnostic categories. The medical diagnosis made suffering "real" by giving it a physical status and linking it to a system of expert and recognized knowledge (Jutel 2011). Andrew, for instance, struggled with profound feelings of emptiness after his father left the family, and eventually went to see a psychiatrist. The doctor, according to Andrew, "didn't tell me I had a nerve imbalance. He just diagnosed it." Understood in this way, Andrew's depression diagnosis and the prescription of medication was "kind of life-altering." It was "an affirmation," Andrew states, "that you actually have real problems…. not stupid and petty problems like you keep saying they are. They are not things that you can simply just talk out."

Like Andrew, many interviewees cited the fact of a formal diagnosis as conferring a special facticity and legitimacy on their suffering. They too contrasted "real," objective problems with soft, subjective issues that are "petty" or intangible, that you should be able to "just talk out." The diagnosis confirms, as another interviewee, Jenna, put it, that there is "really something wrong with me." Her struggles are not feigned or "all in one's head" and so medication is something she really needs. In this dichotomy, "real" always appeared to mean physiological and to indicate medication as the appropriate intervention. Some interviewees, in fact, who avoided seeking medical help or resisted a diagnosis did so because they worried that a doctor might think they have a "real" problem in this somatic sense and prescribe drugs. For example, Maya, a college student, is emphatic about avoiding a doctor for her "chronic sadness." The "accepted methodology," she says, is that "people are depressed, and there is something chemically wrong with them. The only way it can be fixed is chemically…. I don't want to be clinically depressed because that means that I'll need drugs or something and that is horrible."

Even when doctors did not explicitly discuss causation, then, the very acts of diagnosis and prescription can and often do tacitly convey a neurobiological perspective. So too does the very structure of psychiatric practice, which reproduces the unwarranted separation that Pies and the psychiatrists he refers to make between "biological issues" and "the other issues." There is no scientific knowledge of mental health problems that would permit a sufferer's experience to be divided in this way. Pies' own multidimensional model, the biopsychosocial, often professed in psychiatry, stresses that causation and course involve a complex and little understood *interaction* of biological, psychological, and environmental factors. In this model, the factors are not separate or separable (Clark et al. 2017).

Yet, the practice of the profession divides up patient experience on just this biological issues/other issues distinction. Since the DSM-III, psychiatry has reconfigured itself, progressively withdrawing from the practice of psychotherapy (Mojtabai and Olfson 2008). Psychiatry sessions now center on pharmacotherapy, med checks, and symptom alleviation (Gardner and Kleinman 2019). Drugs, as one interviewee, April, reports her doctor saying, "are the things that I can offer." When psychiatrists do recognize the need for psychosocial interventions, they often farm this task out to others—therapists and social workers, who are typically of lower professional status. The practice even has a name, the "split-treatment" model (Gutheil and Simon 2003). Any discussion of psychological problems and social circumstances is being carried out elsewhere, if at all, and even if so, on a very short-term basis. The "other issues," lacking the prestigious ontology of natural science, are likely to appear ambiguous and insubstantial by comparison. The very reasons why doctors might introduce biological explanations to patients—to make the problem "seem more biological," the patient feel less responsible, and the medication an appropriate and necessary (though not sole) response—drives this devaluation home.

Popular Media and Advertising

Doctors, either through their direct communications or through the broader structure of practice, play a very important role in conveying neurobiological ideas to patients. Yet, many interviewees came to the doctor with preformed ideas about their problem and what they needed. In almost every case, their entry into the medical orbit had already been influenced by their confidants, many of whom had their own psychiatric experience. But they had other, prior information as well. When asked about sources of information they had encountered or consulted, many interviewees mentioned exposure to Internet sites, chat rooms, social media, books, and newspaper or magazine articles. Like most Americans (Aikin, Swasy, and Braman 2004), they had seen TV or social media direct-to-consumer (DTC) ads for prescription psychotropics.

While few could remember the specifics of what they had seen or heard, many of those taking a medication reported identifying with representations of suffering they saw in these media—they "matched up with me," according to Piper, who followed up with a visit to a psychiatrist: "I went in there and I was like, 'I think I have this.'" Her doctor concurred. Another interviewee, Georgia, was experiencing sadness and a tired, overwhelmed feeling after first she, and then her husband, were laid off from their jobs. She reported finding ads and things she was reading helpful for knowing which drugs were available and giving her "an idea where to start and do research on the particular drug or medication and get an idea and some feedback before you even go to your doctor." Even interviewees who had never taken a medication expressed an easy familiarity with common diagnostic categories, drug names, neurotransmitters, and the sorts of behavior, emotion, or limitations considered symptoms worthy of medical attention. These sorts of mental health messages are widely circulating.

Popular sources of the messages are nearly limitless. In additional to pharmaceutical advertising, the list includes everything from national "screening days," to educational programs and seminars, to medical websites, to the ongoing flow of commentary and autobiographical stories in newspapers, magazines, books, online patient communities, and social media. Studies of the mass media show how medicalized the communications from these sources have become. A 2009 study, for instance, explored representations of depression in US and Canadian high-circulation magazines, such as *Forbes*, *Newsweek*, and *Redbook*, over the twenty-five-year period from 1980 to 2005. The trend over this period, the researchers found, showed a sharply intensified biomedical understanding of depression, with the putative causes shifting from primarily normal life transitions and social experiences after 1990 to an almost exclusive focus on malfunctioning in the body/brain. Magazine articles in the 1980s suggested many possible responses to depression, including therapy, social support, and exercise. But by the 1990s and after, the focus is on getting expert help, and the solution is "almost unilaterally drugs" and "sometimes psychotherapy as an adjunct to medication" (Clarke and Gawley 2009: 97, 99).

