The History of Depression in Neuroscience

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Recommended Citation
Available at: http://soundideas.pugetsound.edu/soundneuroscience/vol1/iss1/4
The History of Depression in Neuroscience

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It is not a far stretch to say that philosophers and scientists have been examining depression for hundreds of years. Since around 400 BC when Hippocrates began using the terms “mania and melancholia to describe” depression, people have been attempting to not only quantify the concept of depression, but to also understand and treat it (1). The passing years have seen the rise of many different explanations for depression as well as many different treatments. To this day, there is still no quantifiable cure for depression. Even though some may argue that “depression is a treatable illness,” that is unfortunately a false hope (2). The history of depression proves that despite years of research and investigation and a multitude of treatments, the cure for depression is still only a passing hope that is simply masked by current treatments that dull the symptoms of depression.

In order to understand the complexity of depression, and therefore why it cannot be easily treated, it is important to first try to define the complexity that is depression. Depression has been defined in a multitude of different ways; the ancient Greeks believed depression was due to “an imbalance in the body’s four humors . . . with too much [black bile] resulting in a melancholic state of mind” (3). In contrast, early Christianity said that depression was to be blamed on “the devil and God’s anger for man’s suffering” (3). Towards the end of the nineteenth century however, depression was seen as either a neurological or a psychological disorder (4). While each of these explanations is quite varied, they represent only a few ideas that attempt to explain the concept of depression. With the advent of modern technology, doctors and neuroscientists alike have settled on a common, modern, and baseline definition describing depression as “sadness severe enough or persistent enough to interfere with function” and decrease interest or pleasure in normal activities (6). Yet even with the creation of a modern definition, there is no guarantee that this definition will remain applicable. As neuroscientists continue to discover more about depression, the definition of depression is likely to change to accommodate new discoveries, thus lending to the complexity of depression.

However, the complexity of depression not only lies within its inability to be properly defined, but in its origin. Scientists have discovered some potential causes of depression, of which are mostly educated responses, as the “exact cause [of depression] is unknown” (6). Heredity, variations in neurotransmitter levels, and psychosocial factors are only some of the few potential causes for depression. As such, depression is a very complex mood disorder because it is difficult to define and can stem from a variety of causes.

As the definitions for depression have varied over the years, the attempts to treat depression have likewise changed. Attempts to find a cure have ranged anywhere from surgery, to blood-letting, to taking pills. One of the first attempts to try and surgically treat depression took place in 1891 by Dr. Burckhart. His method involved interrupting “frontal lobe projections,” which unfortunately oftentimes resulted in brain damage or death of the patient (5). Additionally, in 1947 a form of neurosurgery called stereotactic functional neurosurgery was introduced. While this treatment was shown to work well on patients with other disorders such as Parkinson's disease, it unfortunately did not work so well on patients with depression (5). Neuroscientists have also attempted using electro shock therapy on patients with depression. This technique was very popular for a long time during the early twentieth century, until the well-known Sigmund Freud spoke out against it (4). The development of many different treatment techniques, many of which resorted to extremes, it is evident that neuroscientists and researchers are floundering for an accurate method of treatment. As such, even though only a few examples were mentioned, it is evident that attempts to find a cure have been minimal at best.
Despite modern technology, and the confidence of researches from around the globe, there is currently not a cure for depression. Certain drugs and therapies may have effects on the symptoms of depression, but they only last for an extended period of time and do not cure depression. As such, contrary to popular belief, the era of advanced technology has yielded results as effective as those garnered hundreds of years ago. Some current treatment plans suggest that depressed patients take antidepressant medications, mainly the selective serotonin reuptake inhibitors (SSRIs) and the tricyclics and the monoamine oxidase inhibitors (MAOIs) (2). These drugs help the patient to feel less depressed by influencing the functioning of neurotransmitters. In the case of the SSRIs for example, serotonin is blocked from being reabsorbed into the neural synapse thereby extending the period of time in which the individual will experience the benefits of serotonin. Despite some positive results that have developed from using medications to treat depression, these medications do not cure depression and oftentimes require the patient to go through multiple weeks of trying different combinations and dosages of medications before the patient will begin to feel better. Additionally, taking antidepressant medications often results in a multitude of side effects, such as constipation, blurred vision, sexual problems, nausea, agitation, drowsiness, that affects an individual’s ability to properly function on a day to day basis (2). Consequently, the data shows that there is not a drug that works effectively, or as well as it should.

Another current treatment for depression includes electro shock therapy (also known as electrotherapy), a practice that died off for a few decades, but that has recently made a comeback on the treatment scene. Neuroscientists and doctors are now advocating for the validity of the treatment, as it has "reappeared as a therapy of choice for the treatment of depression" (4). The form of electrotherapy that has been recently popularized is called vagal nerve stimulation, which first became useful in patients with epilepsy (4). However, this treatment has only a 40% effective rate in reducing the severity of depression and is often accompanied by side effects that include coughing and hoarseness of voice. Overall, it can be said that the new electrotherapy treatments reveal that their success “has remained questionable” (4).

The drive to find new treatments and a definable cure for depression is evident with the amount of different types of treatment plans available. Other treatments include herbal therapy, for in “the past few years, much interest has risen in the use of herbs in the treatment” of depression (2). One herb specifically, St. John’s wort, has been studied and used extensively within the US and Europe. The hope of neuroscientists and researchers alike was that St. John’s wort would prove to be an above average cure for depression. However, despite initial positive finds, it was discovered that this herb negatively affects “an important metabolic pathway” (2). As such, despite the potential of St. John’s wort, this treatment like so many others before it, proved to be futile in its attempts at alleviating depression.

After examining the multitude of treatments developed by hundreds of people over the course of hundreds of years, it is obvious that researchers have struggled to find a cure; and despite all the modern research, a cure has still not been found. Neuroscientists, in conjunction with scientist from a wide variety of factions, have been successful in creating treatments that help with the effects of depression, but that have failed to cure depression in the long-run. Scientists have known of depression since some of the first civilizations and have consequently attempted to figure out the causes of depression and treatment for it since then. Treatments have ranged anywhere from bleeding patients in order to rid them of bad humors, to performing brain surgeries that resulted in death or mental impairment, to painfully electrocuting patients, to filling patients up with a wide variety of medications. Therefore, even though a cure as not been found, it is not because of the apathy of the neuroscientists. Perhaps a cure has not yet been found for depression because there is no cure.
References

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