



## **Introducing Neuroscience Research in the Mental Health Space: The Past, Present and Future**

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Submitted: 6. September 2022  
Published: 12. September 2022  
Volume: 9  
Issue: 5  
Affiliation: PernilleBülow (Private Enterprise), Boston, United States of America  
Languages: English  
Keywords: Neuroscience, Mental Health, History of Science and Medicine, Awareness, Mental Health Treatments, Science, Biology, Psychology  
Categories: Life Sciences, Medicine, News and Views  
DOI: 10.17160/josha.9.5.845

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# Introducing Neuroscience Research in The Mental Health Space: The Past, Present and Future

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## Abstract

The earliest records of mental health research date back to the 9th century. Since then, remarkable strides have changed the ways we perceive, study and treat mental illnesses. This article gives a historical overview of how mental health research and treatments have changed since the 9th century to present day. Throughout the article discusses *why* these changes happened and *how* they impacted people, particularly minority groups and females. The article concludes with a reflection on where the current mental health research is headed. The article was first published in 'Subkit' on July 01, 2022 (<https://www.subkit.com/ernillebuelow/posts/introducing-neuroscience-research-in-the-mental-health-space>).



This is the first of many newsletters where we will dive into the neuroscience research in the mental health space. To me, the most exciting part about research is seeing where it can go and perhaps where it is already starting to take off. But in order to appreciate the impressive strides this research direction has taken I have found it useful to first better understand the history of mental health research. You have probably heard many stories of frontal lobotomies and other gruesome ways of addressing mental health challenges in the past (in particular, in women, BIPOC, people with disabilities, LGBTQIA+ and other marginalized groups). Thankfully we are no longer restricted to these barbaric approaches, but that does not mean our mental healthcare system is now functioning perfectly. Our system still struggles with ineffective treatments, unequal access to healthcare, and biases in the diagnostic process. These challenges are in part due to cultural biases (e.g. racism, able-ism and misogyny) but in part also due to a rather limited focus within the research community that has traditionally dealt with mental health science. These practices are slowly changing for the better, but before we can dive into the excitement of that, it is critical we know where we are coming from.

## **The first documented references to mental health treatments**

Before we talked about mental health, most people and societies focused on mental illnesses, or disorders. Greek philosophers such as Hippocrates debated the causes of madness and the treatments for these. Hospitals dedicated to people with mental illness are documented as far back as the 9<sup>th</sup> century in Baghdad and other Arab countries (Youssef & Youssef, 1996; Miller 2006), and Bethlem Royal Hospital in London was one of the first lunatic asylums founded in the 13<sup>th</sup> century. Of course, the people inhabiting these hospitals were not necessarily dealing with depression, anxiety, or other forms of mental health challenges as we think of them today. Rather, these were full of people suffering from psychosis and delusions, but also from poverty, addictions, and sometimes simply from behaving against the norms. They were chained and kept in awful conditions. Treatments involved the strait waistcoat, rotational therapy, hydrotherapy, and bloodletting.

## **A brief community retreat**

In the late 1700s, physicians started questioning the approaches executed at these asylums (Laffey 2003). These physicians believed that mental illness was a disorder of the brain and the body rather than the soul or some religiously induced curse. They established new asylums and “retreat” homes: places where groups of



patients lived together and the focus was on resting, talking and manual labor. Isn't it a bit shocking that we somehow were able to implement this type of treatment as a standard procedure in the 18<sup>th</sup> century but not now? As you might expect, these types of homes quickly became accessible primarily to the wealthy that wanted this 'humane' treatment, and it would take another three decades before physicians fully ceased using techniques such as mechanical restraint. There are obviously close ties to this treatment philosophy, referred to as the "Humanitarian Reform", in our current residential treatment homes (Borthwick et al., 2001). A link we will be talking more about in future letters, including the upcoming mental health newsletter. Unfortunately, these lovely retreat homes did not last and standardized institutions, with less gruesome techniques due to the implementation of the Lunacy Act in 1845, quickly became the norm. These new standardized asylums were more humane but not community oriented, and quickly took root all over the western world. While they were initially successful, they swiftly became overwhelmed with patients, potentially due to the expansion of the mental illness diagnosis (which comprised diagnoses such as psychosis, delusions, schizophrenia) to include general mood disorders (such as anxiety and depression). Terrifyingly, it was in part due to the increase in the number of patients that the frontal lobotomy practices were instituted.