The message of contemporary pharmaceutical DTC advertising, appearing in print, television, and digital media, is even more biological. DTC ads generally describe the causes of conditions like depression and the anxiety disorders in somatic terms, such as a chemical imbalance. Many ads used to carry little dramatizations of neurons firing to illustrate how the drug "corrects" the imbalance. More recent ads express the physical nature of the problem with such language as "real" or "serious medical condition." On their websites, however, which are referenced in the ads, the pharmaceutical companies continue to present the imbalance idea (Demasi and Gøtzsche 2020). The website for the antidepressant Pristiq, for example, explains that "while no one knows for certain what causes it, experts believe that depression results when certain chemicals in the brain are out of balance."[4]

---

[4] Further, according to the website, the drug "is thought to work by affecting the levels of … two brain chemicals [serotonin and norepinephrine], both thought to play a role in depression." https://www.pristiq.com/faqs (accessed Feb. 9, 2021). See a very similar idea at the website for the antipsychotic medication Rexulti, one of the most highly advertised drugs on TV in recent years and marketed as an adjunctive treatment for depression symptoms. https://www.rexulti.com/us/mdd/why-rexulti (accessed Feb. 9, 2021).

DTC ads emphasize that disorders like depression, attention-deficit, and social anxiety are very common and need not inhibit success or limit opportunities. They depict the sufferer as outside of any social context, as an isolated and troubled figure. They invite us to identify not with a person but with an impairment and with an explanation in terms of a medical condition that robs persons of their agency, prevents them from enjoying life, and may very well cause them to neglect others (Dumit 2012). Counseling is not mentioned (though it sometimes is on the drug websites), nor any indication given of how long the drug might be required. The ads offer a choice and the availability of help, help that will set the sufferer on a positive trajectory. The after-treatment images in the ads represent the promise of a positive outcome. A better life awaits (Davis 2020; Metzl 2003).

The message of neurobiology in such advertising overlaps with the popular media representations and follows the same script as the doctors. There is a similar ontological claim. Diagnosable conditions have causes, and though “no one knows for certain” what these are, they, “just like” other medical problems, involve the physical body and so the body is an essential target of intervention. There is a similar moral claim. The sufferer is not responsible for their painful experience because a dysfunctional physiological mechanism is at work in them nullifying their agency. There is a similar reason for making these claims, namely, to foster a positive prognosis and the positive role that medication may necessarily play in bringing about a more stable, richer, and less inhibited life. And, with respect to these claims, the value of other interventions is not so much explicitly denied as effectively rendered marginal, subsidiary, optional.

The Reception of Neurobiological Language

While interviewees identified various sources of influence on their thinking, their explanatory constructions should not be confused with professional discourses or read as efforts to reproduce them (Wynne 1991). People were not talking about a reality independent of their awareness and evaluative stance, some value-neutral facts out in the world. How they imagined the genesis of their suffering and appropriate intervention reflected their active, responsive efforts to reconcile their experience with social norms and with concrete associations based in their personal history. Across the interviews, there was heterogeneity and no single explanatory format or coping technique commanded common assent.

There were clear patterns, however, in how people took up neurobiological language and pharmaceuticals as social objects or narratives to make sense of and alter the trajectory of their lives. These patterns demonstrate the power of the public and culturally shared medical languages, metaphors, and models to shape what constitutes legitimate explanation and intervention strategy. But they also show how people appropriate such language for their own purposes and in a way that its purveyors may not intend (Carpenter-Song 2009a).

One consistent pattern, noted above, was the contrast that interviewees commonly drew between the “real” somatic problems and the “other problems” that you can “just talk out.” This objective/subjective distinction mapped on fairly closely to views of treatment. For interviewees who made this distinction, dealing with the "real" problem required medication, the experience with which, in turn, they often read as confirming their conviction of somatic causation. According to Hailey, for example, who first sought help for her anxiousness at work, taking medication has "lent support to my thinking it was a biological thing." In this reciprocal relation, the biological view gained a controlling hold by way of the psychopharmaceutically mediated experience (Jenkins 2010). For the problems you can simply talk out, by contrast, no such feedback loop obtained. Interviewees who had actually seen a therapist, whether for a few or many sessions, generally expressed an anemic, though not typically negative, view of what was accomplished and said little about the therapeutical rationale under which they were treated. The majority ended up on medication alone or have continued merely at the insistence of their doctor or, in several other cases, for reasons unrelated to any value they see in going.[5]

Another pattern concerned how interviewees received the absolution from fault. Many expressed gratitude for the way in which the biological explanation took the focus off of them and their experience. For Brittany, a college sophomore diagnosed with depression, her doctor's account of how depression works in the brain was "very comforting." She can't recall the exact details, but, she says, he characterized her problem as a "chemical thing," a concept which she paraphrases as "a messed-up thing in my brain that needed to be fixed." Though Brittany indicates that she never took the view that she was at fault, she prefers this chemical way of talking about her experience because it affirms that her struggles are not a response to anything situational and that they can be fixed with a drug. Since the brain problem is a fairly routine matter, it is also consoling because "I'm not calling myself crazy."

Others did speak of relief from self-blame. The removal of blame has long been claimed in the psychiatric, anti-stigma, and medicalization literatures to follow from treating mental health issues as physical illnesses (e.g., Rüsch et al. 2010; Conrad and Schneider 1980). Noting this linking to the body, the anthropologist Tanya Luhrmann calls biology "the great moral loophole of our age" (2000: 8). The sociologist David Karp, in a qualitative study of severely depressed people, worries that "biological psychiatry, with its lack of interest in the biographies of patients, teaches people to jettison the burden of responsibility" and is contributing to "a 'no-fault' culture" (2006: 223). There is no question that for many interviewees a primary appeal of biology was precisely that it drives out "other" explanations that they fear might reflect poorly on them or their situation. But, as with doctor communications, we have to consider the context.

Recall that interviewees were dealing with such issues as anxiety in social settings, underperformance, emotional instability, and disappointment with their life trajectory. They strongly desired to meet the standards of outgoingness, high performance, emotional efficiency, and life success. They wanted to take personal

---

[5] Research studies find that the endorsement of biogenetic beliefs is associated with the belief that medication will be effective (Kemp et al. 2014; Lebowitz and Ahn 2014). Conversely, biological attributions of problem origin reduce the perceived effectiveness of psychotherapy (Iselin and Addis 2003; Schreiber and Hartrick 2002).

initiative and felt deficient for falling short. The "dominant feeling," like Alain Ehrenberg reports in his study of depression, was "that of failure" (2010: 4). Those who sought medical help emphasized their effort and often stressed how bad things had become before they acted—they "had a meltdown," "couldn't function," "couldn't behave my way out of it." They did not turn to professionals or medication lightly or out of a desire to "jettison the burden of responsibility."[6] Rather, they felt a responsibility to get well and emphasized their subsequent fidelity to the norms of the proactive patient (Rose 2007).

People did not, in fact, blame themselves for their suffering. In a theoretical model of lay explanations of mental health problems, Haslam (2005) suggests three possible ideal–typical kinds of causation: "moralizing," "psychologizing," and "medicalizing." Moralizing, the category relevant here, represents the abnormal or deviant behavior as a moral violation. The behavior is judged to be intentional, following on beliefs and desires that may reflect weak character, lack of self-control, or the deliberate violation of social norms. Some interviewees did find fault with themselves for not responding better or doing enough to rise above their problems When talking about the *caus*e of their suffering, however, they did not identify intentional action or inaction or say anything about their character. They felt tainted or deficient, to be sure, but not because they didn't will to meet the normative standard. Quite the contrary. That their situation wouldn't yield to their will was at the heart of their predicament; it was the failure they couldn't make sense of and feared that it meant something was really wrong, in an existential sense, with them. It might mean, as one interviewee, Katie, expresses the concern, that she is "not going to be able to be this person I'm supposed to be." The person, that is, who is not inhibited, as she is, by social nervousness and fear of rejection, and is able to reach her "full potential."

For interviewees, skewed neurochemistry and genetics are redemptive because they mean that their suffering is brought on by a force external to and apart from their self, from their volition and intention. For their painful, confusing, and frustrating experience, it is, to paraphrase a DTC ad, *the explanation they had been looking for*. Reasoning in this way would seem to imply that their thoughts, emotions, or behavior follow with an important degree of necessity from their faulty biology and that they lack control over themselves in important aspects of their life. It seems to imply that the benign offer of medical absolution comes with a high price. This apparent trade-off is starkly expressed by Maya, the young woman mentioned above who refused to accept the idea that she might be depressed in the biomedical sense. For Maya, the "chemical explanation" represents an irreconcilable peril to her sense of agency. To call herself depressed would be to surrender her will and to accept the idea, as she puts it, "that there would be something so wrong with me that I would have to resort to needing something to make me into a normal human being."

But most interviewees did not see themselves as determined or beyond control, as without free will or effective agency, or as disordered or different in any significant

---

[6] Curiously, Karp, when speaking of those he actually interviewed, observes that: "Visiting a doctor and then filling a prescription for antidepressants is normally a weighty affair…" (2006: 12).

way. They interpreted the mechanism at work as just a little bio-glitch. Piper, the interviewee who responded to the drug ad, voiced a version of this common view: her biology was merely "a little off.… You have a gene that's a little messed up, that's maybe not functioning as well as other people's." In support of this idea, interviewees often referenced others, including their physician, as stressing how ordinary and unthreatening their condition was. When asked, none could say much about the biological problem, and none really tried. In their stories, it is fair to say, the nature of the putative brain malfunctioning mattered little. What counted was its symbolic power.

Rather than indicating that they were subject to biological control or determination, people interpreted neurobiological causation as a means to detach painful experience and limitations from their life, concerns, and context, and locate this suffering elsewhere—in the defective biological mechanism (cf. Lafrance 2007; Stepnisky 2007). They treated the faulty mechanism as a kind of narrative container for the "non-self," for those thoughts and feelings and actions they regarded as alien and not reflective of who they are. This bracketing off of self from suffering opened up a way for people to imagine medication as a technology that repairs the bio-glitch and to separate their suffering from their social situation. It offered, paradoxically, a way for people to envision themselves, with the aid of the medication, as unencumbered by their past and self-determining of their future. It offered, in short, to restore or reveal a good—i.e., norm-conforming—self.

Hermeneutic Closure

Toward the end of her history of psychiatry's long search for the biology of mental illness, the historian Anne Harrington poses the following question. She begins by noting that a century ago, doctors were diagnosing patients with fictive maladies like "bad nerves" and "neurasthenia" and knew by then that nothing was actually wrong with their "nerves." The patients, she writes, "may or may not have known, or they may or may not have cared." They may not have cared because having a medical label for their suffering provided institutional acknowledgment of its gravity and a "coherent explanation for real symptoms." Similarly, today, she writes:

> Patients present with acute mental or emotional distress, and doctors look for a DSM diagnosis that will make sense of their suffering … [and] prescribe drugs … By acting this way, general practitioners and psychiatrists perpetuate the fiction that the drugs they are prescribing are correcting biochemical deficiencies caused by disease, much as (say) a prescription of insulin corrects a biochemical deficiency caused by diabetes.

And her question: "Is this wrong?" (Harrington 2019: 273).

Before answering, it is important to widen the question beyond "biochemical deficiencies." While interviewees referenced "chemicals," and "deficiencies" and "imbalances," they also used other language suggesting other types of biological explanation, such as abnormalities in gene expression, brain wiring, and hormone levels. Undaunted by past failures (Whooley 2019), psychiatry is discarding "oversimplified theories" of chemical imbalance (Goldberg 2018) in favor of other biological models. According to a 2015 editorial in *JAMA Psychiatry*, for instance, "new research is expanding our understanding of depression across multiple levels of analysis—from circuits, to neurotransmitters, to synaptic plasticity, to second messenger systems, to epigenetic and genetic differences" (Ross, Travis, and Arbuckle 2015: 413). Yet, none of this research has actually translated into routine clinical interventions (Ross, Travis, and Arbuckle 2015) and pharmaceutical companies have cut back sharply on psychiatric drug research (Miller 2010). The situation in the doctor's office, as with drug advertising, has changed little and so substituting alternatives—e.g., antidepressants have been theorized to correct impairments in neuroplasticity (Fuchs et al. 2004)—for "biochemical deficiencies" is unlikely to matter. As the interviews suggest, the old classes of drugs combined with new biological causal explanations are playing the same rhetorical role.