## **The rise of frontal lobotomies**

While the first brain surgeries for mental illness are reported in the late 1800s, it was not until the 1930s it became a recognized strategy for mental illness treatments (Faria, 2013). Studies in chimpanzees and humans demonstrated the powerful implications for behavior changes when they removed their frontal lobes or simply severed the connections between the frontal lobes and the midbrain (we will talk more about the midbrain, but in short, this is the part of your brain that drives emotions, desires, and fear). People and chimpanzees with these surgeries seemed less frustrated and angry compared to pre-surgery. However, reductions in anger came with other consequences: apathy (lack of interest and motivation), social disinhibition (meaning they behave without restrictions, for example, they may pee in public) and much greater distractibility. So, while the surgeries assisted in alleviating some symptoms (such as erratic behavior, extreme bursts of anger, and delusions), they ended up causing others. While these surgical 'side-effects' would make a patient easier to 'handle' it also rendered them completely dependent on caretakers. At the time, the only other real alternatives for treatment were psychoanalysis (maybe you have heard of Freud?) and in some cases electroconvulsive therapy (this technique is actually still used for treatment of severe



depression! We will come back to this in later newsletters), both of which were often ineffective for a large population of patients. Lobotomies grew in popularity and the practice peaked after World War II. Maybe to deal with the rise in PTSD and other trauma-induced mental health challenges caused by fighting in the second world war. However, at that time psychoactive drugs started coming into usage, and surgery techniques also became more sophisticated and precise, leaving the lobotomy strategy with a primitive mark. It is important to note that frontal lobotomies were often a last resort for patients that showed no improvement with other treatment strategies – that is, if they were lucky enough to access them. Women, BIPOC, people with disabilities, homosexuals, prisoners, and other marginalized groups were victims in this surgical crusade, and typically did not have a choice in their treatment strategy. I think it is fair to say that the majority of these people received treatment in order to control them, rather than to assist them in living a fulfilling life.

## **Psychoactive drugs enter the scene**

And that is how the mental health field enter the age of psychoactive drugs as a remedy for mental illness. Chlorpromazine was one of the first psychoactive drugs to be used in Europe and the US for treatment of mental illness including schizophrenia and depression (Turner, 2007). Shortly after, Haloperidol was released and so were many other first, second and third generation psychoactive drugs that we will continue talking more about. Whether drugs, such as antidepressants, or talk-therapy is more effective in reducing mental health challenges is highly debated within the research and clinical field. Psychoactive drugs have become much much better at treating symptoms experienced by patients, but their usage does not forego talk-therapy. There is a rich scientific literature comparing the effectiveness of drugs and talk-therapy, with some reporting that drugs are more effective than talk-therapy and vice versa. The reality is likely that psychoactive drugs are superior in treating some symptoms, while talk therapy is superior at treating others (Boschloo et al. 2022). While it is becoming standard for psychiatrists to prescribe talk-therapy with drugs, talk therapy usage has not reached the same explosive levels as psychoactive drug usage has. Neither in the public nor in hospitals. It is still common to hear of ‘drugged’ patients in psychiatric wards and of college students that use psychoactive drugs to deal with stress and anxiety without necessary talk-therapy.



It is important to note that the positive effects of talk therapy, as well as psychoactive drugs, depend on a person's genetics, home environment, and sociocultural background. In future newsletters we will dive into how the effects of psychoactive drugs, specifically SSRIs (also referred to as 'antidepressants'), can depend so heavily on factors that may appear unrelated to a person's brain and body. These complexities have impeded scientific progress of better psychoactive drugs, but the insights have also motivated a richer conversation about what a treatment strategy for mental health should look like.

I think it is important to question the efficiency of not only psychoactive drugs but also talk therapy. Aren't there other strategies we can use to address mental health challenges?

## **The present and the future of mental health research**

Where is the future of mental health headed? Curiously some of the most current and revolutionary techniques in mental health treatment also involve brain surgery. However, instead of removing regions of the brain or stimulating the entire scalp with high levels of electricity, surgeons can now use small devices to stimulate specific brain regions they believe are contributing or maybe even causing a mental health challenge, such as depression. Other up and coming strategies involve using psychedelics and synthetic drugs that have for long been banned, both for recreational and research purposes, including psilocybin ('mushrooms') and MDMA. Virtual reality is another dimension in which mental health treatments are developing rapidly, with life-changing implications for people that struggle with post-traumatic stress disorder and anxiety. We will dive into the research of these in the neuroscience research newsletter and the applied aspects of these techniques in the mental health newsletters (you receive both if you signed up for the 'continued education' newsletter subscription).

It is important to keep in mind that the Western approach to mental health treatment is shaped by racism, misogyny, eugenics, and other forms of oppressive behaviors. It is only within the last few decades we have switched from treating people to control them to instead improve their wellbeing. It is not just the treatment approaches but also the way patients are evaluated and diagnosed. Doctors and therapists hold positions of incredible power whose decisions can change lives for the better, or the worse. As we discuss the research and applications in the mental health field, we must continue to consider whether and how the approaches are accessible, equitable, and free of oppression.



In next month's research newsletter, we will talk about epigenetics (that is, how experiences can modify your gene expression) and transgenerational trauma (for example, how your grandfather's trauma can have implications for your mental health).



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## About the Author



Pernille Bülow is a science writer, research consultant, and mentor. Originally from Denmark, she moved to the U.S. to finish her B.S. in psychology at UC Berkeley, followed by a PhD at Emory University and a subsequent Post-doctoral fellowship at Harvard Medical School/Massachusetts General Hospital (MGH). Pernille is an expert on brain development and mental health research, topics on which she consults and writes. She currently lives in Boston with her two cats and guinea pig. Pernille has a monthly newsletter

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