In posing her question, Harrington suggests that recourse to neurobiology can provide a "coherent explanation" that "will make sense of" patients' suffering. But that, as the interviews strongly suggest, is exactly what it does not and cannot do. Their stories do not suggest greater self-understanding and insight from chemical talk but what phenomenologists call hermeneutic closure (e.g., Tomuletiu 2012). Such talk limited what sufferers were "able to see, think, and do in the world" (Svenaeus 2018: 132). It closed off the very questions that understanding would require to be opened up (Aho 2019; Gadamer 1996).

The issue here is not "biology," as such, though what it might clarify about mental disorders remains severely limited by the "dearth of neuropathological clues to pathogenic mechanisms" (Hyman 2018). Rather, the issue is the "biologism" (Meloni 2014) that infects clinical practice and popular media, the notion that human suffering can be reduced to a physical process and causally explained by it. This "explanation" elides sufferers' past and first-person experience, the import of their emotional distress, dialogical engagement with others, and contention with the norms and circumstances against which they measure themselves.

Estranging First-Person Experience

The message that interviewees heard, and many took on, is that they have "biological issues" to quote Dr. Pies. Whatever else might be contributing, their suffering is, in the first instance, *caused* by a dysfunctional physiological mechanism over which they have no unaided control. "I just have too little or too much or whatever it is that makes you have these issues," to quote Piper on the chemicals she believes are producing her diagnosed depression and social anxiety. The "issues," in her view, originate inside her brain and are therefore unrelated to her self-understanding, relations with others, personal history, or concrete circumstances, a conviction which has been reinforced for her by "the results I've had from taking Prozac." Yet, in the interview, Piper speaks of being teased in high school because she was overweight, of her strong desire to be popular, of her extreme shyness in specific situations, such as in big groups with "really cool attractive people," and of her longing to stand out—"I just want to be special." But, given her otherwise fortuitous circumstances—great family, great suburb, great schools, she says—she can't see why she might experience the struggles she does. Her doctor, in her account, does little more than agree with her self-diagnosis and prescribe the drug.

Piper's rich description of her situation, however, attests to the fact that what makes her experience feel the way it does, or how it induces shame and self-consciousness and disappointment, is not independent of her subjectivity, her history, her concerns, or her perception of the demanding social situation she is caught up in. She is keenly aware of this experience but cannot see how it is meaningfully related to her struggles. She seems to expect a cause-and-effect explanation, which the language of neurochemicals appears to provide. But taking it on means that she has to disqualify and estrange her lived experience, the very source for any actual understanding. That her struggles have an enigmatic quality for her does not mean they have no reasons. We need hermeneutics—"the art of understanding"—the phenomenologist Gadamer argues, precisely because "we can prove incomprehensible to ourselves" (1996: 165). Gaining insight involves a dialogical engagement with our past and first-person experience *especially* when it seems opaque and mysterious.[7] For Piper and other interviewees, the biological "explanation" forecloses this engagement.

Silencing the Import of Emotions

For every interviewee, emotional distress was a central element of their suffering. Before seeking help, Helen, for instance, described herself as angry, burned out, and disillusioned with life. She hated her "boring" job, where "nothing ever changes," felt constantly annoyed with her boss and co-workers, and couldn't bring herself to get things done at the office, which was "irritating me much more than it used to." Tired of feeling this way, she spoke first with a "pharmaceutical rep friend" and then went to a psychiatrist, who diagnosed her with depression and prescribed the antidepressant she requested. Although she had taken on a night job to make ends meet and her day-job was somewhat more stressful, her anger and exhaustion, Helen says, "didn't seem to have any justification." Beginning with discussions with her doctor, she has come to believe that her circumstances and relations are merely the occasion for the expression of her "depressed state." A hereditary neurological "imbalance," there all along, is manifesting itself, a malfunction she didn't recognize previously because she was, she says, "completely surrounding myself with good upbeat friends and family."

With the imbalance explanation, Helen lumps her various emotions under the medical concept of depression and dissociates them from her lived context and any intentional objects. They are, so to speak, about nothing. And yet the very fact that she can name emotions, such as anger and boredom and irritation, strongly suggests that her work situation has an "import" for her, that it carries an evaluative

---

[7] Phenomenology represents one form, British and Euro-American, of what anthropologists call an ethnopsychology, a "cultural repertoire of conceptions, explanations, emotions, and strategies … for how to experience and to interpret the world" (Jenkins 2015: 97). For an alternative ethnopsychology from Uganda, see the powerful paper by China Scherz and colleagues, "Not You," this issue.

relevance for her desires or attachments or aspirations (Taylor 1985: 48). In other words, Helen is aware of her situation as stultifying and frustrating and in expressing her emotions she is giving the grounds or basis for those feelings. She might be mistaken, of course. Her evaluation of her situation might be wrong or unwarranted, or she might be experiencing feelings that are at odds with her understanding of her work environment. The relation of feeling to import-ascription, as the philosopher Charles Taylor shows, is not simple equivalence. But "nor can it be true," he argues, "that there is no relation at all" (Taylor 1985: 50). Emotions have objects, they express an awareness of a situation (Roberts 2003; Taylor 1985). Helen may, on reflection, decide that her initial characterization of her situation was wrong. She might come to see that what is going on for her at work and with her co-workers is not irritation or frustration but a different emotion. But it cannot be the case that nothing is wrong. As Helen makes clear, her experience of distress is indexed to the context of her work and she is, literally, counting the days until retirement. In any event, second-order reflection on her emotions is just what the biological explanation undermines.

Demoting Dialogical Relations

Many interviewees had experience with some form of counseling, a place where they could explore their first-person experience. Helen did, some years earlier, after her divorce. She found it somewhat helpful, but, under the chemical description of her experience, she has no plans to start again. So too with Rob, the interviewee struggling with the emotional fallout of his failed romantic relationships. He had been to psychotherapy on earlier occasions in the prior decade, but after appropriating the "serotonin thing in your brain" explanation, he has not considered returning. Jenna, another interviewee, went into an emotional tailspin in the wake of a breakup with a new boyfriend, who had cheated on her. When her distress, which she felt were disproportionate, did not quickly subside, she went to a therapist. They discussed medication at the first appointment, which Jenna was already considering, and by the third, the therapist referred her to a psychiatrist in the same practice. He spoke of brain chemicals and showed Jenna "brain scan pictures" that illustrated "some sort of off balance of things." He also prescribed an antidepressant. Convinced an imbalance explained her response to the breakup, Jenna changed therapists and uses him on a limited basis for "med check" purposes.

While it is hard to be certain, the move away from a therapeutic dialogue in cases like these appeared to be motivated by the sense, as Brittany, the woman who found her diagnosis "very comforting," said, "there is nothing I need to talk about or get out." All that needs to be known is known. Interviewees did find the medication helped them to "become more [emotionally] balanced and normal" to quote Jon, with a depression diagnosis, but problems did not thereby disappear and some disappointment with medication was common. Further, a few, such as Rob, did not find any consistent improvement from a drug. They believe they have a brain malfunction that the drugs apparently cannot treat. No longer viewing counseling as a viable treatment strategy, they have become despondent and uncertain of what to do next.

Dialogical relations with family and friends also appeared to be impacted. Rob, for instance, used his friends as sounding boards and sources of advice earlier, but then discontinued. Now “they all kind of know that there’s something going on with me.” But “I don’t talk to them about my situation.” Jess’s family and friends encouraged her to seek professional help but their role seems subsequently to have been sharply curtailed. In most interviewee stories, once problems have been medicalized, references to friends and family disappear. Their suffering is now a somatic dysfunction technically managed by medication, a private burden for which a role for others is necessarily circumscribed.

Naturalizing Norms of Being

Much of the suffering that interviewees reported arose from and was described in terms of failures to meet valued social norms of relationship, emotional control, and self-sufficiency. For example, Hailey, the woman who first sought help for her anxiousness at work, has been shy all her life. Keenly aware of the importance “in our society” of being “outgoing and likeable” and “able to make connections,” she came to see her shyness as a limitation. When her nervousness and self-consciousness began to interfere with her work and adjustment to independent living in the years after college, she sought professional help. A psychiatrist confirmed her self-diagnosis of social anxiety disorder. “I also saw a psychologist for a couple of sessions,” she says, “but I didn’t feel like I needed it.” She didn’t need it because she had come to attribute her social anxiety to a chemical imbalance. Under this description, she no longer sees her shyness and reticence as an element of her personality but as the result of a neural “blockage” of her “real personality,” which was “making me unable to show who I really was.” By this transposition, who she *is* and who she has *wanted to be* are brought into alignment. Much of her first-person experience and evaluative concerns are simply disavowed.

For Hailey, her struggle is not with social norms—the imperatives to be extroverted and display social confidence—but with a physiological norm, like the blood sugar levels used to diagnose diabetes. To be an outgoing people-person is to be normal, or “neuro-typical,” to use the popular phrase. The medication, which reduces her social inhibitions, restores her to—simulates—this personality (cf. Jenkins 2010). Now she no longer need feel “bad about myself,” because this good self is being realized.

Rather than uncover or reveal anything about Hailey’s world, this naturalizing, an element in many interviewee stories, eliminated the feedback loop between herself, others, and lifeworld. It concealed the social norms, *qua* social norms, against which she measured herself, against which her very suffering is constituted. And it undermined the grounds on which to confront the social norms themselves or entertain alternative conceptions of the good. With a biological dysfunction, the only proper response is to try and put it right.

Conclusion

Over the past few decades, critiques of the biomedical approach to psychic suffering have articulated a number of normative concerns broadly relevant to Harrington's question about communicating simplistic naturalistic explanations. These assessments center on the decontextualizing and individualizing dynamic of biomedical reductionism and treatment. The biomedical model, social scientists observe, "naturalizes" its underlying symbolic and normative frameworks (Lock 2004), disengaging these frameworks from the public languages of morality or social philosophy (Comaroff 1982; Zola 1975). It leads to the exclusion of the social and economic causes of individual distress and the role that structural change might play in ameliorating suffering and promoting well-being. Among other insidious consequences, the biomedical can promote conformity to dominant cultural values and definitions of the good life, close off other strategies of intervention, weaken a sense of agency and personal responsibility in society, and narrow the boundaries for what is acceptable and expected human variability (Karp 2006; Kleinman 2008; see Davis 2010 for a review).

These critiques, typically based on the logic of institutional discourse and practice, are pitched at a society-wide level. Exploring the first-person reports of individual sufferers does not confirm concerns about the loss of responsibility or the claims that biological discourse reduces stigma and increases prognostic optimism. The reality is far more complex. The decontextualizing and individualizing dynamic, however, shows up clearly in the experience of individuals interpreting their experience under a neuro-account. What I have done here is to show *why* this account is propagated and *how* it operates at the typically neglected phenomenological level.

In its clinical, commercial, and popular uses, the rhetorical promise and personal appeal of neurobiology is in providing an account that might ease the burden of selfhood and enhance self-determination. But an explanation of suffering stripped of the first-person perspective and all ambiguity, psychological mystery, and historical and situational complexity can only be "false to the phenomenon" of the suffering itself and objectifying of the sufferer. Our social character and concrete and situated way of being-in-the-world are replaced by a "kind of tinker-toy self," composed of thoughts, feelings, and behaviors that can be easily detached and laid aside or reconfigured into a new, but momentary self-configuration (Cushman 2002, cited in Aho 2019). And medication is imagined as a technology that can facilitate this cutting and reassembling.[8] Such an account does not clarify or enhance or restore self and self-determination. By rejecting the sources of meaning and connection that make self-knowledge possible, they disavow them.

To Harrington's question, is perpetuating this debunked biochemical deficiency theory wrong? the answer must be affirmative.

---

[8] Interviewees who took medication but did not explain their suffering in terms of neurobiology interpreted medication differently. Those who spoke positively, spoke of medication's benefits in practical terms, such as increased emotional regulation, better sleep, and more mental focus. Under this interpretation, insight-oriented work remained an open possibility.

Declarations

Conflict of interest The author declares that he/she has no conflict of interest.

Ethical Approval All procedures performed in studies involving human participants were in accordance with the ethical standards of the institutional and/or national research committee and with the 1964 Helsinki declaration and its later amendments or comparable ethical standards.

References

Addis, Michael E., Paula Truax, and Neil S. Jacobson
1995 Why Do People Think They Are Depressed: the Reasons for Depression Questionnaire. . Psychotherapy: Theory, Research, Practice, Training 32:476–483.
Aho, Kevin
2019 Contexts of Suffering: A Heideggerian Approach to Psychopathology. London: Rowman and Littlefield.
Aikin, Kathryn J., John L. Swasy, and Amie C. Braman
2004 Patient and Physician Attitudes and Behaviors Associated with DTC Promotion of Prescription Drugs—Summary of FDA Survey Research Results. Washington, DC: U.S. Department of Health and Human Services (November 19).
Angermeyer, Matthias C., Anita Holzinger, Mauro G. Carta, and Georg Schomerus
2011 Biogenetic Explanations and Public Acceptance of Mental Illness: Systematic Review of Population Studies. The British Journal of Psychiatry 199:367–372.
Bann, Carla M., Corette B. Parker, Jacques Bradwejn, Jonathan R.T. Davidson, Benedetto Vitiello, and Kishore M. Gadde
2004 Assessing Patient Beliefs in a Clinical Trial of *Hypericum Perforatum* in Major Depression. Depression and Anxiety 20:114–122.
Browne, Tamara Kayali
2018 Depression and the Self: Meaning, Control and Authenticity. Cambridge, UK: Cambridge University Press.
Carlat, Daniel J.
2010 Unhinged: the Trouble with Psychiatry—A Doctor's Revelations about a Profession in Crisis. New York: Free Press.
2015 Response to Lacasse and Leo. The Behavior Therapist 38:262.
Carpenter-Song, Elizabeth
2009a Caught in the Psychiatric Net: Meanings and Experiences of ADHD, Pediatric Bipolar Disorder and Mental Health Treatment among a Diverse Group of Families in the United States. Culture, Medicine and Psychiatry 33:61–85.
2009b Children's Sense of Self in Relation to Clinical Processes: Portraits of Pharmaceutical Transformation. Ethos 37:257–281.
Clark, Lee Anna, Bruce Cuthbert, Roberto Lewis-Fernández, William E. Narrow, and Geoffrey M. Reed
2017 Three Approaches to Understanding and Classifying Mental Disorder: ICD-11, DSM-5, and the National Institute of Mental Health's Research Domain Criteria (RDoC). Psychological Science in the Public Interest 18:72–145.
Clarke, Juanne, and Adele Gawley
2009 The Triumph of Pharmaceuticals: the Portrayal of Depression from 1980 to 2005. Administration and Policy in Mental Health 36:91–101.
Cohen, David, and Shannon Hughes
2011 How Do People Taking Psychiatric Drugs Explain Their 'Chemical Imbalance?'. Ethical Human Psychology and Psychiatry 13:176–189.
Comaroff, Jean
1982 Medicine: Symbol and Ideology. *In* The Problem of Medical Knowledge: Examining the Social Construction of Medicine. P Wright and A Treacher, eds., pp. 49–68. Edinburgh: Edinburgh University Press.

Conrad, Peter and Joseph W. Schneider
1980. Deviance and Medicalization: From Badness to Sickness. St. Louis, MO: C. V. Mosby.
Cushman, Philip
2002 How Psychology Erodes Personhood. Journal of Theoretical and Philosophical Psychology 22:103–113.
Davis, Joseph E.
2010. Medicalization, Social Control, and the Relief of Suffering. *In* The New Blackwell Companion to Medical Sociology, edited by William C. Cockerham, pp. 211–41. Malden, MA: Blackwell Publishers.
2020. Chemically Imbalanced: Everyday Suffering, Medication, and Our Troubled Quest for Self-Mastery. Chicago: University of Chicago Press.
Deacon, Brett J., and Grayson L. Baird
2009 The Chemical Imbalance Explanation of Depression: Reducing Blame at What Cost? Journal of Social and Clinical Psychology 28:415–435.
Demasi, Maryanne, and Peter C. Gøtzsche
2020 Presentation of Benefits and Harms of Antidepressants on Websites: A Cross Sectional Study. The International Journal of Risk and Safety in Medicine 31:53–65.
Dumit, Joseph
2012 Drugs for Life: How Pharmaceutical Companies Define Our Health. Durham, NC: Duke University Press.
Ehrenberg, Alain
2010 The Weariness of the Self: Diagnosing the History of Depression in the Contemporary Age. Montreal and Kingston: McGill-Queen's University Press.
Fosgerau, Christina Fogtmann, and Annette Sofie Davidsen
2014 Patients' Perspectives on Antidepressant Treatment in Consultations with Physicians. Qualitative Health Research 24:641–653.
France, Christopher M., Paul H. Lysaker, and Ryan P. Robinson
2007 The 'Chemical Imbalance' Explanation for Depression: Origins, Lay Endorsement, and Clinical Implications. Professional Psychology: Research and Practice 38:411–420.
Fuchs, Eberhard, Boldizsár Czéh, H.P. Maarten, M.H. Kole, Thomas Michaelis, and Paul J. Lucassen
2004 Alterations of Neuroplasticity in Depression: the Hippocampus and Beyond. European Neuropsychopharmacology 14(Suppl 5):S481–S490.
Fullagar, Simone
2009 Negotiating the Neurochemical Self: Anti-Depressant Consumption in Women's Recovery from Depression. Health 13:389–406.
Gadamer, Hans-Georg
1996 The Enigma of Health: The Art of Healing in a Scientific Age. Translated by Jason Gaiger and Nicholas Walker. Stanford: Stanford University Press.
Gardner, Caleb, and Arthur Kleinman
2019 Medicine and the Mind—the Consequences of Psychiatry's Identity Crisis. The New England Journal of Medicine 381:1697–1699.
Goldberg, Joseph F
2018 The Psychopharmacology of Depression: Strategies, Formulations, and Future Implications. Psychiatric Times 35.7 (July 31). http://www.psychiatrictimes.com/special-reports/psychopharmacology-depression-strategies-formulations-and-future-implications.
Goldstein, Benjamin, and Francine Rosselli
2003 Etiological Paradigms of Depression: the Relationship between Perceived Causes, Empowerment, Treatment Preferences, and Stigma. Journal of Mental Health 12:551–563.
Gutheil, Thomas G., and Robert I. Simon
2003 Abandonment of Patients in Split Treatment. Harvard Review of Psychiatry 11:175–179.
Harrington, Anne
2019 Mind Fixers: Psychiatry's Troubled Search for the Biology of Mental Illness. New York: W.W. Norton.
Haslam, Nick
2005 Dimensions of Folk Psychiatry. Review of General Psychology 9:35–47.

Herzberg, David
  2009 Happy Pills in America: from Miltown to Prozac. Baltimore, MD: Johns Hopkins University Press.
Horwitz, Allan V.
  1982 The Social Control of Mental Illness. New York: Academic Press.
Hyman, Steven E.
  2018 The Daunting Polygenicity of Mental Illness: Making a New Map. Philosophical Transactions of the Royal Society B Biological Sciences 373:20170031.
Iselin, Marie-Geneviève, and Michael E. Addis
  2003 Effects of Etiology on Perceived Helpfulness of Treatments for Depression. Cognitive Therapy and Research 27:205–222.
Jenkins, Janis H.
  2010 Pharmaceutical Self and Imaginary in the Social Field of Psychiatric Treatment. *In* Pharmaceutical Self: the Global Shaping of Experience in an Age of Psychopharmacology. Janis H Jenkins, ed., pp. 17–40. Santa Fe, NM: School for Advanced Research Press.
  2015 Extraordinary Conditions: Culture and Experience in Mental Illness. Oakland, CA: University of California Press.
Jones, Nelson F., Marvin W. Kahn, and John M. Macdonald
  1963 Psychiatric Patients' Views of Mental Illness, Hospitalization and Treatment. Journal of Nervous and Mental Disease 136:82–87.
Jutel, Annemarie Goldstein
  2011 Putting a Name to It: Diagnosis in Contemporary Society. Baltimore, MD: Johns Hopkins University Press.
Karp, David A.
  2006 Is It Me or My Meds? Living with Antidepressants Cambridge, MA: Harvard University Press.
Keller, Evelyn Fox
  2007 Whole Bodies, Whole Persons? Cultural Studies, Psychoanalysis, and Biology. *In* Subjectivity: Ethnographic Investigations. João Biehl, Byron Good, and Arthur Kleinman, eds., pp. 352–361. Berkeley: University of California Press.
Kemp, Joshua J., James J. Lickel, and Brett J. Deacon
  2014 Effects of a Chemical Imbalance Causal Explanation on Individuals' Perceptions of Their Depressive Symptoms. Behaviour Research and Therapy 56:47–52.
Khalsa, Shabad-Ratan, Kevin S. McCarthy, Brian A. Sharpless, Marna S. Barrett, and Jacques P. Barber
  2011 Beliefs about the Causes of Depression and Treatment Preferences. Journal of Clinical Psychology 67:539–549.
Kleinman, Arthur
  2008 Rethinking Psychiatry. New York: Free Press.
Lacasse, Jeffrey R., and Jonathan Leo
  2005 Serotonin and Depression: A Disconnect between the Advertisements and the Scientific Literature. PLoS Medicine 2(12): e392.
  2015 Antidepressants and the Chemical Imbalance Theory of Depression: A Reflection and Update on the Discourse. The Behavior Therapist 38:206–213.
Lafrance, Michelle N.
  2007 A Bitter Pill: A Discursive Analysis of Women's Medicalized Accounts of Depression. Journal of Health Psychology 12:127–140.
Larkings, Josephine S., and Patricia M. Brown
  2018 Do Biogenetic Causal Beliefs Reduce Mental Illness Stigma in People with Mental Illness and in Mental Health Professionals? A Systematic Review. International Journal of Mental Health Nursing 27:928–941.
Lebowitz, Matthew S.
  2014 Biological Conceptualizations of Mental Disorders among Affected Individuals: A Review of Correlates and Consequences. Clinical Psychology: Science and Practice 21:67–83.
Lebowitz, Matthew S., and Woo-kyoung Ahn
  2014 Effects of Biological Explanations for Mental Disorders on Clinicians' Empathy. Proceedings of the National Academy of Sciences of the United States of America—PNAS 11:17786–17790.

Leo, Jonathan, and Jeffrey R. Lacasse
2008 The Media and the Chemical Imbalance Theory of Depression. Society 45(1):35–45.
Link, Bruce G., Jo C. Phelan, Michaeline Bresnahan, Ann Stueve, and Bernice A. Pescosolido
1999 Public Conceptions of Mental Illness: Labels, Causes, Dangerousness, and Social Distance. American Journal of Public Health 89:1328–1333.
Lock, Margaret
2004 Medicalization and the Naturalization of Social Control. *In* Encyclopedia of Medical Anthropology, Vol. 1. C.R. Ember and M. Ember, eds., pp. 116–125. New York: Kluwer Academic/Plenum.
Luhrmann, T.M.
2000 Of Two Minds: The Growing Disorder in American Psychiatry. New York: Alfred A. Knopf.
Malla, Ashok, Ridha Joober, and Amparo Garcia
2015 "Mental Illness Is like Any Other Medical Illness": A Critical Examination of the Statement and Its Impact on Patient Care and Society. Journal of Psychiatry and Neuroscience 40:147–150.
Malpass, Alice, Alison Shaw, Debbie Sharp, Fiona Walter, Gene Feder, Matthew Ridd, and David Kessler
2009 'Medication Career' or 'Moral Career'? the Two Sides of Managing Antidepressants: A Meta-Ethnography of Patients' Experience of Antidepressants. Social Science and Medicine 68:154–168.
McHugh, R. Kathryn, Sarah W. Whitton, Andrew D. Peckham, Jeffrey A. Welge, and Michael W. Otto
2013 Patient Preference for Psychological Vs Pharmacological Treatment of Psychiatric Disorders: A Meta-Analytic Review. Journal of Clinical Psychiatry 74:595–602.
Meloni, Maurizio
2014 Biology without Biologism: Social Theory in a Postgenomic Age. Sociology 48:731–746.
Metzl, Jonathan Michel
2003 Prozac on the Couch: Prescribing Gender in the Era of Wonder Drugs. Durham, N.C.: Duke University Press.
Miller, Greg
2010 Is Pharma Running out of Brainy Ideas?. Science 329(5991):502–504.
Mojtabai, Ramin, and Mark Olfson
2008 National Trends in Psychotherapy by Office-Based Psychiatrists. Archives of General Psychiatry 65:962–970.
Olfson, Mark, and Steven C. Marcus
2010 National Trends in Outpatient Psychotherapy. American Journal of Psychiatry 167:1456–1463.
Parry, Hugh J., Mitchell B. Balter, Glen D. Mellinger, Ira H. Cisin, and Dean I. Manheimer
1973 National Patterns of Psychotherapeutic Drug Use. Archives of General Psychiatry 28:769–783.
Pescosolido, Bernice A., Jack K. Martin, J. Scott Long, Tait R. Medina, Jo C. Phelan, and Bruce G. Link
2010 'A Disease like Any Other'? A Decade of Change in Public Reactions to Schizophrenia, Depression, and Alcohol Dependence. American Journal of Psychiatry 167:1321–1330.
Pies Ronald W
2011a Psychiatry's New Brain-Mind and the Legend of the 'Chemical Imbalance.' Psychiatric Times (July 11). http://www.psychiatrictimes.com/couch-crisis/psychiatrys-new-brain-mind-and-legend-chemical-imbalance.
2011b Doctor, Is My Mood Disorder Due to a Chemical Imbalance? Psychiatric Times (August 12). https://www.psychiatrictimes.com/view/doctor-my-mood-disorder-due-chemical-imbalance.
2019 Debunking the Two Chemical Imbalance Myths, Again Psychiatric Times 36, no. 8 (August 2). https://www.psychiatrictimes.com/depression/debunking-two-chemical-imbalance-myths-again.
Prins, Marijn A., Peter F.M. Verhaak, Jozien M. Bensing, and Klaas van der Meer
2008 Health Beliefs and Perceived Need for Mental Health Care of Anxiety and Depression—the Patients' Perspective Explored. Clinical Psychology Review 28:1038–1058.
Read, John, Claire Cartwright, Kerry Gibson, Christopher Shiels, and Lorenza Magliano
2015 Beliefs of People Taking Antidepressants about the Causes of Their Own Depression. Journal of Affective Disorders 174:150–156.
Roberts, Robert C.
2003 Emotions: an Essay in Aid of Moral Psychology. Cambridge: Cambridge University Press.

Rose, Nikolas
2007 The Politics of Life Itself: Biomedicine, Power, and Subjectivity in the Twenty-First Century. Princeton, NJ: Princeton University Press.
Rose, Nikolas, and Joelle M. Abi-Rached
2013 Neuro: The New Brain Sciences and the Management of the Mind. Princeton. NJ: Princeton University Press.
Ross, David A., Michael J. Travis, and Melissa R. Arbuckle
2015 The Future of Psychiatry as Clinical Neuroscience: Why Not Now?. JAMA Psychiatry 72:413–414.
Rüsch, Nicolas, Andrew R. Todd, Galen V. Bodenhausen, and Patrick W. Corrigan
2010 Biogenetic Models of Psychopathology, Implicit Guilt, and Mental Illness Stigma. Psychiatry Research 179:328–332.
Schomerus, G., C. Schwahn, A. Holzinger, P.W. Corrigan, H.J. Grabe, M.G. Carta, and M.C. Angermeyer
2012 Evolution of Public Attitudes about Mental Illness: A Systematic Review and Meta-Analysis. Acta Psychiatrica Scandinavica 125:440–452.
Schreiber, Rita, and Gwen Hartrick
2002 Keeping It Together: How Women Use the Biomedical Explanatory Model to Manage the Stigma of Depression. Issues in Mental Health Nursing 23:91–105.
Schroder, Hans S., Jessica M. Duda, Kirsten Christensen, Courtney Beard, and Thröstur Björgvinsson
2020 Stressors and Chemical Imbalances: Beliefs about the Causes of Depression in an Acute Psychiatric Treatment Sample. Journal of Affective Disorders 276:537–545.
Svenaeus, Fredrik
2018 Heidegger's Philosophy of Technology and the Perils of Medicalization. *In* Existential Medicine: Essays on Health and Illness. Kevin Aho, ed., pp. 131–144. London: Rowman & Littlefield International.
Stepnisky, Jeffrey
2007 The Biomedical Self: Hermeneutic Considerations. Social Theory and Health 5:187–207.
Taylor, Charles
1985 Self-Interpreting Animals. *In* Human Agency and Language: Philosophical Papers I, pp. 45–76. Cambridge: Cambridge University Press.
Tomuletiu, Sanda
2012 Listening to Language in Gadamer's Hermeneutics (Doctoral dissertation, Duquesne University). Retrieved from https://dsc.duq.edu/etd/1288.
Voorhees, Van, W. Benjamin, Joshua Fogel, Thomas K. Houston, Lisa A. Cooper, Nae-Yuh Wang, and Daniel E. Ford
2005 Beliefs and Attitudes Associated with the Intention to Not Accept the Diagnosis of Depression among Young Adults. Annals of Family Medicine 3:38–46.
Wall, Terri N., and Jeffrey A. Hayes
2000 Depressed Clients' Attributions of Responsibility for the Causes of and Solutions to Their Problems. Journal of Counseling and Development 78:81–86.
Weinstein, Raymond M., and Norman Q. Brill
1971 Social Class and Patients' Perceptions of Mental Illness. Psychiatric Quarterly 45:35–44.
Whooley, Owen
2019 On the Heels of Ignorance: Psychiatry and the Politics of Not Knowing. Chicago: University of Chicago Press.
Wilson, Mitchell
1993 DSM-III and the Transformation of American Psychiatry: A History. American Journal of Psychiatry 150:399–410.
Wynne, Brian
1991 Knowledges in Context. Science, Technology, and Human Values 16:111–121.
Zola, Irving Kenneth
1975 In the Name of Health and Illness: on Some Socio-Political Consequences of Medical Influence. Social Science and Medicine 9:83–87.